SERVICE LEARNING, EDUCATIONAL INNOVATION AND SOCIAL TRANSFORMATION

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SERVICE LEARNING, EDUCATIONAL INNOVATION AND SOCIAL TRANSFORMATION

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EDITORIAL
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Editorial: Service Learning, Educational Innovation and Social Transformation

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Editorial on the Research Topic

Service Learning, Educational Innovation and Social Transformation

Originating in North American and expanding around the world, service-learning is a pedagogy that deepens educational outcomes and is aligned with social action. Grounded in the principles of active and experiential learning articulated by Dewey, Lewin, and Piaget, among others (Kolb, 2015), service-learning advocates for a more comprehensive education for students that includes not only academic learning but also civic learning and personal growth. In addition, it encompasses establishing reciprocal relationships with communities to the benefit of their residents and organizations.

Although the extant literature currently suggests that service-learning gives new meaning to the learning of competences and is a valuable tool in achieving them, there are still many challenges that arise for all agents involved in the process (e.g., residents, social entities, universities, instructors, students). Scholarship and research have historically been two fundamental activities that have shaped service-learning, but there are still many tensions, contrasts, and challenges that have to be resolved.

Service-learning is intentionally focused on student development and community improvement, situating it as a pedagogical strategy with the potential for both educational innovation and social transformation. In addition, just as service-learning also involves continuous reflection that allows connections between learning and action in community settings, scholarship and research on service-learning provides opportunities for scholars to reflect on and advance the theory and practice of service-learning.

This special issue of *Frontiers in Education* is one example of providing an opportunity for scholars to contribute to the development of service-learning. The entries are diverse in terms of institutional contexts, national settings, and theoretical/disciplinary orientations. Most of the manuscripts, like the field in general, reported research focused on student outcomes in service-learning. These manuscripts covered student outcomes across academic learning, careers and professional preparation, civic and democratic orientations to society, student identity, and personal growth. The breadth of these topics illustrates the potential for service-learning to contribute to different types of learning, thus enriching the educational experiences of students.

Several of the articles captured multidisciplinary orientations to service-learning and others contributed unique theoretical analyses of service-learning. Two articles examined technology-based service-learning (eS-L), a particularly timely topic because the CoVid pandemic resulted in many service-learning courses being converted into eS-L courses. The integration of technology has the potential to improve all service-learning in the future and for practitioners to re-examine how reflection can be supported by technology, the nature of technology-based civility and civic skills, and technology-supported relationships. Thus, the versatility of service-learning as explored in these articles suggested additional ways in which service-learning can enhance its efficacy and result in change in the university curriculum.

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The scholarship reported in this issue can advance understanding of the processes of optimal course design, implementation, and evaluation as instructors and students work with community partners to reach meaningful outcomes. As such, service-learning has the potential to change work on campus beyond a single course, an isolated practitioner, and a specific community-based activity. Service-learning can be an agent of change more broadly in the university curriculum, in the professional lives of academic staff and instructors, in the relationships that support service-learning, in the lives of students, and in the democratic processes of the campus and communities (Saltmarsh et al., 2009). In this way, service-learning becomes a significant contributor to defining, refining, and redefining the public purposes of institutions of higher education and their relationships to local, national, regional, and global communities that are increasingly diverse. Strategic institutional support will be needed to build upon the existing practice and scholarship currently existing around the world. Our hope is that the contents of this special issue will contribute to the momentum that currently exists to analyze and expand service-learning and will transform institutions and their practice to be more engaged, more democratic, and more humane in the future.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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ORIGINAL RESEARCH
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Examining the Efficacy of E-Service-Learning

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E-service-learning is a pedagogical technique in which instruction and/or service occur online. Students in a distance learning section of Atypical Development created a Google Site with resources for individuals with developmental disabilities. Additionally, students met with youths with developmental disabilities biweekly via Blackboard Collaborate Ultra sessions. At the end of the semester, students completed a questionnaire assessing their e-service-learning experience and wrote reflection papers. Students reported that the e-service-learning experience was related to course content, increased their understanding of individuals with disabilities, increased student engagement, helped them relate the subject matter to everyday life, positively impacted their future academic and career choices, and overall had a positive experience. Students in a traditional face-to-face section of Atypical Development who completed an in-person service-learning project did not significantly differ on any of the aforementioned questionnaire measures. Interestingly, students in the distance learning section reported in their reflection papers that the e-service-learning experience reduced their levels of anxiety. Course evaluations were also examined for both sections. Students in the e-service-learning section reported greater satisfaction than the in-person service-learning course. Specifically, e-service-learning students reported: the instructor attempted to make the course relevant to students; the assignments helped me learn the subject matter; I enjoyed the class greater than students in the in-person service-learning course. These results indicate that e-service-learning is an efficacious pedagogical practice in distance learning courses.

Keywords: applied learning, community engagement, experiential learning, service-learning, student engagement

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INTRODUCTION

Service-learning is a collaborative teaching and learning strategy that fosters academic achievement, personal growth, and civic engagement (Miller, 2020). Service-learning is associated with an array of cognitive, psychological, and social benefits. Students who participate in service-learning experiences develop enhanced metacognitive skills, better strategic planning, and the ability to discriminate between useful and insignificant information (Clevenger and Ozbek, 2013). Service-learning activities also boost students' self-esteem and self-efficacy (Conway et al., 2009), and increase students' teamwork and leadership skills (Shephard, 2008). Service-learning is also positively associated with a variety of diversity outcomes, such as increasing students' awareness of diversity (Simons and Cleary, 2006), multicultural competence (Einfeld and Collins, 2008), and global perspective-taking (Engberg and Fox, 2011).

Service-learning is classified as a high-impact practice in higher education (Kuh, 2008). Service-learning increases student retention and student engagement. Moreover, students benefit from service-learning experiences across the curriculum (Figuccio, 2020). Due to the overwhelming evidence in support of service-learning as an effective pedagogical practice, it has been argued that service-learning is the most potent pedagogy for developing well-rounded psychologically literate citizens (Bringle et al., 2016).

Unfortunately, a number of service-learning practitioners view the online environment as a barrier to service-learning (Waldner et al., 2012). The growth of the online student body has exceeded the growth of on-site students. As of Fall 2016, students taking at least one distance education course, comprised 31.6% of all higher education enrollments (Seaman et al., 2018). As more students pursue online education, service-learning must adapt in order to remain viable. E-service-learning is "an integrative pedagogy that engages learners through technology in civic inquiry, service, reflection and action" (Dailey-Hebert and Donnelli, 2010, p. 1). The online environment may be a facilitator of e-service-learning. E-service-learning removes geographical constraints and provides online learning with a tool to promote engagement.

E-service-learning is a relatively new pedagogical practice. As distance learning is growing in popularity, it is likely e-service-learning will be implemented more broadly. Unlike service-learning, however, e-service-learning has not been extensively studied and evaluated. The aim of the current study is to examine the efficacy of e-service-learning. It is hypothesized that students will report similar benefits of e-service-learning and service-learning experiences.

MATERIALS AND METHODS

Participants

Fifty-eight students attending Farmingdale State College ($M = 21.66$ years, $SD = 1.73$) participated in the current study. 87.9% of students identified as female, and 20.7% of students identified as Hispanic. Additionally, 72.4% of students identified as White, 13.8% of students identified as African American, 6.9% of students identified as Other, 1.7% of students identified as Asian, and 5.2% of students did not report their race. Students were enrolled in an either a traditional face-to-face section of Atypical Development ($N = 33$) or a distance learning section of Atypical Development ($N = 25$). To minimize group differences, both sections were taught by the same instructor. Groups did not differ in terms of age ($t = 0.17$, $p = 0.868$), sex ($\chi^2 = 1.07$, $p = 0.585$), or race ($\chi^2 = 2.00$, $p = 0.573$). The current study was approved by the Farmingdale State College Institutional Review Board.

Community Partner

Commonpoint Queens is a social services organization that meets the diverse and evolving needs of individuals in Queens and Nassau, New York. Commonpoint Queens is a place where people of all ages and backgrounds come together to find support, access opportunities, and build connections to community throughout their lives. Guided by the Jewish values of service and justice, Commonpoint Queens was founded to support the local Jewish community, which it continues to do today. Over the past 60 years, Commonpoint Queens has extended its reach, and currently provides childhood programs, summer camp, senior services, mental health resources, support during crisis, wellness, and everything in between at over 50 sites. Commonpoint Queens provides extensive services for individuals with developmental disabilities (DD).

Service-Learning Project Description

Students in the traditional face-to-face section of Atypical Development participated in a service-learning project at the Sam Field Center of Commonpoint Queens located in Little Neck, NY. Students were paired with youths with various DD. Youths with DD presented with mild to severe impairments and ranged from 6- to 21-years-of-age. College students and students with DD were instructed to work together to create a mural. College students and students with DD were also given "free time" to participate in semi-structured activities of their choosing. The student learning objectives of the service-learning experience were to: (1) Apply course concepts to everyday life; (2) Demonstrate an understanding of various developmental disabilities; (3) Examine the unique needs of individuals with disabilities.

Students in the distance learning section of Atypical Development participated in an e-service-learning project. Students worked in small groups and created resources for youths with DD. Youths with DD were enrolled in afterschool programming at the Sam Field Center of Commonpoint Queens. Youths with DD presented with mild to severe impairments and ranged from 14- to 21-years-of-age. The resources were designed to address challenges for youths with developmental disabilities as they transition from school-based to adult-based services. The focus of this project was determined as a result of a gap in the community partner's current programmatic offerings. Although the community partner has robust programmatic offerings for children and adults with DD, there are fewer programs for adolescents and young adults. During this critical period, youths are transitioning out of school-based programming and entering the workforce. To address this gap, seven modules were created: Icebreakers, Social Skills, Fostering Resilience, Bullying, Navigating Public Transit, Job Search, and Interviewing. Students met with youths with developmental disabilities biweekly via Blackboard Collaborate Ultra Sessions. Additionally, students created a Google Site which youths with developmental disabilities could reference in the future. Students in both sections wrote reflection papers after they completed their respective projects. Time was also allotted in class to allow the college students to debrief, which provided more meaning and context to the service-learning and e-service-learning exercises.

Data Collection and Analysis

After completing the service-learning project, college students completed a questionnaire assessing their experiences on a five-point Likert scale. Unfortunately, a similar questionnaire could not be used to assess the experience of students with

DD as not all students had sufficient cognitive and/or verbal abilities. A research assistant administered the questionnaire and deidentified college student responses. Standardized course evaluations were also completed. Course evaluations were administered anonymously via Axiom Mentor v3.1.259. Additionally, random sample of student reflection papers were coded by a research assistant. IBM Statistical Package for Social Sciences (SPSS) version 26.0.0.0 was employed for data analysis. Since Likert-scale rating consist of ordinal data, non-parametric statistics were employed (Nanna and Sawilowsky, 1998). Medians and ranges were utilized to assess students' service-learning and e-service-learning experiences. Mann-Whitney *U* tests were employed to assess whether students in traditional face-to-face and distance learning sections differed in their reported experiences. Chi-square tests were utilized to compare reflection paper coded responses between the traditional face-to-face and distance learning sections.

RESULTS

Questionnaire

Students in both traditional face-to-face and distance learning sections of atypical development reported positive experiences as a result of their respective service-learning and e-service-learning activities. Students in the face-to-face section indicated that the service-learning project was related to course content ($Mdn = 5.00$, $Ra = 1$). Additionally, students reported that the service-learning project enhanced their understanding of individuals with developmental disabilities ($Mdn = 5.00$, $Ra = 2$). Students also stated that the service-learning project increased student engagement ($Mdn = 5.00$, $Ra = 2$). Moreover, students indicated that the service-learning project helped them understand the relevance of the course to their everyday life ($Mdn = 5.00$, $Ra = 2$). Students also reported that the service-learning project had a positive impact on their future academic and career choices ($Mdn = 5.00$, $Ra = 2$). Lastly, students stated they had an overall positive experience participating in the service-learning project ($Mdn = 5.00$, $Ra = 2$).

Students in the distance learning section indicated that the e-service-learning project was related to course content ($Mdn = 5.00$, $Ra = 2$). Additionally, students reported that the e-service-learning project enhanced their understanding of individuals with developmental disabilities ($Mdn = 5.00$, $Ra = 2$). Students also stated that the e-service-learning project increased student engagement ($Mdn = 5.00$, $Ra = 3$). Moreover, students indicated that the e-service-learning project helped them understand the relevance of the course to their everyday life ($Mdn = 5.00$, $Ra = 2$). Students also reported that the e-service-learning project had a positive impact on their future academic and career choices ($Mdn = 5.00$, $Ra = 3$). Lastly, students stated they had an overall positive experience participating in the e-service-learning project ($Mdn = 5.00$, $Ra = 2$).

Table 1 compares student questionnaire responses in traditional face-to-face and distance learning sections of Atypical Development. Students in the traditional face-to-face and a distance learning sections did not significantly differ on any of their questionnaire responses. Specifically, a Mann-Whitney test indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in their report that the service-learning project was related to course concepts $U = 382.50$, $p = 0.504$. Additionally, a Mann-Whitney test indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in their report that the service-learning project helped them apply the course's subject material to their everyday $U = 348.50$, $p = 0.140$. A Mann-Whitney test also indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in their report that the service-learning project assisted in their understanding of developmental disabilities $U = 318.50$, $p = 0.059$. Additionally, a Mann-Whitney test also indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in how the service-learning project facilitated student engagement $U = 360.50$, $p = 0.214$. Additionally, a Mann-Whitney test indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in how the service-learning project affected future academic and career choices $U = 370.50$, $p = 0.433$. Lastly, a Mann-Whitney test indicated that students in face-to-face ($Mdn = 5$) and distance learning ($Mdn = 5$) sections do not differ in their overall service-learning experience $U = 360.50$, $p = 0.246$.

Course Evaluations

Students in both face-to-face and distance learning sections of Atypical Development completed course evaluations at the end of the semester. Students in a face-to-face section reported that the instructor attempted to make the course relevant to students ($Mdn = 5.00$, $Ra = 2$). Students in a face-to-face section also reported that the assignments helped me learn the subject matter ($Mdn = 5.00$, $Ra = 2$). Students in a face-to-face section also reported that I learned a great deal from this course ($Mdn = 5.00$, $Ra = 2$). Students in a face-to-face section reported that overall, I would rate this course highly ($Mdn = 5.00$, $Ra = 2$). Students in a face-to-face section also reported that I enjoyed this class ($Mdn = 5.00$, $Ra = 3$). Lastly, students in a face-to-face section reported that overall, I would rate the instructor highly ($Mdn = 5.00$, $Ra = 4$).

Students in a distance section of Atypical Development reported that the instructor attempted to make the course relevant to students ($Mdn = 5.00$, $Ra = 0$). Students in a face-to-face section also reported that the assignments helped me learn the subject matter ($Mdn = 5.00$, $Ra = 0$). Students in a face-to-face section also reported that I learned a great deal from this course ($Mdn = 5.00$, $Ra = 2$). Students in a face-to-face section reported that overall, I would rate this course highly ($Mdn = 5.00$, $Ra = 1$). Students in a face-to-face section also reported that I enjoyed this class ($Mdn = 5.00$, $Ra = 1$). Lastly, students in a face-to-face section reported that overall, I would rate the instructor highly ($Mdn = 5.00$, $Ra = 1$).

Table 2 compares student course evaluation responses in traditional face-to-face and distance learning sections of Atypical Development. Interestingly, a Mann-Whitney *U* test indicated that students in a distance learning section ($Mdn = 5.00$) reported that the instructor attempted to make the course relevant to students greater than students in a face-to-face (Mdn

TABLE 1 | Service-learning questionnaire students' responses.

Item	Service-learning		E-service-learning			
	Mdn	*Ra*	*Mdn*	*Ra*	Mann-Whitney *U*	*p*
Course content	5.00	1	5.00	2	382.50	0.504
Understanding of individuals with disabilities	5.00	2	5.00	2	348.50	0.14
Student engagement	5.00	2	5.00	3	318.50	0.059
Application to everyday life	5.00	2	5.00	2	360.50	0.214
Future academic and career choices	5.00	2	5.00	3	370.50	0.433
Overall experience	5.00	2	5.00	2	360.50	0.246

Students in a face-to-face (service-learning) section are compared with students in a distance learning (e-service-learning) section.

TABLE 2 | Course evaluation students' responses.

Item	Service-learning		E-service-learning			
	Mdn	*Ra*	*Mdn*	*Ra*	Mann-Whitney *U*	*p*
Relevant	5.00	2	5.00	0	49.50	0.011**
Assignments	5.00	2	5.00	0	49.50	0.011**
Learn	5.00	2	5.00	2	85.00	0.564
Couse	5.00	2	5.00	1	70.00	0.147
Enjoy	5.00	3	5.00	1	56.50	0.034**
Instructor	5.00	4	5.00	1	67.00	0.226

*Students in a face-to-face (service-learning) section are compared with students in a distance learning (e-service-learning) section. **$p < 0.05$.*

$= 5.00$) section $U = 49.50$, $p = 0.011$. Furthermore, a Mann-Whitney U test indicated that students in a distance learning section ($Mdn = 5.00$) reported that the assignments helped me learn the subject matter greater than students in a face-to-face ($Mdn = 5.00$) section $U = 49.50$, $p = 0.011$. A Mann-Whitney U test also indicated that students in a distance learning section ($Mdn = 5.00$) reported that I enjoyed this class greater than students in a face-to-face ($Mdn = 5.00$) section $U = 67.00$, $p = 0.034$. A Mann-Whitney U test indicated that students in a distance learning section ($Mdn = 5.00$) and a face-to-face ($Mdn = 5.00$) section do not significantly differ in their response to I learned a great deal from this course section $U = 85.00$, $p = 0.564$. A Mann-Whitney U test also indicated that students in a distance learning section ($Mdn = 5.00$) and a face-to-face ($Mdn = 5.00$) section do not significantly differ in their response to overall, I would rate this course highly $U = 70.00$, $p = 0.147$. Lastly, a Mann-Whitney U test indicated that students in a distance learning section ($Mdn = 5.00$) and a face-to-face ($Mdn = 5.00$) section do not significantly differ in their response to overall, I would rate the instructor highly $U = 67.00$, $p = 0.226$.

Reflection Papers

After reviewing the reflection papers, the following themes emerged: application to future career, increased knowledge and respect for individuals with developmental disabilities, and reduced levels of anxiety. A random sample of 24 reflection papers were selected from the traditional face-to-face and distance learning sections. A chi-square test of independence was preformed to examine the relation between future career and course format. The relation between these variables was not significant, $\chi^2_{(1,N=24)} = 3.00$, $p = 0.083$. A chi-square test of independence was also preformed to examine the relation between knowledge and respect for individuals with developmental disabilities and course format. The relation between these variables was not significant, $\chi^2_{(1,N=24)} = 0.00$, $p = 1.000$. Lastly, chi-square test of independence was preformed to examine the relation between anxiety level and course format. The relation between these variables was significant, $\chi^2_{(1,N=24)} = 6.17$, $p = 0.013$. Students in a distance learning section reported lower levels of anxiety than students in a traditional face-to-face section.

DISCUSSION

Students in face-to-face and distance learning sections of Atypical Development reported similar learning outcomes. Specifically, students in service-learning and e-service-learning conditions did not significantly differ in their responses to the service-learning questionnaire. Interestingly, students indicated via course evaluations that the e-service-learning condition was more relevant to the course, more useful in learning course material, and more enjoyable than the students in the service-learning condition. Students in the e-service-learning condition also reported in their reflection papers that they experienced reduced levels of anxiety which may be attributed to the distance learning format.

The hypothesis that that students will report similar benefits of e-service-learning and service-learning experiences was supported. Every effort was made to minimize any differences

between the face-to-face and distance learning sections. The same instructor taught both the face-to-face and distance learning sections. Additionally, the course content was identical in both sections. Exams were also the same in both sections. The only difference between the face-to-face and distance learning sections was the specific service-learning activity.

A major criticism of online teaching and learning is that there is a lack of student interaction and engagement. E-service-learning overcomes this key limitation (Waldner et al., 2012). In e-service-learning, students have regular contact with their instructor, peers, and community partner. Students have the opportunity to apply what they are learning outside of the virtual classroom.

The fact that students in the e-service-learning condition reported that the assignments were more relevant to the course, more useful in learning course material, and more enjoyable than the students in the service-learning condition was a surprising finding. It was anticipated that students in face-to-face and distance learning sections would not differ in these areas. Since a number of measures were in place to eliminate extraneous variables, the group differences are interpreted with caution as true group differences that resulted from the experimental condition.

Students indicated in their reflection papers that interacting with individuals with developmental disabilities virtually reduced their levels of anxiety. Beiter et al. (2015) observed that 33% of students displayed mild or greater levels of depression, 40% of students displayed mild or greater levels of anxiety, and 38% of students displayed mild or greater levels of stress. Previous research indicates that the distance learning setting may be associated with the absence of anxiety in some learners (Hurd, 2007). Students taking courses online do not have to worry about being unexpectedly called upon to answer a question. Further, students are not afraid of appearing "dumb" in front of their peers. The anonymity of distance education may actually reduce anxiety.

E-service-learning is a relatively new pedagogical technique. The results of the current study support the efficacy of e-service-learning. Furthermore, this study indicates that e-service-learning produces similar learning outcomes as service-learning. Although overall enrollment continues to decline in U.S. higher education institutions, online course enrollment has steadily increased (Seaman et al., 2018). Similar to service-learning, e-service learning fosters academic achievement, personal growth, and civic engagement in the online environment while enhancing student engagement. E-service-learning is the future of service-learning.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Farmingdale State College Institutional Review Board. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

MF designed the research study, conducted the study, analyzed the data, and wrote the manuscript.

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BRIEF RESEARCH REPORT
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Do Service Learning and Active-Citizenship Learning Support Our Students to Live a Culture of Democracy?

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Civic thinking and civic attitude require values and norms for social togetherness and social engagement. Service learning and active-citizenship learning are high-impact pedagogies, well-documented as supporting civic-mindedness and a culture of democracy sustainably. Though our study is part of a broader research project, this brief research report already documents the impact of the two pedagogies on civic-mindedness and students' democratic awareness. Through a mixed-method design we implemented a quantitative survey (7 level Likert Scale) of undergraduate student learning outcomes of service learning with 55 students from the University of Hawai'i at Mānoa and 41 students practicing active-citizenship learning at Salzburg University of Teacher Education. We found that the two pedagogies significantly support students' democratic awareness and civic attitudes. In addition to the survey, a qualitative analysis is in progress based on 23 focus group discussions, conducted to detail how the students experience themselves when they take on social responsibility, e.g., when they actively participate in improving their society. Our mixed, but narrowly focused, approach combined with well-established measuring tools and scales is a first study of how to assess *Attitudes*, one of the four fundamental principles of the Council of Europe's Competency Model for a Democratic Culture.

Keywords: education for the common good, civic-learning, civic-mindedness, active-citizenship learning, service-learning, culture of democracy

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INTRODUCTION

Growing populism and new challenges posed by an increasingly globalized world of refugee movements, climate change, pandemics, and other overwhelmingly important issues, make it necessary to focus on democratic action and make the value of democracy and social equity more tangible. It is already a basic tenet of higher education that we not only teach discipline skills, but also critical thinking and other civic skills. The degree to which the value of democracy is recognized, accepted, and practiced is strongly linked to active participation in society, a sense of responsibility, and recognition of a moral obligation. Across continents and diverse systems of education, this insight has been a focus for education for a while.

Finding viable ways of dealing with the need to solve global and local issues have led to an increased focus on this so-called "third mission" of higher education. Indeed, a United States

National Task Force on Civic Learning and Democratic Engagement in 2012 published a report entitled "A Crucible Moment: College Learning and Democracy's Future—A Call for Action," in which the task force stresses the need for a strong focus on the civic mission of higher education, beyond workforce preparation. The report argues that,

> It is time to bring two national priorities—career preparation and increased access and completion rates—together in a more comprehensive vision with a third national priority: fostering informed, engaged, responsible citizens. Higher education is a space where that triad of priorities can cohere and flourish… [A] socially cohesive and economically vibrant... democracy and a viable, just global community require informed, engaged, open-minded, and socially responsible people committed to the common good and practiced in "doing" democracy. In a divided and unequal world, education... can open up opportunities to develop each person's full talents, equip graduates to contribute to economic recovery and innovation, and cultivate responsibility to a larger common good. Achieving that goal will require that civic learning and democratic engagement be not sidelined but central. Civic learning needs to be an integral component of every level of education (The National Task Force on Civic Learning Democratic Engagement, 2012, p. 13–14).

These viewpoints are echoed globally among educators and, as we will see below, also by the Council of Europe's large investment in addressing education for a democratic culture (Barrett et al., 2018; Barrett, 2020).

It has become common that universities and educational institutions take on social responsibility as their third academic mission (Berthold et al., 2010) in addition to traditional teaching and research. How they regard this task for their institution, in what way they tailor learning opportunities, and what answers and solutions they provide for society is up to the individual institutions and mirrored in corresponding development plans of educational institutions (Görason et al., 2009; Carrión García et al., 2012). Experiential learning programs that can promote pedagogical skills (Jacoby, 2015) as well as personal development of students are commonly offered as they can strengthen the work and learning of students, instructors, and educational institutions (Wang, 2013; Hwang et al., 2014).

With our current study, we aim to document specifically how service learning (SL) and active-citizenship learning (ACL) can promote democratic education and support strengthening democratic and civic attitudes and associated values, such as human cultural diversity, democracy, civic-mindedness, social responsibility, knowledge, and critical understanding of the self in society. Though there is well-documented evidence in several meta-analyses and reviews that SL significantly supports social outcomes (e.g., Giles and Eyler, 1994; Hatcher, 2008; Conway et al., 2009; Bringle and Steinberg, 2010; Celio et al., 2011; Steinberg et al., 2011; Warren, 2012; Yorio and Ye, 2012; Moely and Ilustre, 2013) our mixed-methods design aims to give specific insight into students' experiences regarding democratic attitudes and their orientation toward the common good.

Both SL and ACL pedagogies aim to develop democratic and intercultural competence. That means that through SL or ACL students ideally should develop their ability to promote important values, attitudes, skills, and knowledge to respond efficiently and appropriately to the demands and opportunities in democratic and intercultural situations. In SL this can happen in a multitude of ways, often through participation in existing programs or with placement at sites in communities as part of their academic learning, as it does at University of Hawai'i at Mānoa, whereas in ACL, it can happen in the creation of the students' own projects based on community needs, as it does as practiced at Salzburg University of Teacher Education, where ACL is implemented in the curriculum for all primary school teachers. Based on self-regulated learning (Winne and Perry, 2000) students create and design their own service projects which represents a personal challenge. They formulate learning objectives for themselves and the communities they work in, and apply their projects in socially relevant contexts. ACL strengthens students' individual responsibility, when focusing on the public good and enabling a change of perspective through getting to know other living environments (Geier, 2018, p. 162).

The purpose of this joint study is not to compare the two universities and their predominant practices of experiential pedagogies. The two universities are set in different cultural and social contexts and the students come from different disciplines. The study is part of an international, cross-cultural project to inspire and exchange ideas, and documentation of how community engaged work plays a major role for learners as strengthening not only academic, but also pedagogical and personal skills.

The overall study pursues three scientific research questions within our mixed-method design. Question 1 is the focus of this research report. Questions 2 and 3 will be answered through the ongoing qualitative data analysis from the focus group discussions.

(1) What roles do teaching and learning pedagogies like SL and ACL play for civic-mindedness and for strengthening a culture of democracy in students' attitudes toward social responsibility and acting in the public interest?
(2) How do students practice and experience social participation?
(3) Which key factors in the ACL and SL pedagogies can support a deeper understanding of social participation?

Civic-Mindedness and the Role of Service Learning and Active-Citizenship Learning in Supporting Democratic Awareness

The study of being civic-minded goes back to the American psychologist, philosopher, and pedagogue John Dewey, who considered people civic-minded when they had an interest in and awareness of civic or social responsibility and when they did their part to promote social welfare (Dewey, 1927). True to Dewey's spirit, Bringle and Steinberg (2010) as well as Hatcher (2008) define civic-mindedness as a tendency or disposition, reflected in an orientation toward the common good in the sense of participating in the community and acting responsibly. In this

line of thinking, the Council of Europe defines civic-mindedness as an

> attitude toward a community or social group to which one belongs that is larger than one's immediate circle of family and friends. It involves a sense of belonging to that community, an awareness of other people in the community, an awareness of the effects of one's actions on those people, solidarity with other members of the community and a sense of civic duty toward the community (Council of Europe, 2016, p. 12).

When students take on a responsibility for society, they can experience themselves as autonomous social players. Through participation in their society, they gain experience and develop their skills as they contribute to the common good. But to go beyond traditional engagement or volunteering, which is critically important to do, the key question is how to link students' learning experiences with political knowledge, skills and understanding (Kahne and Westheimer, 2003; Annette, 2005) so they contribute to a culture of democracy. This would mean not solely focusing on traditional engagement as implemented in the common pedagogies of service learning or other forms of civic engagement. Rather, it would require looking at the development of democratic values and students' democratic and political learning.

As democratic and intercultural competence is regarded as a key competence of the twenty-first century, it is also crucial for a sustainable future. Democratic competence includes the ability to promote important values, attitudes, skills, knowledge and thinking (Barrett et al., 2018; Barrett, 2020). To be able to respond efficiently and appropriately to the demands and opportunities arising from exchanges in democratic and intercultural situations, attitudes and values are decisive. They can guide action when applying knowledge and can be viewed as an element of professional competence (Opalinski and Scharenberg, 2018). The Council of Europe's competence model for democratic culture is intended to strengthen the democratic commitment of citizens and enable individuals to participate in a culture of democracy. It bundles competencies in the four principles of Values, Attitudes, Skills, and Knowledge and critical thinking. In our research and analyses, we focus on the principle of Attitudes, which the model divides into six groups: (a) Openness to cultural otherness and to other beliefs, world views and practices, (b) respect, (c) civic-mindedness, (d) responsibility, (e) self-efficacy and (f) tolerance for ambiguity (Council of Europe, 2016, p. 11; Barrett et al., 2018).

METHODS

Design

Our overall study is designed as a focused mixed-methods research project, combining quantitative, and qualitative research and methods to strengthen conclusions (Creswell, 2008, 2015; Steinberg et al., 2013; Holzman et al., 2017), give students a voice, and understand their perspectives of the impact that the pedagogies of SL and ACL have on a culture of democracy, especially regarding civic-mindedness and orientation to the common good.

Sample and Procedure

Before we began our surveys and focus group data collection, we secured Institutional Review Board approval for human subject research. To answer our first research question about what role SL/ACL might have in strengthening students' attitudes toward social responsibility and thereby civic-mindedness and a culture of democracy, we did a quantitative survey with 55 Hawai'i and 41 Austrian students. It was administered as an online survey. All students were able to decide voluntarily to take part in the study. We required students to already work on a SL or ACL project or have finished it. Individual privacy was protected. Thus, participants were anonymous and able to choose to quit the questionnaire at any point. Ninety six students completed the online survey, all of them undergraduates and coming from a variety of disciplines, choosing their own projects within social, cultural, or environmental areas of the societies and communities.

The Hawai'i sample (n1 = 55) includes 35 female/20 male with an average age of 24.50 years. The Austrian sample (n2 = 41) includes 37 female/4 male with an average age of 24.97 years. All students in the Hawai'i sample and 29 of the Austrian sample reported that they had already finished their projects, whereas 12 Austrian students were still working on them.

Measures

The survey is based on two theoretically grounded and empirically validated tested scales: the Civic-Minded Professional Scale, CMP (Hatcher, 2008) and the Civic-Minded Graduate Scale, CMGS (Steinberg et al., 2011). Both scales are well-suited to measure civic-mindedness, which is supported by recent additional evidence regarding the continued relevance of the CMGS (Bringle et al., 2019). In our study we focus on a subset of these scales, and we adapt some of the items to be able to apply the scales for both universities. Additionally, we created a scale of nine items to study the learning outcomes around "common good" perceptions and address civic duty, such as attitudes. This subscale is based on the Framework of Competences for Democratic Culture defined by the Council of Europe (2016, p. 11). We adapted subsets of the descriptors of this validated model and added a suitable Likert scale to them. The subscale sheds light on students' interest in the public good—whether they are aware of the needs of the community around them and worry about the rights or well-being of others in the community. It also focuses on their own role in the community and the responsibilities, duties and obligations associated with it, to what extent they feel a sense of civic duty to the community, and to what extent action is essential for them for the common good.

Our survey consists of 38 closed questions with a response format of 7 level Likert Scale (strongly disagree to strongly agree), some items with negative polarity. Introduction is asking for some demographic information, including the participants' status in and level of involvement with SL/ACL projects, and their gender, age, and majors.

Voluntary Action, based on 3 items from CMP (Hatcher, 2008) and 1 item from CMGS (Steinberg et al., 2011), shows a coefficient alpha of 0.700 (see **Table 1**) and comprises items on being informed of volunteer opportunities and how to

get involved in the community through volunteering just as items on bringing people together to address community needs. Furthermore, there are items on the connection to people who actively contribute to the community and on the extent to which SL/ACL can help support knowledge about volunteering. A sample item of this subscale would be "I feel confident in my ability to bring people together to address a community need."

Participatory Civic Skills, based on 4 items from CMP (Hatcher, 2008), shows a coefficient alpha of 0.760 (see **Table 1**) and includes questions on political engagement and citizenship, social justice, public policy, and being informed about current events. A sample item of this scale is "I would describe myself as a politically active and engaged citizen."

Social Trustee shows a coefficient alpha of 0.789 (see **Table 1**) and is based on 1 item from CMP (Hatcher, 2008) and 3 items from CMGS (Steinberg et al., 2011). It addresses the knowledge of and sense of responsibility to serve others to improve society and to achieve purposes beyond self-interest. A sample item is "I believe that I have a responsibility to use the knowledge that I have gained to serve others."

Diversity as a subscale was included with a coefficient alpha of 0.891 (see **Table 1**) and relates to 3 items from CMGS that are based on an understanding of the appreciation and sensitivity of a pluralistic society (Steinberg et al., 2011). It focusses on the experiences of SL/ACL, for instance interacting with people who are different (from oneself), and on cultural and ethnic diversity. A sample item would be "SL/ACL helps me develop my ability to respond to others with empathy, regardless of their backgrounds."

The subscale *Behavioral Intentions* is based on 3 items from CMGS (Steinberg et al., 2011) and shows a coefficient alpha of 0.868 (see **Table 1**). It includes items about students' intended behavior in the future, e.g., to stay current with news, to participate in political activities, or being involved in voluntary work. A sample item is "Because of SL/ACL I plan to stay current with the local and national news in the future."

The subscale *Common Good* was newly developed by the authors. This subscale is based on the Framework of Competences for Democratic Culture (2016, p. 11) adapting subsets of the descriptors. It addresses the identification and feeling of belonging to the community. It also takes into account whether someone is concerned and caring about the rights of others, committed to helping disadvantaged people, and willing to take on social responsibility. Additionally, there are items related to the importance of contributing to a solution to community needs, having a sense of civic duty, and acting for the common good. A sample item is "It is important to me to be able to contribute to a solution in order to respond to community needs."

Initially, 10 items were developed based on theoretical assumptions. To test the factor structure of this scale empirically, an exploratory factor analysis (EFA) was conducted. The sample size of the present study does not allow testing the factor structure of all subscales of the questionnaire simultaneously. This will be a task that has to be completed in future studies. The results revealed a one-factor structure of the scale. However, one item ("35/It is not important to me to inform myself about the needs of society; reverse coded.") did not show a satisfactory communality and factor loading. Therefore, this item was excluded. A subsequent EFA with nine items exhibited good values for all items. Again, a clear one-factor structure for the scale "common good" resulted from the EFA. The explained variance is 58%. All factor loadings are > 0.72. The communalities are > 0.52. A consecutive reliability analysis shows a satisfactory Cronbach's Alpha of 0.894 (see **Table 1**).

TABLE 1 | Subscales and sample items.

Scale	Cronbach's Alpha	Sample item	Items
1 - Voluntary action	0.700	My experiences with SL/ACL have helped me a lot about opportunities to become involved in the community.	4
2 - Participatory civic Skills	0.760	I keep very well-informed about current issues of social justice.	3
3 - Social trustee	0.789	I feel that my level of education places an additional responsibility upon me to serve others.	4
4 - Diversity	0.891	My experiences in SL/ACL have helped me realize that I prefer to work in settings in which I interact with people who are different from me.	3
5 - Behavioral intentions	0.868	Because of SL/ACL I intend to be involved in volunteer service in the future.	3
6 - Common good	0.894	Through SL/ACL I feel concerned and care about the rights and well-being of others in society.	9

RESULTS

Results from the survey are reported as summarized, group data only. For statistical tests, the alpha level of 0.05 was used. Bivariate correlations were computed to determine existing relationships between two different variables. The table of intercorrelations (**Table 2**) for the Austrian sample shows that if civic attitude is strongly pronounced and students are civic-minded, then the subcomponents correlate very strongly. The intercorrelations for the Hawai'i sample are positive too, showing a slightly stronger level with higher correlation coefficient than the Austrian sample.

Since research shows that SL and ACL are high-impact practices and can play a crucial role supporting students in living a culture of democracy (Council of Europe, 2016), both pedagogies have potential to support an inclusive and equitable quality education (Wang, 2013; Hwang et al., 2014) and can promote lifelong learning (E3 Project, 2012) as SL/ACL projects help to engage with problem-solving not only for, but also with, the community.

TABLE 2 | Intercorrelations—Pearson's correlation.

	Voluntary action	Participatory civic skills	Social trustee	Diversity	Behavioral intentions	Common good
Voluntary action	-	0.481**	0.551***	0.632***	0.445**	0.617***
Participatory civic skills	0.657***	-	0.421**	0.343*	0.255	0.434**
Social trustee	0.587***	0.568***	-	0.645***	0.698***	0.545**
Diversity	0.546***	0.401**	0.764***	-	0.609***	0.625**
Behavioral intentions	0.634***	0.557***	0.630***	0.713***	-	0.596***
Common good	0.632***	0.537***	0.720***	0.726***	0.732***	-

Values above the diagonal: correlations for the PH Salzburg sample.
Values below the diagonal: correlations for the UHM Hawai'i sample.
$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$.

The diagram (**Figure 1**) shows to what extent SL at the University of Hawai'i at Mānoa and ACL at University of Teacher Education in Salzburg support civic-mindedness. It shows that both pedagogies promote civic-mindedness in various aspects. The Hawai'i sample even at a slightly stronger level. Regarding *Voluntary Action (*Austria*: M* = 4.70; *SD* = 0.92*;* Hawai'i*: M* = 5.54*; SD* = 0.92*),* the diagram shows that students at both universities consider themselves being well-informed about opportunities for volunteers e.g., how they can get involved. They feel confident, bringing people together to address community needs or see themselves connected to other active citizens. Regarding their *Participatory Civic Skills (*Austria*: M* = 4.84; *SD* = 1.03*;* Hawai'i*: M* = 4.89*; SD* = 1.28*)*, students describe themselves as politically active and engaged citizens who are well-informed about current public policy and current events. In terms of the subscale *Social Trustee (*Austria*: M* = 5.01; *SD* = 1.13*;* Hawai'i*: M* = 5.95*; SD* = 0.96*),* students feel that their education gives them additional responsibility to serve others. They firmly believe that it matters to achieve goals beyond their own interest, and they report that they have a responsibility to use their knowledge to serve others. Considering *Diversity (*Austria*: M* = 4.92; *SD* = 1.32*;* Hawai'i*: M* = 6.11*; SD* = 0.76*)*, they appreciate their opportunities through SL/ACL to experience interaction with people different from themselves. Thus SL/ACL helps value the enrichment of cultural and ethnic diversity (Bringle et al., 2019) in the community. The connection to *Behavioral Intentions (*Austria*: M* = 3.89; *SD* = 1.48*;* Hawai'i*: M* = 5.68*; SD* = 0.92*)* is positive, though not significant for the University of Teacher Education in Salzburg ($r = 0.309$; $p = 0.185$—see **Table 2**). Most Austrian students answered that they neither agree nor disagree that ACL helps them to keep up to date with local and national news or they feel motivated to become a volunteer in the future. But acting for the *Common Good (*Austria*: M* = 5.19; *SD* = 0.97*;* Hawai'i*: M* = 5.99*; SD* = 0.69*)* seems to be very important for students at both universities. It is a worthy goal and desirable for them. Furthermore, students self-report that SL/ACL helps them to get a deeper feeling of belonging to and identifying with the community. They feel concerned about the rights and well-being of others e.g,. disadvantaged people in the community. They furthermore feel committed to fulfill responsibilities associated with their role in the society and agree on having a sense of civic duty to contribute to solutions.

The left diagram in **Figure 2** shows that more than 58% of the Hawai'i sample and 63% of the Austrian sample agree that social problems are not too complex for them to solve. Though the diagram relates to a single item of the survey, it shows that students are self-efficient and predominantly positive, and at both programs involve a positive belief in their own ability to undertake actions which are required to achieve particular goals, such as solving problems. Because of their SL and ACL experiences, students self-report that they can have an impact on community problems, though 18% of the Hawai'i and 17% of the Austrian sample are neutral in this matter. The diagram on the right in **Figure 2** is even more positive. Based on students' experiences with these pedagogies, 94% of the Hawai'i and 83% of the Austrian sample believe they can make a difference in society. Only 4% of the Hawai'i students and 12% of the Austrian students are neutral in this question and the rest slightly disagree. Associated with feelings of self-confidence, this demonstrates that students believe in their abilities and are positive they can have an impact on community problems and can contribute to society.

Differences between the samples from the two universities, give us a deeper understanding of the students' perspectives. These perspectives will be further analyzed by integrating qualitative data and results from the focus group discussions. Analyses are still in process and therefore not reported in this article. However, based on the students' statements in the discussions and initial results, we expect to find additional indication that Austrian students are more cautious in evaluating their contribution to society. One reason for this might be that ACL is mandatory for all students at the Salzburg University of Education, where students are explicitly required to create their own projects. We expect that the qualitative analysis and our focused mixed-method design will help to explain these differences.

DISCUSSION AND CONCLUSION

Within our mixed-method design, we used a survey based on empirically validated and tested Hatcher's Civic-Minded

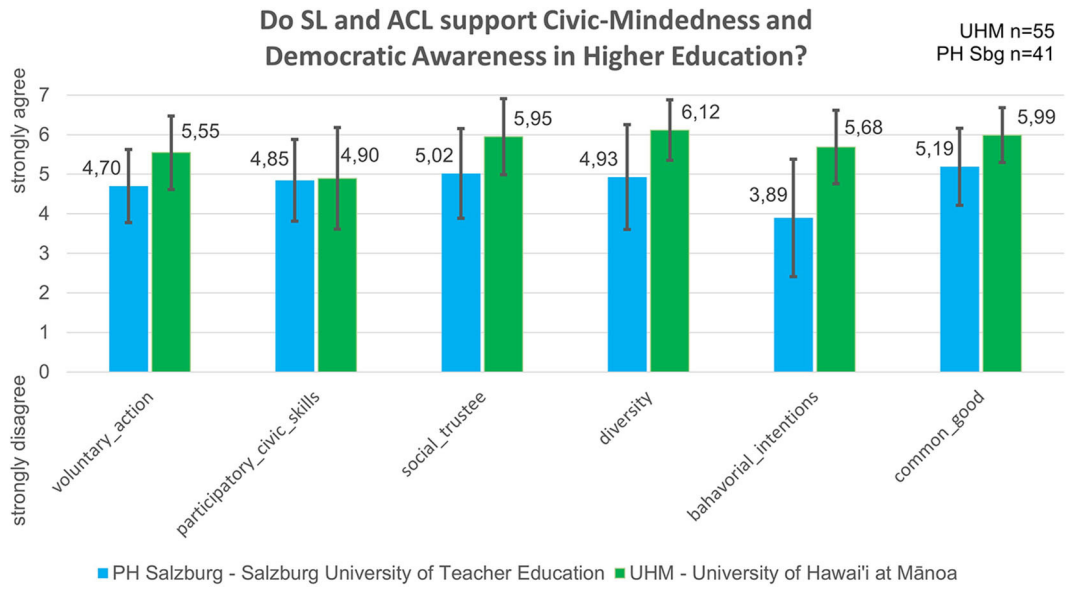

FIGURE 1 | Service learning and active-citizenship learning to support civic-mindedness in HE.

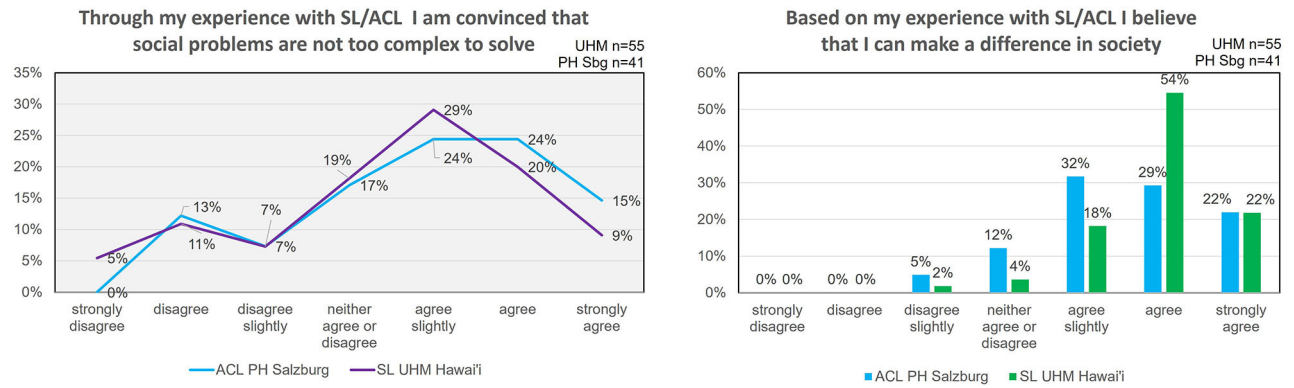

FIGURE 2 | Students' perspectives on their problem solving potential and self-efficacy.

Professional Scale (2008) and Steinberg et al. (2011), which we extended. We subsequently implemented the new subscale by adapting subsets of validated descriptors of the Reference Framework of Competences for Democratic Culture (Council of Europe, 2016; Barrett et al., 2018; Barrett, 2020), linking these originally validated civic-minded scales with the required attitudes for the competence for a democratic culture. Our work connects existing theoretical bodies of research, and for us constitutes a valuable innovative tool.

Implementing our concept in a learning-outcomes survey with diverse groups of undergraduate students gave us results that verify the conclusion that service learning at the University of Hawai'i at Mānoa and active-citizenship learning at Salzburg University of Teacher Education significantly support a culture of democracy at both universities, independent from particular national and cultural contexts. The Hawai'i sample, even at a slightly stronger level than the Austrian one. Students with experiences in these pedagogies have knowledge about volunteering and are interested in social equity politics and issues (Kolb and Kolb, 2005). Furthermore, it is important for students to contribute to their society with their own competencies. They report they interact and collaborate with people from different backgrounds and have an awareness of other people and their impact regarding their own actions. Of course, the validity of self-reported survey data and small samples must be considered in the results. Therefore, to provide additional evidence, the survey will be continued in order to monitor the programs also in the future, and there will be further analysis of our focus group discussions.

Through taking two well-researched and documented scales and adding an additional subscale to address a sense of civic duty and a need to act for the common good, we now have clear evidence that the pedagogies of service learning

and active-citizenship learning can contribute to the current understanding of how higher education can cultivate students' democratic and civic attitude. Learning through engagement and social responsibility, as it happens through service learning and active-citizenship learning, with the words of Steinberg et al. supports "civic growth of students" (2011, p. 15) and has an impact on students' democratic awareness and civic attitude. As expressed by one of the students in the Hawai'i sample: "To be actively involved in society means to identify what your strengths are and how you can use them to help other people, other than yourself."

CONTRIBUTION TO THE FIELD

Service learning (SL) and active-citizenship learning (ACL) address equity issues and help students strengthen their civic-mindedness and democratic commitment to society. Excellent research has demonstrated the importance of SL in supporting civic-mindedness through education, and several quantitative studies (e.g. Giles and Eyler, 1994; Hatcher, 2008; Bringle and Steinberg, 2010; Steinberg et al., 2011; Moely and Ilustre, 2013) confirm the importance of SL in terms of civic outcomes. Recent studies (e.g., Holzman et al., 2017; Díaz et al., 2019; Manning-Ouellette and Hemer, 2019) apply mixed-method design to gain a deeper understanding of learning outcomes. Building on this work, our research takes the outset in the theoretically grounded and empirically validated Civic-Minded Professional Scale (Hatcher, 2008) and Civic-Minded Graduate Scale (Steinberg et al., 2011), but we employ a subscale to study specifically the resulting sense of civic duty and inclination to act for the common good through focusing our research on attitudes and civic virtues of students. Our more focused study then, creates a deeper insight into students' way of seeing their service experiences in relation to their attitudes and at the same time reveals how SL/ACL supports students in improving skills needed for living a democratic culture.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by IRB Institutional Review Board University of Hawai'i at Mānoa. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

IG and UH collected and analyzed the data and drafted the manuscript.

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Service-Learning and Chinese College Students' Knowledge Transfer Development

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As a form of experiential education, service learning (SL) shows great potential for promoting students' knowledge transfer as it offers students opportunities to apply what they have learned in classrooms to serve communities in real-life contexts. To explore how students' knowledge transfer evolves during SL, we collected longitudinal survey data from 96 Chinese college students in a 9-week SL program. Results indicate that (a) students' perceived knowledge transfer in SL did not follow a linear trajectory. Although students' perceived knowledge transfer at the end of SL was significantly higher than those at the beginning, a slight drop was observed in the middle of SL; (b) the developmental pattern of perceived knowledge transfer varied across students; and (c) students' perceived knowledge transfer development during SL was associated with mastery goal orientation and perceptions of psychologically controlling behaviors from their SL supervisors. By providing evidence of the dynamic process and mechanisms of students' knowledge transfer development, the present study adds to our understanding of how, when, and why the benefits of SL are realized.

Keywords: psychological control, higher education, knowledge transfer, service-learning, mastery goal orientation

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1. INTRODUCTION

Knowledge transfer, the ability to apply knowledge and skills learned in school into a new situation, is an important indicator of educational success (Bransford and Schwartz, 1999; Wang et al., 2020), particularly for college students, as most of them will enter the workforce after graduation and will be expected from their employers to apply what they have learned in college into authentic situations. Promoting students' deep learning and knowledge transferability is especially critical for the Chinese education system, as it has been criticized for emphasizing too much on helping students achieve good exam scores in standardized tests (Guo-Brennan, 2016) and impeding students' abilities to transfer what they have learned in class to real-life situations (Guo et al., 2016a). Service learning (SL), a pedagogical method that combines academic learning and community service, may have great potential for promoting students' knowledge transfer because it offers students opportunities to apply what they have learned in classrooms to serve communities in real-life contexts (Wang et al., 2019b). It has been advocated for decades in Western countries (Furco et al., 2016) and considered one of the high-impact educational practices in higher education (Kuh, 2008); however, to promote SL in contemporary Chinese education, more empirical evidence that supports the impact of SL on Chinese students' outcomes is needed.

Mounting evidence suggests that SL benefits college students' academically, professionally, and personally (Eyler and Giles, 1999; Knapp et al., 2010; Yorio and Ye, 2012; Bringle et al., 2016; Furco et al., 2016). Nevertheless, mixed findings have also been reported regarding the academic benefits of SL for students (Furco et al., 2016; Song et al., 2017). Recently, more attention has been directed toward the dynamic processes and mechanisms of students' development during SL (Li et al., 2016; Guo et al., 2016b), as these variables are critical to better understand how SL works, when SL is effective, and who SL benefits, especially as SL experiences are increasing in number across institutions of higher education (Furco et al., 2016). Using a case study approach, Guo et al. (2016b) found that college students' behavioral, emotional, and cognitive engagement fluctuated over the 9-week SL program. Based on the characteristics of students' engagement development, they divided the whole SL into four developmental stages: confusion and hesitancy, enlightenment and enthusiasm, fluctuation and adjustment, and stabilization and routinization.

While a growing body of research has shown the positive impact of SL on college students' knowledge transfer (Markus et al., 1993; Eyler and Giles, 1999; Deeley, 2010; Prentice and Robinson, 2010; Gerholz et al., 2018; Wang et al., 2019b), data about the dynamic processes of knowledge transfer development during SL have not yet been documented. This study therefore set out to investigate the development characteristics of college students' knowledge transfer within the context of a 9-week SL program. We designed a longitudinal study to track students in SL by measuring their knowledge transfer at eight time points. Previous research suggests that college students' self-reports of knowledge transfer can provide valuable information about their knowledge transferability (Wang et al., 2020). Several studies have shown that college students' perceived knowledge transfer is positively associated with their perceived learning and course grades (Hsu et al., 2019; Wang et al., 2019a). Because assessing actual transfer performance at multiple times costs researchers' laborious hours, in the current research, we studied college students' perceived knowledge transfer instead of their actual knowledge transfer.

In addition to examining the dynamic process of college students' knowledge transfer during SL, factors that influence the development characteristics of knowledge transfer are also important. While there are a number of perspectives to view student knowledge transfer development, the current study focuses on mastery goal orientation and perception of psychological control, as these two factors are well-grounded in the literature of education as consistent predictors of educational success (Kaplan and Maehr, 2007; Senko et al., 2011; Soenens et al., 2012; Ryan and Deci, 2017). Students with mastery goals orientation focus on acquiring and developing competence (Senko et al., 2011). Previous research has shown that students with mastery goal orientation performed better on a transfer task than the ones with performance goals (Bereby-Meyer and Kaplan, 2005; Belenky and Nokes-Malach, 2012). For instance, Belenky and Nokes-Malach (2012) studied 104 undergraduates to investigate how students' achievement goals interact with different forms of instruction to enhance transfer. They found a positive impact of mastery goal orientation on transfer. Students with mastery goal orientation are more likely to adopt deep learning strategies to process the learning materials, which may promote their knowledge transferability. The second factor, perception of psychological control, is grounded in self-determination theory (Deci and Ryan, 1985; Ryan and Deci, 2017). In the current study, perception of psychological control refers to the extent to which students perceive intrusive behaviors that pressure them to act, think, and feel in particular ways from their SL supervisors (Soenens et al., 2012). A correlational study conducted by Soenens et al. (2012) has shown that higher perceptions of psychological control were associated with lower metacognitive self-regulation and academic achievement. To date, the detrimental effects of psychologically controlling teaching on students' outcomes have been well-documented (Soenens et al., 2012; Haerens et al., 2015; Bartholomew et al., 2018), and in this study, we will explore the role of psychological control toward knowledge transfer development in an SL context.

The present investigation focused on three key research questions (RQs). First, how do students' perceived knowledge transfer change during a 9-week SL program (RQ1)? Second, are there different developmental patterns of perceived knowledge transfer across students (RQ2)? Third, we asked what factors affected students' perceived knowledge transfer development (RQ3)? The first and second research questions are exploratory in nature. Since students' engagement varies across developmental stages of SL (Li et al., 2016; Guo et al., 2016b), we expect to see a fluctuation in students' perceived knowledge transfer in the current study. With different motivation, personalities, and prior experiences, students may also demonstrate different trajectories in perceived knowledge transfer over the SL program of 9 weeks. For RQ3, based on the literature we reviewed, we expected that mastery goal orientation would facilitate students' perceived knowledge transfer development in SL, while perceptions of psychological control would hinder the process.

2. MATERIALS AND METHODS

2.1. Participants

Participants in the study were undergraduates at a leading research university in China. This university is well-known for teacher education, education science, and basic learning in arts and sciences. We recruited participants from a psychology course entitled *Psychology of Learning*. The course is about fundamental concepts and empirical research findings related to learning sciences. Students who enrolled in the course were contacted at the beginning of the semester and invited to participate in a 9-week SL program embedded in the course. Out of the 111 students enrolled in the course, 96 students (75 females and 21 males) consented to participate in the research. All participants were sophomore students from the Department of Psychology. The research procedures and student surveys were approved by the institution's ethical committee.

2.2. Procedures and Measures

Students learned various learning principles (e.g., applied behavior analysis, conditioning theory, and learned helplessness) in their regular classroom learning. During weekends, they

worked in a group of four to interact with children with special needs. Although the overall goal of the SL activity was "applying the knowledge and skills learned from the course of Psychology of Learning to serve children with special needs," the specific SL goals and activities were determined by the undergraduates themselves and might vary across groups. For instance, one group may focus on teaching the child to express his/her needs using appropriate words, while the other group may aim to teach the child to pass and catch a ball. Each service group had a supervisor who provided support during and after SL activities. Students wrote reflective journal entries immediately after each service activity. Students also completed a series of questionnaires prior to and after SL regarding themselves and their SL experiences.

2.2.1. Perceived Knowledge Transfer

To investigate the development of knowledge transfer during SL, students' perceived knowledge transfer was assessed at eight time points. We asked students to report their levels of knowledge transfer in their weekly reflective journal entries. A single-item measure was used ("Please rate to what extent you applied the knowledge you've learned into this week's SL activity"), with the scale ranging from 0 "none" to 4 "a lot." To ensure the validity of the self-report item, the first author went over students' reflective journal entries and found that students who had high scores (i.e., 3 or 4) on this item used more psychology terms and concepts in their reflective journal entries. Furthermore, the sum of the eight perceived knowledge transfer scores was positively associated with the overall perceived knowledge transfer score in their post-SL reflective journal entries ($r = 0.51$, $p < 0.001$).

2.2.2. Mastery Goal Orientation

In the pre-SL questionnaire, we used the six-item Task Goal Orientation Scale (Midgley et al., 1998) to assess students' goal to develop their understanding and skills. The items were translated into Chinese and rated on a 5-point scale (1 = not at all true of me, 5 = very true of me). Sample items included: "I like school work that I'll learn from, even if I make a lot of mistakes." Internal consistency reliability was acceptable (Cronbach's alpha coefficient = 0.71).

2.2.3. Perception of Psychological Control

In the post-SL questionnaire, we assessed students' perceptions of psychologically controlling teaching behaviors from their supervisors using the seven-item Psychologically Controlling Teaching Scale (Soenens et al., 2012). We translated the items into Chinese and adapted to the service-learning context. Higher scores on the scale reflect a more controlling supervising style. Example items include the following: "My supervisor often interrupts me," and "My supervisor is less friendly with me if I do not see things his/her way." Scale points ranged from 1 "completely disagree" to 5 "completely agree." Internal consistency reliability was good (Cronbach's alpha coefficient = 0.93).

2.3. Analysis

To explore how students' knowledge transfer evolves during SL (RQ1), we assessed their perceived knowledge transfer across eight time points from Week 6 to 14 in an 18-week semester. Data from previous studies suggest that there are four developmental stages of student engagement during a 9-week SL program (Guo et al., 2016b). Descriptive statistics of student perceived knowledge transfer across eight time points confirms such stage classification. Therefore, we described the development of student perceived knowledge transfer using the four stages that identified from previous work, namely the confusion and hesitancy stage (1st time), the enlightenment and enthusiasm stage (2nd and 3rd time), the fluctuation and adjustment stage (4th to 7th time), and the stabilization and routinization stage (8th time). Repeated-measures analysis of variance (ANOVA) was used to examine the fluctuations of perceived knowledge transfer across the four developmental stages. To further understand the pattern of students' perceived knowledge transfer development across students (RQ2), we conducted a model-based cluster analysis on students' perceived knowledge transfer across four developmental stages. The Bayesian information criteria (BIC) were considered to determine the optimal classification. After identifying the groupings of participants, repeated-measures ANOVA was conducted to test the development of perceived knowledge transfer across groups. To explore the differences between groups of students (RQ3), we conducted multinomial logistic regression to test the associations between the predictors (i.e., mastery goal orientation and psychological control) and the identified groups. Statistics were done using R version 4.0.2, the mclust (Scrucca et al., 2016), the nnet (Ripley et al., 2016), and the rstatix (Kassambara, 2020) packages.

3. RESULTS

3.1. Students' Perceived Knowledge Transfer Fluctuated Across Four Stages of SL

As shown in **Figure 1**, students' perceived knowledge transfer fluctuated across the whole SL program. Repeated measures ANOVA indicated significant differences in students' perceived knowledge transfer across the four stages [$F_{(2.6,\ 246.98)} = 8.82$, $p < 0.05$, $\eta^2 = 0.05$]. Pairwise comparisons suggested that students' perceived knowledge transfer significantly increased from Stage 1 to Stage 2 ($p < 0.001$). No significant difference was found between Stages 2 and 3, although we observed a slight drop in the level of perceived knowledge transfer during Stage 3. students' perceived knowledge transfer rose to a high point and peaked during the last stage of the 9-week SL program. students' perceived knowledge transfer during Stage 4 was significantly higher than those in Stage 1 ($p < 0.001$), suggesting that participating in the 9-week SL program might foster students' perceived knowledge transfer.

3.2. The Pattern of Perceived Knowledge Transfer Development Varied Across Students

Students' perceived knowledge transfer scores across four stages were used in model-based cluster analysis for the categorization

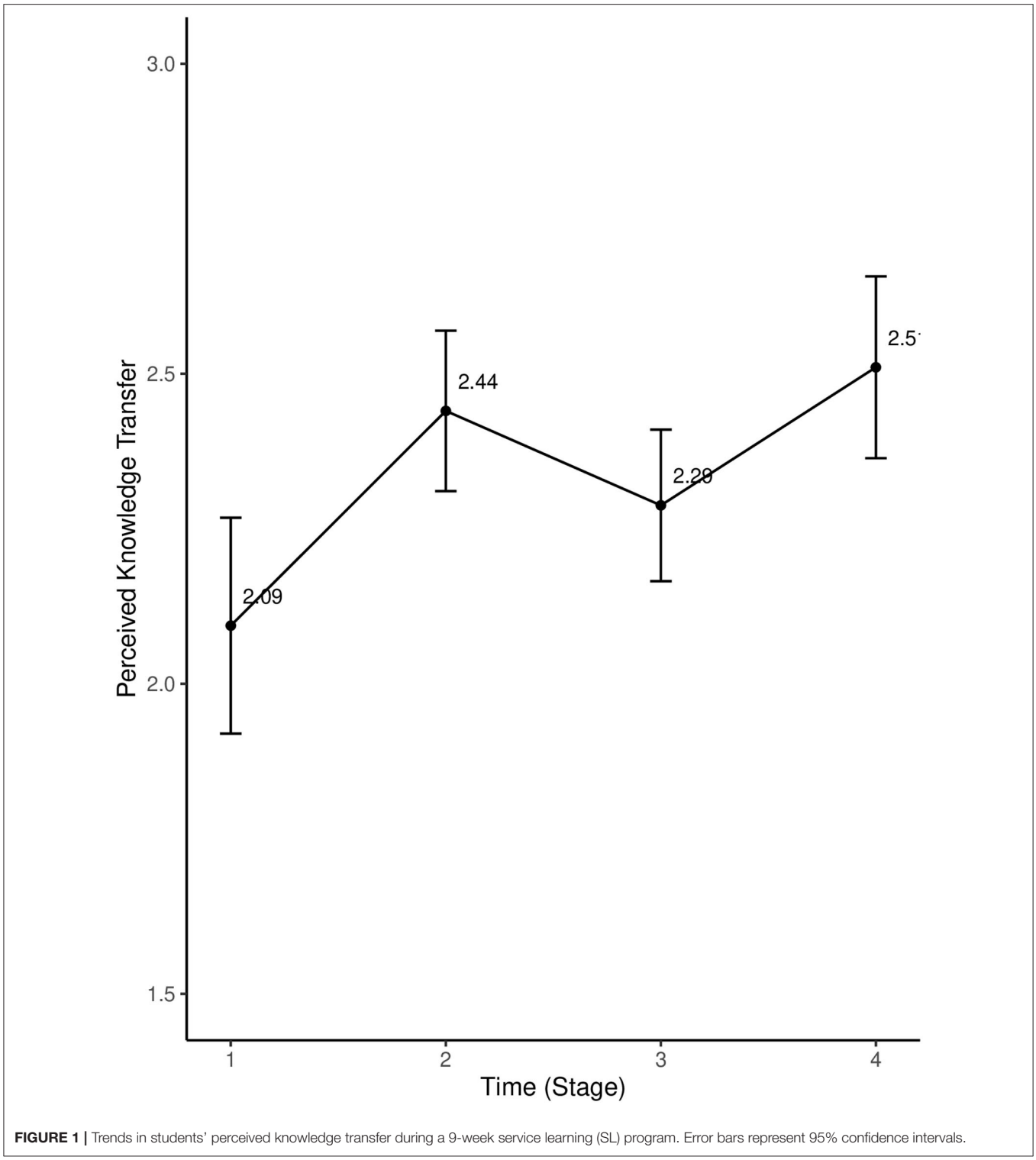

FIGURE 1 | Trends in students' perceived knowledge transfer during a 9-week service learning (SL) program. Error bars represent 95% confidence intervals.

of groupings. Based on the best BIC values, the cluster analysis approach produced five clusters with 27 students in Group 1, 12 students in Group 2, 46 students in Group 3, four students in Group 4, and seven students in Group 5. We found a significant interaction effect between time and group on students' perceived knowledge transfer, $F_{(9.36,\ 213)} = 8.32$, $p < 0.001$, $\eta^2 = 0.19$. This result suggests that the developmental pattern of perceived knowledge transfer varied across groups of students. **Figure 2** shows the developmental pattern of perceived knowledge transfer for each group.

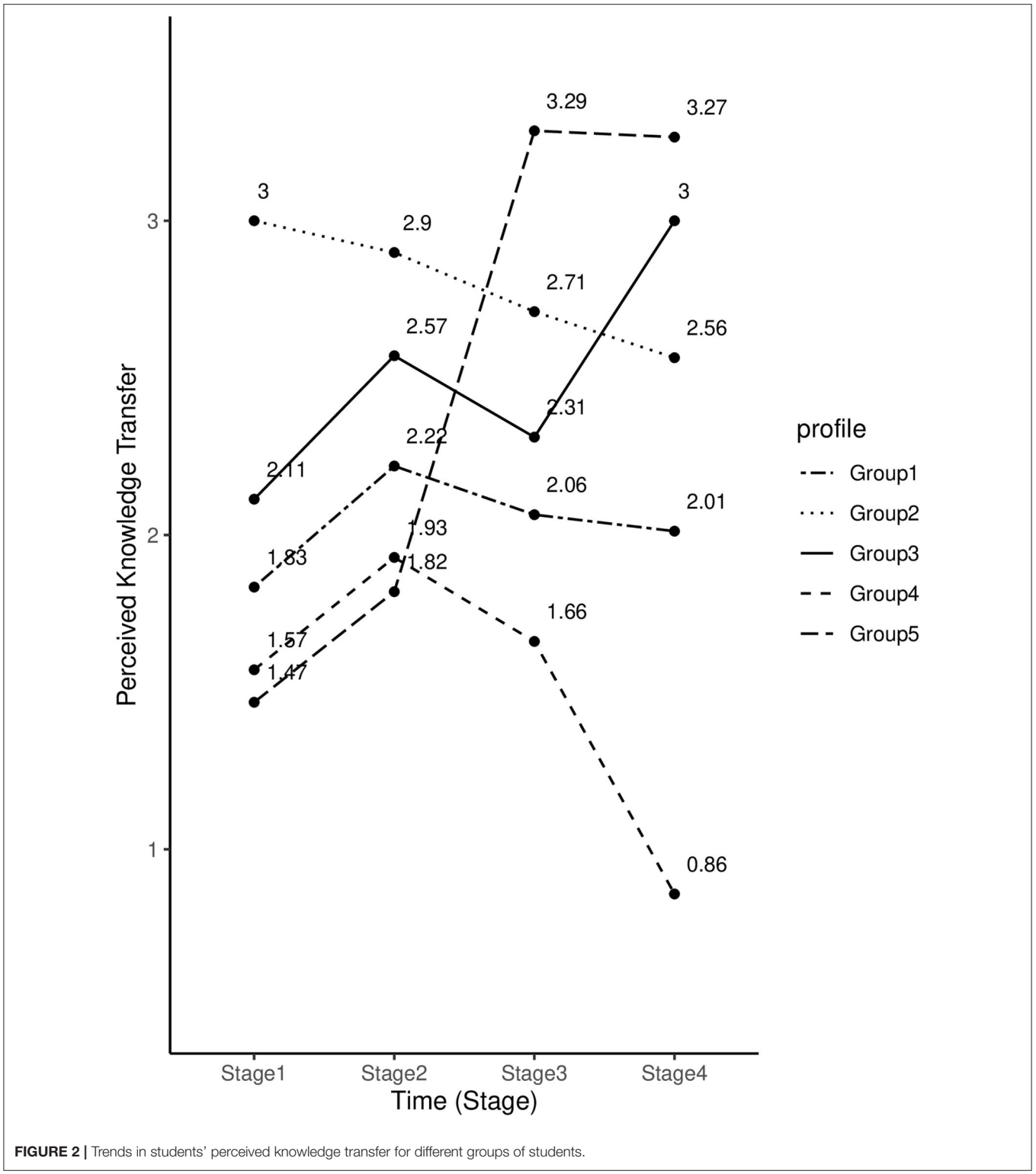

FIGURE 2 | Trends in students' perceived knowledge transfer for different groups of students.

Group 1 accounted for 29% of the whole sample. Students in this group reported moderate levels of perceived knowledge transfer in Stage 1. There was a slight rise in perceived knowledge transfer from Stage 1 to 2; however, it gradually decreased since Stage 2. Group 2 accounted for 14% of the sample. These students demonstrated a high level of perceived knowledge transfer at the beginning of the SL program; however, their perceived knowledge transfer steadily declined for the rest of the program. Group

TABLE 1 | The results of multinomial logistic regression.

		B (SE)	95% CI	Odds ratio
Group 1 vs. Group 2†	Mastery goal orientation	−0.89 (0.73)	[−2.32, 0.54]	0.41
	Psychological control	0.47 (0.70)	[−0.89, 1.84]	1.61
Group 1 vs. Group 3†	Mastery goal orientation	−1.44* (0.59)	[−2.60, −0.29]	0.24
	Psychological control	1.19* (0.58)	[0.05, 2.32]	3.27
Group 2 vs. Group 3†	Mastery goal orientation	−0.55 (0.71)	[−1.94, 0.83]	0.57
	Psychological control	0.71 (0.72)	[−0.69, 2.12]	2.04

*The groups with † serve as baselines in the models. *p <0.05.*

3 accounted for the largest proportion (46%) of the sample. Perceived knowledge transfer score increased from Stage 1 to 2. Although there was a slight drop in Stage 3, it rebounded and peaked in the last stage of SL. Groups 4 and 5 accounted for 7 and 4% of the sample, respectively. These two groups had similar patterns during Stages 1 and 2. Students had relatively low perceived knowledge transfer scores at first. Then, the scores increased in Stage 2. Dramatic differences between Groups 4 and 5 were observed after Stage 2. For Group 4, there was a steady decline in students' perceived knowledge transfer; in contrast, Group 5's perceived knowledge transfer increased sharply from Stage 2 to 3, and it maintained the same level until the end.

3.3. Trends in Students' Perceived Knowledge Transfer Were Associated With Students' Mastery Goal Orientation and Their Perceptions of Psychologically Controlling Behaviors From Their Supervisors

To further understand the differences among students in terms of their perceived knowledge transfer development, we tested the predicting effects of perception of psychological control and mastery goal orientation on group membership (profile). Groups 4 and 5 were excluded from the following analyses as the sample sizes of these two were limited. The results of multinomial logistic regression are shown in **Table 1**. Students who perceived more psychologically controlling behaviors from their supervisors had higher possibilities of membership in Group 1 relative to Group 3. Students with higher scores of mastery goal orientation presented higher possibilities of membership in Group 3 relative to Group 1.

Groups 1 and 3 accounted for 75% of the whole sample. As shown in **Figure 2**, the major difference in the perceived knowledge transfer patterns between Groups 1 and 3 was observed between Stages 3 and 4. For Group 1, students' perceived knowledge transfer remained steady across the two stages. In contrast, Group 3 demonstrated a marked increase in perceived knowledge transfer from Stage 3 to 4. Compared to Group 1, Group 3 showed a more adaptive trend in perceived knowledge transfer. These findings suggest that college students' perceived knowledge transfer development during a 9-week SL program may be promoted by mastery goal orientation and impeded by perceptions of psychological control.

4. DISCUSSION

Although the positive impact of SL on college students' knowledge transfer has been well-established (Markus et al., 1993; Eyler and Giles, 1999; Deeley, 2010; Prentice and Robinson, 2010; Gerholz et al., 2018; Wang et al., 2019b), the developmental characteristics of knowledge transfer as well as the influencing factors have not been investigated. In the current study, we investigated how students' perceived knowledge transfer evolved within the context of a 9-week SL program and examined the impact of mastery goal orientation and perception of psychological control on this process. By providing evidence of the dynamic process and mechanisms of students' perceived knowledge transfer development, the present study contributes to our understanding of how, when, and why the benefits of SL are realized. It directly addresses calls for investigating the underlying mechanisms of how SL enhances student academic outcomes (Eyler, 2000; Furco et al., 2016).

Drawing upon the developmental stages identified in previous studies (Li et al., 2016; Guo et al., 2016b), we divided the 9-week SL program into four stages, namely the confusion and hesitancy stage, the enlightenment and enthusiasm stage, the fluctuation and adjustment stage, and the stabilization and routinization stage. Despite these stages being initially identified to describe the characteristics of student engagement, the changes of perceived knowledge transfer across eight time points demonstrated the same pattern. This is not surprising because the link between engagement and academic success has been consistently demonstrated in traditional learning contexts (Finn and Zimmer, 2012) as well as in SL (Wang et al., 2019b).

On the question of the development pattern of perceived knowledge transfer, we found that students' perceived knowledge transfer in SL did not follow a linear trajectory. Although students' perceived knowledge transfer at the end of SL (i.e., Stage 4) was significantly higher than those at the beginning (i.e., Stage 1), a drop was observed in the middle of SL during Stage 3 (4th to 7th time). The drop in perceived knowledge transfer might be related to the development of the SL activities. After implementing and revising interaction plans several times, students started to establish routines for their SL activities during Stage 3. Rather than setting new goals or designing new interactive activities, students were more likely to make minor modifications to their interaction plans. Although they still used the knowledge they learned from classes to serve children with special needs, students tended to underrate their levels of knowledge transfer as the learning principles that were included in their interaction plans or activities were mostly adopted from previous ones rather than newly added. The changes in SL activities may also explain the rebound in perceived knowledge transfer during Stage 4 (8th time). In the last SL activities, students not only implemented their accustomed interaction

activities but also designed new activities to celebrate the end of SL with the recipients. Unlike behavior modifications, a farewell celebration focuses on emotional communication and creating a relaxing atmosphere, which offers students opportunities to apply new knowledge and techniques related to learning sciences.

Another important finding was that the developmental pattern of perceived knowledge transfer in SL varied across students. Although five groups were identified with model-based clustering, 75% of the students belong to Groups 1 and 3. The developmental pattern of perceived knowledge transfer for Group 3 is similar to the one for the whole sample. Despite a slight drop during Stage 3, students' perceived knowledge transfer increased throughout the SL program. Students in Group 1 had a similar developmental pattern as Group 3 between Stages 1 and 3; however, their perceived knowledge transfer did not pick up during the last stage of the program. Compared to Group 1, students in Group 3 demonstrated a more adaptive developmental pattern of perceived knowledge transfer. The variability in college students' perceived knowledge transfer development suggests that teachers should be mindful of students' cognitive and emotional states when implementing SL activities and provide them with distinct interventions.

Drawing from two contemporary motivation theories, we examined the associations of two social-cognitive variables—mastery goal orientation and psychological control—with patterns of perceived knowledge transfer development. The present investigation contributes to our understanding of the social and cognitive factors influencing students' learning development when in SL contexts. The findings showed that students who perceived less psychological control from their supervisors and possessed higher levels of mastery goal orientation had higher possibilities of membership in Group 3. That is, they were more likely to demonstrate adaptive development patterns in perceived knowledge transfer during a 9-week SL program. Mastery goal orientation and psychological control play essential roles in affecting college students' perceived knowledge transfer development and raise the question as to what strategies instructors may use to promote mastery goal orientation and stop being psychologically controlling in the context of SL. Evidence from self-determination theory research suggests a number of approaches, such as providing students with choices, acknowledging students' perspectives, providing meaningful rationales, avoiding controlling language (e.g., "should," "must," "have to"), and staying away from salient reward contingencies (Ryan and Deci, 2017). To foster students' mastery goal orientation, the TARGET framework (Ames, 1992) provides instructors with a toolbox of teaching strategies for creating mastery-oriented learning environments, such as focusing attention on students effort, not on abilities, de-emphasizing the negative consequence of making errors, and helping students establish feasible, but challenging goals.

The current study has several limitations we should note. First, the findings are exploratory in that they represent student experiences within a single SL program that was embedded in the course of *Psychology of Learning*. As such, the sample does not represent all fields and potentially over-samples students along gender lines. It would be beneficial to replicate these results in a variety of different types of courses and fields. Second, students' perceived knowledge transfer was assessed with a single-item measure. Although single-item measures generally perform well when gauging a holistic perception (Youngblut and Casper, 1993), as is the case here, a multiple-item measure would be necessary if researchers intend to obtain a better estimate of the construct. Third, it is intriguing that mastery goal orientation and perception of psychological control were associated with patterns of perceived knowledge transfer development; however, there may be alternative influential factors based on other theoretical frameworks that future research needs to explore. Moreover, the findings about the changes in perceived knowledge transfer need to be interpreted with caution, as we do not have a comparison group showing how students' perceived knowledge transfer evolves in a regular lecture-based learning context. Further quasi-experimental investigations are needed to determine the impact of SL on the development of perceived knowledge transfer.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Beijing Normal University. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

CW and MY designed the study. CW, FG, YL, and MY collected the data. CW and WY formulated the hypotheses. CW performed the statistical analyses and drafted the manuscript. CW, WY, FG, YL, and MY revised and edited the manuscript. All authors contributed to the article and approved the submitted version.

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A Theoretical Framework on Reflection in Service Learning: Deepening Reflection Through Identity Development

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In higher education, well-designed service learning combines service activities and academic knowledge in reflection, generating essential learning outcomes: academic enhancement, personal growth, and civic engagement. As research on reflection in service learning has shown, the process of reflection deepens through description of service experiences, examination of those experiences and articulation of learning. This article provides a theoretical explanation of deepening the reflection process by incorporating reflection theory and identity theory of college student development, professional development, and general identity development. Expanding the theoretical explanation of the reflective process clarifies the conditions of the deepening student reflection process in service learning in the following ways. First, it focuses on concrete experience then-and-there at that moment rather than abstract impressions by paying attention to personal dissonance in the experience. In addition, it finds discrepancies from differences of views, perspectives, and backgrounds between those of students and others. It connects outward exploration of those differences and inward exploration to construct internal voices toward self-authorship. The deep reflection process requires confronting contradictions through dialogical interplays among the I-positions of their own and others. It bridges discontinuities between past, present, and future selves by expanding the time perspective retrospectively and prospectively, and solving contradictions embedding in their prejudice. Furthermore, it activates plurality in social norms and values. The above conditions should be design principles for deepening critical and dialogical reflection in high-impact service learning. Through deepening reflection in service learning, it can be expected to activate mutuality and support generativity toward solidarity against hostility.

Keywords: reflection, DEAL model, self-authorship, ALACT model, dialogical self theory, identity development

BACKGROUND AND PURPOSE

Research findings on service learning have shown that in higher education it has improved student learning outcomes (Eyler and Giles Jr, 1999; Astin et al., 2000; Conway et al., 2009; Celio et al., 2011). In particular, service learning promotes civic engagement and enhances civic attitude, thus playing a role in civic learning in higher education (Bringle and Clayton, 2012; Bringle et al., 2015; Gelmon et al., 2018). Service learning has been established as one of the high impact educational practices in higher education (Kuh, 2008; McCormick et al., 2013).

Research has clarified the learning outcomes that service learning produces, as well as the developmental process that generates those outcomes. One of the central components of this process is reflection, which is defined as "intentional consideration of an experience in light of particular learning objectives" (Hatcher and Bringle, 1997, p. 153). Through reflection, students learn from their social experiences in the community and connect them to academic knowledge (Ash and Clayton, 2009; Kawai and Kimura, 2014).

This paper will expand the theoretical explanation of the relationship between student reflection and outcomes, incorporating reflection theory and identity theory in the broader contexts. It will first provide the review of students' reflection in service learning research, focusing on the model which explains the process for how reflection can generate learning outcomes. It then moves outside the service learning research, to incorporate developmental theory in higher education and professional education. The former, student development theory in college (Evans et al., 2009a; Patton et al., 2016), includes cognitive, intrapersonal, and interpersonal development. Using these theoretical resources enables reinterpretation of the reflection process in service learning and can offer new ways to guide practice and research. Professional education has established the framework of the process of becoming a professional (e.g., teacher, nurse, designer, engineer, lawyer). Research in these areas (Schön, 1983; Korthagen et al., 2001; Benner et al., 2009) recognized these continuous process as making professional identity. Furthermore, based on identity development theory (Schwartz et al., 2011; Côté and Levine, 2014), this article will explain how reflection processes deepen and generate several outcomes and leads to a reinterpretation of the broader relevance of service learning to student development. After focusing on student learning and development, the analysis will discuss the generative character of service learning in relation to society.

HOW DOES REFLECTION WORK: STUDENT REFLECTION FROM SERVICE LEARNING RESEARCH

The DEAL model for critical reflection consists of three steps with prompts: detailed Description of the service experiences; Examination of those experiences in light of specific educational objectives; and the Articulation of Learning to set goals for improved future action by reexamining the source and contexts of practice (Ash and Clayton, 2009; Whitney and Clayton, 2011; Jameson et al., 2013; Whitley, 2014). This model focuses on critical reflection, which is a reflective process guided by critical thinking standards (Paul and Elder, 2001). The DEAL model promotes reflective writing and connects service experience with academic knowledge, civic learning, and personal growth. The third step, articulation, expands students' future perspectives, generating personal values, and enhancing civic awareness. Critical reflection examines and questions the contexts surrounding an experience. Contexts are usually taken for granted but they are the stage and matrix from which experiences can emerge (Bateson, 2000). In critical reflection, students confront a series of questions. They specify students' experiences through description and examination: What was the scene? Who was involved? What did he or she think? Why did it happen? Why did he or she do that?

The phase of examining service experience in the model requires students to relate their experiences to educational objectives (Ash et al., 2009). On personal growth, prompts ask students to clarify their strength and weakness. In terms of civic engagement, students examine what they accomplished and alternative ways of approaching their civic activities (e.g., compare and contrast, propose alternative actions, evaluate consequences). For academic enhancement, they reconsider the relevance of and application of academic concepts to their community-based experiences and reinterpret them.

This model uses revised Bloom's taxonomy based on constructive view of learning (Anderson and Krathwohl, 2001) to have students probe the meaning of their experiences. Prompts are designed to orient them to higher order cognitive examination, namely meta cognitive process. Based on description and examination, the articulation of learning inquires into the background of experience, asking how contexts influence events and experience, what kind of factors cause people's behavior or ways of thinking, what values and beliefs enables or constrain their thoughts and behaviors. Engaging service experiences and deepening description and examination on them facilitates students' meaningful articulation of their learning.

Research based on this model with prompts has revealed what kinds of components function in students' reflection through service-learning and how well-instructors facilitate them (Ash et al., 2009; Ash and Clayton, 2009). This model is helpful for designing courses and writing assignments focused on academic learning, civic learning, and personal growth, and for assessing students' reflection. Another study revealed that reflection in service learning not only connects academic learning and service experiences, but also bridges the relationship between curricular or co-curricular learning and extra-curricular experience (Kawai, 2012). It also suggested that reflection can expand beyond the service learning program creating such bridge learning to other disciplinary knowledge, extra-curricular experiences and future purposes (Kawai and Mizokami, 2013; Kawai and Kimura, 2014; Kawai and Moran, 2017). Theoretical explanations on the reflection process need to describe how to deepen this process and generate learning outcomes from the wider perspectives. For this purpose, this article weaves together three threads of theory focusing on reflection and

identifies the elements of reflective practice in each of the theories connecting to be intrinsic to service-learning practice: student development theory, professional development theory and identity development theory.

DEEPENING REFLECTION FROM DEVELOPMENTAL THEORY IN HIGHER EDUCATION

Student development theory in college has been expanded, covering multiple domains such as cognitive and epistemological development, ethical development on values and beliefs, social and interpersonal development, and social identity development related to class, race, ethnicity and gender (Evans et al., 2009a; Patton et al., 2016). Fundamental dimensions of student development consists of three dimensions: cognitive, intrapersonal and interpersonal development. In cognitive development, students shift from the dualism where knowledge is right or wrong to a multiplicity of knowledge that accepts diverse opinions and reasons. They then develop an understanding of relativism and commit to relating diverse knowledge from their own perspective and making decisions based on this multiplicity (Perry, 1968; Evans et al., 2009b). In the intrapersonal and interpersonal dimensions, students inquire about their beliefs, values and purposes in life and build relationships of trust with diverse others by broadening their social interactions. Student development theory has conceptualized intrapersonal and interpersonal development as identity development (Chickering and Reisser, 1993). Through differentiating and integrating them in daily experience, students form their identities, which function as a foundation for their daily activities and future orientations (Bronk, 2013; Jones and Abes, 2013; Kawai and Moran, 2017).

The comprehensive perspective on student development has been established as a kind of self-authorship development that synthesizes cognitive, intrapersonal and interpersonal dimensions. Student self-authorship means becoming the authors of their own lives and "the internal capacity to define one's beliefs, identity and social relations" (Baxter Magolda, 2001, p. 269). Self-authorship corresponds to essential learning outcomes (AAC U (Association of American Colleges Universities)., 2007; Baxter Magolda, 2007), which has become embedded in many universities' missions, especially regarding the intellectual development into self-directed learners, self-regulated learners, life-long learners, and critical thinkers (Baxter Magolda, 2001; Ambrose et al., 2010; Nilson, 2013). The development of self-authorship is also related to civic outcomes based on civic engagement toward the betterment of society (Love and Guthrie, 1999; Baxter Magolda and Boes, 2017).

Student development theory of self-authorship is grounded at the junction of the theories of epistemological and intellectual development (Baxter-Magolda, 1992; King and Kitchener, 1994, 2004), and constructive developmental theory elaborated by Kegan (1982). Developmental theory of self-authorship becomes a holistic view of student development by incorporating constructive developmental theory. From the constructive developmental perspective, the central feature of the developmental process is making meaning, i.e., the way people organize and interpret experiences. For the developmental process, it is not events themselves that are significant but how people make sense of them. The evolution of meaning-making unfolds over time and emerges in more a complex form in three major dimensions: cognitive, intrapersonal and interpersonal (Kegan, 1982, 1994). These three dimensions of development relate to their respective questions: How do I know, who am I, and how do I want to construct relationships with others. Theory on self-authorship expands beyond cognitive development such as reflective judgment and epistemological reflection to intrapersonal and interpersonal development (Baxter Magolda, 2001, 2004). Constructive developmental theory focuses on the subject-object relationship as a key factor for developmental force (Kegan 1982, 1994). The subject represents elements that people cannot sufficiently reflect on, have control over, or be responsible for; if people can do so, this element is an object. The self-authoring mind requires the movement of subject to object by generating internal judgment and personal authority (Kegan and Lahey, 2009).

A large-scale longitudinal interview survey has revealed the multi-faceted phases of the transition toward self-authorship (Baxter Magolda, 2009; Baxter Magolda and King, 2012). The first phase is "following formulas": students follow authority as source of right answers and define their beliefs, values and relationships externally. In this phase, they move from trusting authority to facing tensions with this uncritical trust and recognizing the shortcomings of depending on external authority. Dissonance pushes students to the second phase of "crossroads" where they question external authority, are aware of the need for their internal voices, and further explore ways of constructing them. The process of leaving these crossroads includes listening and cultivating internal voices, and gradually differentiating perspectives of their own and others. In the third phase of "self-authorship," students trust their internal voices, build their internal foundation and secure internal commitments although only a small group of survey participants reach this self-authorship phase.

For diverse students, there are three dimensions of self-authorship development, i.e., cognitive, intrapersonal and interpersonal dimensions, but there is no consequential sequence to the development of these dimensions and it is not clear which ones trigger development. One illustration describes how dissonance with other students' views in cognitive dimension and interpersonal dimensions provokes intrapersonal exploration for constructing an internal voice (Baxter Magolda, 2004; Baxter Magolda and King, 2012).

The subsequent research provides explanations for several important moments in the shift from external dependent status to internal independent status (Pizzolato, 2007; Barber and King, 2014). Tensions with the external authority one depends upon emerge through contact with new ideas and opinions from other people. The difference brought by other people produces instability and uncertainty into the perspective dependent on external authority. From the viewpoint of the subject-object relationship, the movement from depending on external authority to recognizing the insufficiency of this stance

is a shift in formula from subject to object. Although the external orientation as a predominant source of defining one's beliefs, identity and relationships is superseded by internal capacity, the external orientation does not disappear but is concomitant and balanced with internal orientation for making meaning. When students who depend on external authority experience discomfort and dissonance persistently, they tend to resolve them by exploring effective resources and support, thus engage in action for constructing internal voices. To rebalance the external and internal orientations, students struggle to reexamine their own prejudices and assumptions.

In the phase of proceeding to self-authorship, students explore and construct their internal voice while continuing their outward exploration. As they question the absoluteness of external authority in entering the crossroads, they probe their assumptions, values, and self-identities in the phase of leaving crossroads and self-authorship. They do not uncritically receive definitions and interpretations of themselves, but critically examine their underlying assumptions, leading to the reconstruction of these interpretations. In the process of constructing their internal voices, students unfold and articulate them gradually: in the earlier phase, an internal voice or sense of self is undifferentiated from themselves; in the later phase, these voices are differentiated into several self-identities and thus take a role of internal foundation for persistent action and commitment. The intrapersonal and interpersonal developmental dimensions connect to the cognitive dimensions such that personal agency from intrapersonal and interpersonal development can function as the foundation for self-directed learning with higher order thinking and self-regulation. Therefore, the phase of self-authorship achieves desirable learning outcomes in higher education.

DEEPENING REFLECTION FROM DEVELOPMENTAL THEORY IN PROFESSIONAL EDUCATION

The second theory relevant to improving the reflection process is derived from research in teacher education, which is a prominent research area in professional development alongside nursing research. Teacher education includes the topics of expertise, pedagogy, pedagogical content knowledge, teaching teacher, curriculum, reform, and policy (Loughran and Hamilton, 2016). In teacher training programs, research highlights how identity as a teacher develops (Korthagen et al., 2001; Olsen, 2008).

Identity development has external aspects of life experience, relationships and contexts, and internal aspects to the individual such as emotion. Self and identity share evolving processes over time, with the self as meaning maker and identity as meaning made (Rodgers and Scott, 2008). For professional development as teachers, their identity is continuously constructed through their lives as teachers and is central to their reflective practice of teaching (Korthagen, 2004).

Recently, assessment research on teacher identity has been started even though it is correlational analysis (Hanna et al., 2019, 2020). It revealed that the central factor of teacher identity was categorized as motivation, which has broad meanings including the intrinsic career value to teaching, satisfaction with teaching, self-evaluation of their work, and the desire to become a teacher. The theoretical framework of this survey research is the idea of identity-based motivation (Oyserman, 2008), wherein the motivation for becoming a teacher consists of the desire to become one and the possible selves theory (Hamman et al., 2010) wherein the extent to which one imagines being a teacher in the near future as the ideal self or future perspective influences the motivation for becoming a teacher (Zhang et al., 2016). A sense of identity involves continuity as accumulation of ongoing life experience and time perspectives on past, present and future.

Reflection assumes a key role in teacher identity development (Korthagen et al., 2001; Beauchamp and Thomas, 2009) and functions not only at the level of behavior and competencies but also at the level of identity and mission where they see why they are becoming teachers (Korthagen, 2004). In teacher development, the model of reflection process is called the ALACT model and it tells supervisors (teacher-in-training instructors) how to intervene (Korthagen et al., 2001). The first phase of reflection is Action and supervisors help find useful experiences. Phase 2 is to Look back on that action, Phase 3 is to be Aware of the essential aspects of events and experiences, and Phase 4 is to Create alternative methods of action. Through these phases, supervisors support practitioners as follows: using acceptance and empathy, showing genuineness, focusing on concreteness of events, confronting discrepancy or contradiction between practitioners' thoughts and actions, generalizing beyond specific experiences, utilizing here-and-now experiences, and making things explicit. The final phase is Trial and supervisors help to continue the learning process.

This teacher reflection model works to deepen reflection acquiring core quality, which involves teachers' identity and mission (Korthagen and Vasalos, 2005). Without tapping into their identity, teachers slip into superficial and technical considerations about their teaching. The core reflection process sticks to clarifying what problems they encounter and contrasting present issues with their desired situations. The following phases is that teachers become aware of ideal situations, limitedness, and core qualities in looking back on experiences. Core reflection identifies external obstacles in contexts and environments, but also examines how one constructs oneself internally (Korthagen, 2014). It answers what one wants to achieve or create, how one prevents oneself (i.e., one's behavior, feeling, images and beliefs) from achieving them, and what core quality is needed to realize the ideal situation and overcome the limitations. After teachers embed themselves into situations, they move on to new situations and induce alternative methods from these reflections that mobilize their core qualities. Supervisors trust students' autonomy in the core reflection process and support their becoming aware of internal potential (Meijer et al., 2009).

This teacher reflection model probes the core reflection process involving teachers' selves, identities, and missions. Further research is needed to attempt to explain theoretically how the self relates to and develops in this process. Progress has been made by research from the theoretical perspective of the

dialogical self (Hermans et al., 1992; Hermans and Hermans-Konopka, 2010; Akkerman and Meijer, 2011; Hermans and Gieser, 2011). Teacher identity development is an ongoing and dialogical process of negotiating, interrelating, and reconciling multiple selves through narrating (Akkerman and Meijer, 2011). Dialogical self-theory has established the multiplicity of self, which means the self as constituted by multiple I-positions. Each I-position has a voice with its own viewpoint and conducts story-telling. A student, for example, could have the I who intends to socialize out of class, the I who struggles to get good grades in class, and the I who wants to build a professional career at work. The multiplicity of the self implies that an I-position cannot completely overwhelm and conquer other I-positions, but each I-position interplays at their juxtapositions. Through narrating and re-narrating (Clandinin and Rosiek, 2007) with supervisors' appropriate intervention, students can shift from conflictive confrontation, with contradiction and discontinuity, to harmonious reconciliation.

Teacher identity development involves resolving tensions between multiple beliefs from childhood, schooldays, and the workplace (Alsup, 2006). As suggested by this teacher reflection model, teachers strive to look back on their experiences and make sense of them by taking their students' perspectives and asking: what do they want, what do they do and think, and how they feel (Korthagen and Vasalos, 2005; Korthagen, 2014). There is discontinuity in teachers' identity development when they face the gap between their ideals and actual problems. Confronting problematic situations, the question of what is ideal facilitates their reflection, interrogates who they are at that moment, and illuminates what an ideal self as teacher would do. Core reflection scrutinizes both external situations and contexts and inward internal potentials and alternatives. Core reflection confronts the problem that previous I-positions were unaware of the source of conflict and that there was a discrepancy between the experienced self and the ideal self. In the ongoing process of daily teaching practice and narrating their experiences, teachers can reconcile the discrepancies in their continuous narrative by making or renewing I-positions in some cases, or through clarifying the limits and obstacles of previous I-positions and teaching experiences. Based on these reconciliations, they can generalize lessons or beliefs from their experiences and try alternative methods of action.

Research based on the teacher reflection model confirms that the reflective process relates to a sense of identity by posing the question of who I am at that moment. Teacher identity development associated with dialogical self-theory sheds new light on this reflective process. As the constitutive developmental theory including self-authorship development explained above, the process of deepening reflection is the movement of subject to object. A subject is unaware of its I-position but after a new I-position is differentiated, the subject becomes an object. Through daily practice, confronting dissonance or contradiction invokes reflection and interplay between multiple I-positions. Reconciling them does not dispose of previous I-positions but creates co-existence at their juxtaposition with a resilient continuity and "the agency of self" (Hermans, 2011) for future practice.

DEEPENING REFLECTION FROM IDENTITY DEVELOPMENT THEORY

The third thread of theory is identity development theory. The discussion so far inquires how the reflection process reaches holistic identity development. This section examines comprehensive identity theory itself. Beyond the dichotomy of the personal and social dimensions of identity (Vignoles et al., 2011; Vignoles, 2018), recent identity theory synthesizes a model of triadic development grounded on both psychology and sociology (Côté and Levine, 2014; Côté, 2019).

Psychological theorization of identity consists of three levels of social, personal, and ego identity, four junctures between the levels and three principles of integration, differentiation, and continuity corresponding to each level. Social identity works in social structural contexts based on integration into the community and the broader society around it. Personal identity functions in the interaction that differentiates between the self and the other. Ego identity synthesizes the continuous experience of the personality process. These three levels identity do not work independently but are interconnected. The first juncture from social identity to personal identity is validation and challenge regarding to socialization, where social structure influences daily practice. The juncture from personal identity to ego identity is interpretation on one's identity which works as ego synthesis. Through this interpretation, meanings are internalized into the continuity of selves such as a personality. The juncture from ego identity to personal identity is strategic intentions for action which function as ego executives. This is self-presentation to daily interaction and is involved in action and practice. Finally, the juncture from personal identity to social identity is identity displays as collective activities which have, to some extent, effects on social structure contexts.

Sociological theory takes account of the contexts of identity development and cultural and historical conditions. Late-modern society influences the individualized life course, in which one develops one's self as an "individual," dissociating from collective supports and values (Giddens, 1991; Beck and Beck-Gernsheim, 2002). Youth development in the school to work transition has been influenced by this individualization and youth follow paths in the continuum between the default and developmental individualization (Côté and Levine, 2015).

A default individualization is produced by lack of engagement in deliberative decision making for action and a superficial perspective for the future. In the triadic model of identity development, it doesn't function at the level of ego identity, i.e., ego syntheses and ego executives, instead confusing or diffusing identities. Unless they engage intentionally in identity formation, continuity, the third principle of identity, promises nothing but default individualization. Conversely, people who pursue developmental individualization are involved in a proactive approach for identity formation. They engage in exploration

and taking deliberate action for possible selves while broadening future perspectives and purposes. Continuity sets the space where time perspective extends from past to present and future through retrospective and prospective reflection. It also unfolds the movement of subject to object and dialogical interplays among I-positions. Purpose consists of present engagement and future life perspectives including these extending time perspectives, and so consolidates them and creates the function of agency (Emirbayer and Mische, 1998; Damon, 2008). Therefore, the triadic identity formation with integration, differentiation, and continuity can provide an individual's self-regulated agency based on intrapersonal dynamics, as discussed above, which is named identity-based agency (Côté and Levine, 2014, 2015; Côté, 2019).

Identity development provides the function of continuity to reflective practice, in addition to integration and differentiation. Reflective practice unfolds at the level of interaction related to personal identity. If reflective practice sticks to this level and does not involve the level of ego identity, it deadlocks and remains superficial. The triadic model of identity theory explains the conditions of deepening reflective practice by means of outward and inward exploration. Outward exploration is grounded upon integration in various social structures such as the community and the workplace. It also connects prosocial behavior with various others and empathic understanding of others' backgrounds. When outward exploration activates reciprocal inward exploration, reflection can deepen. Inward exploration accompanies the activation of purpose, which enriches future perspectives and fosters engagement with deliberate plans. This active exploration inward creates a proactive approach to identity development and identity-based agency at the three level of life course, interaction, and personality process. To deepen reflection is a continuous exercise of outward and inward identity-based agency at all three level of identity, resulting in developmental individualization for negotiating the transition from school to work.

REVISITING HOW TO DEEPEN THE REFLECTIVE PROCESS IN SERVICE LEARNING

Making the best use of service learning's potential, teachers can deepen students' critical reflection and promote identity development. Well-designed service learning as a high impact educational practice provides opportunities of interaction with diverse others including other students, community residents, and workers in the community service (Bringle et al., 2009). This is an opportunity in which students can encounter new ideas, views, backgrounds, intercultural diversities, and various social identities such as race, ethnicity, class, and gender. Thus, it is an opportunity for social experiences in which they can recognize the differences between suffering individuals and themselves, and also those between the professionals who are role models for students and themselves. Well-designed service learning can encourage civic identity development (Bringle et al., 2015). In service activities, there are ill-structured problems which lack a single right answer from an absolute external authority. These problems orient students to be aware of the deficiency of depending on external formula and help them find their internal voices toward self-authorship. Exposing new and different ideas from service experience in the community builds multiplicity and relativism in their intellectual development, leading to self-authorship (Egart and Healy, 2004; Baxter Magolda and Boes, 2017). To contribute to the outcomes of service activities, each student needs to make their own ideas or take their roles collaboratively, questioning what they can do and who they are. Effective service learning, as survey research revealed (Astin et al., 2000; Celio et al., 2011), can generate cognitive and emotional outcomes only when students engage in service activities and deepen reflection on the experiences from these opportunities.

Not all reflection reaches the level of deep reflection to generate several outcomes. The theoretical explanation of the reflective process, as reviewed above, clarifies several conditions of deepening reflection, which help to elaborate the reflection models from service learning research. These conditions are also design principles for instructors to structure and facilitate students' deep reflection.

The first condition is to start with students' dissonances in service activities. Without specifying the experiences, their reflections produce vague, unfocused, and superficial descriptions. Dissonance is an effective starting point for reflection on concrete experience because it helps to remember the scene, behavior, thinking and feeling then-and-there. Focusing on concreteness is a guideline for describing experiences implied by the tearcher reflection model (Korthagen and Vasalos, 2005; Korthagen, 2017) as well as the reflection model in service learning (Ash and Clayton, 2009). Unless students describe what happens, reflection tends to remain abstract, and hence superficial. Reflection cannot deepen by investigating why something happens without describing what students experience.

The second condition of deepening reflection is to examine discrepancies emerging while describing dissonance in the concrete situations. Instructors should facilitate students' inquiries into discrepancies between actual situations and ideal ones by asking prompts which the reflection models adopt, rather than by providing an instructor's answer. Instructors should push students to reflect on service experience specifically, shifting meaning from uncertain to certain; in other words, they encourage movement from subject to object (Baxter Magolda and Boes, 2017). In this way, students can leave the phase of following external authority and head for constructing internal voices toward self-authorship (Baxter Magolda and King, 2012). Encouragement, however, does not guarantee realizing this movement or establishing an internal foundation for self-authorship. To deepen reflection and make sense of situations, students must engage in inward and outward exploration.

It is essential for deepening reflection to involve in inward exploration through dialogical interplays among I-positions indicated by the dialogical self theory (Hermans and Hermans-Konopka, 2010; Hermans, 2011). Students cannot pursue these dialogues only by imagining them. A single voice in several positions generates only monolog. Only when each position has

a voice would these multi-voiced dialogues begin. Even when multiple stakeholders collaborate effectively in service learning, students face practical, technical or ethical contradictions in the middle of solving problems and achieving goals. From the viewpoints of students, the I-position as a student hesitates to invest more time and effort than expected to get a good grade, but the I-position as a worker in community service feels irritated by the insufficient contribution of other co-workers. Students cannot necessarily solve and reconcile contradictions among I-positions by themselves. They may oversee potential I-positions for activating dialogue among I-positions. Instructors must force students to confront contradictions among their I-positions and encourage their reconciliation.

Outward exploration in the interpersonal dimension is required to activate dialogical interplays among I-positions through inward exploration in the intrapersonal dimension. Well-designed service learning with multiple partnerships prepares an opportunity for interaction with diverse others expanding students' empathy (Hoffman, 2010; Bringle, 2017). To learn fully from these interactions, students should be reflective meaning-makers and engage in further outward exploration. Through it, they must find and identify other people's multiple I-positions just as they are discovering the multiplicity of their own selves. For example, a community worker may have not only a worker I-position but also a parent I-position, a husband I-position, and a immigrant I-position; furthermore, each position has its own voice. It is essential for students to recognize that a person does not have a united monologuing voice, but multiple voices, and perhaps contradictions among his or her I-positions. Therefore, the third requirement of deepening reflection is to confront and reconcile contradictions among I-positions by dialogical interplays and juxtapositions of multiple I-positions from both sides of students' own and others' I-positions.

Instructors should teach students to recognize others' multiplicity as well as the multiplicity among their own I-positions by asking questions with an appropriate balance of support and challenge. The questions include who they are at that moment, what they feel and think then-and-there, what other people do then-and-there, and how they interpret those experiences from the perspective of now-and-here. These questions as prompts facilitate describing their own selves in the situations. Instructors push students to be aware of ideal situations, behavior, and thinking by making use of previous students' or professionals' experiences. These ideals are not the only right answers but alternatives for students' interpretation toward betterment and future action. In this way, skilled instructors should confront students with these contradictions in the process of differentiating the voice of each I-position, making new I-positions sometimes, and reconciling them through the dialogue of their different voices.

Meeting the three conditions above enriches the description of experience and dialogical spaces. Thus, students can examine their experience more critically and deeply compared with the case of superficial descriptions. It expands time perspectives both retrospectively and prospectively. Retrospective expansion of reflection inquires beyond what happened to why it happened. It's the movement of here-and-now to then-and-there. The inquiry investigates not only situations but also students themselves by asking why they did so, felt so, said so, thought so and so on. When they reflect beyond who they were at that moment to why they were so, retrospective inquiry digs back before the experience emerged. Through it, students should confront their prejudice, misunderstanding and patronization by asking how they obstructed themselves and how they constructed themselves. It means finding the discontinuity between the previous, present, and future I-positions and the discrepancies between the actual selves, ideal selves and possible selves. Students often brought their prejudices into service activities, producing unpleasant experience for themselves and stakeholders. They cannot necessarily recognize and solve this problem by themselves. Instructors must make students aware of what and why it happened and ask them to reflect on their prejudices. Because service and learning are a recursive process, skilled instructors should guide students to connect future trial action prospectively in the relationship with the same stakeholders in the same community. Furthermore, from the theorization that active engagement activates purpose in life for the future (Damon, 2008; Bronk, 2013), instructors should encourage students to connect their experience in service learning to reconstruct life purpose.

Students can enhance the quality of deep reflection by persisting in the process of service and learning. One-time-only reflection cannot deepen; the accumulation of making meaning is a necessary condition of deepening reflection. The teacher reflection model showed that technical or practical problem experienced by students can be solved by means of alternative approaches based on the awareness of multiple aspects of experiences and situations (Korthagen et al., 2001; Korthagen, 2017). Likewise, ethical contradictions generate discontinuity between the previous, present, and future I-positions. Reconciling contradictions requires changing the configuration of I-positions with perspective transformation. This reconciling process is a transformative learning process (Mezirow, 1991, 2018; Taylor, 2017). It means that transforming self-identity is identity development. In this way, well-designed service learning provides these continuous processes that sustains the proactive approach for identity formation, which involves future purpose in life and action with exploration of possible self and identities (Côté and Levine, 2014; Kawai and Moran, 2017; Côté, 2019). Reconciling those contradictions can be realized by extending the dialogical space with multi-voiced juxtapositions of I-positions and expanding the time perspective both retrospectively and prospectively. Thus, it creates agency of self (Hermans, 2011) and identity-based agency (Côté and Levine, 2014, 2015; Côté, 2019).

This process also does not necessarily occur. The fourth condition of deepening reflection is to expand its time perspective retrospectively and prospectively, thereby bridging the discontinuities in several relationships. Those are relationships between service experiences and academic knowledge, between past, present, and future selves, and between individuals and society. Instructors must accompany students' persistent reflection and intervene continuously, retracing their past reflection for accumulated meaning making. Therefore,

journal writing is an effective way of deepening reflection for students and instructors as the DEAL and the ALACT models emphasize (Ash and Clayton, 2009; Korthagen, 2017). Because writing functions as an applied meta cognition (Hacker et al., 2009), writing with reply to the above questions should be expected to facilitate movement from subject to object of experience toward self-authorship, to foster the juxtapositions of their own and others' differentiated I-positions, and to expand time perspective retrospectively and prospectively.

Instructors' feedback on reflective writing and inquiry in conversation should confront students with the questions discussed above. Instructors should also require students to apply academic concepts in the context of service activities so that the shifts occur from uncritical acceptance of academic concepts to critical understanding bridged their own experiences (Kawai, 2012; Kawai and Mizokami, 2013; Kawai and Kimura, 2014). Critical understanding of academic concepts means being aware of their limits. This academic enhancement in the cognitive dimension promotes students' interpersonal development from the relationships with familiar others such as friends to relationships with distant others, i.e., those with different backgrounds and cultures, groups which they have not met, and society as a whole. Furthermore, when critical examination on the source of their own prejudice in intrapersonal dimension connects to this academic enhancement, it moves forward to probe the influence of social structure critically, such as social norms and social assumptions which are taken for granted. Instructors must encourage students to think about the effects of social structures as objects and reinterpret the plurality of social norms and values, finding possible alternatives. Seeing social structures as objects and executing identity-based agency enables, if necessary, resisting the oppression of such contexts. When students achieve deep recognition of themselves and social contexts and acquire capabilities for civic engagement, they can contribute to social action. In some cases, they can even construct social entrepreneurship actions such as collective activities, which are a contribution to constitution of society. By making the best use of the educational benefits of service learning, students can transform from passive receptors supported by multiple stakeholders to active constructors engaging civically in collective activities to influence the constitution of society.

Expanding perspectives from individual development to the relationship among individuals, the community and society activates mutuality between them, which is a central principle of sense of identity formulated by Erikson (1968). He wrote about mutuality between a family and infant, "A family can bring up a baby only by being brought up by him [*sic*]" (Erikson, 1968, p. 96). Mutuality means reciprocal relationships, which is core character of service learning (Bringle and Clayton, 2012). His insights expand that mutuality to several relationships: individual and community, and individual and society. Community and society can recognize students' identity and provide energy for their identity formation only by being recognized for their civic engagement. He named the mutual relationship between preceding and succeeding generations as generativity. Mutuality works in generativity in the relationship between preceding and succeeding generations, which is a typical partnership in community service learning. Regarding youth development, the generativity supports intergenerational activation and, for a democratic society, mutual involvement through generativity must resist fragmenting into individualism (Côté, 2019). Therefore, contemporary society requires generative collaboration and solidarity against discrepancy and oppression. Service learning, as civic-minded graduate models show (Bringle, 2017; Bringle et al., 2019; Bringle and Wall, 2020), requires students to care about diverse others and pursue social interests through deliberative democratic dialogue toward ethical generativity. It is essential for individual development to sustain inward and outward dialogue in the three dimensions of cognitive, intrapersonal, and interpersonal. For the relationships among citizens, communities, and society, deliberative democratic dialogue is indispensable to mutual activation of ethical generativity with solidarity against intolerance and hostility.

CONCLUSION

Service learning research has revealed that well-designed service learning generates academic, civic, and personal outcomes through reflection. This paper is based on these findings and provides an expanded theoretical explanation regarding how to deepen reflection, incorporating student development theory, professional development theory, and identity development theory. It reveals the conditions for deepening the student reflection process in service learning. Instructors guide students to focus on dissonance in concrete experiences and to find and describe discrepancies in differences of views or backgrounds between those of students and others. It is not until deep reflection is achieved that students engage in outward exploration of those differences and inward exploration that leads to the construction of internal voices toward self-authorship. Instructors must also resist stopping at a superficial understanding of contradictions from these explorations. Instead, they should force students to confront contradictions through dialogical interplays among their I-positions and those of others in order to understand their multiplicity and complexity. This confrontation also means that students should become aware of contradictions embedded in their prejudices and discontinuities between their past, present, and future selves through the expansion of the time perspective both retrospectively and prospectively. Furthermore, instructors must encourage students to reconcile contradictions and bridge these discontinuities by appreciating the multiplicity and plurality in others' views and social norms. Deepening reflection in service learning can activate mutuality between students and community, and generativity between preceding and succeeding generations toward solidarity.

This theoretical explanation of deepening reflection contributes to the understanding of the potentials of service learning. However, this explanation is based on selected sources from three theoretical threads. Further theoretical work should incorporate other competing theories in service learning. It also requires investigation into the factors that cause reflection to remain superficial and the conditions that cause reflection to enforce students' prejudices. These investigations should involve empirical research and generate evidence.

Theoretical explanations provide ideas and frameworks for this kind of empirical research focusing on specific factors such as dissonance in students' experience, discrepancies between differences, and dialogue for the reconciliation of the contradictions.

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TK: conception, design of study, and writing a paper.

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Reflection and Quality Assessment in Service-Learning Projects. When, With Whom, and Why

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Among all the elements likely to be considered criteria that determine the quality of a service-learning (SL) project, the scientific literature points to reflection. This work is aimed at analyzing the association of reflection with certain variables that mediate the educational performance of university students, as well as their satisfaction with the acquired knowledge. More specifically, the main focus was to analyze how this reflective process should be, thus we defined three independent variables: the time at which it is performed, the actors involved, and its objectives. The sample was made up of 295 students from the University of Santiago de Compostela, who were participating in SL projects that had been developed in different degree programs. Three instruments were used for data collection, two aimed at the students and one at the teaching staff responsible for the project. The main conclusion, given the results, is that reflection must be carried out from the beginning to the end of the project or, failing this, only at the end. Secondly, priority should be given to involving all the actors concerned, paying particular attention at least to the work group. Finally, it must be oriented both toward sharing feelings about the experience, relating the service to the contents of the subject, and developing attitudes and values. In this way, the status of reflection as one of the key factors in the development of quality experiences in SL is confirmed, showing that those that present a more rigorous and structured reflection have a greater impact on the variables mediating performance and on the students' satisfaction with their learning.

Keywords: service-learning, higher education, quality, reflection, satisfaction, competences, academic performance

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INTRODUCTION

Much has been written about the benefits of service-learning (SL) in classrooms at all educational levels, including university, without questioning at times whether it was really being applied according to the requirements that define this methodology. In many cases, proposals are similar to SL, but they are not actually SL, regardless of whether they may be appropriate pedagogical practices or not. It seems that the mere label of SL in a project may trigger an improvement for all involved and this is obviously far from the reality, especially when lacking, in many cases, a rigorous assessment design (Santos Rego et al., 2016).

In recent years, university campuses in Spain have witnessed a significant expansion of this methodology as part of the process of convergence and adaptation of the European Higher Education Area (Santos Rego et al., 2017). The implementation of SL projects in the university responds to a clear intention: the optimization of students' learning. Howard (1993, 2001) noted that this methodology could not be conceived as a means to improve students' academic learning exclusively, since the orientation toward both civic learning and academic education is its distinctive feature. The learning process is mediated, to a large extent, by the provision of a service to the community aimed at addressing community issues. SL has great potential to breathe life into the contents of the subjects in a curriculum, because community service is designed in connection with the curricular objectives (Lorenzo et al., 2019). However, like any educational practice, its impact is conditioned by a series of factors and variables that determine the effectiveness of the projects, as they become clear indicators of quality, and have a direct impact on the results to be achieved, especially on the students.

The definition of SL includes the basic principles that characterize this methodology:

> "A pedagogical proposal that addresses the search for concrete formulas to engage the students in the daily life of the communities, neighborhoods, and nearby institutions. It is conceptualized within experience-based education and is characterized by: a) student protagonism; b) addressing a real need; c) connection to curricular objectives; d) execution of the service project and e) reflection" (Naval et al., 2011, p. 88).

This definition identifies the need for establishing a correct planning of all the elements, hence the importance of the design of the SL project. Imperial et al. (2007), after a thorough literature review, concluded that although there were repeated mentions of SL outcomes, little thought was given to how the quality of project design determined those outcomes. Conner and Erickson (2017) warned that when a project was poorly designed and implemented, unexpected results (possibly negative) may be obtained.

Puig et al. (2007) supported the relevance of differentiating the principles of quality from what would be basic requirements of a project. Furco and Norvell (2019) included both options by defining 11 essential elements of SL, grouped into three clusters, the last of which belonged to the critical components supporting learning and service, which comprised: the student's voice by selecting, designing, implementing, and assessing the project; diversity through its participants, practice, and outcomes; promoting communication, partnerships, and collaboration with the community; preparing students for the tasks they will develop (skills, understanding of tasks and roles); reflection; and using different methods to celebrate and validate students' service work.

In any case, quality results, in part, from optimal management of the basic requirements that define an initiative of this type. Therefore, we should not be surprised that one of the main critical SL-defining factors is the necessary link between service and learning, that is, the connection between the activities developed by students in the community and a subject curriculum (Imperial et al., 2007). Hatcher et al. (2004) found that students gave importance to the integration of academic content into the service experience as the most important variable in the quality of learning.

The study of the pedagogical components involved in the quality of the SL projects, understood mainly as the effectiveness of the results obtained by the students, is one of the questions that has raised most interest in research. Three decades ago, we came across what is arguably one of the first recognized classification of quality principles and good practice for combining academic learning and community service (Honnet and Poulsen, 1989):

- Engage students in responsible and challenging actions aimed at the common good.
- Provide structured opportunities for students to critically reflect on their experiences. Service alone does not guarantee learning, so one should find time to discuss and share their experience regarding relevant moral or theoretical issues. Howard (1993, 2001) pointed out that students should be prepared to learn from the community, through strategies such as observation and reflection.
- Both the students and the recipients of the service have to be aware, from the very beginning, of what they want to achieve and what they want to learn, so the objectives need to be defined through communication and contribute to increase the competences of all the parties involved.
- Allow the recipients of the service to define their needs. In this way, they must also participate in defining the activities to be carried out by the students, and how they will be developed.
- Clarify the responsibilities of all persons and entities involved. The different actors (students, teaching staff, and community) have to negotiate their role in the development of the project. It is especially important to make the entity responsible for student learning. In other words, the role of the teaching staff should be rethought, as a consequence of a more active role of students. It is no longer a question of transferring information, but of acting as a guide in students' learning process (Gargallo et al., 2018).
- Link students to service needs that are recognized as changing. There has to be a continuous feedback process, in which the changing nature of the service allows for the expansion of students' competences by having to adapt constantly to reality.
- Provide a genuine, active, and sustained organizational commitment. The quality of the projects will depend on the institutional commitment provided by the university, and also by the recipient entity.
- Include training, monitoring, recognition, and assessment to achieve service and learning objectives. It is a reciprocal responsibility of those providing the service and those receiving it, with particular emphasis on a formal and planned assessment that includes all participants. This process has to take into consideration the differences and diversity among subjects (Lorenzo and Belando-Montoro, 2019).
- Ensure that the time spent on service and learning is flexible, appropriate, and best suited to the interests of all involved.

- Promote the participation of diverse populations. A good SL project promotes access and removes barriers to participation. This diversity must be used to strengthen the objectives proposed in students' learning process and service.

Moreover, in an attempt to further clarify the variables to be taken into account before implementing an SL course, with the aim of achieving the desired learning outcomes, Howard (1993, 2001) added:

- The academic credit is not for the service or its quality, but for demonstrating students' academic and civic learning.
- Academic rigor should not be jeopardized, and the concept of Service-Learning as a "soft" learning resource should be rejected. Moreover, while in traditional initiatives students only have to meet academic learning objectives, in the SL they have to meet both academic and community service objectives.
- Establish learning objectives. The combination of learning and a service to the community turns it into a methodology that multiplies the possibilities of learning, so it must be correctly planned.
- When choosing the places where the service has to be carried out criteria should be narrowed, allowing the connection with the contents of the subject, and the relevance of the learning that students acquire.
- Academically proven strategies should be anticipated in order to assess learning in the community.
- The differences between students' roles in the community and in the classroom should be minimized. The role taken on in both environments should be similar, in an attempt of bringing the classroom (more passive) and community (more active) contexts closer together.
- The variations in students' learning outcomes should be prepared, as well as possible loss of control. Service-Learning implies heterogeneous academic results among students, even when they are exposed to the same situations, both in the community and in the classroom.

Batchelder and Root (1994) designed the *Evaluation of Service-Learning (ESL)*, a guide to evaluate those aspects which, hypothetically, could affect service-learning outcomes. The factors they considered were the following:

- Students' autonomy and decision-making ability in service activities.
- Reflection in the classroom, so that all the work conducted on the subject could help to understand the experiences in the service setting and allows learning from them.
- The support provided by the teacher in charge who, as a guide, has to help the students in their process of adaptation to the experience and, obviously, to maximize its benefits.
- The clarity of the students' role in the project (as perceived by them).
- The relationship with the head of the community entity in which the service was developed, who must supplement the teacher's support.
- The students' perception of having contributed to really helping the recipients of the service.
- The students' perspective, regardless of how their experience has developed, on the potential of the project to help the recipients.

These classifications, although they might be seen as starting rules, lack empirical evidence supporting them. This research was aimed at identifying the variables that mediate the educational success of service-learning, in an attempt to examine which elements can be adopted as quality principles of this educational strategy. Thus, Mabry (1998) studied three dimensions which were associated with results achieved by students:

- The amount of time devoted to the service in the community mainly affected the academic dimension, stating that a reduced service did not provide enough content and material to be linked to the subject. A minimum of 15–19 h of service was recommended in order to enjoy contact with people and reality, so that some effectiveness of the project could be guaranteed.
- Students who were in constant contact with the recipients and interacted with them presented clear differences in terms of civic and social values, in addition to academic learning. This revealed that those students who did not have any contact with the recipients changed for worse, although these changes were insignificant. Conner and Erickson (2017) warned that implementing a service-learning project could actually be more negative than positive if students were involved in experiences that included casual contact with reality, i.e., short and superficial contact with the recipients.
- Reflection, both inside and outside the classroom, has positive effects when it is more continuous and regular, especially in terms of social and civic outcomes. By focusing on reflection in the classroom, a greater impact is achieved, especially on academic learning. In addition, the participation of all the actors is positive: students, teaching staff and people in charge of the collaborating entity.

Following the same line of research, Lambright and Lu (2009) highlighted the characteristics of the SL courses that were associated with self-reported student learning: the consistency of the mentoring provided by the teacher; the degree to which the project was linked to the contents of the subject; the amount of time devoted in class to reflection; the level at which students were able to influence the development of the project; the contact between students and recipients, i.e., the intensity and duration of the experience; and the presence of teamwork activities in the project.

Moely and Ilustre (2014) concluded that the variables on which the success of an SL project depended were related, on the one hand, to the quality itself and, on the other, to the orientation given to it (Morton, 1995; Ward and Wolf-Wendel, 2000; Moely et al., 2008). When they referred of quality as a dimension that were associated with the effects of an experience, they pointed out the following elements:

- The usefulness and value of the service for the students.
- The degree of importance attached to the SL project in the planning and development of the subject (so that students and

partners could be prepared for the service, and so that it could be integrated into the subject and linked to the curriculum).
- Ensure opportunities for reflection.

Within this framework, an important variable on which the possibility of complying with quality criteria and factors will depend is teacher training and preparation. As proposed by Imperial et al. (2007), the commitment of the teaching staff is a determining factor in the success of SL, while institutional support, reflected in elements such as training or funding, is decisive in pushing teachers to implement this methodology and, especially, in determining how it is managed. Bringle and Hatcher (1995) noted that consciously planned teacher training was a predictor of future project quality. Thus, while not denying the benefits of teachers discovering SL on their own or accidentally, the authors suggested that planned, deliberate, and centralized professional development would lead to more and better results (Morton, 1996). In this regard, Lorenzo et al. (2019) conducted a study with 1903 teachers from six Spanish universities, analyzing the variables which explained why a university professor introduced this methodology in their teaching. They concluded that the professor's agreement with the social commitment of the university was the one that best predicted the use of SL, so that the probability of using this methodology was 3.52 times higher than not doing it.

The review of these classifications (**Table 1**) means that we have reflection as a focal point, not only in the design of a service-learning project, but also as the main quality criterion for this type of initiative, or at least the one about which there is the greatest consensus. Thus, the quantity and type of reflection determine the quality of the projects (Eyler, 2002).

Therefore, fostering effective reflection processes will be the key to strengthening and optimizing the potential of service-learning, i.e., "a service-learning project will be more useful and of higher quality as long as it inspires a real reflection process around it" (Santos Rego et al., 2015, p. 20). Solid reasons must be given during that process, as it is not just a superficial deliberation to make matters easy. This critical thinking must create strong links between learning and service.

Santos Rego (1992) admitted that there was no debate at the time of consenting to the opposite to the reflective action, that is, the automatic and almost dogmatic acceptance of principles, without a further analysis in this regard. Therefore, reflective action is structured as one of the elements on which the current educational change experienced at the university is based, leaving behind the passive and uncritical reception of information and pointing toward a pedagogical model focused on students' autonomous and active learning (Escofet and Rubio, 2017; Gargallo et al., 2018).

Saltmarsh (1996) stated that learning was generated through reflective thinking in problem solving. Without reflection as part of critical thinking, it would be difficult for students to move toward metacognitive empowerment. Dewey (1916, p. 169) defined reflection as "the discernment of the relation between what we try to do and what happens in consequence." It is, therefore, the reflective thinking attached to the experiences that gives them meaning, by turning them into learning that will determine people's future activities and decisions. According to González-Geraldo et al. (2017, p. 69), "the educational side of the continuous reconstruction of experience is not in the experience itself, but in its cognitive re-elaboration."

However, according to Maddux and Donnett (2015), Dewey's ideas for reflection had been imperfectly adapted to service-learning on many occasions. The authors argued that reflection implied advances and improvements in the way students understood their world and linked it to their own learning, and did not simply give satisfaction with the experience or sympathy with the people with whom they interacted. To this end, they proposed that the students' experience involved problematic situations, which would force them to discuss among themselves and with members of the community in order to explore possible solutions (Santos Rego, 1991, 1992). Understanding the consequences of such problems through reflection would therefore be the best way to enhance meaningful learning. According to Harkavy and Benson (1998), genuine learning occurs when the individual concentrates their efforts on solving problems and dilemmas by reflecting on their own experience, thus improving their ability to think and act in the future. The idea is that reflection should serve as an element around which to understand the consequences arising from one's own experiences (Dewey, 1916).

In this regard, in SL we should consider the critical reflection approach explicitly designed after years of research by Ash and Clayton (2009). This is the DEAL model that aims to get students to take responsibility for their own learning process through three sequential steps:

1. Describe the experiences in an objective and detailed manner. This process can occur before, during, and after the activity.

2. Examine these experiences in the light of specific learning, allowing students to make sense of their activity, identifying the connections between the learning objectives and their personal experience.

3. Articulate the learning process, including goals for future actions by improving their practice and learning. This enables students to capture their learning so that they can act on it. This is only possible if students can clearly articulate their learning process by answering questions such as "What did I learn?," "How did I learn it?," "Why does that matter?," and "What will I do now?," which will transform the students' experience into a substantive and applicable learning process.

Reflective thinking becomes one of the pillars of experiential educational practices, and in the case of SL, the element that makes it possible to establish a critical connection between service activities and the learning associated with them (Saltmarsh, 1996). Critical reflection is a crucial skill for students because it connects community service activities with academic learning (Deeley, 2015). The importance, in this sense, is justified by the supposition that community service does not produce learning by itself, it is reflection that establishes a link between that service and the contents of the subject (Bringle and Hatcher, 1999; Ash and Clayton, 2009). In other words, reflection lies in a set of activities that make possible a relationship of reciprocal influence between community service, on the one hand, and

TABLE 1 | Quality criteria for SL projects.

	Honnet and Poulsen (1989)	Howard (1993)	Batchelder and Root (1994)	Mabry (1998)	Lambright and Lu (2009)	Moely and Ilustre (2014)	Imperial et al. (2007)
Important/challenging activities/usefulness	X		X			X	
Reflection	X		X	X	X	X	
Perceived clarity (actors) of the project	X						
Recipients' participation (define needs)	X						
Define responsibilities of each actor	X						
Changing service (feedback)	X						
Commitment (university-partner)	X		X				
Training and supervision	X	X					
Assessment	X	X					
Adequate time	X			X			
Academic importance		X					
Academic rigor		X					
Place/location of service		X					
Teachers (role, training…)		X	X		X		X
Students' autonomy			X		X		
Contact with the recipients				X	X		
Teamwork					X		
Place in the subject (planning, guidance…)						X	

Source: elaborated based on the study conducted by Mella (2019).

academic and civic learning, on the other (Howard, 2001). One could even state that this is an element that turns a service activity promoted from the academic field into service-learning and not simply an initiative parallel to the curriculum:

Reflection is the key element that connects service and learning. Without reflection, service is simply that: service. Reflection on service experiences allows students to make cognitive and affective connections to learning, create linkages to prior learning and experiences, and make new sense of the world (Bucco and Busch, 1996, p. 242).

In SL, reflection is proposed as a clear indicator of the quality of experiences, although it has to be constituted as a reflection organized in an intentional way by students and teachers, which differs from the timely and low profile reflection that usually is attached to all human actions (Páez and Puig, 2013). According to Billig (2007), it had to involve cognitively challenging activities for the students, which stimulated them to think in depth about a problem in order to deconstruct it and find possible solutions.

However, even when time and preparation are devoted to it, reflection can become superficial, merely collecting students' impressions and feelings, with little opportunity to build links between their experience and the subject or to challenge their own assumptions (Eyler, 2002). Billig (2007) also understood it this way, stating that many teachers who made use of SL did not introduce variations in the type of reflection activities they promoted, because they resorted mainly to written journals and summaries that simply reflected students' feelings while they were involved in community service.

It is advisable to pay attention to those elements that will determine whether a process of reflection is developed in an effective way. In this regard, Eyler et al. (1996) presented four principles that every reflective process had to follow to be considered of quality: continuous, connected, challenging, and contextualized:

- It is a continuous process, parallel to the entire educational process and service activity, so it has to be done before, during, and after the SL experience.
- It has to connect the service to the intellectual and academic goals of the students. The service proves and makes the theories real, while in class work students examine theoretical frameworks that explain the service.
- Challenging students to solve problems in a more critical way is a feature of effective reflection that can be more difficult for teaching staff.
- It has to fit every SL project. It has to be appropriate and complementary to the level of the other learning activities of the subject.

Bringle and Hatcher (1999) proposed that reflection activities should take into account the following five points: clearly link the service to the subject contents and learning objectives; be structured in terms of description, expectations, and criteria for

assessment; be regular and continuous; provide feedback from the teacher so that students can improve their critical analysis; and include opportunities for students to explore, clarify, and alter their own values.

We believe that the pillars on which a quality reflection in SL projects should rest must be associated with the research supporting them. Hatcher et al. (2004) found in a study with 471 students, that the quality of learning was significantly associated with the integration of academic content into the service provided and by the nature of reflection, i.e., whether it is structured, regular and allowing for the clarification of learning values. This study confirmed much of what Bringle and Hatcher (1999) had proposed.

In a meta-analysis conducted by Conway et al. (2009), in which a sample of 103 different projects was included, found that the presence of structured reflection was associated with positive changes on personal and civic outcomes. Eyler (2002) presented the features of the reflection processes at these three moments:

Before the service or "pre-reflection"

Experiential education results in students being confronted with situations and information conflicting with their conception of the world, which is why appropriate preparation is needed beforehand. Before community service, time should be devoted to analyzing students' perceptions of the community, without hiding the problems and needs to be addressed, and in order to identify gaps in communication.

Another objective is to encourage awareness of their own learning process and to monitor it. Developing these metacognition skills can optimize procedures that favor problem analysis and decision making (Billig, 2007).

During the service

The aspect that determines an effective reflection during the service is its continuity, because the observations must be constant, challenging, and connected in terms of information (Eyler et al., 1996). In this sense, experiential learning takes place in a cyclical process of action and reflection on that action.

In addition, regular reflection throughout the service allows students to address the discrepancies arising between their previous assumptions and current frameworks. This idea is linked to Mezirow (1977) principles of transformational learning, as reflection helps transform the original schemes of perception, leading students to adopt new perspectives on problems. Thus, when students are immersed in a certain social situation, they realize that their old beliefs are not adequate to face such a situation. According to Deeley (2015), reflection can be an uncomfortable experience, as it confuses the way students understand and interpret reality, which can lead them to reject SL, taking them out of their traditional comfort zone.

At the end of the SL project

It is especially helpful if the students have been previously aware of their own learning process while they are engaged in ongoing reflection. This is a good time to consolidate learning, examine understanding of the subject, and identify problems that have not yet been solved.

Another element of great relevance, which also has an impact on the reflection quality, is the type of activities selected. In this sense, there is a great variety of reflection formats, which according to Bringle and Clayton (2012) can be written, oral, or both; individual, collaborative, or both; planned over time or informal and casual; they can involve feedback from numerous constituencies (teachers, peers, community entities); and can be conducted with a wide variety of tools and within numerous activities, such as journals, presentations to peers, or discussion sessions. However, Bringle and Hatcher (1999) saw writing as a special reflective procedure through which students can create new meanings and new understandings of problems, as well as new ways of organizing experiences. Writing allows for better management of the experience in its psychological components, encourages critical thinking and establishes links among previous, current and future experiences.

Eyler and Giles (1999), in their book *Where's the learning in service-learning?*, ended up answering the inquiry raised by stating that learning lies precisely in the questions that the situations of the service developed by the students inherently entail, and especially in the reflection which, guided by the teachers, is attached to these issues and allows for the connection between the knowledge that one already has and their new experiences.

In short, reflection, as critical reasoning on the whole of the experience and the establishment of links with the academic content of the subject, allows students to give an account of the way in which they have acquired different learning experiences, thus becoming an optimum mechanism for assessing those (Ash et al., 2005).

Contrary to what might be thought, research has shown that the effect of service-learning on students learning and development is not direct, it takes place through the transformations that can occur in certain intermediary variables: self-esteem, empowerment, prosocial behavior, motivation, and commitment (Furco, 2005). Rodríguez Gallego (2014) presented three general areas in which SL has been shown to have positive effects, and which are closely related to the variables presented by Furco (2005) as mediators in students' improvement:

- Curriculum dimension. It encourages greater mastery of the subject matter, as well as more positive attitudes toward learning and work.
- Personal development. It prepares students to take responsibility, increases the feeling of self-esteem and self-efficacy, increases teamwork skills and ability to overcome adversity, and leads to improvements in motivation, creativity, and communication skills.
- Social development. It encourages prosociality, a positive attitude toward diversity, and contexts of interaction.

Simonet (2008) also argued that this methodology indirectly affected the academic success of university students, through its influence on another set of variables: increased relationship with faculty, increased participation in campus and university

activities, greater satisfaction with the campus environment and, therefore, an increase in active learning.

Out of these mediating variables, studies pointed out motivation and self-efficacy. First, in terms of motivation, Alonso et al. (2013) found in their study that improvements in this dimension were the result of a process in which students learned in an active and practical way, taking a leading role. As instructed by Zayas et al. (2019), SL tackles the lack of motivation of students in such a way that it allows them to overcome the distance between reality and university classrooms.

If we focus on the possibilities of this methodology in order to influence the feeling of self-efficacy and self-concept, it is fair to address the opportunities it offers so that students could feel that they can have a positive impact on their community, making a difference if they try hard enough (Morgan and Streb, 2001). One must understand, therefore, the development of self-efficacy as a result of meaningful work and interaction with peers and the community (Song et al., 2017).

The data obtained in the study conducted by Chiva-Bartoll et al. (2018) confirmed this line of research. They found that students who enrolled in service-learning initiatives demonstrated higher levels of development in problem-solving self-efficacy (effective decision-making and coping with challenges) and academic self-realization (motivation, expectation, and attribution of academic performance) than their peers who did not.

In addition, Brozmanová et al. (2016) studied the development of key competences in a group of 33 students who incorporated service-learning strategies at the University of Matej Bel (Slovakia), thereby confirming that these strategies were associated with the development of these competences (Sevin et al., 2016).

In short, the literature confirms reflection as a prerequisite for defining SL. However, as Ash and Clayton (2004) admitted, it is still difficult to put it into practice, despite the pedagogical virtues of the DEAL model (Ash and Clayton, 2009). For this reason, our objective in this work is to provide evidence of how reflection should be carried out to maximize the development of certain mediating variables that affect the improvement of the academic performance of university students (Furco, 2005). Specifically, we are going to analyze when making a reflection, who should participate in this process and what the reflection is for.

MATERIALS AND METHODS

Participants

The research involved 295 students (intentional non-probability sampling) who participated during the 2016–2017 academic year in six SL projects belonging to the degree programs of Optics and Optometry, Early Childhood Education, Primary Education, Pedagogy, Veterinary Medicine, and Forestry and Environmental Engineering of the University of Santiago de Compostela. Each project was developed over a 4-month period. The highest number of students were from the area of Social and Legal Sciences (60.7%), followed by Health Sciences (37.3%) and Engineering and Architecture (2.0%). 23.4% were men and 76.6% were women, with a $M_{age} = 21.39$ and $SD = 3.18$. They were mainly enrolled in the first (49.2%) or the third year (35.6%) of their university degree[1].

Instrument

We used three instruments, two for the students and one for the professors responsible for the project (Santos Rego and Lorenzo, 2018).

Firstly, the students were given four Likert-type scales, already validated in a previous research study (Mella, 2019):

(a) University training: to understand students' motivation and perception of the training they received at university. With seven items (with five options ranging from *strongly disagree* to *strongly agree*), this scale generated three factors (Link between the subjects and real life, Satisfaction with the training and Uncertainty about the future), which explained 66.11% of the variance and showed a good internal consistency (α values ranging from 0.50 to 0.79);

(b) Social participation: made up of five items that assess the frequency of students' social involvement (never, annually, quarterly, monthly, weekly), based on their participation in civic matters, both within the university and outside it. It yielded a single factor, thereby explaining 42.39% of the variance with $\alpha = 0.60$.

(c) Civic and social competences: to study the degree to which students consider that they possess competences related to civic and social matters. The 20 items of this scale with five options (ranging from *strongly disagree* to *strongly agree*) yielded four factors (Prosocial behavior, Leadership, Intercultural competence, and Teamwork and relationship with others), which explained 50.96% of the variance, with the α values varying between 0.70 and 0.79;

(d) Self-efficacy: there are 14 items that refer to the degree of self-efficacy perceived both in their daily life and in the academic context (with the same response options as the previous one). These items are grouped into two factors (Academic self-efficacy and General self-efficacy) which explained 54.03% of the variance and showed an internal consistency of $\alpha = 0.88$ and 0.82, respectively.

Second, 165 of the participating students also filled out an Osgood scale, a bipolar scale made up of antonyms, to find out their level of satisfaction with different elements that define an SL project: the project in general, the activities in relation to the subject, the service provided, the lessons learned, and the involvement of the professor, the community partner and the student in the project. More specifically, in this research, we only used the item referring to the level of satisfaction with their learning, made up of the items usefulness (useless-useful), satisfaction (dissatisfaction-satisfaction), quantity (few-many) and applicability (inapplicable-applicable). Five response options were established (from 1 to 5), with one being the most negative, and five the most positive.

Thirdly, the professors responsible for each of the projects filled out a Registration sheet of SL projects/experiences at university level designed by Villa (2013) and which was validated by a group of experts in SL. It included a total of 28 questions

[1] In Spain, university degrees last 4 years, with some exceptions, such as Medicine.

grouped in the following modules: data from the university, identification of the project/experience, partners, assessment, and dissemination of the project/experience. Three reflection questions were included in the project/experience identification section. Specifically, the structure of reflection by the students (before, during, and after), with whom the reflection is carried out (community, collaborating entity, course and professor, SL work group), and orientation of the reflection (sharing feelings, relating the service to the contents of the subject, analyzing the problems of the community, and developing attitudes and values).

Procedure

The instruments were administered during the 2016–2017 academic year, at the end of each of the SL projects, with the permission of the teachers responsible for the projects and the consent of the students. The administration of the scales was carried out collectively in the classroom, coordinated by a member of the research team especially trained for this task, and within the framework of a broader data collection for an educational research project. In some projects, the Osgood scale could not be administered at the same time, which resulted in the loss of those students in the sample. The professors' sheet was individually filled out by each of the project coordinators

At the beginning of the study, the governing team of the University of Santiago de Compostela was also informed of the aim of the research project and of the procedure which was to be followed. In applying the instrument, we followed the recommendations of the University of Compostela's Bioethics Committee and of the Helsinki Declaration, complying with the stipulations which, in the case of Spain, are laid down in the Organic Law 3/2018, of December 5, on Data Protection and Guarantee of Digital Rights.

Data Analysis

We used the IBM-SPSS statistical package, version 24, which allowed us to organize the data, as well as its subsequent analysis. Given that the sizes of the groups were not balanced in the analyzed variables, we first checked the assumptions of independence of the observations, as well as the homoscedasticity of the variance. Both assumptions were fulfilled, thus parametric analyses, specifically one-way analyses of variance (ANOVA) with *post-hoc* Scheffé tests, were performed to study differences between groups.

Three matters relating to the reflection were taken as independent variables: time, participants, and their goal. As dependent variables, we took into account the mediating variables of educational performance that were reflected in the factors of the Likert scales, as well as the variable related to satisfaction with learning.

RESULTS

Time for Reflection

Reflection could have occurred at different times during the development of the project: before starting the service (T1); at the end (T2); during and after (T3); before, during, and after (T4). No project included only reflection during its process.

When a reflection was made had no relationship to the association that the student makes between the subjects studied and real life, but it was associated with the other two factors of the first scale (**Table 2**). The best results in satisfaction with university training occurred when reflection took place before the start of the project, at the end of the service or when the three times (before, during, and after) are combined. The lowest incidence in this variable occurred when this process took place during and after. The statistically significant differences occurred when comparing the reflection during and after with any of the other options. The time for reflection also was associated with the perception of uncertainty. Specifically, the students who reflected during and after or at all three times were those who reported a positive attitude toward facing the future. At the opposite end, there were those who only reflected on the meaning of what they were going to do (before), or those who made the reflection only at the end of the project. In any case, significant differences only appeared when comparing T1 and T3 or T4. Therefore, students' opinion of the university training is better when, in the context of SL projects, the reflection process is continuous.

The social participation variable obtained considerably low mean values in all cases, thereby indicating the low participation of students in different formal initiatives of the same university, even if the literature sheds some light on this link with SL. In any case, the best indicators were obtained when the reflection was made throughout the entire project compared to when it occurred only at the end.

In the scale of civic and social competences, there are differences regarding its four factors. When reflection occurs during the entire process, a higher score on prosocial behavior and intercultural competence is obtained. Significant differences were observed when comparing this option with reflection only before (only on prosocial behavior) or after the process. Making the reflection during and after the project turned out to be the category for which students reported a higher score in teamwork.

In leadership, the highest scores were found when reflection was made before or during the entire process, but there were significant differences when comparing the latter with the reflection made only at the end. Time for reflection seems to have had no relation to self-efficacy.

In short, the moment of reflection was best associated with the mediating variables when it was made throughout the entire project (before, during, and after). In the same way, it seems that making a reflection only after the project ends has significantly less effect on the studied variables.

For satisfaction with learning, significant differences were obtained on the items of usefulness, satisfaction, and quantity (**Table 3**).

The greatest sensation of usefulness with the learning acquired occurred when the reflection took place at all three times, a statistically significant difference when compared to making the reflection only afterwards. The same conclusions can be drawn regarding satisfaction with learning and quantity perception.

Therefore, the assessment of the self-reported qualities of learning were better when the student was introduced to a

TABLE 2 | One-way ANOVA of the mediating variables according to the time for reflection.

Dependent variables	M (SD)	*F*	*Post-hoc*
Satisfaction with the training	T1: 3.83 (0.71) T2: 3.95 (0.48) T3: 2.97 (0.76) T4: 3.73 (0.76)	$F_{(3,290)}$ = 25.33***	MT1–MT3 = 0.86*** MT2–MT3 = 0.98*** MT3–MT4 = −0.76***
Uncertainty about the future	T1: 3.16 (0.86) T2: 3.11 (0.89) T3: 2.65 (1.00) T4: 2.68 (0.95)	$F_{(3,287)}$ = 5.93**	MT1–MT3 = 0.51** MT1–MT4 = 0.48**
Social participation	T1: 1.32 (0.46) T2: 1.17 (0.33) T3: 1.32 (0.52) T4: 1.46 (0.64)	$F_{(3,285)}$ = 2.77*	MT2–MT4 = −0.29*
Prosocial behavior	T1: 4.36 (0.41) T2: 4.25 (0.31) T3: 4.49 (0.39) T4: 4.54 (0.37)	$F_{(3,283)}$ = 6.53**	MT1–MT4 = −0.19** MT2–MT3 = −0.24* MT2–MT4 = −0.30**
Leadership	T1: 3.95 (0.51) T2: 3.65 (0.61) T3: 3.86 (0.59) T4: 3.94 (0.50)	$F_{(3,284)}$ = 2.70*	MT2–MT4 = −0.29*
Intercultural competence	T1: 4.27 (0.65) T2: 3.94 (0.60) T3: 4.17 (0.60) T4: 4.39 (0.56)	$F_{(3,285)}$ = 5.03**	MT2–MT4 = −0.44*
Teamwork and relationship with others	T1: 4.24 (0.52) T2: 3.89 (0.64) T3: 4.42 (0.51) T4: 4.36 (0.48)	$F_{(3,288)}$ = 8.81***	MT1–MT2 = 0.36** MT2–MT3 = −0.53*** MT2–MT4 = −0.48***

*Only the variables where the differences are statistically significant are listed. *p < 0.05, **p < 0.01, ***p < 0.001.*

TABLE 3 | One-way ANOVA of the learning variables according to the time for reflection.

Dependent variables	M (SD)	*F*	*Post-hoc*
Usefulness	T1: 4.47 (0.64) T2: 4.34 (0.76) T3: 4.25 (0.89) T4: 4.66 (0.58)	$F_{(3,161)}$ = 3.16*	MT2–MT4 = −0.32*
Satisfaction	T1: 4.27 (0.70) T2: 4.26 (0.79) T3: 4.25 (0.70) T4: 4.64 (0.62)	$F_{(3,161)}$ = 4.26**	MT2–MT4 = −0.39**
Quantity	T1: 3.87 (1.18) T2: 3.60 (0.88) T3: 3.88 (0.84) T4: 4.33 (0.89)	$F_{(3,161)}$ = 7.05***	MT2–MT4 = −0.73***

*Only the variables where the differences are statistically significant are listed. *p < 0.05, **p < 0.01, ***p < 0.001.*

process of reflection from the beginning to the end of the SL project.

Participants in the Reflection

Another variable that can condition reflection and, therefore, affects the results of SL are the actors participating in this process: the entire classroom group and teacher (P1); only the SL work group (P2); community partner, and classroom group and teacher (P3); and community partner, classroom group and teacher, and SL work group (P4). In some of the projects, not all the students enrolled in the subject participated in SL, which led to the identification of the SL work group, which includes only those who did participate.

With whom a reflection is made seems to have had no relationship to the association that the student made between the subjects studied and real life, but it was related to the other two factors of the first scale. With respect to satisfaction with the training the students who presented the best scores were those whose projects incorporated reflection with the community partner, and classroom group and teacher. The students who reflected with the greatest number of actors involved were those who reported a positive attitude toward facing the future (**Table 4**).

On the civic and social competence scale, leadership was not related to participants in the reflection process. For the rest of the factors, the university students who had the opportunity to reflect with all the participants in the process had a clear advantage, followed by those who did so with the SL work group only. Statistically significant differences were found when comparing P3 and P2 or P4.

Finally, taking into account all the actors involved in reflection (P4) implies obtaining statistically significant differences against not considering the working group (P3).

The reflection should certainly be made either in the SL project work group or with all the participants in the process.

In terms of learning, significant differences in the items related to usefulness, satisfaction, quantity, and applicability were found (**Table 5**).

Just as in the civic and social competence scale, a clear advantage can be observed in making the reflection with all those involved in the project. This gave students the feeling that the knowledge obtained is more useful, satisfactory, abundant, and applicable, unlike those projects whose reflection process involves fewer actors.

Goal of the Reflection

The last of the variables considered that may be related to the reflection process and, therefore, affect the result of SL is the goal or goals of the reflection sessions: relating the service to the contents of the subject (G1); sharing feelings about the service experience and relating it to the contents of the subject (G2); sharing feelings about the service experience and developing attitudes and values (G3); sharing feelings about the experience, relating service to contents and developing attitudes

TABLE 4 | One-way ANOVA of the mediating variables according to the variable "participants in the reflection."

Dependent variables	M (SD)	*F*	*Post-hoc*
Satisfaction with the training	P1: 3.25 (0.52) P2: 3.45 (0.83) P3: 3.95 (0.48) P4: 3.85 (0.73)	$F_{(7,290)}$ = 7,07***	MP2–MP3 = −0.50** MP2–MP4 = −0.40**
Uncertainty about the future	P1: 3.50 (0.63) P2: 2.90 (0.99) P3: 3.11 (0.89) P4: 2.50 (0.85)	$F_{(3,287)}$ = 4.93**	MP2–MP4 = 0.40* MP3–MP4 = 0.61*
Prosocial behavior	P1: 4.38 (0.34) P2: 4.46 (0.40) P3: 4.25 (0.41) P4: 4.53 (0.40)	$F_{(3,283)}$ = 3.54*	MP2–MP3 = 0.21* MP3–MP4 = −0.28**
Intercultural competence	P1: 4.00 (0.60) P2: 4.27 (0.61) P3: 3.95 (0.60) P4: 4.38 (0.62)	$F_{(3,285)}$ = 3.94**	MP2–MP3 = 0.32* MP3–MP4 = −0.43**
Teamwork	P1: 4.28 (0.49) P2: 4.30 (0.51) P3: 3.89 (0.64) P4: 4.46 (0.46)	$F_{(3,288)}$ = 8.98***	MP2–MP3 = 0.42*** MP3–MP4 = −0.58***
Overall self-efficacy	P1: 3.56 (0.39) P2: 3.88 (0.55) P3: 3.71 (0.49) P4: 4.04 (0.56)	$F_{(3,279)}$ = 3.53*	MP3–MP4 = −0.33*

*Only the variables where the differences are statistically significant are listed. *p < 0.05, **p < 0.01, ***p < 0.001.*

TABLE 5 | One-way ANOVA of the learning variables according to the variable "participants in the reflection."

Dependent variables	M (SD)	*F*	*Post-hoc*
Usefulness	P1: 4.50 (0.55) P2: 4.47 (0.67) P3: 4.34 (0.76) P4: 4.71 (0.57)	$F_{(3,161)}$ = 3.20*	MP3–MP4 = −0.37*
Satisfaction	P1: 4.67 (0.52) P2: 4.26 (0.76) P3: 4.26 (0.79) P4: 4.75 (0.50)	$F_{(3,161)}$ = 7.46***	MP2–MP4 = −0.50** MP3–MP4 = −0.50**
Quantity	P1: 3.83 (0.98) P2: 3.91 (1.09) P3: 3.60 (0.88) P4: 4.48 (0.76)	$F_{(3,161)}$ = 9.78***	MP2–MP4 = −0.57** MP3–MP4 = −0.88***
Applicability	P1: 4.33 (0.52) P2: 4.44 (0.73) P3: 4.30 (0.62) P4: 4.66 (0.54)	$F_{(3,160)}$ = 3.49*	MP3–MP4 = −0.36*

*p < 0.05, **p < 0.01, ***p < 0.001.

and values (G4); and all of the above and analyzing community problems (G5).

The first thing to take into account is that the goal which is most valued in all cases is that reflection is an opportunity to share feelings about the service performed, but also to seek the connection with the contents of the subject or course.

In line with the above ideas, once again, reflection does not seem to have any relationship to the association that the student makes between the subjects studied and real life, but it is associated with the rest of the factors of the first scale (**Table 6**). A reflection oriented toward sharing feelings, relating the service to the contents and developing attitudes and values (G4) was associated with a reduced perception of uncertainty about the future and higher levels of social participation.

Within the social and civic competence scale, option G4 turned out to be the category for which students obtained a higher score, both in prosocial behavior, intercultural competence, and better teamwork. The G5 option, which includes all the possible options, acts to the detriment of the factor scores on this scale.

Undoubtedly, the best option is when reflection was oriented to share sensations about the experience, service is related to the contents, and attitudes-values are developed. Secondly, the results showed that even when removing the option of relating the service to the contents from the previous one, good results were equally obtained.

In the case of the reflection orientation, the learning variables which showed differences were usefulness, satisfaction, and quantity (**Table 7**).

As shown in the analysis of the scales, one can observe how, in case of focusing it on all the options except for the analysis of community problems, students experienced a greater sense of usefulness, satisfaction, and abundance with respect to the learning acquired. Significant differences appeared when compared to considering all four options simultaneously.

The option of analyzing the community problems did not introduce any element of improvement. This may be due the lack

TABLE 6 | One-way ANOVA of all the dependent variables according to the variable "goals of the reflection."

Dependent variables	M (SD)	*F*	*Post-hoc*
Satisfaction with the training	G1: 3.83 (0.71) G2: 3.25 (0.52) G3: 2.97 (0.75) G4: 3.76 (0.76) G5: 3.95 (0.48)	$F_{(4,289)}$ = 19.85***	MG1–MG3 = 0.86*** MG3–MG4 = −0.80*** MG3–MG5 = −0.99***
Uncertainty about the future	G1: 3.16 (0.86) G2: 3.50 (0.63) G3: 2.65 (1.01) G4: 2.63 (0.95) G5: 3.11 (0.89)	$F_{(4,286)}$ = 5.73***	MG1–MG3 = 0.51** MG1–MG4 = 0.53**
Social participation	G1: 1.32 (0.46) G2: 1.17 (0.27) G3: 1.32 (0.52) G4: 1.48 (0.65) G5: 1.17 (0.34)	$F_{(4,284)}$ = 2.55*	MG4–MG5 = 0.31*
Prosocial behavior	G1: 4.36 (0.41) G2: 4.38 (0.34) G3: 4.49 (0.39) G4: 4.56 (0.38) G5: 4.25 (0.41)	$F_{(4,282)}$ = 5.20***	MG1–MG4 = −0.20** MG3–MG5 = 0.24* MG4–MG5 = 0.31**
Intercultural competence	G1: 4.26 (0.66) G2: 4.00 (0.59) G3: 4.17 (0.63) G4: 4.41 (0.55) G5: 3.95 (0.60)	$F_{(4,284)}$ = 4.45**	MG4–MG5 = 0.47**
Teamwork	G1: 4.24 (0.52) G2: 4.28 (0.49) G3: 4.42 (0.51) G4: 4.37 (0.48) G5: 3.89 (0.65):	$F_{(4,287)}$ = 6.63***	MG1–MG5 = 0.36* MG3–MG5 = 0.53*** MG4–MG5 = 0.48***
Overall self-efficacy	G1: 3.95 (0.44) G2: 3.56 (0.39) G3: 3.84 (0.67) G4: 3.97 (0.54) G5: 3.71 (0.49)	$F_{(4,278)}$ = 2.46*	No significant differences were observed between pairs

*Only the variables where the differences are statistically significant are listed. *p < 0.05, **p < 0.01, ***p < 0.001.*

TABLE 7 | ANOVA oneway of the learning variables according to the variable "goal of the reflection."

Dependent variables	M (SD)	*F*	*Post-hoc*
Usefulness	G1: 4.47 (0.55) G2: 4.50 (0.67) G3: 4.25 (0.76) G4: 4.67 (0.58) G5: 4.34 (0.76)	$F_{(3,160)}$ = 3.20*	MG4–MG5 = 0.33*
Satisfaction	G1: 4.27 (0.70) G2: 4.67 (0.52) G3: 4.25 (0.71) G4: 4.64 (0.63) G5: 4.26 (0.79)	$F_{(3,160)}$ = 7.46*	MG4–MG5 = 0.39*
Quantity	G1: 3.83 (0.98) G2: 3.91 (1.09) G3: 3.60 (0.88) G4: 4.36 (0.76) G5: 3.60 (0.79)	$F_{(3,160)}$ = 9.78***	MG4–MG5 = 0.76***

*Only the variables where the differences are statistically significant are listed. *p < 0.05, ***p < 0.001.*

of criteria for defining the goal of the reflection, or to the fact that it is a goal that should be closely linked to the initial reflection before carrying out any type of service, which, as shown, has little impact on the variables studied.

DISCUSSION

A quality reflection is the real challenge for service-learning. This is due, according to Ash et al. (2005), to the difficulty of developing effective structures to guide that process, and meaningful strategies to assess the associated learning outcomes.

We agree with Sturgill and Motley (2014) that reflection is a key component of service-learning, but research showed that in order to maximize learning, the reflection must be of high quality. This article shed light on three variables that university professors should consider in this process: when, with whom, and why the reflection should be used.

These results have shown that not all reflections have the same value or the same effect on students. If the purpose is a positive impact on learning as well as the perception of the training they receive, the social participation, the development of civic and social competences, and the perception of self-efficacy, reflection should have its place, its protagonists and its goals. Ash and Clayton (2004) concluded that a model of reflection that pushed students beyond the superficial interpretations of complex issues and should facilitate academic proficiency, personal growth, civic engagement, critical thinking, and the meaningful demonstration of learning.

Our results coincide with those found by Eyler and Giles (1999), who concluded that the more rigorous was the reflection in SL, the better was learning in general and the academic results in particular: deeper understanding of a subject, better analysis and problem solving, openness to new ideas, and critical thinking skills.

Thus, we found that the assessment of learning and the impact on the mediating variables were higher when the student was immersed in a process of reflection from the beginning to the end of the SL project. In other words, reflection must be a continuous process, parallel to the entire educational process and the service activity (Eyler et al., 1996; Hatcher et al., 2004). Choo et al. (2019) have recently found evidence that more frequent reflection was associated with better connection of the project to academic

content and vocational training, but they observed no effect on civic development.

Sturgill and Motley (2014) compared three different models of reflection on students' thinking processes. Specifically, they compared the students' reflections across axes of guided vs. free response, dialogic vs. expressive reflection, and public vs. private reflection. The results indicated that dialogic and guided reflection produced greater integration of knowledge of learning activities within the service.

In addition, reflection benefits from engaging the SL project work group or all those involved in the process. This may be due to the importance of group work in this type of dynamic. Chavez-Yenter et al. (2015) confirmed this, through a study that analyzed the connection between the development of competences and attitudes and the team dynamics in service-learning. The researchers identified team dynamics as a factor associated with civic attitudes and skills developed through a SL experience.

Finally, one of the best options is when reflection is oriented toward sharing feelings about the experience, relating the service to the contents of the subject, and developing attitudes and values. In addition, the data showed that even when removing this option of relating the service to the contents from the previous one, good results were obtained. Bringle and Hatcher (1999) also referred to the fact that reflection activities should clearly link the service to the subject content and learning objectives. In any case, Hatcher et al. (2004) stated that the regular reflection was likely to help develop an educationally more meaningful reflection. Furco and Norvell (2019) stated that reflection was a central element in the design and fulfillment of curricular objectives that should take place before, during, and after the service, and used multiple methods to promote critical thinking. However, reflection is a learned skill, which improves with practice (Ash and Clayton, 2004).

Following the same research line, Goff et al. (2020) identified three categories for understanding the impact of SL on students that were linked to the work of Eyler et al. (1996): first, the service enables the creation of a learning laboratory; second, there are challenges that young people face; and third, the service encourages the creation of meaningful connections.

In short, our work confirms that the nature of reflection is a central element when it comes to the quality of SL projects. That reflection, understood as reasoning about the entire experience, must be defined and structured in order to maximize the cognitive and non-cognitive learning options in students. For this reason, teaching staff must be aware that this should be a continuous process, thus they should take time for reflection during its development, they must involve all actors, from the university to the community, and they must have a clear objective of establishing links between service and academic content of the subject, otherwise this could lead to a volunteering action. Reflection in SL should not be improvised or left to chance.

For this reason, the connection between evaluation and critical reflection activities is also important (Ash and Clayton, 2009). The assessment, like the reflection questions, must be explicitly linked to the learning goals. Hence, these authors suggested the need for the assessment to incorporate the "Describe" and "Examine" aspects of the DEAL model. The summative assessments would evaluate the level of students' achievement of the learning objectives, while formative assessments would provide the necessary feedback for students to reflect on their learning. In addition, the students' responses should also be used as an opportunity for teachers to learn from the process in order to improve the project and maximize their students' learning.

In order to make this possible, SL should be institutionalized in our universities, which must be translated into the support, training and preparation of the teaching staff in order to develop quality SL projects (Santos Rego and Lorenzo, 2018). Meijs et al. (2019) proposed a guide for institutionalization based on three pillars: National and institutional prioritization, institutional support, and cooperation. Precisely, in terms of institutional support, these researchers included allocating resources for staff to learn and adopt this methodology, but also assigning and establishing budgets and financial incentives for SL development or even other important incentives for teachers.

Finally, we should note that the teachers responsible for each SL project were the ones who can reported on reflection through an Experience Sheet. We believe that further research should also include the perspective of the participating students, which would allow triangulation of the perspectives and make the results more rigorous.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Bioethics Committee of the University of Santiago de Compostela (Spain). The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

ML and DS-G collected and analyzed data and wrote the paper. MF and CV analyzed data and wrote and reviewed the paper. All authors contributed to the article and approved the submitted version.

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A Thematic Approach to Realize Multidisciplinary Community Service-Learning Education to Address Complex Societal Problems: A-Win-Win-Win Situation?

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Universities are under increasing pressure to become more and better involved in society as part of their third mission, to which Community Service learning (CSL) can contribute. To date, most CSL projects are mono-disciplinary, single courses, often of a short-term nature. In order to address the increasingly complex problems facing society, there is a need to adopt multi–and interdisciplinary CSL approaches that allow for a range of perspectives. The article describes and analyzes how a thematic CSL approach was initiated at the VU Amsterdam starting from the needs of a local community. Once loneliness was identified as an important and relevant issue, the approach evolved in order to include multiple courses and internships from different programs offered by two faculties and various stakeholders and community organizations. Taking an action–research approach, the CSL team evaluated the process of its development, outcomes and contributions, as well as possible benefits and considerations. In addition to more tangible outcomes arising from many student projects, the approach assists in building new community networks, supports project continuity, deepens knowledge, encourages new collaborations, reduces CSL-created workload and finally increases student development, motivation and sense of ownership. Overall, it can be concluded that the thematic approach can contribute to addressing complex problems as it allows for multidisciplinary collaborations while not imposing too great a burden on the established curriculum. This makes the thematic CSL approach a valuable stepping stone in advancing CSL in universities, and so contribute to fulfilling their third mission.

Keywords: community service learning, third mission, complex societal problems, reciprocity, action research, thematic approach, multidisciplinary, loneliness

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INTRODUCTION

Universities' so-called third mission has been broadly understood as conscious and strategic actions to make a greater contribution to society. This includes activities involving the generation, use, application and exploitation of knowledge and other capabilities outside academic environments (Koryakina et al., 2015). Universities are under increasing pressure to be more and better involved in society as part of their third mission (Zomer and Benneworth, 2011; Compagnucci and Spigarelli, 2020).

Community Service Learning (CSL) (as defined by Bringle and Hatcher, 1995 p. 112) is a pedagogy that contributes to the third mission as it promotes students' learning through their active participation in experiences of community engagement (Folgueiras et al, 2020). It is considered an effective pedagogy for improving social engagement and at the same time enhancing students' skills and aptitudes. CSL stimulates (among others) critical thinking, problem-solving competencies, personal development, interpersonal skills and cultural understanding (Conway et al, 2009; Celio et al, 2011; Warren, 2012; Yorio and Ye, 2012; Aramburuzabala et al, 2019). Moreover, CSL has the potential to benefit community partners. In addition to more direct tangible outcomes as a result of a project, CSL activities are said to increase community capacity as they have the potential to bring together various community partners and members (Gelmon, 2001; Vernon and Foster, 2002; Norton et al., 2018). It has also been suggested that CSL can benefit faculty members as it fosters personal growth (Harrison, et al, 2013) and improves teaching experience (Pribbenow, 2005) and practices (Bringle, 2017).

Notwithstanding these benefits, CSL has as yet unexplored potential. A recent literature review of the design principles for integrating CSL into higher education courses noted that most CSL activities are assignments for students to address social issues from the perspective of a specific discipline or program (Tijsma et al., 2020). Of the 20 CSL case studies included in that review none took a multidisciplinary approach. Rather, the case studies discussed courses in a specific disciplinary domain, although the field of study varied greatly from public relations to Spanish, statistics, geriatrics, IT, marketing and others. This suggests that CSL has potential benefits across a range of disciplines but that the existing literature reports only limited crossover between them. Moreover, concerns have been raised about the short-term time investment linked to most CSL projects conducted as part of existing courses (Tryon and Ross, 2012). More specifically, these issues relate to students' lack of commitment, ethical issues when working with vulnerable groups, lack of capacity to train or supervise short-term CSL students, and issues relating to timing and project management (Tryon and Ross, 2012). These issues could lead to exploiting the goodwill of community partners. Indeed, studies on the perspectives of community partners have shown they would like ways to develop longer-term CSL activities (Sandy and Holland, 2006).

The mono-disciplinary, single course and short-term nature of most CSL projects becomes especially problematic given that the world is facing increasingly complex problems such as sustainability and social segregation (Delano-Oriaran et al., 2015). These problems never have clear-cut solutions and are often dynamic (Ramaley, 2014). Addressing these problems involves many stakeholders with different values and priorities. Indeed, addressing 'wicked' problems requires an approach that builds upon various (disciplinary) perspectives (Fitzgerald et al, 2012; Huang and London, 2016; Ramaley, 2014). This makes it necessary to establish new kinds of engagement that build true university–community partnerships based on reciprocity and mutual benefits and with an intentional focus on resolving a wide range of complex societal problems (Fitzgerald et al., 2012).

In this article we present and analyze the findings of a Dutch university in attempting to contribute to this objective. More specifically, we describe and analyze how the CSL team of the Vrije Universiteit Amsterdam (henceforth the VU Amsterdam), developed and experimented with a 'thematic CSL approach' to address complex societal issues. The aim of this approach was to involve multiple courses and internships from various programs in different faculties and involving a range of stakeholders and community organizations in this overall CSL activity in order to contribute to addressing a complex societal issue. With this case study we aim, first, to evaluate the benefits and related considerations of a thematic CSL approach; and second, to examine how the approach contributed addressing a complex societal issue in the local area of Amsterdam New-West.

Context of the Case Study

The VU Amsterdam states in its Strategic Plan 2020–2025 that it takes responsibility for people and the planet by offering values-driven education. One of the strategies to realize this is to develop future-proof forms of education (Strategy VU 2020–2025 p. 43). Among other goals, the VU Amsterdam plans to make CSL university-wide. In order to realize this, in 2018 the VU established a Community Service-Learning program as part of a wider 'Broader Mind' student program. The CSL team, consisting of lecturers, researchers and support staff, develops this CSL program. CSL is described in the Educational Vision of the VU Amsterdam as a form of education in which students apply their knowledge and skills for the benefit of society and learn from the experience (VU Amsterdam Educational Vision, 2018). The CSL team investigates implementation strategies for CSL in the VU Amsterdam.

At the start of Community Service-Learning program, the CSL team organized a 'Meet & Match' event in the local area of Amsterdam New-West. The aim of the event was to identify societal issues that could be addressed by students as part of the educational program. In total 43 people participated in the event including; local civil society organizations (CSOs), representatives of the municipality of Amsterdam, teachers, researchers and students from the VU Amsterdam, and residents from the city district Amsterdam New-West. Through focus group discussions (FGDs) with those participants, 'loneliness' (**Box 1**) was identified as one of the major constraints people in the area were facing. Following this, there were joint reflections between the CSL team and various stakeholders to define 'how students of the VU Amsterdam could contribute to addressing 'loneliness' in Amsterdam New-West. These joint reflections led to the conclusion that it would be complex (and unethical) to address loneliness in a single course within a single program. Therefore, the CSL team decided to experiment with a 'thematic CSL approach' that clustered multiple courses and internships from a range of programs offered by different faculties to address one complex issue.

To develop 'the thematic CSL approach', the CLS team adopted an action–research approach (Lewin, 1946). This implies that the team seeks to realize transformative change in the university through the simultaneous process of taking action and doing research (Lewin, 1946). Analogous to the action

BOX 1 | Description of the complex problems of loneliness.
Loneliness is a complex problem, since it involves various dimensions. First, there are divergent reasons for a person to feel lonely; it could include infrequent participation in social activities, having few social contacts, and feeling that you don't belong to any group. Moreover, there is a fragmentation of knowledge amongst the stakeholders (e.g., elderly residents, policymakers, housing providers, healthcare providers and technology developers), and their interests often do not converge. Therefore, effective actions to deal with the problem requires multi-stakeholder approaches that bring together different perspectives and narrow the gap between them (Williams and Braun, 2019).

research spirals, within this process we recognize three steps; matching of societal issues and course objectives, employing co-creation methods; monitoring, which could result in adaptation during the project; and evaluation, which results in planning new activities (**Figure 1**). The focus here will be on the benefits and the related considerations of the thematic approach and how it contributed to addressing the complex issue of loneliness—namely, the evaluation of the thematic approach. We also consider some of the background in the matching and monitoring, which is crucial in understanding the complexity of such a thematic approach. The following section will describe the development of the thematic approach initiative in relation to loneliness, mainly in relation to the matching and monitoring aspects. The method section describes how the evaluation was conducted, and the results reports on the benefits, considerations and the way the thematic approach contributed to addressing loneliness.

DEVELOPMENT OF THE THEMATIC APPROACH

In this section we describe the development of the thematic approach in addressing the issue of loneliness in Amsterdam New-West. First, we describe how we identified specific community needs in relation to loneliness through a second 'Meet & Match' event. We then describe how each student project, consisting of courses or internships clusters, was matched to those needs (and to others subsequently identified), and monitored by the CSL team as part of the action research spirals.

In June 2018, a second 'Meet & Match' event was organized, the aim of which was to establish specific collaborations between the VU Amsterdam (through students' projects) and local stakeholders of Amsterdam New-West in the theme loneliness. In total, 39 people participated in the event. The local stakeholders included four members of the municipality, two members of social housing corporations, two staff members of vocal education, ten representatives from various CSOs (such as VoorUit, Movisie, GGD and Combiwell), and two residents. The CSL team also identified and invited lecturers from the VU Amsterdam who were involved in teaching and/or research topics related to loneliness. From the VU 12 lecturers, three program directors and four administrative staff members attended. For all participants the overarching (main) research question was how to address loneliness in Amsterdam New-West. As expected, in assessing 'loneliness' with the various stakeholders the complexity of the issue became evident. For instance, depending on the affiliation of the stakeholders the target groups differed. Some stakeholders were specifically interested in the needs of local residents (housing organizations) whereas others were more interested in how the collaborations between various organizations might contribute to addressing the issue (municipality). This links back to the nature of loneliness as a complex problem and the need for multi-stakeholder approaches (**Box 1**).

Based on the needs of community members and partners, various topics were identified that led to several research questions to which students from different study programs could contribute as part of their course assignments and/or during their research internship. In general, research topics concerned loneliness in relation to poverty or elderly people, the role of communities and community cohesion, detection of loneliness, different forms of loneliness and taboos regarding loneliness. One specific research need identified by the municipality and two CSOs was to gain more insights into how policy changes could contribute to community capacity building in order to reduce loneliness in Amsterdam New-West. Among the lecturers, the coordinator of the course Analysis of Governmental Policy (AGP) that is part of the Master's in Management Policy Analysis and Entrepreneurship (MPA) expressed an interest in addressing this question with the help of students enrolled on the course. As a result, at the event the AGP course was matched to address community needs in relation to recommendations regarding policy changes.

The AGP course is an existing CSL course offered to 150 students every year. It was offered in September–October 2018 and one of its learning goals is to write a policy advisory report on a complex issue related to health and life sciences in a group of 12 students. The course coordinator works with various commissioners. There was a direct match with the question, and the research could start relatively quickly. The course was closely monitored by one of the CSL team members, specifically in relation to the communication and collaboration between the students and the community partner. For example, students' emails were looked at before they were sent to the commissioner, and the questionnaire used to gain insights into the community needs was thoroughly checked and revised before it was used. At the end of AGP course, 12 students made recommendations especially relevant to the municipality, but also for the two CSOs involved.

As a result of the initial phase of the research, questions for follow-up research arose. For example, one of the recommendations made by the APG course was to increase awareness of local activities, such as walk-in coffee moments and other social activities, among lonely residents. The question was how communication with these lonely residents could be organized. In order to address this, the CSL team assessed which bachelor's or master's programs could be matched to this research

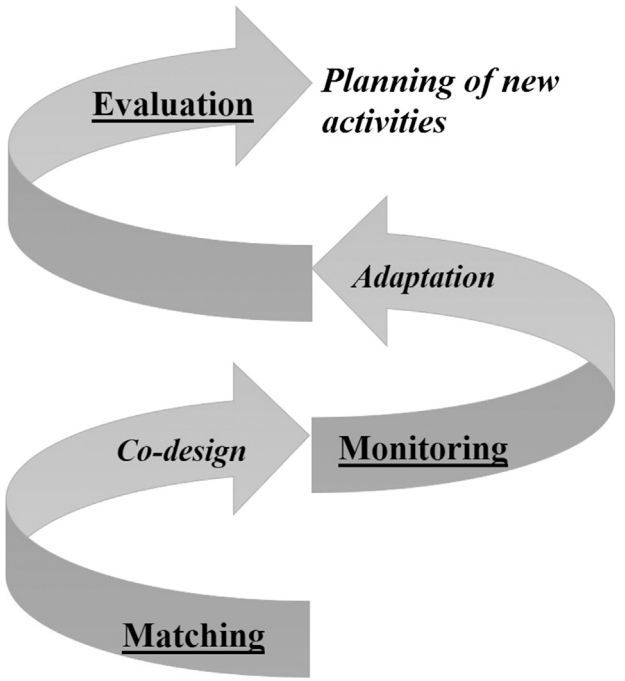

FIGURE 1 | The action research approach.

question and which courses, preferably offered between November 2018 and June 2019.

Health-related bachelor's and master's programs were assessed and discussions were organized with their lecturers about CSL opportunities. This resulted in a match with the second-year Health Communications course offered to about 50 students in the BSc in Health Sciences. The main learning goal is to develop and evaluate a communication intervention aimed at addressing a specific health problem within a well-defined target group. This course was identified as having the potential to provide insights into communication approaches regarding lonely residents. Together with the CSL team, some parts of the course were re-designed. For instance, lecturers with in-depth knowledge on loneliness were invited to give a presentation to better prepare the students and provide insights on the topic.

Three additional follow-up questions from the AGP course were identified in collaboration with community partners, namely the municipality and one CSO. These follow-up questions concerned the meaningful participation of lonely residents, the needs of key residents to increase community building, and factors related to successful cooperation in community coalitions. These topics require in-depth insights. Again, the CSL team assessed existing programs with the potential to deal with the relevant research questions in the available timeframe. This resulted in a match between possible internships possibilities in the MPA master's program, which consisted (partly) of the same cohort as the 2018 AGP students. The three follow-up research questions on loneliness were offered to students undertaking the five-month internships starting in February 2019 in the next action–research cycle. The internships were monitored by the CSL team and there were regular check-in moments. Given the length of the internships, an extra mid-way interview was added to better monitor the students' progress.

There were also more specific questions raised during the second Meet & Match event on loneliness. For example, a social housing corporation was specifically interested in the effects of emotional and social aging in old people's homes. The CSL team again assessed which academic programs could be related to this topic. After identifying them, there were discussions with lecturers to see whether there could be a match. A match was established with the second-year BSc course on Geriatrics and Aging, which was offered to 90 students. One of its learning goals is to conduct a survey with older people about an aging issue.

Potentially, the question on the effects of emotional and social aging in old people's homes matched the identified course. In previous years, the students taking this course chose their own aging issue after a day of volunteering in a health-care facility without the involvement of a community partner. The coordinator was motivated to look for ways in which the student projects could address an external community partner's wider concerns, and so increase the impact of the course. In an attempt to match the community needs to the course objectives, it was decided to provide the students with a pre-developed questionnaire so that they could focus on the data collection. This re-design was needed given the short timeframe of the course (8 weeks) and the learning goals that mainly looked at data analysis. The CSL team co-developed the questionnaire in close collaboration with the community partner and the course coordinator. The CSL team, with one of the CSOs, also monitored the distribution of the questionnaire in old people's homes.

The students on this BSc course on Geriatrics made recommendations to the social housing corporation on how to deal with the residents' needs and wishes in relation to the themes of emotional and social aging. The students identified needs in relation to better advertising social activities, organizing more diverse activities, making the common spaces more attractive. The collaborations with this housing corporation continued into 2019, involving other housing complexes and other target groups.

After addressing policy considerations and related follow-up questions in relation to loneliness and answering more specific questions such as older people's housing needs. Two CSOs expressed a need to look at the social constructs of community building in order to prevent loneliness. Given the nature of this need, the CSL team identified bachelor's and master's Sociology programs as suitable. The team made contact with various lecturers, among others with the Sociology internship and thesis coordinator, who was interested in taking on the loneliness topic for internships as the objectives matched the community needs.

Four bachelor's internships in the Faculty of Sociology focused on factors that promote or hinder community functioning and building and provided insights on the importance of active leadership, a safe meeting environment and setting specific meeting dates. The internships ran from April—June 2019. During this period, the CSL team and CSOs initiated meetings attended by three master's students doing their internships

(mentioned above) and the bachelor's students to foster the exchange of knowledge among the students and with the community partners involved. One of the CSL team attended these meetings to monitor the interactions.

The master's internships also provided insights into the needs of the lonely residents in Amsterdam New-West. The municipality and the one of the CSOs indicated that the next step would be to map these needs to the current social resources that they provided. To address this emerging need the CSL team assessed which programs could be linked to this research question and specifically which courses, preferably starting in September 2019. The preferred outcome would be an advisory report on the use of social resources.

The AGP course, which also kicked off the thematic approach, proved to be a good match as one of the learning goals is to provide such an advisory report. Twelve students from the September 2019 cohort on the AGP course built on the results of the interns and mapped the needs of lonely residents to the activities provided in the area. This provided the CSO with recommendations on how to better align their activities with these needs. While monitoring the course as it progressed, the CSL team noted that the community partner preferred not to interview lonely residents in the district, as they had already been subjected to various interviews during the earlier internships as well the first AGP course. The community partner involved expressed concerns about overburdening community members. In response, the CSL team suggested that the students use the results from the interviews conducted during the previous master's internships to identify community needs. In order to adhere to the course objectives the students could interview members of the CSO in order to map the current social resources. This avoided overburdening community members with too many interviews while meeting the course objectives.

As part of the described action–research approach whereby courses were continually matched and monitored, the composition of the community partners varied. One community partner, namely the CSO VoorUit, was involved in all the projects, had worked in close collaboration with the CSL team, its extended network in the city district of Amsterdam New-West provided opportunities for connections with local communities. VoorUit was especially valuable in identifying community needs which the CSL team could then match to courses. To contribute to the monitoring of the loneliness theme, the CSL team employed a student assistant just after the first AGP course in 2018. The assistant could follow all the courses included in the loneliness theme and contribute to knowledge exchange and logistics. The student assistant contributed to creating an overview of the activities being conducted and the main outcomes achieved.

After a little more than a year since the second Meet & Match event hosted in June 2018, four courses (one including two students' cohorts) and seven internships were included within this theme-based approach. The main outcomes of the CSL projects related to these courses were shared in presentations at the VU Amsterdam and disseminated in the form of scientific reports. At the presentations, representatives of the commissioning parties as well as community members were invited to the VU Amsterdam. **Figure 2** shows a timeline of all the courses, internships and community partners that have contributed to addressing the problem of loneliness in Amsterdam New-West from September 2018 to October 2019. As already shown, courses and internships may run sequentially, building on each other's results, or in parallel, addressing different research questions.

The results of the three master's interns were also presented at a local event organized during the 'Week of Loneliness' in October 2019. This event was organized by two CSOs, The Hogeschool van Amsterdam, the municipality and the VU Amsterdam. Representatives of these stakeholders attended as well as students and local residents. At the event, students shared their results, which also provided a platform for local residents to share their stories with respect to loneliness. In this way, the event contributed to interesting conversations and gave rise to new partnerships and research topics. The VU Amsterdam, the Municipality of Amsterdam, and other community partners involved with the thematic approach also signed an agreement to continue devoting time and resources to address loneliness in the district of Amsterdam New-West. Thus, the event added to the continuity of the thematic approach.

METHODS

As previously noted, the CSL team follows an action–research approach (Lewin, 1946) in developing the CSL thematic initiative, distinguishing between matching, monitoring and evaluation phases that also result in new activities (**Figure 1**). We described earlier the process of matching and monitoring student projects, consisting of courses or internship clusters to provide some background to how we developed the thematic approach in CSL, which we consider crucial in understanding its complexity. At the end of each student project, described in the previous section, the CSL team conducted evaluations with all the stakeholders in order to assess whether and how the thematic approach had contributed to addressing the issue of loneliness. We specifically enquired about the benefits and related considerations of a thematic CSL approach, research on which is ongoing. This article describes the first action–research spirals from the period of June 2018 to October 2019.

Data Collection

The current pilot study covered six student projects based in the MSc in Management Policy Analysis and Entrepreneurship, the BSc in Health and Life Sciences, and the BSc in Sociology, and two faculties (Faculty of Sciences and the Faculty of Social Sciences). From these student projects, four were drawn from courses and two were internship clusters (**Figure 2**). At the end of each student project, we reviewed the final reports and considered the main tangible outcomes as reported by the students to gain some insights into how the different projects addressed the issue of loneliness. We also conducted face-to-face, in-depth, semi-structured interviews or FGDs with the stakeholders—students, teachers and community partners. By including the perspective of all the stakeholders, we obtained a comprehensive understanding

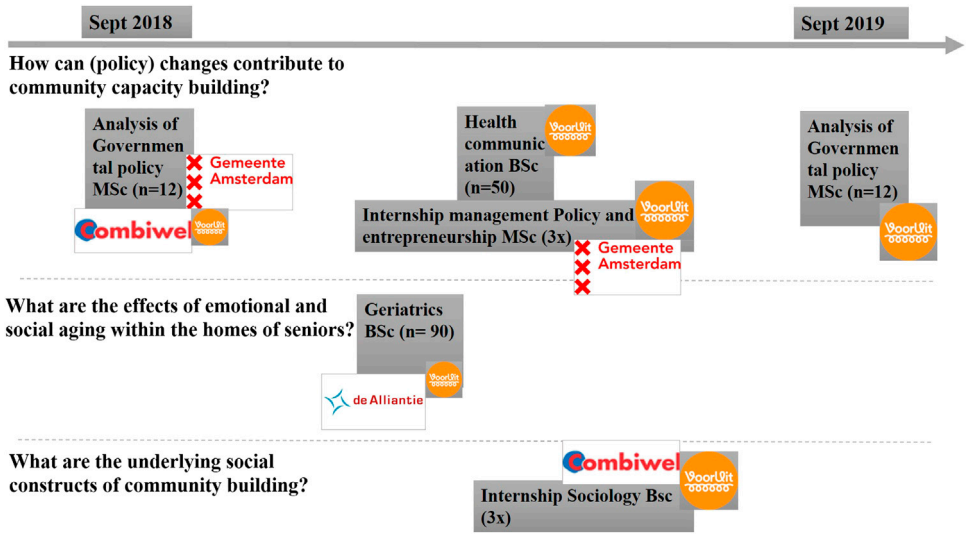

FIGURE 2 | Timeline of loneliness theme.

of phenomena, and thus increased the validity of our findings (triangulation of data). In total, 30 students, six members of commissioning parties (of which two were interviewed twice) and eight teachers/course coordinators were included in the data collection.

During the first two action–research spirals (involving the master's course on AGP and the bachelor's course on Geriatrics and Aging) FGDs were conducted with the coordinator/teacher and community partner. We noticed, however, that owing to power differentials among participants, some individuals might feel uncomfortable in this set-up to talk openly about their perceptions and assessment of the collaboration. For this reason, in both instances either the commissioner or course coordinator were also interviewed separately. In line with the action–research approach, we decided to adapt our approach to enable us to address our research question more accurately. From then on, to avoid power differentials among participants, FGDs were conducted to capture the students' perspectives, and separate interviews were undertaken with teachers and community partners. The interviews and FGDs were conducted mainly in Dutch with the exception of the two AGP courses, which were conducted in English as they included non-Dutch-speaking students. Specifics of the various interviews and FGDs linked to each course or internship can be found in **Table 1**. We must acknowledge that the number of students who participated in the FGDs differed substantially for AGP, with 12 students, whereas only three students on the Geriatrics and Aging course participated. As participation was on voluntary basis, the CSL team found it harder to recruit bachelor's students for the evaluations.

The research tools used in the interviews and FGDs followed a semi-structured design describing a topic list in relation to the context in which the course was set, the input, the process and the final product. The interview guide and the FGD script followed the same topic list, with the latter including additional elements to ensure that all participants could provide inputs on the discussion topics. For the current case study, the focus was on mainly the process and the product and specifically how a thematic approach might contribute to the process and the product, but also what benefits and considerations might arise in clustering multiple courses and internships to address one complex issue. When the participants were asked to describe the process, we included questions such as: What went well and what was challenging? With regard to the products, meaning the final reports as well as the learning experiences during the course, the participants were asked what they had learned, and whether and in what way they felt the product had added value to the community partners and community members involved.

Data Analysis

All interviews and FGDs were transcribed verbatim and analyzed by the first author. After analysis quotes were translated from Dutch into English. In the analysis here, only sections where teachers/course coordinators, community partners or students specifically referred to the loneliness theme were included for coding purposes, as we were specifically interested in the contributions, benefits and related considerations of the thematic approach (e.g., clustering multiple courses to address the issue of loneliness). We followed a thematic analysis approach based on open coding, meaning that the textual data were inductively coded and categorized in themes that are linked to the benefits of the thematic approach and related considerations. Initial codes linked to the benefits of the thematic approach considered starting up a project, more connections, more sustainability, greater motivation, and increased impact/deepening of knowledge. Codes related to possible drawbacks considered reduced freedom, repetition, overburdening target groups, and the need for greater investment. Within each category, quotes from different stakeholder groups were included. This initial coding was performed by the first

author, supported by discussions with the second author on the codes and emerging themes.

In a second coding round we decided to consider the perspectives of the community partners separately from those of the teachers/course coordinators and students as this would provide more clarity and depth within the codes. This produced the structure as described in the results section. This round of coding was conducted by the first and second authors. When perspectives overlapped in the new coding structure, this is also reported in the results section.

Ethical Considerations

Participation in the study was on a voluntary basis. All parties signed an informed consent form before participating in the interviews or FGDs. Participants were told that they had the right to withdraw from the study at any stage if they wish to do so. Audio recordings and transcripts were safely stored. After transcription, the audio recordings were destroyed. All data transcripts have been anonymized. We completed an online ethics Self-Check form offered by the VU Amsterdam, consisting of 15 yes/no questions (Research ethics review, 2020). The Self-Check form confirmed that we did not require further evaluation by the Research Ethics Review Committee as participants signed an informed consent, no possible risks were posed, no vulnerable groups were interviewed, participants were not exposed to recruitment incentives or destressing material, no risks were posed to the researchers and finally participants were not deceived in any way and data was anonymized.

RESULTS

In this section, we report on the evaluation phase of the action–research approach. We first reflect on how the thematic approach has contributed to addressing the issue of loneliness by considering the tangible outcomes of the different student projects in the pilot. Next, we look at how the thematic approach has contributed to addressing the issue of loneliness in Amsterdam New-West by considering the perspectives of the community partners involved in the project. Finally, we provide insights into the benefits and issues related to the thematic approach based on the experiences of the teachers, course coordinators and students.

Tangible Outcomes of Student Projects

The student projects yielded various tangible outcomes that have contributed to addressing the issue of loneliness in Amsterdam New-West. These varied from recommendations concerning the needs of lonely residents in relation to increasing awareness, diversifying activities, and taking a more personal approach, to more structural advice with respect to the collaboration between the municipality and various CSOs. **Table 2** shows the main tangible outcomes for each course or cluster of internships that contributed to addressing the issue of loneliness in Amsterdam New-West. Most of the outcomes are recommendations relevant to the commissioning parties. However, especially in relation to the various internships, it was also noted that the mere presence of the students for a substantial period of time had a positive and mediating effect on the communities, in particular on the people in direct contact with them.

Contribution of the Thematic Approach

The following sections present the contributions specifically related to clustering courses to address different aspects of a complex issue such as loneliness. More specifically, we consider how the thematic approach has contributed to addressing this issue in Amsterdam New-West by considering the perspectives of the community partners involved in the project.

Building New Networks

The first major attribute of the thematic approach community partners mentioned is that it assists in building new networks. Several community partners stated that, as a result of the first course (AGP 2018), various partners, specifically the Municipality and two CSOs, that would have otherwise been disconnected, started working together and exchanging ideas:

> '*[another community partner] also wants to participate, so more parties are inspired by this [2018 AGP course] to actively participate within the same theme and to take action*.' (community partner).

A community member commented that there were benefits even before starting this first course. The Meet & Match events co-organized by the CSL team and other stakeholders appeared to be a valuable way to start new collaborations, as the following quote illustrates:

> ' . . .*the meet and match was organized [Meet & Match events], a clear theme arose [loneliness]. Then people came together, and it became clear that such a theme is just so important and essential. So that various partners have been working on it together*.' (community partner)

Continuity

Community members noted that another benefit yielded by the thematic approach was that of continuity. One community partner expressed finding it offered so much added value that the loneliness topic was given significant and continuous prominence at the VU Amsterdam. This community partner noted that the municipality of Amsterdam, for instance, tends to change thematic interest for political reasons, as often a topic is very prominent on the political agenda, but only for one year. For instance, loneliness could easily be supplanted by another theme such as 'more green' in the city, and then money is reallocated to the new theme. For her, a sustainable partnership based on a multi-year commitment to this theme was most important:

> '*Loneliness, that is not a theme that is just about to resolve itself. But if you can do it together, you can get much more sustainably on these kinds of slow questions that will always continue to demand attention in [an] ever new guise*.' (community partner)

TABLE 1 | Interviews and focus groups linked to courses and internships.

Student project	Focus groups	(Group) interviews
Master's course Analysis of Governmental Policy (AGP), (n = 12) in Management Policy Analysis and Entrepreneurship (MPA)[1], September–October 2018	Students (n = 12) Teacher (n = 1) and community partners (n = 3)	Community partner (n = 2)
Bachelor's course Geriatrics and Aging (n = 90) in Health Sciences[2], February–March 2019	Students (n = 3) Course coordinator (n = 1) and community partner (n = 2)	Course coordinator Teachers (n = 2)
Bachelor's course Health Communications (n = 50) in Health sciences, April–May 2019	None	Community partners Teachers (n = 2) and coordinator (n = 1)
3 Master's internships in Management Policy Analysis and Entrepreneurship (MPA), February–June 2019	Students (n = 3) at two moments in time with all students	Community partner Coordinator
4 Bachelor's internships Sociology, April–June 2019	None	Community partner Coordinator
Master's course Analysis of Governmental Policy (AGP) (n = 12) in Management Policy Analysis and Entrepreneurship (MPA), September–October 2019	Students (n = 12)	Teacher Community partner

[1]*In this program, students with a background in the health and life sciences conduct research on complex societal issues in the health and life sciences.*
[2]*In this program, students gain insights into current public health issues and develop creative solutions to improve the health of (international) society.*

Interestingly, it was not only community partners who expressed this need for continuity. Teachers and students who were part of a thematic approach became aware of this need. For instance, one of the course coordinators noted the need for continuity as the students are still learning and it is unrealistic to expect that they will hand in a product that can be directly applied. We should therefore provide follow-up opportunities based on the results.

It should be noted, however, that when multiple courses and or internships focus on the same theme, there is a possibility of overburdening specific target groups in the community. The program did take steps to avoid this. For example, the 2019 AGP students did not interview the community members who had already been interviewed by students and internships in 2018, but used the data collected by their colleagues the year before and focused on collecting their own primary data, which is an important learning objective of this course, by interviewing other relevant groups.

In relation to greater continuity, various partners (the VU Amsterdam among them) that had been involved in the CSL courses and internships as part of the loneliness theme signed a covenant in which they committed to continuously devote time and resources to address the issue of loneliness in the district of Amsterdam New-West. This covenant was signed at a local event organized during the 'Week of Loneliness' in October 2019. This event provided a platform for community members, partners and students to share their experiences, and also gave rise to new partnerships and new research topics. In that way the event in itself also contributed to continuity.

Deepening of Knowledge

The CSL team's action–research approach made it possible, together with community partners, to identify new ideas and research questions from the outcomes of the CSL projects on the loneliness theme. These new ideas and questions were connected to follow-up courses and internships, contributing to continuity, as noted by two community partners. One community partner took it a step further, noting that continuity not only provided benefits when working with multiple courses and internships on one theme, but that these kinds of collaborations could also lead to more in-depth knowledge:

> '*The continuity but also the deepening of knowledge, I really hope for that. I really hope that in ten years' time we will say something different about what loneliness is and what helps, than that we now say after three reports.*' (community partner)

This continuity and resulting deepening of knowledge are not outcomes of the thematic approach that can be taken as a given. They require active and constant time and effort from the parties involved, particularly the CSL team at the VU Amsterdam. Two of the community partners noted that in order to really use the thematic approach, there is a need to invest time and commitment to facilitate the exchange of knowledge and increase impact:

> '*But you should monitor it [the exchange between students and courses] more closely if you want to get the most out of it. [...] Ultimately, the effect is increased because it is more connected.*' (community partner)

To achieve this, members of the CSL team ensured that a connection between various partners and coordinators was established. The team had to identify potential partners, course coordinators, and align interests in and possibilities for collaborating. The CSL team members were also involved in aligning the various research questions, enabling various courses to build on each other's results. In addition, the CSL team decided to assign a student assistant to the theme of loneliness to provide extra logistical support. This assistant followed all the courses and summarized the main findings for each course, and thus obtained an overview of the main outcomes and possible follow-up questions. Linking a student assistant to a specific theme was well received by the course coordinators, as it enabled them to reduce the workload of

TABLE 2 | An overview of the main tangible outcomes by student project.

Course or internship cluster	Identification of need	Aim	Method	Main tangible outcome	Community partner
Master's course Analysis of Governmental Policy (AGP), (n = 12) September–October 2018	Second meet & match event co-organized by the CSL team and community partners	Provide recommendations on how to contribute to community capacity building in order to reduce loneliness in New-West	In-depth interviews with residents in New-West	The municipality should assign a mediator, develop a leadership program for residents at existing facilities and increase awareness of social activities	Municipality of Amsterdam in close collaboration with VoorUit (CSO)
Bachelor's course Geriatrics and Aging (n = 90), February–March 2019	Second meet & match event co-organized by the CSL team and community partners	Provide recommendations to a social housing corporation on how to deal with the needs and wishes of elderly residents in relation to the themes of emotional and social aging	Questionnaires directed to senior residents in new-west	Introduce a bulletin board to advertise the social activities, organize more diverse activities, and make the common spaces more attractive	De Aliantie (social housing corporation), in close collaboration with VoorUit (CSO)
3 Master's internships in Management Policy Analysis and Entrepreneurship (MPA), February–June 2019	Follow-up research questions based on recommendations made by students in the AGP course 2018	(Follow-up on 2018 AGP course) provide recommendations on: 1) meaningful participation of lonely residents; 2) the needs of key figure residents to increase community building; 3) factors related to successful cooperation in community coalitions	Interviews with residents in new-west and welfare organizations related to the district	Create an interactive stakeholder map of the new-west area. More and clearer way signs to indicate community lefts and a better overview of the range of activities. Moreover, residents require a personal approach and fixed groups of participants. Finally, inclusion of more organizations such as GGZ and housing corporations	Municipality of amsterdam in close collaboration with VoorUit and combiwel (CSOs)
Bachelor's course Health Communications (n = 50), April–May 2019	Follow-up research question based on recommendations made by students in the AGP course 2018	Provide recommendations on effective communication strategies aimed at lonely residents in the region of Amsterdam New-West	Literature research	Due to the fact that the course objectives did not neatly fit the loneliness issue the tangible results were limited	VoorUit (CSO)
4 Bachelor's internships Sociology, April–June 2019	Second meet & match event co-organized by the CSL team and community partners	Provide insights into what factors promote or hinder community functioning and building	Interviews with various community members	The importance of active leadership, a safe environment where residents can come together and set meeting dates was stipulated	Combiwel and Vooruit (CSOs)
Master's course Analysis of Governmental Policy (AGP) (n = 12) September–October 2019	Follow-up research question based on outcomes of the research internship conducted by three MPA students	(Based on the outcomes of the master's internships) provide a needs analysis of lonely residents in new-west, and map this to the current social resources provided by VoorUit	Interviews with members of VoorUit and data analysis of interviews with residents completed earlier	Involvement of residents in activity development, implementation of 'buddy system', align communication between various welfare organizations, provide training for members working at VoorUit	VoorUit (CSO)

aligning the course objectives to the theme and gave more meaning to the course by streamlining knowledge. This is illustrated by this quote from a course coordinator:

> '*[Name student assistant] was also able to think along about the content, which was also very nice.*' (course coordinator)

The possibility of getting additional support to establish CSL projects on the theme of loneliness and the prominent role played by the CSL team in this process were noted by teachers and course coordinators. This topic is described in the following section, which reviews the benefits and considerations of a thematic approach.

Benefits and Considerations of the Thematic Approach

In the following sections we provide insights into the benefits and related considerations of the thematic approach, based on the experiences of the teachers, course coordinators and students.

Collaborations

The thematic approach encouraged collaborations both among community partners, and also between faculties and among students. For instance, the approach created new connections between the Faculty of Science and the Faculty of Social Sciences. The members of each faculty are now discussing the possibility of a joint publication on assessing impact of community-based interventions. One internship coordinator noted that these collaborations have much added value, making it possible to rely on and learn from each other as faculty members. The theme also contributed to collaboration among students, which community partners perceived as valuable by because they could exchange information and learn from each other, as the following quote illustrates:

> '*That it was a group [of students within the internships] really has added value. So for the sequel I would like to steer towards having several students working on a theme*.' (community partner)

One internship coordinator suggested that we could have taken these networks one step further by including students from vocational education also working on this subject. He emphasized the need for an additional, more practical, approach:

> '*How can you combine theory on one side with practice [hinting at vocational education]. . .? You have to be in both areas but then you need a team, you cannot do that on your own*.' (internship coordinator)

Awareness of Community and Student Development

Another benefit yielded by thematic approach was the positive effect on students' knowledge of community issues and ability to identify and understand community needs. In this process, students in the 2018 AGP cohort also developed competencies related to ethical reasoning. The interaction with community members and partners, and an increased awareness of loneliness as a complex problem, have enabled them to realize that it would be unethical to just step in, do their research for four weeks and then leave. They found this especially troubling given the fact that the lonely residents already often have issues of trust and feel neglected. Just doing their research and not following up could do more harm than good. A conversation that took place in one FGD illustrates this point:

> '*One of things that I find a little bit, ethically troubling I guess [...] these people have trust issues, things have been promised that were not kept. Or, you know, they had a contact person, but that switched five times in a year*.' (2018 AGP student)

Students noted that for such a project to be ethically valid, there should be some kind of follow-up and continuity. They recognized the importance of continuity, which the community partners also perceived as necessary and beneficial. A community partner involved in the 2018 APG course mentioned the importance of informing students about the importance of continuity. In their experience, the students were unclear about what was happening with their results, and expressed concerns in relation to continuity. This lack of communication was confirmed by one of the students:

> '*At AGP [course] it was not clear what would be done after we were finished*.' (2018 AGP student/internship student).

Moreover, in relation to building new and larger networks, one community partner indicated that the wide diversity of stakeholders involved in one project adds a layer of difficulty for the students, because they have to take account of all the different perspectives, values and ideas. He added that this added difficulty might well contribute to students' development as it accurately reflects real-world challenges that students will need to learn to address. This enhanced student development was confirmed by an internship coordinator:

> '*[when working within a theme with multiple partners] students are more likely to come into contact with contradictions and they have to find a way to deal with this and that is the reality they come into contact with*.' (internship coordinator)

However, there appears to be a trade-off between community involvement with the risk of overburdening the community, and how deeply students are able to relate to the relevant group, perhaps hampering the extent to which they can build awareness of community issues. For instance, as noted previously, the 2019 AGP students could not interview the community members who had already been interviewed by the internships and 2018 AGP to limit the possibility of overburdening specific community groups. Instead, the data gathered in the internship interviews was re-used and re-analyzed. Although the learning objectives of the course were achieved by interviewing members of the partner organization, this decision affected the way in which students could relate to the target group, as the following quote illustrates:

> '*I thought that was a pity, because we also looked at the residents, but we have not been in contact with them [...] I sometimes found it difficult to imagine what makes them so unapproachable*.' (2019 AGP student)

Motivation

Greater motivation was a benefit of the thematic approach mentioned by a teacher, a coordinator and several students involved in the loneliness theme. The reasons for this motivation differed. One teacher noted that the idea of contributing to a larger goal (solving the complex issue of loneliness) increased her motivation:

> '*But also, that the whole workgroup worked together on a larger goal [hinting towards loneliness]—I liked that the most*.' (teacher)

One of the coordinators noted that because the CSL team was already in contact with the community partner, there was more motivation to join the theme as it would not add much to the existing workload while still enabling her to integrate real cases into the course. An AGP student from the 2019 cohort noted that the event at the 'Week of Loneliness' where master's students presented their internship results back to the community, was a real eye opener. She said that it became clear to her how the cohort was now building on the results of these master's students and this increased her motivation as she felt that she was making a valuable contribution that could be picked up again by other students.

It should be noted that aspects of the thematic approach also reduced motivation for certain student groups. For example, some students indicated too much potential overlap or repetition of the subject in different courses. Specifically, students from the courses on geriatrics and health communications indicated that they already had one or sometimes two courses dealing with elderly people and/or loneliness and would have preferred to touch on more diverse topics within their bachelor's program. Two teachers from the health communications course commented that whether motivation increased or decreased differed greatly depending on the individual student: some students found loneliness a very intriguing subject and were happy to have another course on this theme, whereas others were fed up with the topic after one course. In general, the teachers agreed that it is important to discuss various topics throughout the bachelor's program, but to achieve more depth and a greater sense of ownership, it could be interesting for some themes to re-emerge, althoughperhaps not in several subsequent courses.

Sense of Ownership

Most students also showed greater responsibility for community projects. One student from the 2018 AGP cohort indicated that he was not particularly interested in loneliness until the topic came up in the course:

> '*I was not really interested in loneliness specifically, but now since I am, yes, it definitely became part of me. I was thinking of maybe doing an internship within this area*.' (AGP student)

Indeed, three master's students chose to further engage in the topic of loneliness in their internships. Interestingly, as the courses or internships progressed, students seemed to develop a sense of ownership of the theme, feeling in some way responsible to contribute to this complicated, widespread problem. The thematic approach offers the opportunity to do so by offering internships or other courses that consider the same theme.

In one course that was part of the thematic approach, some students reported that they felt a drop in their sense of ownership. This was because in previous years, students were free to choose a topic after one day of volunteering in a healthcare facility. In the course assignment, they then switched to a more narrowly focused question arising in the second Meet & Match event. Some students perceived this as having less to contribute themselves and so reduced their sense of ownership. Two students from the geriatrics course indicated that they would have preferred to choose their own research subject, as the following quote illustrates:

> '*It is just more fun if you can think of a topic yourself, and since you can ask your own questions, it feels much more like you do the research yourself*.' (geriatrics student)

Reducing the Threshold for Adopting CSL

It was noted by teachers and coordinators that CSL usually demands an increased investment of time. Being part of the theme contributed to alleviating this problem. Two coordinators noted that the great advantage of the thematic approach is in reducing some of this investment of time as the collaboration with the partners is often already established and research topics have been defined by or together with the CSL team.

Although the threshold for adopting CSL can be reduced by being part of a thematic approach, it is still necessary to ensure an alignment between the CSL and the course objectives, and that adequate guidance to students is offered in this process. For instance, the course coordinators of the health communications course were initially happy to engage in CSL, especially because the questions had already been formulated and a collaboration between the partners and the CSL team established. During the course, however, they expressed their view that the topic of loneliness did not neatly fit with the course format. Originally, the students had to start with a health problem, and the course coordinators did not regard loneliness as a health problem. The teachers therefore decided to give students the opportunity to choose any health problem that might coincide with loneliness and make their health communication recommendations on this basis. As a consequence, one teacher noted that students found ways to link any disease to the issue of loneliness, making the results perhaps less valuable. This was also confirmed by the community partner involved.

Need for Interdisciplinary Bridges

Complex problems such as loneliness should be addressed from multiple perspectives. However, in our thematic approach to address loneliness, a perceived need for building interdisciplinary bridges remained. One teacher noted that the multi- or interdisciplinary component of the thematic approach is not sufficiently rewarded in universities' current academic structures. In the following quote, one coordinator is hinting at the need for interdisciplinary, although this might not be well received by one's peers:

> '*Teachers work in a particular structure and if you just use the academic structure you can score very high; you can get promoted and you get praise after praise. But when you start messing around in the margins [hinting towards interdisciplinary work] then you are perceived as messing around and you stop putting yourself forward*.' (internship coordinator)

The coordinator went on to add that for many faculty members this is a reason not to engage in interdisciplinary education, but that reviewing academic structures and supporting collaborative practices at the institutional level could provide faculty incentives. Interestingly, the thematic approach, led by the CSL team and strengthened by a student assistant, appears to be able to establish the required linkages or bridges. In this way the CSL team creates a bridge between disciplines through the thematic approach while not imposing too much on the established curriculum.

DISCUSSION

This article has described how a thematic approach to CSL was initiated at the VU Amsterdam, starting from the needs of a local community. To do so, the CSL team co-organized with social partners and facilitated two Meet & Match events in and with the community, by involving local residents, community partners, teachers, students and researchers from the VU Amsterdam. At the first event the theme of loneliness arose on the basis of community needs as an urgent and complex issue. In previous studies considering multi or interdisciplinary CSL, the collaborations often start with courses (Falk et al., 2012; Norton et al., 2018) or campus-initiated programs (Harrison et al, 2013), making our community-centered theme-based CSL approach perhaps unique. Following an action–research approach, the CSL team kept linking the specific issues arising from the second Meet & Match event, which was focused on loneliness specifically, and new ideas and knowledge generated during ongoing community-based activities to other courses and internships. Action–research projects can produce both theoretical and practical knowledge in a way that can inform future action (Reason and Bradbury, 2005). Our focus was to design a research process that is fluid, dynamic and flexible, and allows for the use of the knowledge being produced.

To the best of our knowledge, this is the first multidisciplinary theme-based initiative that started from and was completely built around community needs. As a result, by October 2019, a thematic approach comprised four courses (one including two student cohorts), seven internships and involved four different community partners and several residents of Amsterdam New-West. Our results show that the thematic CSL approach has contributed to addressing the issue of loneliness in this district. Over and above the more tangible outcomes as presented in **Table 2**, the approach assists in building new community networks. Moreover, it appears that the thematic approach has the potential to ensure project continuity and therefore deeper knowledge, which community partners and coordinators perceived as both positive and crucial. Teachers, course coordinators and students noted various benefits conferred by the thematic CSL approach. It has the potential to encourage new collaborations among students and faculty. Moreover, the thematic approach mitigates the increased workload related to CSL projects for course coordinators, because the collaboration with the partners is often already established and research questions are often (partly) formulated. Finally, the theme can assist in increasing student development, motivation and sense of ownership.

This is in line with findings from previous studies on multi- and interdisciplinary CSL. Indeed, such projects benefited from the continued presence of faculty (Falk et al., 2012) and gained insights as a result of new collaborations, leading to better contextualization of the relevant problems (Norton et al., 2018). It was also noted that specifically linking various courses stimulates new collaborations (Cross and Eckberg, 2015) and so diversifies voices, which leads to better consideration of the issue both from the from faculty perspective (Harrison et al, 2013) as well as from the student perspective (Coleman et al, 2017).

In the current case study, the community partners emphasized the benefits of broader collaborations as result of the thematic approach, thereby diversifying collaborations and voices and adding to the project's value (Falk et al., 2012; Lambert-Pennington et al, 2011; Norton et al., 2018). The community partners involved in the case study noted that these diverse collaborations create a better representation of the real world and helped stimulate the students' professional development. Norton et al. (2018), who describe a project in which multiple CSL courses contributed to an urban regional planning program, also note that part of the aim, and of students' learning process, is realizing and perhaps even addressing these ambiguities. Moreover, Norton et al. (2018) found that the students tend to have a mediating effect on various partners, resulting in improved and diversified interaction, in particular with community partners. More specifically, they note that community partners involved tend to be more probing, respectful, and thoughtful about each other thanks to the student involvement (Norton et al., 2018). Other findings of the case study are in line with those of Wiese and Sherman (2011), who describe an experiential service-learning project that combined environmental studies and marketing courses over a two-year period. For example, the case study revealed that faculty members appreciate the more satisfying teaching experience as they can contribute to a larger goal (Wiese and Sherman 2011).

It should be noted, however, that the thematic approach also raised certain issues to be addressed. For example, the case study revealed that some students prefer to have a theme that re-emerges throughout the program, because it further develops their knowledge on the topic, whereas other students prefer a wider range of topics and the freedom to choose their own (Roman, 2015; Werner et al, 2002). To accommodate both preferences and needs, internships could offer students the choice about whether to further engage in the topic (Johnston et al, 2004). The case study showed that this seems a promising approach as it also increases a sense of ownership. Another important consideration, which is related to project continuity, is that of making too many demands on specific community groups. This can be avoided by re-using and re-analyzing existing data, as was done with the 2019 AGP course. A consideration in doing so, however, is that students

might be less able to relate to the target groups. In such instances, one should therefore carefully consider student development.

The VU Amsterdam states in its Mission that '*students and staff have a deep connection with one another while being fully engaged with society as a whole* (p. 6), and its vision states that the VU Amsterdam '*want[s] the world to know about the societal impact of [its] educational and research activities*' (p. 54). We believe that our theme-based initiative, completely built on community-defined needs, has made a direct contribution towards putting this mission into practice. Moreover, this bottom-up approach offers greater benefits compared to previous studies on course-based multi- and interdisciplinary CSL. We therefore argue that this approach can be a valuable way for universities to keep faith with their third mission, because it especially considers community needs. Previous studies, particularly in relation to institutionalizing the third mission, have made the criticism that this process is usually considered from the institutional perspective (Furco, 2007) and lacks a more community-based view that emphasizes reciprocity (Curwood et al., 2011; Sweatman and Warner, 2020).

In order to develop future-proof forms of education, CSL is intended to be implemented throughout the VU Amsterdam, as stated in its Strategic Plan 2020–2025. So far our thematic approach has contributed to this aim. This article focuses on the issue of loneliness, which was identified as an urgent and complex problem by community members as well as by local CSOs in Amsterdam New-West. We argue, however, that the thematic approach could also be applied to other complex problems such as sustainability or inclusive mobility and are currently experimenting with ways to address such issues. Interestingly, clustering various courses to address complex societal issues makes it possible for faculties to do this while also respecting the integrity of their own discipline, allowing for multi- and interdisciplinary collaborations while not imposing too much on the established curriculum. These attributes make the thematic CSL approach a valuable stepping stone towards advancing CSL in universities, and so contribute to fulfilling their third mission.

Limitations of the Case Study and Suggestions for Future Research

In this article, we included data collected immediately after the CSL experience. While this allowed us to obtain rich data about the collaboration process that might otherwise have been lost, it was probably too soon to obtain more insights on the outcomes for students and community partners. Future research should also include data collected at different stages to assess the mid–and long-term effects of the CSL activities conducted as part of the thematic approach. The action–research approach easily allows for extra assessment, as occurred in the MPA internships, as the courses are already being monitored.

In addition, it should be acknowledged that, in relation to the focus groups conducted, the divergent number of students that participated might have had an impact on the quality of the results. We noticed that it was much more difficult to motivate the bachelor students to participate in focus groups. For example, only three bachelor students participated in the focus group of the geriatrics course (which consisted of 90 students in total). The bachelor students that did participate were in general more critical compared to the master students. We should therefore acknowledge that the data, reported at least when considered from the student perspective, might have been slightly optimistic.

In addition, as was noted in the section of the results, most of the tangible outcomes of the students' projects were recommendations and might have lacked direct application purposes (**Table 2**). A sound problem analysis can make an important initial contribution to resolving complex problems (Alford and Head, 2017). The next step would be to put these recommendations into practice, for example by designing new means of communication or developing specific training programs. In should be noted, however, that rather than the product per se it might be even more important to consider the process in assessing the contribution of CSL activities, as was also noted by Clifford (2017) who emphasizes the importance of considering the constructs of process and solidarity, rather than simply focusing on the products and reciprocity. In addition, it might be interesting to monitor the application of the recommendations and undertake evaluations based on this process. Some more applied projects might fit better with higher vocational education. Therefore, as one of the internship coordinators in the case study suggested, collaborations between universities and higher vocational training should be further explored. At the time of writing, there is continuing research into thematic approaches and on ways to include vocational education.

Finally, the thematic approach presented in this article included only a limited number of programs (MSc MPA, BSc Health and Life Sciences, BSc Sociology), which are hosted by only two faculties at the VU Amsterdam, namely the Faculty of Sciences and the Faculty of Social Sciences. This was a limitation in terms of the kind of issues and questions that could be addressed in the CSL activities. We aim to include more disciplines and faculties in order to continue addressing loneliness and other complex problems. Beyond better contextualization of the issue, increasing the range of educational programs involved in the thematic approach could also be beneficial in reducing the likelihood of dealing with the same complex issue repeatedly in one program. The inclusion of multiple faculties will undoubtedly raise new opportunities and concerns to be addressed in future research activities.

Concluding Remarks

It appears that the thematic approach, where multiple courses and internships from various programs and different faculties were clustered to address one thematic issue, might offer a valuable way to contribute to addressing complex contemporary problems. As the research questions are built entirely around the community needs, the approach requires support to facilitate matching and possibly (re) design and adaptation of

the courses. This requires an intermediary, in this case the CSL team. In our experience, the thematic approach can be a possible means to integrate a range of disciplines, while not imposing too much on the established academic curriculum. In this way, the thematic approach could serve as a valuable stepping stone towards advancing CSL in universities, helping them to fulfill their third mission.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Both EU and MZ have contributed to reviewing and writing the current paper. EU has also been involved in the analysis process. We thank Deborah Eade for english edditing of the paper.

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University Social Responsibility, Service Learning, and Students' Personal, Professional, and Civic Education

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The long-standing vision of universities as the "*alma mater*" of students and graduates is a demonstration of its role as sustaining the person, the expert/professional, and the citizen. This role has persisted in the face of rising global challenges such as the emergence of new learning spaces, the growing diversity of publics, the call for productivity and performativity, and the hope for a significant engagement with the community and the public good. These sometimes conflicting tendencies have also stimulated higher education institutions to further pedagogical strategies that articulate in novel ways the classical elements of learning: action/experience and reflection/theory. In this context, service learning received a new impetus, particularly in the post-Bologna European Higher Education Area, as universities were looking for ways in which to articulate the social dimension of HEI and their "third mission" as institutions not only committed to addressing and solving societal problems, but also committed to fostering public-minded alumni through powerful experiences of engagement for both the students and the community.

This paper is based on the experience of Erasmus+project ESSA, a service earning based project focused on University social responsibility (USR). ESSA engaged four groups of students from three European universities (Edinburgh, Porto, and Kaunas) in conducting a 1-week on-site USR audit based on an ecologic and situated concept of social responsibility. We will consider the perceived impact of ESSA on 44 students through a thematic analysis of focus group discussions and student self-assessment reports produced during and after their participation in the USR audit.

Keywords: University social responsibility, higher education, service learning, students, transversal competences, experiential learning

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INTRODUCTION

University social responsibility (USR) has gained momentum in the European higher education context. Facing the ascent of global challenges led by new learning spaces and working methods, the climate crisis, the large scale population movements, and the growing diversity of publics, higher education institutions (HEIs) are set with new demands both

in the sense of rethinking their internal practices as well as their interaction with the community, balancing tensions between inclusion and quality. If, on one hand, HEIs are pressed to remain competitive and respond effectively to the different challenges of globalization (Zgaga, 2019), on the other hand, they also need to prepare students for their future professional activities as well as for their lives as critical and engaged citizens. Recent phenomena involving the pandemics, the rise of populism and the menace of fake news have come to demonstrate not only the significance, but even the urgency of the latter.

The articulation between the University and its social role is "extremely important, particularly when universities are not only the most enduring institutions of civilization but also because they are now becoming a global knowledge industry" (Shek et al., 2017, 25). However, the challenge University is facing is not confined exclusively to its capacity to produce knowledge, but also to its potential to link it with citizenship, in such a way that its role is also important when it comes to structuring the social and cultural dimension of the knowledge society (Delanty, 2009).

In fact, there is a growing recognition and call for the social/public responsibility of HE, urging HEI to identify and address issues that affect the well-being of communities, nations, and global society and to introduce a range of innovative educational methods capable of fostering students' critical thinking and creativity within but also beyond subject knowledge (Santos et al., 2016). That requires students to fully develop their own abilities with a sense of social responsibility, educating them to become critical participants in a democratic society and promoters of changes that will foster equity and justice (UNESCO, 1998; Simons and Masschelein, 2009). Adding to that, on the post-Bologna European context, special emphasis was placed on providing equal opportunities for all in terms of access, progress and completion of studies, despite different cultural, and social backgrounds (European Ministers in charge of Higher Education, 2007).

These imperative demands have subsequently been taken to the next level in the United Nations's Sustainable Development Goals (United Nations, 2015), which aim that, by 2030, all learners acquire the knowledge and the skills needed to promote sustainable development, including, among others, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity.

However, the concept of USR is elusive, ranging from a continuum between a conservative pole and a critical-transformative pole (Menezes et al., 2018). The conservative pole is based on a perspective of organizational governance, keeping the field of research and teaching untouched, and seeing USR as an opportunity and positioning strategy in the context of the marketization of HE (Velazquez et al., 2006). Within the critical-transformative pole, USR crosses the mission of universities as a whole, involving a deep change at all levels of the institutional endeavor (Vallaeys et al., 2009; Barnett, 2011; Amorim et al., 2015). Situating our approach in this last pole, this implies an ecological-situated vision of USR (Menezes et al., 2018), recognizing the significance of the interaction between the University and its contexts, and allowing for a more grounded view of the role and the commitment of University to the common good. Indeed, University as "a critical and an enquiring University (…) acting to put its resources to good effect in promoting world well-being. It will be active on the local and regional stages and, very often, on the world stage" (Barnett, 2011, 252).

Although there is no consensus on the meanings of USR, it is clear that the role of HEI in the development and transformation of their social environment is crucial (Nunez, 2019). This involves not only the advancement of science and the sharing of knowledge with and for society but also the empowerment of students through the exercise of active, inclusive, participatory, and democratic citizenship.

This vision is aligned with thinking the formative process of students as a continuum that extends throughout life, which supposes both a personal/autonomous and a collaborative/shared quest for knowledge and understanding, that allows one to adapt to an increasingly mutable social space and to mutate it as well, not only as an individual but in conjunction with others. As such, HEI are responsible for promoting multiple learning spaces and need to develop opportunities, in addition to study plans, that allows students to learn in context and in cooperation with others, like USR projects based on service learning (Santos et al., 2016). Linking USR to grounded and reflective action through service learning projects can surely generate significant learning spaces for students, fostering important capacities related to decision-making, problem-solving, research, analysis, and negotiation, that ultimately can allow them to become more aware, collaborative, and creative in their professional activities, remaining alert to the innovations that can involve social and environmental improvements for all (Vallaeys et al., 2009; Lopes, 2015). Resch (2018) underlies that service learning USR projects can potentiate socially responsible students as they feel their impact on services and community by actively participating in relevant socially responsible projects. Moreover, the successful establishment of a service learning culture at the University can develop students' outcomes as their personal and interpersonal achievements, understanding and applying knowledge, engagement, curiosity, reflective practice, perspective transformation, citizenship, and social responsibility.

However, despite the proliferation of research in this area, there is a tendency to focus on the meanings of USR or on identifying benchmarks, while the potential impact of students' involvement in USR projects is not yet sufficiently studied. This is pointed out as a significant literature gap (Larrán et al., 2012) and constitutes the background of this project that has the main objective of producing knowledge about University Social Responsibility in the European context. Our main goal is to explore whether and how USR service learning projects students' development in relation to their academic, civic and professional life, and to advance our knowledge on how these dimensions intersect with each other and with students' vision of the role of universities. Our guiding question is: What are students' perceptions of the potential impact of USR service learning projects on their own academic, civic, and professional development?

RESEARCH CONTEXT AND METHODOLOGY

This research is carried out in the context of the ESSA Project–European Students, Sustainability Auditing (funded by the European Commission's Erasmus+, see essaproject.eu/about), which comprises a consortium of European universities: University of Edinburgh, Kaunas University of Technology, and University of Porto, together with their student associations, the European Student Union, and the National Union of Students of the United Kingdom.

Involving students, teachers, researchers, and staff members as active agents in their universities, this project aimed to develop a certificated programme for students in USR auditing. This innovative project, based on experiential learning and student-centered learning, provides a unique opportunity to complement students' training by acquiring USR auditing skills and other transversal and transferable competences.

The rationale for the student training was a reference framework for USR in Europe (Amorim et al., 2015) based on four benchmarks: 1. Research, Teaching, Support For Learning, and Public Engagement; 2. Governance; 3. Environmental and Societal Sustainability and 4. Fair Practices. The whole project involved two phases. In a first phase, all the selected students attended, in their host institution, an intensive training based on the concepts of USR, auditing, research methods, and techniques. The curricula of this intensive training was conjointly developed by trainers from the three universities during a week-long training at the University of Porto at the outset of the project (Coelho et al., 2019). In a second phase, students conducted one of four supervised audit exercises on a partner University. Working in multicultural groups (seven students from each University in a total of 14 to 20 students for each audit exercise), students produced an audit report based on the qualitative analysis of official documents, reports, and public information, along with interviews and focus groups discussions with universities officials (e.g., vice rectors, deans, senior management, students' associations, unions representatives) and stakeholders (e.g., community organizations, institutional partners). The whole process involved a close collaboration between the student auditors and the local University. Auditing is a process that enables an organization to assess and report its performance, to establish where it is at and to provide critical feedback, ultimately improving its performance and narrowing gaps between vision/goals and reality (Jain and Polman, 2003). However, under ESSA, the auditing was conceived as an ecological process:

> "*Producing situated knowledge means taking into account of the various actors' points of view about their experiences—and therefore, including what and how they conceive USR in the analysis and discussion of the audit "results." It also implies approaching the audit process broadly, intentionally involving disempowered or disenfranchised groups in the University. This approach cannot ignore that there is a potentially oppressive role played by societal and normative structures, that constrain universities in ways that should be acknowledged and included in recommendations for change. Last, but not least, one should recognize the limits of our endeavor: as "the map is not the territory," to quote Borges, the University is not the audit report*" (Coelho et al., 2019, 33).

As such, the auditing exercise is not only a highly challenging and hands-on learning, but it includes the elements commonly recognized as essential to service learning: experientially based approach; learning focus on behavior, field-based learning, and on reflection (Witmer and Anderson, 1994).

Although ESSA is not a completely typical service learning project, in particular when it comes to working "in and with communities," it is important to keep in mind that universities are (also) communities, and ESSA student auditors worked in and with universities to improve their social responsibility, with goals of civic learning being at the core of both individual students' and organizational learning. In this sense, ESSA is quite aligned with Bringle and Hatcher (1999, 180) definition: "a course-based, credit-bearing educational experience in which students (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility."

The goal was to develop students' personal, civic, and political competences as critical agents of social responsibility, involving them, in a more committed and profound way, with their universities and, more broadly, with higher education, hoping that this experience may translate into an increase in their employability and commitment to USR, but also of the quality of the University experience itself, through the contact with different University members and community organizations where the University is involved. In fact, this project is an example that "offers students, faculty, University, and community partners a distinct opportunity for improving their practical and communication skills, enhancing their sense of social responsibility and developing a better understanding of the connection between theory and practice" (Cheng, 2018, 423), and also to strengthen the relations between the University and the community.

This study is exploratory and evaluative in nature as it takes the ESSA project as its context. However, it aims to understand, more broadly, how students perceive the impact of participation in USR projects, in general, in the development of their academic, civic, and professional life. The project uses focus groups discussions to address specifically the experience of 44 students who participated in the ESSA USR audit exercises. Participants involve all the ESSA students who agreed, on a voluntary basis, through a written informed consent, to share their self-assessment reports (SAR) and to participate on focus group discussion conducted immediately after the audits (three focus groups, $n = 32$) or after the completion of the assessment procedure (three focus groups, $n = 12$), in both English and Portuguese. The majority of the participants are female (68%) and the medium age is 22,5 years (SD = 3,4 years); as seen on **Table 1** participants' academic background is quite varied. Confidentiality of the participants has been guaranteed and the use of records and data were subject to standard data protection

TABLE 1 | Focus groups participants.

		University			
		UP	**UoE**	**KUT**	**Total**
Gender	Male	7	2	5	14
	Female	11	11	8	30
Area of studies	Sciences and Engineering	4	7	4	15
	Education, human, and social sciences	7	3	4	14
	Medicine	4	0	0	4
	Law and international studies	3	3	5	11
Total		18	13	13	44

UP, University of Porto; UoE, University of Edinburgh; KUT, Kaunas University of Technology.

regulations of the Faculty of Psychology and Educational Sciences of the University of Porto. All the focus groups were conducted by the first author and audio recorded, being subsequently transcribed verbatim and stored according to data protection procedures and with the support of NVivo software for data management and analysis.

Qualitative thematic analysis was used to analyse data because it is a dynamic and flexible method in the treatment of qualitative data, which allows a more diverse description of the data, focusing on the identification and description of common themes, enhancing understanding of the explicit and implicit meanings associated with the textual data (Braun and Clarke, 2006).

Working with thematic analysis implies a priori decision making on theoretical choices and approaches. Thus, in this research, we have opted for a contextualist approach, "sitting between the two poles of essentialism and constructionism, and characterized by theories such as critical realism which acknowledge the ways individuals make meaning of their experience, and, in turn, the ways the broader social context impinges on those meanings" (Braun and Clarke, 2006, 9). This was particularly adequate as our goal was to understand how students view the potential impact of USR projects on their own development, and how these perceptions interconnect with their vision of the University.

Consequently, and according to Braun and Clarke (2006), the themes can result from both an inductive or/and deductive process. In this study, the themes were identified firstly in relation to the theoretical focus of the research and were based on the initial coding process, in a second moment, emerging from the data to allow a deeper understanding of the conceptual relationships established by the students. This means that both semantic and latent approaches sustained the development of the thematic analysis map that depicts "the overall story (…) about the data" (Braun and Clarke, 2006, 21) (see more details in **Figure 1**). The coding process involved an ongoing discussion and review by the two authors in order to ensure a deeper understanding of the data (Patton, 1999).

This analysis followed Braun and Clarke (2006, 2013) recommendations of six steps to complete the analysis: (1) familiarizing with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes and (6) producing the report. The subsequent results section will specifically address an overview of the theme "perceived impact of ESSA project" in the different sub themes and codes mapped.

RESULTS

The preliminary findings suggest that that the ESSA project can be a motor to "empower students as critical agents of social responsibility" (Coelho et al., 2017, 1173), showing that students consider the participation in USR projects as a turning point in their development: "*It was easier to try to say what it was that didn't change me!*" (Female, Medicine, UPorto).

Based on the thematic map as a graphical representation that illustrates the general conceptualization of data patterns and the relationships between them (Braun and Clarke, 2006), the theme "perception of ESSA project impact on students" had a major expression in all the data analyzed and from where derivate five sub themes and seven codes that are interconnected (see more details in **Figure 1**).

The perception of impact on their **vision of the University** underlies students' perception of impact in two different and interconnected codes: the perception of the **University role** and the **students role** as core sub-themes because they predict what will be the perception of impact on other dimensions. Some students understand the **University role** in a more engaged way with themselves and society:

> *"The impact that the University can have on the community and how important it is to bring life to the city! I don't think we can see that yet. The University for me is much more of an engine for growth in the city than tourism, because tourism is temporary, the University is bringing and doing knowledge here*" (FGD3–Female, Medicine, UPorto).

They even understand themselves as part of it: "*the University doesn't do it by itself, if we don't try to shape it, we're not doing much here either*" (FGD2–Male, Law, UPorto), and tend to think of their role as a student in a more active sense, because they are more aware of the initiatives and of the ways the University functions.

On the other hand, they tend to perceive that the University does not involve the majority of students in its core activities and decisions and indicate that this involvement is a turning point. For some of them, the relationship with the University is more distant and based only on a relationship of service provision–just a place to get knowledge and prepare to work:

> "*our University has this strategy to be a greener University but the students don't know about it! It's like a strategy in "higher places" and if you ask a normal student they don't know*" (FGD5–Female, European Studies, UEdinburgh), "*no one actually gets them involved*" (FGD6–Female, International Relations, KTU).

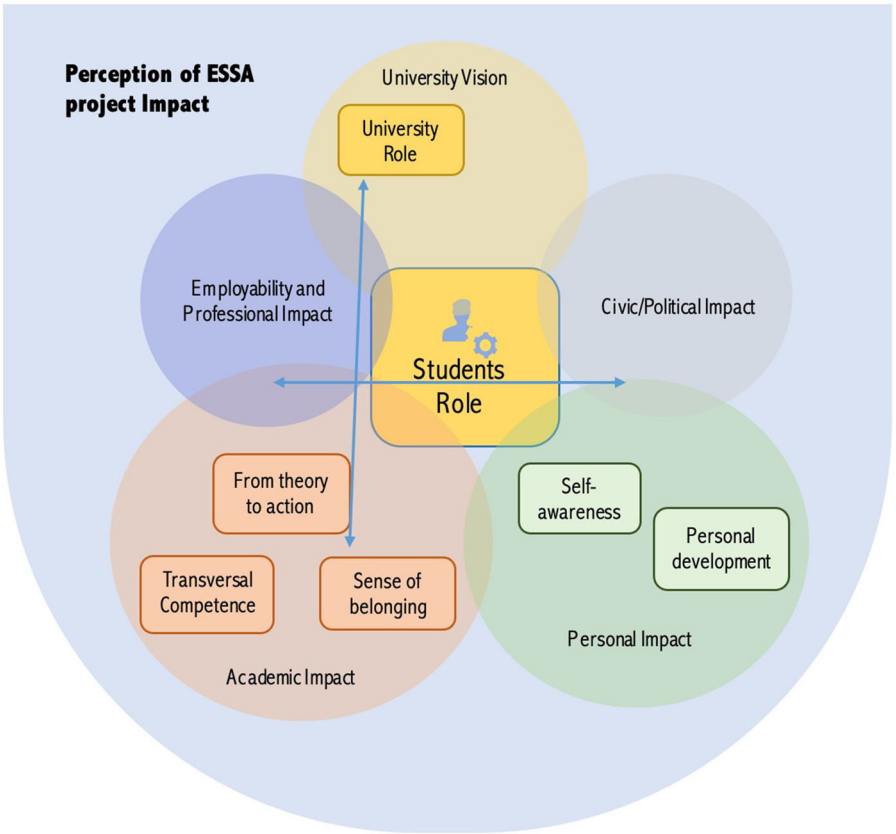

FIGURE 1 | Thematic Map.

Perceptions of students role are therefore linked with the perception of the University role and with students' experience in USR projects. Students who understand the University role as more connected to themselves and society, think of their role as more active not only in the academia, but also in the community:

> "*Part of being a student is also thinking about our role in academia. That is one of the reasons that led me to be very involved in students' unions and projects*" (SAR1–Male, Medicine, and Philosophy, UPorto).

There students, even if they comply with their academic demands, they are much more than "just a student:" they participate in projects and students' associations, have an opinion/action regarding important social issues and fight to drive change if needed, many times engaging in several SR initiatives in the University and outside. On a different pole, students who see the University as an isolated and impenetrable institution see themselves as just a client without a real voice, ask for the basics, and even if they can identify problems, they think their opinion is an isolated one. For the majority of these students this was their first participation in SR projects:

> "*Before the ESSA project I had only a basic understanding of USR, but training and auditing activities substantially increased my awareness of USR. Now I have the ability to describe and discuss why USR is an important area for any University*" (FGD6–Female, Chemical Engineering, KTU), "*the University I study in (. . .) students' motivation for sustainable development initiatives is low, participation in international networks is slightly growing and is not improved*" (SAR30–Female, Public Administration, KTU).

Perceptions of students' role are linked with several other sub-themes and codes, predicting impact on other areas. For instance, students' opinions regarding the **impact on their civic and political life** were fairly homogeneous even between students from different nationalities and universities. They highlighted the impact in the growth of their active civic participation and mostly in the knowledge and conscience about social responsibility, the capacity to identify social responsible companies and the need to acknowledge that everything has an impact and that they are obliged to make the difference. Students who perceive their role in a more engaged way tend to be more active in the community and be a part of other social responsibility projects in their communities:

> "*in the relationship with the other, in the question of community and society, instead of just being locked into a certain kind of knowledge, with the rest, we seem to be illiterate, it is not, of course, but I think it is a little bit out there*" (SAR5–Female, Psychology,

UPorto); *"let's put it this way, if it serves to train more decent citizens it is already worthwhile, regardless of the return it has on employability"* (FGD2–Male, Law, UPorto).

As for the **personal impact,** students have identified two different areas: the impact on their **personal development** and on their **self-awareness** that are strongly connected with the perceived impact on their civic and political life. Students consider that the project has been a very important learning space for their **personal development** in terms of skills related to tolerance and acceptance of others and their views, developing their collaborative profile not only in the University, but in other spheres of their lives:

"For me it made me think (…) about how I react in certain circumstances, like, for example, I tend to be very impulsive and kind of telling people what to do instead of maybe being more collaborative and negotiate… rather than telling people what to do…" (FGD5–Female, Geo Sciences, UEdinburgh), *"To do something and additionally, if you don't have a plan while you're doing this kind of projects and pushing you in certain ways which you haven't thought"* (FGD6–Male, Marketing, KTU).

Connected with the perceived personal impact, students also mentioned the opportunity for **self-awareness** that this experience brought, and it was unanimous that it was one of the major advantages of the experience for all the students, with or without previous experience in SR projects:

"in general this kind of project does give you an insight to what is what you're good at and what you're not, so you should just work on things that you're good at, not try to compensate for what you're not. So you're just wasting your time basically, if you're trying to press yourself just to fit for the moment (…) you recognize your real personality, who you are" (FGD6–Female, Language and English, UEdinburgh).

The perceptions of **academic impact** include all the references to the impact on students' academic life, such as the development of a **sense of belonging,** acquiring **transversal competences**, and the possibility of moving **from theory to action**. A significant number of students described a deeper **sense of belonging** to the University, linked to an increased institutional involvement and sense of unity that also triggered a new vision of the University:

"very different contexts, very different people, people from very different faculties, [it] was funny because it triggered in me a sense of unity of the University that I had never felt, for me my University was this faculty, when in fact (…) I realized that sense of unity that was perhaps much more interesting" (FGD1–Female, Psychology, UPorto).

"the idea of entering University to be trained to be something very specific, I think it will end up being diluted and offering a much more holistic training, in the sense of the education of the person, of the human development and not only training for that profession" (FGD4–Male, Sociology, UPorto).

In that sense, they identify the clear impact of their participation in the acquisition of **transversal competences** like leadership, team work, public presentation skills, and time management, but also in how they envision their training and the way they were able to pass **from theory to action.** Students have repeatedly mentioned that the possibility of having a real experience in a real context, even if not in their study field, was very different from the opportunities they had had so far in their studies:

"I also reckon that, considering my academic area of studies, the conduct of an audit proved very relevant to me, as it put into perspective theoretical knowledge, showing me how it can be practiced, with real people, in real scenarios, and how flexible and resilient we've got to be in this kind of task" (SAR27–Female, Education Sciences, UPorto).

Even if the competences acquired and developed were not considered the core of their studies and future professional life, students were able to identify them and their importance for them as active and engaged students and citizens.

"I feel that now when I get to the faculty and I have to stick to those schedules and do certain things with which I don't identify so much, it will be a bit difficult… a contrast to what I have been doing this and I have been learning so much and I fear that when I get there I will be able to apply everything I have learned in this context? Of course, the ability to observe, to think critically, to work as a group, to organize, I don't think there's much of a problem. But to think that when I get there, considering the time I've been to University, I think that maybe it won't be so easy for me to do half of what we did here this week" (FGD4–Male, Medicine, UPorto).

Linked with **transversal competences** and **from theory to action**, is the impact on their **employability and professional life**. Some students underlie their own development of skills and empowered transversal capacities, hands-on learning and field experience in the area of their studies, and how this might be an advantage in the future:

"As my future job heavily relies on the work toward the community, especially due to my interest in Public Health, addressing inequalities, ethical problems, and reconsidering the usage or efficiency of resources is an essential pillar of my upcoming profession" (SAR41–Male, Medicine, UPorto).

Other students assume a more externalized focus, related to the concerns that the labor market may (or may not) have with social responsibility and the appreciation of these skills and concerns:

"Yes, it makes us more employable. As it is a pilot program, it is a niche as well and people will want to talk about it and that will give us a chance to share the knowledge we gained and talk about the skills we gained" (SAR18–Female, Social History, UEdinburgh);

"Yes and I think it's good to share knowledge, I am personally looking to have higher education jobs in the future and I am going to be critical about what I will apply based on things like this! And if like I have an interview for something that I think it is not really for me, I can still talk about this and read the other person or the company, and what they think about it and actually see if it's ["worth a try"]" (FGD5–Female, Arts, KTU).

DISCUSSION

Understanding the University as a multiple learning space, its potential impact on students' life paths should not be limited to training them as increasingly specialized professionals, but rather to influence various facets of their personal, social, civic, and professional development, that goes far beyond academic training (Rutti et al., 2016). USR projects, such as ESSA, create opportunities for balancing theory and practice, action, and reflection, in ways that foster students' development and empowerment in different spheres of their life. Our findings suggest that students' involvement in projects such as ESSA can change the way they conceive their academic life, but also their roles in and out of the University, thus furthering "pro-active human minds for the full exercise of citizenship through creative actions capable of building socially responsible and economically sustainable societies" (Ribeiro and Magalhães, 2014, 135).

USR must be at the core of higher education institutions, integrated in all spheres of higher education institutions, from teaching and research, to governance and community engagement (Villa, 2014). This is why service learning USR projects, such as ESSA, can be of significance in the lives of both universities and students, as they guide higher education institutions in fulfilling social responsibility in multiples ways. This happens because these projects reinforce the connection with the community, recognizing that it enables opportunities for significant learning and for putting knowledge in action (Santos et al., 2016). In fact, "learning in service is a pedagogical model that allows the University to exercise its social responsibility in the formative environment through teaching-learning processes linked with its social environment" (Nunez, 2019, 97). By focusing students' learning on real world problem solving, service learning USR projects promote more powerful connections between theory and practice and foster students' transversal and transferable skills, building bridges between the academy and communities.

Our findings suggest that the potential for learning and change is there, at least from the perspective of students. This is, surely, an important limitation of our work, with its sole focus on students' perceptions, along with the potential limitation of the selection bias linked with the fact that ESSA was a volunteer project and the students could/did participate on other projects/activities, already being more connected to USR to begin with. Nevertheless, the consistency of the findings–involving four cohorts of students, from three universities/countries and involved in an USR audit in different points in time–suggests the significance of this service learning USR project. Nevertheless, more research is necessary, particularly following up on if and how these learning experiences are re-signified as students transition to their professional lives and are confronted with other personal, professional, and civic challenges.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Programa Doutoral em Ciências da Educação in accordance with Comissão de Ética da Faculdade de Psicologia e de Ciências da Educação. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

MC did the data collection using focus groups and analysis (focus groups and students' reports), as well as most of the writing of the paper. IM designed the study, supervised the research work, regarding the construction of focus group scripts and the discussion of the thematic map, and involved in some of the writing and the final revision of the paper. All authors contributed to the article and approved the submitted version.

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Service-Learning as a Novelty Experience at Central and Eastern European Universities: Students' Narratives of Satisfaction and Premises of Change

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As a proxy of community-engaged teaching and learning pedagogy in higher education institutions (HEIs), service-learning (SL) has just recently become a phenomenon of research and policy interest in the European Higher Education Area (EHEA). This study explores the first-ever service-learning experience of 246 students coming from three universities at Central and Eastern Europe (Slovakia, Romania and Croatia). The quantitative part of the survey was used to compare the differences between countries, whereas the qualitative part of the survey was a summative assessment, i.e., reflections on the satisfaction with SL experiences were collected through the open-ended questions of the survey, by treating the three countries as one dataset. Research findings speak in favour of students' satisfaction with their first-ever SL experience, regardless of the country of their residence. Students from all three countries highly value their SL experience as it provided them with possibilities to learn a lot about the academic field and community as well, by facilitating their personal and professional contribution to the community. The legacy of SL courses relates with paradigmatic shifts in various academic aspects, like students and professors changing roles, students being placed in the centre of the learning process, connectedness of the curricula with the real-life setting, better understanding and appreciation of subjects studied. As for the non-academic related aspects, students' reflection disclose their acknowledgment of personal growth and changes related with cognitive, emotional and behavioural dimensions. Our findings reveal that the unique experience students had with the SL courses shaped their narratives into ones of satisfaction and change.

Keywords: service-learning, service learning as novelty, students' satisfaction with service-learning course, service-learning at central and eastern european universities, service-learning benefiting students, service-learning as paradigmatic shift

INTRODUCTION

As a proxy of community-engaged teaching and learning pedagogy in higher education institutions (HEIs), service-learning (SL) has just recently become a phenomenon of research and policy interest in the European Higher Education Area (EHEA). Numerous policy documents, recommendations and reports published within the last years by the European political and educational institutions show an increasing commitment to adapting the teaching process at HEIs to the needs of new generations of students. With the aim of reporting on higher education trends in Europe, the European University Association (EUA) continuously emphasizes the benefits of a student-centered teaching approach as one of the key determinants for creating an effective teaching environment. EUA reports on trends in learning and teaching in European universities emphasize the need to change the teaching paradigm at European universities while bringing to the light the salient point of such a change—placing students to the center of the teaching process (EUA 2010; EUA, 2015).

The need for such a change and integration of a student-centered approach stems, above all, from the fact that the student population at European universities is becoming increasingly heterogeneous, leading to the difficulties in unifying the teaching process. In the process of learning at modern European universities, the EUA points out, the university professor should encourage the development of critical thinking, while students independently create meaning through proactive learning, research and reflection. In addition to the aforementioned reports of the EUA, the importance of such shaped teaching that aims at developing critical thinking and social responsibility of students is emphasized in the publications of the European Commission (e.g., European Commission, 2013; European Commission, 2017), the OECD, The European Association for Quality Assurance in Higher Education (ENQA, 2015), and strongly advocated by the European Students' Union as well.

Known for its influence on shaping changes in membering countries' national (HE) systems, such a policy framework opened up a space for various initiatives aiming to promote service-learning and its integration in higher education to flourish—for example, funding schemes (on both European and national level) that contributed significantly to building capacities of academics and universities in many countries, particularly of those in the CEE region[1]; there are national associations and/or networks for service-learning established in many European countries and regions (e.g., Service-Learning Network for Central and Eastern Europe—CEE SL Network); beside, the European Association for Service-learning in Higher Education as well as European Observatory for Service-learning were established. Thematic conferences are taking place picking up on the recent research on SL in the European context, while new journals are being planned. Collaborative research and developmental projects, usually funded through various EU funding schemes, contributed to the creation of a certain European SL teaching and research community that engages in peer-teaching as well as in researching various SL perspectives in national, and/or European context.

The study presented in this paper evolves from one of such collaborative EU-funded Strategic Partnership project *Service-learning in Higher Education: Fostering the Third Mission of Universities and Civic Engagement of Students (SLIHE),* that aims to bring SL as an innovative teaching and learning pedagogy at (partnering) HEIs in Central and Eastern Europe. Project collaborators are researchers and educators coming from universities in six different countries—Slovakia, Croatia, Romania, Czech Republic, Austria, and Germany. One of the project's focus was strengthening the capacities of (partnering) HEIs for introducing and/or improving SL courses. Lectures and workshops for academics were organised in four (partnering) universities as part of the professional development activities, and were anchored in tailor-made syllabus and a handbook, both developed jointly by the SLIHE project members.[2] In addition to lectures and workshops, the mentoring programme allowed for academics to engage into one-on-one consultancy with SL project members (lecturers and mentors) through the whole process of planning and delivering their (first) SL course. The SL courses planned and delivered under the SLIHE mentoring programme took place during the 2018–2019 and 2019–2020 academic year. They are affiliated in various disciplinary backgrounds, and each was one semester long (15 weeks). Most of the academics engaged in this educational 'package' had no prior SL experience, and most of them chose to redesign existing courses, rather than creating new one(s).

For most of the students engaged in those courses, and subsequently in this study, that was a first-time-ever SL experience. While coming from various countries and disciplinary fields, students who participated in this study were/are homogenous in one particular context—they had not been engaged in a course anchored in SL pedagogy prior to these 'project' ones, meaning—they hadn't had prior experience in partnering with organisations and institutions from local community, in synergising curricular concepts from the course with recognised issues/problems in their local communities, and/or engaging in various assignments of a reflexive nature,

[1]Central and Eastern European Countries (CEECs) is a term coined by the Organisation for Economic Co-operation and Development (OECD) for the group of countries comprising Albania, Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia, and the three Baltic States: Estonia, Latvia and Lithuania. The CEE countries are further subdivided by their accession status to the European Union (EU): the eight first-wave accession (Estonia, Latvia, Lithuania, Czech Republic, Slovakia, Poland, Hungary, and Slovenia in 2004), the two second-wave accession (Romania and Bulgaria in 2007) and the third-wave accession (Croatia in 2013). Other countries in the CEE region are not part of the EU. Since the 1990s all CEE countries are undergoing different kinds of reforms - political and economic, but there are also many cultural and social transformations related to wider societal changes such as globalization, migration or modernization. These changes are reflected in the educational systems, as well (Brozmanova Gregorova et al., 2019).

[2]In each partnering country both the syllabus and the handbook were subjects of a double peer-review, with national experts in the field being targeted as reviewers. All of their comments and constructive suggestions were acknowledged in creating the final versions.

including writing (reflexive) diaries. In many aspects these SL courses were indeed a novelty for this group of students.

While emphasized and advocated in many policy documents, community-engaged (teaching and learning) practices in higher education in Europe are still at their early stage. This paper therefore aims to contribute to the academic field by focusing on students' first-time-ever experience with SL courses in three CEE countries—Slovakia, Romania and Croatia. The rationale for comparing these three countries lies in the common historical and political context (socialism and communism), as well as the process of transformation to democracy, that both shaped the (higher) education sector in similar ways. In an institutional environment which is still dominantly anchored in transmissive paradigm and the power-related relationship that comes along with it—as is the case in Slovakian, Romanian and Croatian higher education sectors—service-learning pedagogy still presents a novelty for many academics and students as well, as it was the case with our research participants.

With the aim of contributing to the academic discussion and developing a better understanding of the specific aspects of students' first of such a (service) learning experiences, in this paper we explore various issues in order to answer following three research questions:

- How do students who are first-time SL course attendees, assess their satisfaction in relation to the perception of the course value, their own learning about the academic field and the community, and of their personal contribution to the community?
- Are there and what are the differences in the assessment of students' satisfaction with the SL course in regard to the resident country?
- How do students portray the "novelty" that SL experience brought on their personal, educational and professional paths?

SERVICE-LEARNING AND STUDENTS

Most of the studies investigating the benefits that service-learning has on students, indicate significant positive effects on various aspects of their academic performance, social skills as well as civic abilities. Novak et al. (2007) in meta-analysis of nine studies compares courses with and without a service-learning component on the basis of the amount of learning. The summary finds that the addition of a service-learning component increases learning outcomes. Astin et al. (2000) report on significant positive impact on critical thinking, GPA (grade point average), and on students' (critical) writing skills. Studies by Frazer et al. (2007), Moely and Ilustre (2014), Liu and Hsiung (2019) documented benefits in knowledge development in service-learning courses. Several studies also reported development of professional skills (Okpala et al., 2009; Carrica-Ochoa, 2017; Martínez-Campillo et al., 2019). Other literature reviews (Rutti et al., 2016; Salam et al., 2019) showed development of student´s skills like problem-solving, especially innovative solutions, communication skills, analytical thinking, critical thinking, ability to work independently, and ability to work in a group.

Other studies were illustrative of the SL courses contributing to the students' prosocial attitudes, and the level of acceptance of cultural diversity and reduction of prejudices (Simons and Cleary, 2006; Sass and Coll, 2015; Augustin and Freshman, 2016; Cabedo et al., 2018). In a recent paper, Brozmanova Gregorova and Heinzova (2019) summarize a series of benefits regarding the students' social functioning and academic performance (Novak et al., 2007; Conway et al., 2009; Yorio and Ye, 2012; Ćulum and Jelenc, 2015), such as: understanding, learning and mastering the theoretical part of the course in relation to real life problems and situations, enabling the ability to develop managing skills in unpredictable situations, developing competences that students can further use at the workplace, expanding the social contacts network—getting to know potential employers, associates, partners, clients, developing a sense of responsibility within the relationship with the community partners etc. When compared with the non-SL courses, studies like Buth's (2008) find that students who participated in SL projects had significantly higher scores on the Civic Action Scale (Moely et al., 2002) than the students from the control group, thus validating SL as a possible mechanism to foster social responsibility in students. There are additional studies that report on positive results in measuring students' civic attitudes, using various instruments, such as: the Community Service Attitude Scale (CSAS, Shiarella et al., 2000), the Civic Action Scale (CAS, Moely et al., 2002), the Civic Engagement Scale, (Doolittle and Faul, 2013). Steinberg et al. (2011) present in their work the basis for assessment and research on the civic outcomes of the SL courses based on the concept of the civic-minded graduate (CMG). Service-learning participants, in comparisons to other students, report greater understanding of community problems (Astin and Sax, 1998), have higher appreciation of and for their own commitment to future engagement in the community (Markus et al., 1993; Eyler and Giles 1994; Reed et al., 2005; Ngai, 2009; Richard et al., 2016), higher social responsibility (Cabedo et al., 2018; Shin et al., 2018) and developed civic competences thanks to service-learning courses (Conrad and Hedine, 1981; Segal, 2011; Greenwood, 2015; Richard et al., 2016; Langhout and Gordon, 2019; Liu and Hsiung, 2019).

The studies mentioned above were conducted in a socio-cultural space with a long tradition of civic engagement through structured volunteering activities in the community (e.g., formal volunteering is documented in the United States from the middle of 1800, by Harris et al., 2016). However, in the countries of our study—Slovakia, Romania and Croatia—that share common historical and political context, such civic engagement was interrupted in totalitarian regimes, or, in 'better' cases, subjected to (strict) governmental control.

This is (mainly) the reason for interpreting the beginning of the '90s as a period of searching and constructing new identities in many CEE countries, as the issue of European integration arose in those countries after the collapse of communism in the early nineties. Dealing with profound transformations in their recent history, these countries were/are more sensitive to the tensions of

the political, economic, educational and cultural (re)organisation. Strengthening of the newly democracy 'agenda', among various efforts, implied that CEE countries, including those three of our study, needed to find innovative means and techniques for making the people, particularly youth, participate in civic and political life. Taking into account all the efforts and numerous changes introduced (in every societal aspect), national education policy frameworks that would support students' civic engagement as part of their (higher) education studies have not been of a priority. Learning about democracy, human rights, political participation, civic engagement, volunteering, social responsibility and activism, has been left dominantly to the non-for-profit organisations' efforts, leaving public educational institutions on the side. It is of no surprise therefore that many EU reports as well as national studies done, prove that Slovakian, Romanian and/or Croatian youth political literacy and civic participation is much lower than of the youth in other European countries with substantial democratic history. For example, according to Flash Eurobarometer 455: European Youth from 2018, involvement in voluntary activities of young people in all three countries is lower than average in EU (SK = 21%, RO = 27%, HR = 23%, EU = 31%; European Union Open Data Portal, 2020). The political interest index in all three countries is also, based on the Standard Eurobarometer 86 realized in 2016, lower than in EU (in EU 17% of population was evaluated with the strong index, in Slovakia and Romania only 8%, and in Croatia 15%; European Union Open Data Portal, 2017). This is why in particular we agree with Gerholz et al. (2017) who argue that the (research) results of many (Western) studies are not directly transferable to different and heterogeneous European contexts, mainly due to huge differences in learning and teaching tradition, and particularly in understanding(s) of society and civic engagement.

Acknowledging those differences and taking into account that the service-learning experience for our research participants is truly a new one, we argue that assessing students' satisfaction with such a course is an initial (research) step that has the potential to inform not only academic community, but university management and other decision-makers in higher education. Previous studies indicate that satisfaction with the engagement experience lends itself to increased commitment, productivity, creativity, and indicates areas of the service-learning course that need improvement (Kerber and Campbell, 1987; Grant et al., 2010). Moley and Ilustre (2014) cited a study by Furco and Moely (2006) which indicates that quality of service learning experience reported by college students is a significant predictor of the SL outcomes in general. Bringle et al. (2010) found that course quality was a significant mediator of the SL effects on students' plans for continued study at the university and their actual re-enrollment the following year. Ensuring that students are satisfied with their engagement experience is critical as it may influence their civic engagement in the future (Wozencroft and Hardin, 2014). Plethora of studies focus on comparative analysis of various aspects of SL and non SL courses and their legacy on students. For example, Gallini and Moely (2003) reported that students involved in SL courses were more appreciative of their courses than a comparable group of students who did not participate in service-learning, particularly in the context of the academic-related factors. Elyer and Giles (1999) reported that students who participated in SL projects enjoyed their courses, reported substantial learning, and made efforts to seek out further similar engaging experiences. Garcia-Romero et al. (2018), by using the Course Value Inventory scale, showed relevant differences between service-learning and other models of practice from the perspective of students. Students reported higher satisfaction, better perception of personal change and skills acquisition. Results show clear differences in learning results between SL and classical pedagogies.

As indicated by the references mentioned above, we are fully aware that there are many indicators and variables that can be considered when assessing the impact of SL experiences on students. However, due to the exploratory nature of our study within the cooperative framework of SLIHE Erasmus + project, we decided to focus on the satisfaction of students with SL experience, which was assessed in regards to several dimensions, which are translated in the variables described in the following section. The study's exploratory nature resides in the first-ever done collaborative frame of these three countries in the field of SL.

METHODOLOGY—METHOD, PARTICIPANTS AND DATA ANALYSIS

To assess students' multifaceted perceptions of their first-time SL experience, researchers from the SLIHE project developed a questionnaire in English that was later translated into each national language of the participating countries.[3] The questionnaire acknowledges previous studies in the field and includes various dimensions already recognized in similar studies. However, this paper mainly draws from the work of Moely et al. (2002). Knowing that attending the SL courses was a first of such an experience for our research participants, we decided to focus our analysis on the course satisfaction measures developed by Moely et al. (2002), with four key subscales as they follow:

1) *Course Value.* Eight items asked students to evaluate how important or useful the material covered in the academic course had been. Students indicated on a five-point Likert scale their agreement or disagreement with the statements such as: *"It is important for me to learn what is being taught in this course", "I think that I will be able to use what I am learning in this class in other classes later on",* or *"My coursework is relevant to everyday life."*
2) *Learning about the Academic Field.* Five items assessed students' learning from, and interest in, the content of his/her academic course, such as understanding and

[3]In each partnering country the questionnaire was subject of a double peer-review process, with national experts in the field being targeted as reviewers. All of their comments and constructive suggestions were acknowledged in creating the final version of the questionnaire.

application of course concepts, interest in the field, and understanding a professional's role in the field of study represented by the course.

3) *Learning about the Community*. Five items assessed students' views of how much they had learned about the community, different cultures, working with others effectively, and seeing social problems in a new way.
4) *Contribution to the Community*. Students completed four items indicating perceptions of how useful their service activities had been to the community.

TABLE 1 | Cronbach's Alpha for subscales.

Course satisfaction measures subscales	Whole sample	Slovakia	Croatia	Romania
Course value	0.9015	0.79	0.902	0.769
Learning about the academic field	0.848	0.678	0.867	0.715
Learning about the community	0.901	0.79	0.916	0.866
Contribution to the community	0.861	0.819	0.893	0.554

In **Table 1** we present the results of the data reliability of subscales using Cronbach's Alpha coefficients.

The questionnaire also consists of (nine) open questions allowing students to reflect upon several course-related aspects, among which, new and changing roles in the process of teaching and learning, or to provide more in-depth reflection on the personal changes perceived. Students were invited to fill in the on-line questionnaire at the end of the SL course/semester. The whole instrument completion took approximately 30–45 min, and participants could go 'in-and-out' the questionnaire with the data from each previous session being saved. This allowed students to think about certain issues raised, to reflect upon their experience and then come back with answers. Students were free to choose whether or not they wished to participate.

Participants

A total number of 246 students from Slovakia, Croatia and Romania completed the SLIHE assessment questionnaire of students' assessment of their SL experience, as it follows: Croatia (167 students, University of Rijeka, Faculty of Economics and Business, master level), Slovakia (47 students, 40 females and seven males, age range 20–25 years, Matej Bel University, School of Education, bachelor and master level), and Romania (32 students, 24 females and eight males, age range 19–24 years, Babe-Bolyai University, School of Psychology and Sciences of Education, bachelor level).

Description of the Nature of the Service-Learning Courses

In Romania, the SL component was included in the following four one-semester courses during the academic year 2018–2019, all within the School of Psychology and Sciences of Education, bachelor level: 1) *Psycho-pedagogy of persons with intellectual disabilities* (second year, Department of Special Education); the SL component consisted of individual tutoring projects addressing the learning needs of students in a local Special Education school; 2) *Psycho-biology of sexuality* (second year, Department of Psychology); the SL component consisted of developing of a series of student-for-student Sexual Health Education awareness campaigns, including workshops and discussion sessions with members of the community, such as LGBTQA + associations; 3). *Animal Psychology* (first year, Department of Psychology); the SL projects consisted of several community-oriented campaigns developed by the students in collaboration with local and national NGOs in the area of animal protection and with the School of Veterinary Medicine, aiming to promote responsible ownership and optimal human-animal interactions; 4). *Psycho-pedagogy of Early Interventions* (first year, Department of Special Education); the SL component included individual projects of the students, such as designing and implementing daily activities to address specific emotional needs of children in the five local nurseries. There were seven teachers involved in the SL courses (two of them were PhD students).

In Croatia the SL component was included in the following seven one-semester courses during the academic year 2018–2019, all within the Faculty of Economics and Business, master level: 1) Decision Theory, 2) Business logistics, 3) Management of small and medium enterprises, 4) International marketing, 5) Strategic marketing management, 6) Market research, and 7) Internet in Business. In all of the courses, having in mind the disciplinary perceptive, students were collaborating mostly with various business-related stakeholders in the local community, but several non-for profit organisations have been engaged as well. Students were engaged in problem-thinking and problem-solving projects focused on real case studies from the community. During that academic year the Faculty of Economics and Business has been a partner with several local and national NGOs in a large EU funded project related with the food waste and foundation of the food bank, so all of the SL projects were created in line with the mentioned project and related topics. There were all together 12 teachers involved in the courses, seven professors and five teaching assistants.

In Slovakia, the SL component was included in the one-semester courses during the academic year 2018–2019 and 2019–2020, all within the Faculty of Education coordinated by different departments. In bachelor level: 1) *Service-learning for psychology* (second year, Department of Psychology), the SL component consists of planning and implementing intervention in school for talented children; 2) *Social prevention* (second year, Department of Social Work and Department of Pedagogy), SL projects were planned and implemented by teams of students of social work and pedagogy with the aim prevent negative phenomenon in schools and in house for social services; 3) *Economy and management of non-profit organizations* (second year, Department of Social Work in cooperation with the Faculty of Economy), students set up the social enterprise

as an legal entity. In Master level: 4) *Education of children with special needs* (second year, Department of Primary and Pre-primary education); different individual Sl project implemented in after school activities with children with special needs, 5) *Volunteer management* (first year, Department of Social Work), SL project consists of organizing volunteers for special events organized by students; 6) *Pedagogy of leisure-time* (first year, Department of Pedagogy), SL component consists of organizing free time activities for children and youth after school in different organizations. In Slovakia eight teachers participated in the courses.

Data Analysis

Data analysis took two pathways. For the quantitative items (course satisfaction scale), descriptive statistics and comparative analysis of the data were used (three countries—three data sets). The data were analyzed using SPSS version 19.0. We grouped the results in one datasheet and calculated the descriptive characteristics for each scale in each country. Because there was no normal distribution (Shapir-Wilk test of normality), non-parametric tests were used to further test the differences between countries in each of the subscales (Kruskal Wallis test). To look into differences between countries more deeply, we tested the differences in the subscales between each pair of countries (Mann–Whitney *U* test).

As for the qualitative data, students' written reflections from nine open questions were treated as transcripts, and therefore coded thematically. In the first round of coding we searched for the (four) subscales related themes (course value, learning about the academic field, learning about the community, and contribution to the community) to complement the related quantitative data. The second round was more emerging and verbatim-focused, as we approached the data inductively using the constant comparative method of data analysis that involves mining the data, selecting emerging themes, defining categories, and redefining them as new themes or disagreements arise related to a critical reflection on observed themes (Merriam, 1998). We identified the following four categories in response to our interest in students' reflections on their first-ever SL experience: 1) theory and practice synergy, 2) course and real-life relationship, 3) personal growth and professional development, and 4) changing roles and agency. This part of the paper explores and in the interpretation highlights salient points in the students' understanding of their first-ever SL experience and its (perceived) legacy.

FINDINGS AND DISCUSSION

This subchapter serves as a platform for presenting and discussing our findings, organised in two parts—first we will present quantitative data related to students' satisfaction with the SL course, followed by the qualitative analysis of students' reflection on various aspects of their SL experience.

TABLE 2 | Descriptive data in the whole sample (*N* = 245) on the four subscales of the SL-based course satisfaction measures.

Course satisfaction measures	Mean	Median	Std. dev
Course value	4.41	4.5	0.475
Learning about the academic field	4.17	4.2	0.610
Learning about community	4.13	4	0.697
Contribution to the community	4.20	4.25	0.692

Students' Perspective(s) on Service-Learning Course Satisfaction: Comparative Approach

In this part of the paper we present and discuss the results in regard to the students' satisfaction with the SL course, using the course satisfaction measures developed by Moely et al. (2002). We present the data on the whole sample, while variables of disciplinary field, level of study (undergraduate/graduate) and gender are not in our current focus. We treat students' data set as that of one homogenous group—of students experiencing the SL course for the first time during their studies. The descriptive data in **Table 2** presents students' satisfaction in relation to the four subscales of the measure—course values, learning about the academic field, learning about the community, and contribution to the community—showing average values. **Table 3** presents descriptive data by country. We are also providing **Figure 1**. with average measures for the subscales.

Students in all the three countries assessed the specific dimensions of the course satisfaction measures (very) positively. As shown in **Table 3**, on the five-point Likert scale, where five is the most favorable, the average values for the subscales are between 3.84 and 4.68, with Croatian students scoring a bit lower on all subscales than their counterparts in Slovakia and Romania. Students from both Slovakia and Romania assessed with the highest score the subscale of *Course value*, while their colleagues from Croatia scored the highest on the subscale of *Contribution to the community*. As indicated in **Table 4**, the Kruskal Wallis test showed significant differences between the students' assessment in every subscale depending on the resident country.

To analyze the data more in-depth, differences were tested separately for each pair of countries. As the data in **Table 1** did not show a normal distribution, a nonparametric test was further used (Mann–Whitney *U* test) to compare the results among the three countries, and the results are presented in **Table 5**.

In the subscale *Course value*, differences were observed between the perceptions of students from Slovakia and Croatia, and from Romania and Croatia. The comparative analysis of students' responses indicates that the students from Slovakia and Romania assessed the course value more positively when compared to the students from Croatia. In the following two subscales, *Learning about academic field* and *Learning about community*, significant differences were found

TABLE 3 | Descriptive data by countries (Slovakia, Romania, Croatia) on the four subscales of the SL-based course satisfaction measures.

Country/N	Course satisfaction measures	Mean	Median	Std. dev.	Skewness	Kurtosis
Slovakia (*N* = 47)	Course value	4.56	4.5	0.396	−0.981	1.086
	Learning about the academic field	4.02	4.2	0.585	−1.018	0.561
	Learning about community	3.97	4	0.706	−0.887	1.533
	Contribution to the community	4.16	4.25	0.709	−0.782	0.066
Romania (*N* = 32)	Course value	4.68	4.75	0.323	−1.598	3.131
	Learning about the academic field	4.59	4.6	0.457	−1.372	1.74
	Learning about community	4.58	4.8	0.529	−1.4	1.267
	Contribution to the community	4.42	4.5	0.540	−0.958	0.17
Croatia (*N* = 166)	Course value	3.99	4	0.707	−0.474	−0.111
	Learning about the academic field	3.91	4	0.788	−0.656	0.371
	Learning about community	3.84	3.8	0.854	−0.458	−0.143
	Contribution to the community	4.02	4	0.827	−0.926	1.069

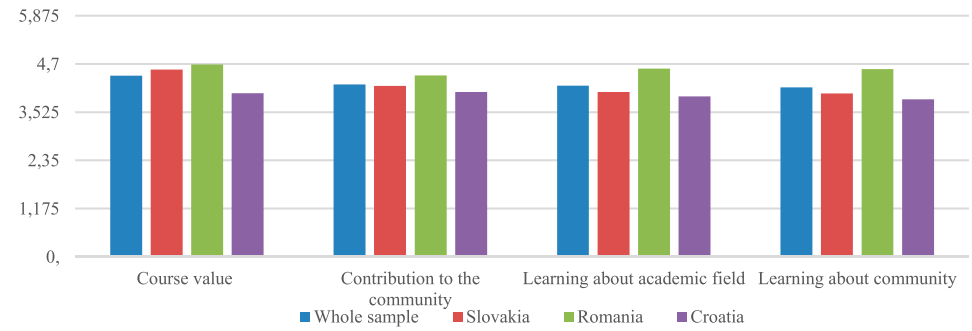


FIGURE 1 | Average on the four subscales of the SL-based course satisfaction measures.

TABLE 4 | Comparative analysis of the SL course assessment between countries (Kruskal Wallis test).

Subscale	Course value	Learning about the academic field	Learning about community	Contribution to community
Chi-square	47,521	25,867	22,663	6,526
Df	2	2	2	2
Asymp. Sig.	0.000	0.000	0.000	0.038

TABLE 5 | Comparative analysis of the students' assessment of the SL-based course between pairs of countries (Mann-Whitney *U* test).

Countries compared	Subscale	Course value	Learning about the academic field	Learning about community	Contribution to community
Slovakia vs. Romania	Mann-Whitney *U*	607	287	365.5	599.5
	Wilcoxon W	1,735	1,415	1,493.5	1,727.5
	Z	−1.464	−4.685	−3.894	−1.54
	Asymp. Sig. (2-tailed)	0.143	**0.000**	**0.000**	0.124
Slovakia vs. Croatia	Mann-Whitney *U*	1,961.5	3,674.5	3,511.5	3,541
	Wilcoxon W	15,822.5	17,535.5	17,372.5	17,402
	Z	−5.213	−0.61	−1.049	−0.973
	Asymp. Sig. (2-tailed)	**0.000**	0.542	0.294	0.331
Croatia vs. Romania	Mann-Whitney *U*	1068.5	1234.5	1304.5	1928.5
	Wilcoxon W	14,929.5	15,095.5	15,165.5	15,789.5
	Z	−5.361	−4.812	−4.58	−2.472
	Asymp. Sig. (2-tailed)	**0.000**	**0.000**	**0.000**	**0.013**

Note: The bold entries indicate the p *values < 0.05.*

among students from Romania and Slovakia, and among students from Romania and Croatia. The students from Romania assessed the SL course contribution to their learning more positively than their colleagues from Slovakia and Croatia. In the fourth subscale, *Contribution to the community*, differences were identified between the responses offered by the students from Croatia and those of the students from Romania. Specifically, the students from Romania assessed their contribution to the community more positively than the students from Croatia.

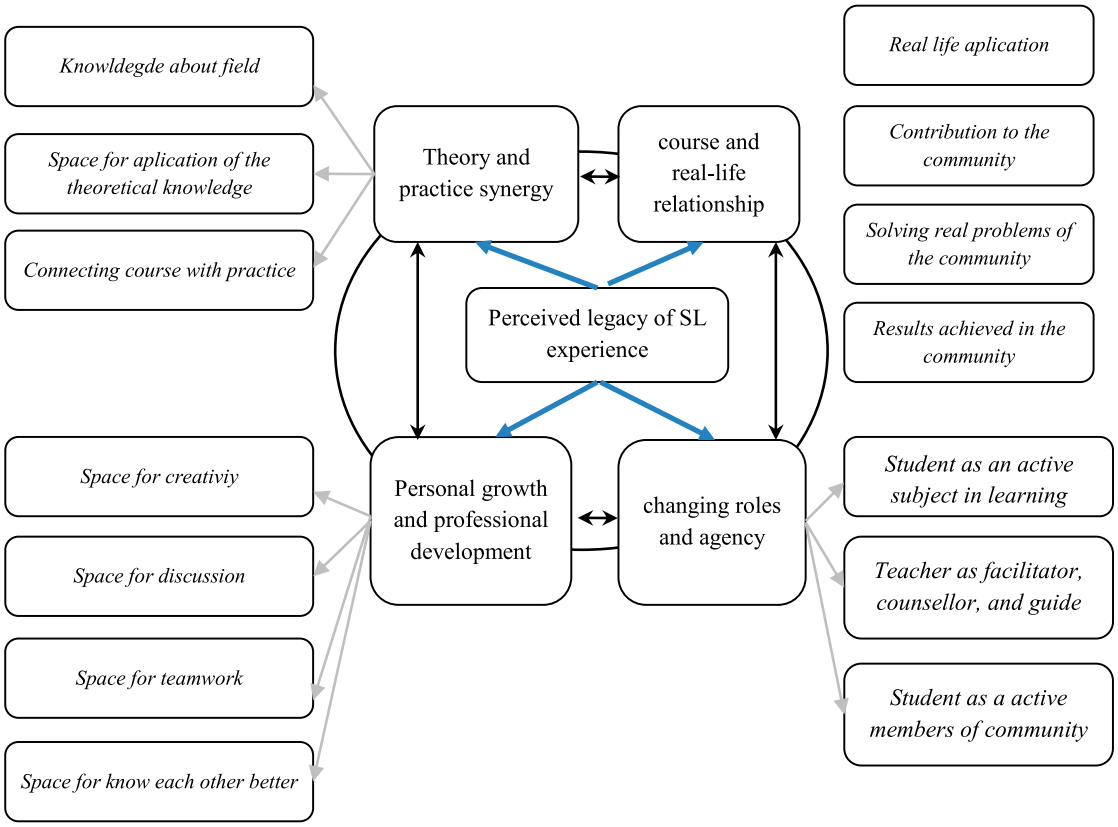
We can interpret these differences taking into consideration several factors that we are aware of. To start with, students who participated in this research study are affiliated in different disciplinary fields. Service-learning courses for Croatian students/research participants were organised at the Faculty of Economics and Business, and within the (existing) courses anchored in management and marketing, so it could be that students perceived the SL component of the course as an additional one, or as a supplementary task. In addition, they were working in much bigger groups of students, as each course 'hosts' around one hundred students. Research participants from Romania study at the School of Psychology and Educational Sciences and those from Slovakia at the School of Education. In these two countries, the SL-based courses were delivered to a lower number of students to begin with, and were additionally structured to support teamwork organised around 'small projects'. Also, it is important to mention that one of the courses with SL component in which the students from Romania participated included direct activities with therapy animals (dogs) and interactions with owners of companion animals from the local community. Hence, the variable "animal presence" might be one of the factors associated with the positive perceptions of SL experience by the Romanian students. Literature in the field of human-animal interactions indicates that positive animal presence can bring not only psycho-physiological benefits to humans, but also it can facilitate the social connectedness among people interacting with animals (Komorsky and O'Neal, 2015; Rusu and Davis, 2018). Of course, we have to take into account many other possible reasons related with not only the course structure, but also with the motivation of the actors included, resources available, the quality of collaboration, etc. Nevertheless, all students engaged in this study assessed their satisfaction with all four subscales of the SL course quite high. Compared to the SL students in the study by Moely et al. (2002), our students showed higher average in the subscale *Course value* (difference 0.27), subscale *Learning about academic field* (difference 0.36) and subscale *Learning about community* (difference 0.29). We couldn´t find average data about the subscale *Contribution to the Community* in the Moely's study. Another research study by Garcia-Romero et al. (2018) showed, that students who participated in SL value their practice as more relevant to their learning than those students who participated in the classroom seminar model. Students who participated in SL courses showed a higher level in the subscale assessment of the course, personal learning and behavioral learning compared to non SL students.

Students' Narratives on the Satisfaction With Service-Learning Experience as a Novelty

Students' written reflections were treated as one dataset, meaning that attributes like country, disciplinary field, or gender for example, were not of our research interests in this respect. The rationale behind is the fact that attending the SL course was the first of such an experience for our research participants, thus making them a homogeneous sampling group, with a potential for rich data gathering. Our decision to treat the qualitative data as one dataset was also based on the observed similarity of the students' written reflections in the three countries. Also, it is important to mention that we decided to include here only the students' reflections on the positive aspects of the SL experience. While reflections on the dissatisfaction were collected, they were mainly indicating the students' concerns regarding the lack of official crediting mechanisms for SL experiences. These expressed needs were further translated into recommendations that can be found in detail in the report provided by the SLIHE project (Brozmanova Gregorova et al., 2020). Thematic analysis of students' self-reflection on their SL experience yielded four emerging themes that we derived from their narratives as acknowledged SL course legacy—1) theory and practice synergy, 2) course and real-life relationship, 3) personal growth and professional development, and 4) changing roles and agency. See results of thematic analysis of students' self-reflection in **Scheme 1**.

Students' reflections on their SL experience 'talk' about the constructive alignment between theory and practice that students portrait as *"a pleasant and refreshing experience"*. They are quite unanimous when acknowledging the *"bigger space for the application of theoretical knowledge into practice"* that SL courses offered, making them *"finally more acquainted with what is going on in the field"*. Many of the students recognize the importance of the synergy between theory and practice within the SL courses, and are *"thankful for the possibility to connect the course with professional practice in their field"*. Beside, their narratives are inline with believing in continuity of the knowledge gained at the course, as students talk about how they are *"sure that so many things we have learned at this course we can and will use not only in our professional engagement in the close future, but in everyday life as well"*. Prentice and Robinson (2010), also point to the relevance of the link between the service project and the course content in SL projects.

Another SL course added value that students acknowledged as *"the rare kind of experience"* is related to the relationship being built to better connect courses and the curricular concepts taught, with their real-life application. For students, this was a great platform to make their mark and give their contribution to the community, and they speak very fondly of such an opportunity. As Vogelgesang and Astin (2000) claim, service-learning represents a potentially powerful form of pedagogy because it provides a means of linking two seemingly separated worlds—the academic and the practical one. Service-learning setting allows for those more abstract and theoretical parts of the traditional classroom to be taken on a new level where students have the



SCHEME 1 | Thematic analysis of students' self-refelection.

opportunity to construct new knowledge and meanings. Connecting course concepts and real-life application is an essential part of reflection, which is an integral part of SL experience. So, as stated for example, by Godfrey et al. (2005) and Yorio and Ye (2012), the effect of service-learning courses is related to the intensity of the reflection and how students digest and adjust their knowledge acquired during the service activity.

The sense of contributing to the community was closely coupled with the *"possibility of solving real problems of the community"*. What appears to be even more memorable for students is the *"real-life actually matters"* notion that SL course 'produced' while engaging them in various community-based activities. To go even further, students' reflections talk about their gratitude for being engaged into activities that made them *"see the real results of our joint work"*, and being *"very proud of the engagement and the results achieved in the community"*. Leaning on such a positive impression of SL courses serving as a certain university-community link, students find this experience as influential in a long-term run for both themselves, and community partners. They recognize the importance and benefit of their own engagement for the community partners, and community in general, talking about *"the importance of bringing something to that organisation that could help them in their further work"*, about *"new ideas our partners can continue developing even after we finish the course"*, or about *"assisting them in acquiring a certain habit of engaging in community-based activities"*. All those nuances aside, students' narratives are quite alike in the context of a shared vision of this SL experience being *"one of the most significant changes"* and *"that kind of a big change because we students were actually contributing to the solutions of real-life problems with our own experience and knowledge"*. In the study conducted by Gerholz et al. (2017), the students also realized that their capabilities could make a valuable contribution to society. On the other hand, students received personal insights into their strengths and weaknesses. Also, in our study, we find out that students named not only what they learned by also what they need to know in the future and that they were able to recognize their limitations. These variations are also pointed out by Yorio and Ye (2012).

Personal growth and professional development is the third perceived legacy of the SL experience that students' narratives reveal. On a personal level students share their appreciation of *"being listened to and invited to share our own ideas"*, as they feel this was crucial to create the space for their self-development and self-realization. There is a shared idea among students that the SL courses they attended contributed significantly to *"the development of each of us"*, and *"the transformation of all students from my group"*. For some, the SL experience was truly transformative, as illustrated by one participant—*"it opened my horizons and changed me"*. In addition to this

personal note, students appreciate the opportunity to be engaged in such a course that successfully facilitates their journey in gaining new knowledge and skills. What they value in particular is the *"learning that grows from different kinds of space and time in the course"*. That different kind of course experience unwinds certain attributes students attach to the SL courses and its legacy on their professional self—*space to express the creativity, safe space to ask any kind of questions, time dedicated to serious discussions, space to communicate openly and freely about every idea, space to actually learn how to work in a team with shared responsibilities, space to know each other better, space that uncovers how their profession looks like in a real-life setting,* and other similar space-constructs. As stated by Gallini and Moely (2003), students participating in service-learning show increased interpersonal and community engagement because of special opportunities offered through the SL experience. The service itself provides students with opportunities to leave the campus and experience the 'real world', i.e., they have opportunities to show initiative, understanding, and flexibility in interacting with new situations and individuals with different backgrounds, thus increasing their engagement with the community. As also stated by Eyler and Gilles (1994), even limited experience may help reshape the way students think about obligations and opportunities for service. Garcia-Romero et al. (2018) have shown that the SL experience has been perceived by the students as relevant for personal change and the learning of professional skills.

The last category presented here as a perceived legacy of the SL experience is related with students' perception on the old and the new roles that various actors play in the SL course, as well as with their perspective on their own post-course agency. Without surprise, students unanimously talk about enjoying the whole process of being an active subject in every aspect, with rights to co-create their own engagement activities, but noticing that such an approach asks for them to act independently and be responsible for the learning process. However, one of the perceived changes students have shared vision about is related with their renewed experience of *"learning being so much fun"*. In comparisons with other courses students reflect upon, they feel a connectedness, or how they phrase it, a *"special bond"* with the SL course and their team projects. While they describe their new roles as *"something completely different"*—those of *course creators, course decision-makers*, *project developers, active contributors,* or those *actively involved in everything*—the attributes given to their professors are dominantly those of *facilitator, counsellor, and guide.* As also stated by other authors (for example Enos, 2015; Opazo et al., 2014) SL offers students the possibility of carrying out social commitment activities so that they gradually increase their confidence in their ability to improve the environment through practices linked to their professional training and strengthen their leading role in projects.

Such a change echoes in other dimensions as well, for example in changed patterns in communication between students and professors. Students' reflection reveals narratives of satisfaction coming out of an *open and affirmative communication, communicating without being afraid*, *constant communication with constructive feedback, communicating by discussing with arguments*, *patience that professors had for communicating various issues*, and other similar students' expressions. And last, but certainly not the least, students reflect on the (perceived) changes of their role in society, as this SL experience gave them the "*opportunity to take more active roles in the community*", thus making them more responsible 'neighbours', since *"we were not mere observers of whatever was going in our community; we actively contributed to re-think existing ideas and efforts in solving some problems by putting our experiences, knowledge, ideas, and engagement out there in the community."* According to Winterbottom et al. (2015) the perception of self-competence fosters the students' potential projection of their future selves, both as professionals and active social agents.

Our findings of students' course satisfaction assessment are in line with Rice's (1996) reflection on service-learning pedagogy, as this (first-ever) SL experience obviously presented a paradigmatic shift, highlighting students' role in their own knowledge (de)construction. Furthermore, this newly service-learning setting provided a platform for changing roles in other aspects as well, so students witnessed the transformation of professors' centrality and power that (usually) comes along with it, as they played the role of facilitators, (successfully) guiding students through their first SL experience.

Our study points to compatibility of service-learning courses with changes advocated in the EU policies focused on higher education—there was a shift made from centrality of teaching on students' learning, giving them alongside an opportunity to co-create the course; SL course enabled previously dominantly autonomous and individualistic engagement of students to transfer into vivid teamwork and collaborative projects with non-academic community; professors encouraged the development of critical thinking, while students independently created meanings of curricular concepts through proactive learning, research, engagement and reflection. Leaning on the contemporary call of European University Association for changing (teaching and learning) paradigm at European universities, our study contributes to the argument that service-learning courses have a potential to be treated as an answer to such a call, as they place students in the core of teaching and learning process, developing their critical thinking and social responsibility.

FINAL REMARKS

The focus of this paper has been on exploring how do (higher education) students from Slovakia, Romania and Croatia appreciate their first-ever service-learning experience. Going back to our first research question—the one that targeted our research participants' satisfaction in relation to the perception of the course value, their own learning about the academic field and the community, and of their personal contribution to the community—our research findings speak in favour of students' satisfaction with their first-ever SL experience, regardless of the country of their residence. Students from all three countries valued their SL experience as one that provided them with possibilities to learn a lot about the academic field and community as well. Beside their positive reflection upon the process of learning,

students think highly of the opportunity given within the SL course in the context of their personal contribution to the community. Knowing that for most of the academics engaged, meaning most of the SL courses our research participants attended this was a first experience with the service-learning pedagogy, we find these results quite important, particularly in the context of further service-learning promotion in national higher education systems of the countries included in the study.

Leaning on the national context just mentioned, findings from our study indicate differences in our research participants' assessment, depending on the country of residence. Without further analysis it is very hard to explain the differences reported (e.g., Croatian students valuing all subscales of the course satisfaction measure lower than their counterparts in Slovakia and Romania), as they may be facilitated by various (non) institutionally related reasons. In addition, students from both Slovakia and Romania assessed with the highest score the subscale of course value, while their student colleagues from Croatia scored the highest on the subscale of contribution to the community. As noted before, at this point we can only speculate if such a difference could be related with students' institutional and disciplinary background, as those from Slovakia and Romania are affiliated within the educational sciences, while those participants from Croatia within the field of economy. Acknowledging the differences, we still may conclude that all 246 students from all three countries expressed high levels of satisfaction with their (first) SL course. As already mentioned, the aspects related to the dissatisfaction with SL experience, in all the three countries, reflected the need of students for forms of official recognition of their engagement in SL experiences, e.g., ECTS. Although these aspects were not discussed in this paper, they were addressed in the recommendations developed within the SLIHE Erasmus + collaborative project (Brozmanova Gregorova et al., 2020). For example, one of the recommendations is to build awareness of the positive impacts of SL experience on students before implementing SL projects by offering them access to research-informed examples of SL good practices and testimonials of other students who have already experienced SL. Thus, it is assumed that the students might develop an intrinsic motivation for SL experiences, including those students that are coming from educational systems that had not yet developed an official recognition system of the SL experiences.

Building upon students' satisfaction, we wanted to further explore how students portray the 'novelty' that SL experience brought on their personal, educational and professional paths, which brings us to our third, and last research question. Our findings speak highly in favour of transformative potential and changing narratives of various aspects of their (higher) education experience and personal agency. Students find their experience within the SL course prosperous in many contexts, both academic and non-academic related. As for those aligned with the academic context, students appreciate the opportunity to place their learning in such a structured course that connected them with the profession in the field, and allowed them to actively participate in various problem-solving projects, thus creating connectedness with the real-life setting. Continuing, students highly value the opportunity to experience a certain role change, as their narratives talk about their responsibility and 'ownership' of the course and the process of learning, while they perceive professors as facilitators. When reflecting upon their SL experience, a lot of students drew comparisons on other courses, claiming that the SL course provided them with opportunities to take the curricular concepts on a whole different level of understanding and practicing. As for the non-academic related 'legacy', students' reflection disclose their acknowledgment of personal growth and changes related with cognitive, emotional and behavioural dimensions. Our results are similar to the conclusions of the study provided by Garcia-Romero et al. (2018). They found indicators that service-learning contributes to the construction of authentic learning, and hence, to changes in the students' identity, i.e., the relation with the object of knowledge, social commitment and their self-concept as agents of change. In the same line, due to the promising results of this exploratory investigation of student's perceptions of their first SL experience, future studies are planning to be performed in the three countries following experimental designs with control groups and repeated measures, as well as in-depth qualitative interviews. Moreover, based on the already existing frame of collaboration among the three countries, future studies are being planned to explore comparatively multiple aspects (e.g., satisfaction, academic achievements, civic attitudes, etc.) of students' engagement in service-learning.

Our study has certain limitations we are well aware of. To start with, the study did not include a control group of the non-SL course attendees. This would be a serious limitation if we wanted to argue that SL experience by default provides the narratives of satisfaction, change and transformative potential, that we discuss in this paper. However, we do not have such an ambition, as we merely acknowledge the fact that for our research participants attending the SL courses was a novelty on their educational path—they had never (or barely) been exposed to such a teaching and learning experience prior to this course; the reflexive nature of many assignments presented novelty *per se*, as well. Their learning had not been placed before in such an environment where they are true collaborators, treated as active contributors to their community. Counting all that, this paper gives students' voice of that novelty experience, trying to better understand various meanings that students attribute to their (first) SL journey. We do believe that within the (HE) institutional environment where service-learning has just start 'knocking on the door' and is still not recognised as an innovative pedagogy, like it is the case for Slovakian, Romanian and Croatian higher education, studies like this can contribute to the evidence-based platform of students' satisfaction with such organised teaching and learning process, as well as for arguing its transformative potential. For sure, those areas of inquiry call for more research in the European context, and are especially suited for the qualitative studies that can contribute to better understanding of various contextual factors that this particular study of ours has (deliberately) left out of the focus. Another set of limitations arises from the purposeful sampling as our research participants were only those students who attended the courses run by the academics who started their SL courses under the SLIHE team guidance. In addition, we haven't looked into particularities related to disciplinary backgrounds, gender, level of study and other (contextual) variables that we have in our datasets. For this particular paper we wanted to treat all 246 students as one 'subculture', with mere look into the country specifics, so we do suggest further analysis and comparisons that will take more into account other relevant contextual aspects.

Despite the limitations discussed, mirroring students' narratives of satisfaction and change, we can say they divulge students' inclination towards this *"completely different experience"* that *"made all students more active"*—not only as 'authorities' responsible of their own learning process, but as responsible neighbours in their communities as well. At the end, we do strongly believe this is actually one of the SL courses greatest legacy—the group of young people appreciative of (new) learning and supportive of (positive) changes in their communities.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors made substantial contributions to the theoretical framework of the manuscript and the data collection. Specific contributions were made as it follows: BI has contributed to the coordination of tasks in the writing process, with a special attention to introduction, results, discussion and text finalization; AG has contributed with performing the statistical quantitative and qualitative analyses, with a special attention to introduction, methodology, and the results; AR has contributed with the elaboration of the introduction and interpretation of the results.

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Virtual Service-Learning in Higher Education. A Theoretical Framework for Enhancing its Development

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The last decade have witnessed the unprecedented development of information and communication technologies. This has, in turn, enabled the growth and development of other sectors, such as, for example, that of distance and on-line learning. In this context of technological expansion in education it is appropriate to reflect pedagogically about technological resources and their educational purpose. That is, how to deploy the available technological resources and media in a fashion consistent with the desired educational objectives and aims. Virtual Service-Learning has emerged as a particular modality of this methodology that combines and reinforces two elements: technology applied to education and service as a pedagogic tool. This format then, reveals itself as an appropriate methodology through which to channel both technical and pedagogic innovation. In this work and, taking as reference a study focusing on two virtual Service-Learning projects, we will address the construction of a theoretical framework that will allow us to understand and improve the development of these practices through this pedagogic modality.

Keywords: virtual service-learning, digital technologies, human values, global citizenship, virtual mobility, intercultural dialogue

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ICT IN SERVICE-LEARNING PROJECTS

Over the last years, we have witnessed an unprecedented growth in distance and virtual learning. Beyond the specifications and clarifications that these concepts require, they reflect the richness and diversity that education can reach when it is crossed or hybridized with information and communication technologies. Today, if it is unimaginable for any profession to be undertaken without the help of a computer, information management programmes and an internet connection, then these are totally indispensable in the case of education. The use of such technologies has meant the introduction not only of the acquisition of necessary digital skills into teacher training programmes, but also the construction of their own modality, with particular elements and characteristics that are in contrast to face-to-face modalities. The possibilities of virtual and distance education demonstrate their full potential in the case of university teaching not only due to the appearance of courses offered by virtual universities, but also with the translation of educational processes and methodologies into cyberspace.

Moreover, the structural reforms in higher education that have occurred in the last decades have promoted a greater awareness amongst the university teaching faculty of their pedagogic responsibilities. This has been reflected in a greater concern for the type of learning experience undertaken by students and its ethical and civic dimensions. Here, we need look no further than

certain international declarations such as those contained in the Bologna Process[1], or others, more locally focused, linked to the direction that particular territories wish to give their higher education systems as, for example: the 'Declaración sobre institucionalización del aprendizaje-servicio como estrategia docente dentro del marco de la responsabilidad social universitaria para la promoción de la sostenibilidad en la Universidad' (CRUE, 2015); 'the Campus engagement charter for civic and community engagement' (Campus Engag, 2014); and 'the Declaració de la Xarxa d'Aprenentatge Servei de les Universitats Catalanes ApS(U)CAT' (ACUP, 2018). What is more, university networks such as the Red Talloirs or TRUCEN, are examples of how higher education is taking on board societal needs and demands, such as civic engagement, social responsibility, and sustainability (JHEOE, 2012).

In this way, the incorporation of Service-Learning (SL) projects, across all university degree courses, stands out amongst the different initiatives aimed at the ethical and civic training of students, and this is the focus of our work. There is no doubt that this methodology constitutes a paradigmatic example in which all initiatives to renew university teaching are condensed. Thus, from within the different training frameworks in which the SL methodology is included in subject areas and degree courses, little by little, a new modality is emerging, supported by digital technologies. In effect, there are many ways in which digital technologies can enrich and have a role in the success of SL projects. Without doubt, however, the most innovative of these and the one that has most pedagogic potential appears to be virtual SL (VSL) which supports both the project's learning and service components through the different ways in which technology intervenes or forms part of the project design. How?

In the first place, in a collaborative fashion, digital technologies are enabling: from the acquisition and compilation of information through to its dissemination and communication. This factor helps and facilitates the initial stages and the development of VSL projects. From applications for cloud-archiving data, to email, web pages and many more, digital technologies generate new spaces for teaching to take place entirely in the virtual world. At this first level we find a basic kind of integration where the inclusion of digital technologies is instrumental. One example of this is the use of a web page or blog to showcase a project or perhaps to gather results. In this way both project management and the dissemination of results can be enabled. However, as we said, this form of exploiting the technology is purely instrumental and has no explicit pedagogic aim.

In the second place, we find the purposeful integration or inclusion of digital technologies, that is, when these technologies contain a pedagogical intent as much in the process of learning as in the element of service. In effect, digital technologies constitute active elements in the design of VSL projects. For example, some proposals concerning intergenerational dialogue use digital technology to bring youngsters and older people together. In this way, the younger generation "teach" the older to use a diverse range of programmes to improve their management of the digital environment, while the older generation contribute their knowledge in specific areas. Other projects focus on relationships between equals and emphasize the responsible and critical "use" of technologies. Projects such as "cibermanagers" produced by Pantallas Amigas (2010), where the intention centers around education in the responsible and critical use of social networking sites.

Digital technologies are no longer merely instrumental resources, rather they create, as we have said, a new teaching environment and, in addition, promote solidarity and human values. This brings us to a third level, those digital technologies that favor immersion and development of new projects within a new environment: cyberspace. In this space, technology is not only integrated into the project with a pedagogic aim, but also the project itself is designed from a digital perspective, that is, focusing the whole process from, in and for this space. This kind of technological immersion has led some to categorize projects that are developed to this level as "extreme" VSL (Waldner et al., 2012), given that both the learning and service components develop entirely within cyberspace, on the net (see **Figure 1**).

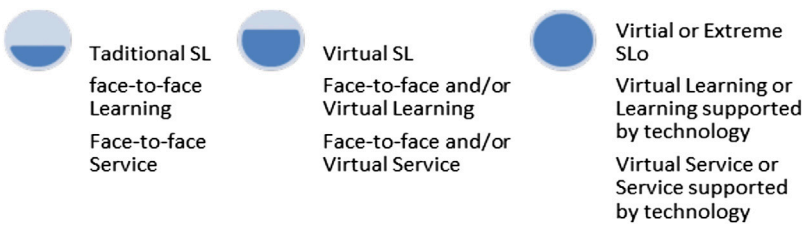

FIGURE 1 | Different types of Service Learning. Adapted from (Yusof, Azean, Harun and Doulatabadi, 2018).

Consequently, in line with this third level, the virtualization of SL implies a step beyond the mere translation of processes into cyberspace. It involves consideration of the online-offline continuity of processes and of designing teaching and service components with this premise in mind in addition to certain conditions and characteristics that we shall address in the next section of this work.

[1]EHEA Ministerial Declarations and Communiqués, http://ehea.info/page-ministerial-declarations-and-communiques.

Indeed, if we look at the state of play in the field of VSL, we find that the first studies on this topic gave priority to the conceptualization of this emergent modality (Strait and Sauer, 2004; Guthrie y McCracken, 2010; Waldner et al., 2010; Waldner et al., 2012). In contrast, in the last few years, broader, plural or hybrid lines of investigation have opened up (Bringle, 2017; Bringle and Clayton, 2020) that address a more varied range of issues such as, for example, the relationship between SL and digital technologies (Escofet, 2020; Tapia Tasot, 2020) and its engagement with the promotion of human values (Ruso, 2012; Gasper-Hulvat, 2018; Ruiz-Corbella and García-Gutiérrez, 2020); its experiential and practical dimension within the virtual environment (Stefaniak, 2020); civic and community engagement (Laury, 2020); the particular form of mediation that this type of project produces in the field of distance learning (Bourelle, 2014; Harris, 2017); the analysis of more specific facets such as the analysis of the social networks associated with SL projects (Moeller and Nagy, 2013), projects involving on-line tutorials (ChanLin, et al., 2016), and studies on leadership (Goertzen and Greenleaf, 2016; Purcell, 2017). Lastly, a further line of investigation into SL has opened up as a result of the situation caused by COVID-19 (Culcasi, 2020; Meija, 2020; Tian and Noel, 2020).

Gradually this new modality is consolidating, pushed by the strong impulse of an emergent web 3.0. The volume of work in this area is so high that it has prompted some authors to dedicate their research to the analysis of this diversity of publications and to providing as thorough a characterization as possible of the state of the art in VSL (Salam, et al., 2019; Marcus, 2020).

VIRTUAL SERVICE-LEARNING MODEL (VS-L): CONCEPTUALIZATION AND PEDAGOGIC CARACTERISTICS; THE "EMERGENCE" OF VIRTUAL SERVICE-LEARNING

The arrival of VSL to the context of SL is no accident, rather, several factors have collaborated in its origin and development that help to delineate its particular path and theoretical framework. The factors to which we can attribute its present impulse can be seen to align with two convergent dynamics present in higher education.

Furthermore, there is no doubt that the health emergency produced by COVID-19 has obliged educational institutions and other organisations of civic society to re-think the face-to-face format of their learning programmes and, in many instances, initiate alternatives to presential learning through the use of virtual models that are equally capable of achieving educational goals. On the other hand, we cannot ignore the consolidation of the various modalities of virtual solidarity, which are a huge influence on the current expansion of SL in its virtual format (EASLHE, 2020).

While one dynamic centres on reflection about the current role that universities play or should play and their relationships with wider society, highlighting that these institutions should recognize, and indeed assume a social responsibility. Another addresses the changes occurring in teaching and learning in higher education, giving greater importance to the practical, the innovative, as is the case regarding the irruption of digital technology in higher education which, without doubt, also involves the transmission of values to students and provides them with opportunities for character formation. This direction of travel finds a point of convergence in SL, fertile ground which has, simultaneously, enabled the growth and development of SL not only at higher education but also at every other level of education.

The cause for this growth is at the heart of an institutional dynamic where, for various reasons, higher education institutions are faced with the need to reform or evolve. This is due to both national needs as much as international pressures, spearheaded by international organisations. In this vein, we find, for example, the European Union's vision for the future of the university sector, envisaging institutions that are integrated and connected in a European higher education zone linked to local needs. Specifically, "that higher education institutions should not be ivory towers, but rather, communities of learning with a civil conscience, connected to their communities (COM 2017 247 final, 30/5/2017). This has seen universities extending their mission to focus on responsibility and social engagement, introducing ideas about the university's social responsibility, and its social and civic engagement, not simply into its management structures but into academic discourse.

On the other hand, there is a further set of dynamics at work that must be added to the institutional dynamics; centered largely on the improvement of learning we have termed these the "pedagogical" dynamics. In this way, for example, the introduction of information and communication technologies, a process that has been amplified with the ongoing COVID-19 pandemic, has highlighted the real possibility of establishing hybrid educational programmes: neither totally online nor exclusively presential. What is more, the technological tools also offer the possibility of greater learning autonomy for students, just as is established in the pedagogic principles developed through the Bologna Process: the centrality of the education of the student; the integration between theoretical knowledge and practical skills favoring a notion of competence; the inclusion of ethical and civic elements in training programmes for students, among others.

In this regard, we should highlight two experiences that have served as a reference for the implementation of SL projects. Specifically we refer to the development of 'virtual practices" (curricular and extra-curricular practices, remote or virtual laboratories, etc.) and 'virtual mobility' (Gallego Gil and Valdivia Guzmán, 2013; Ruiz Corbella and Álvarez González, 2014) which, in Spain, are led by the Universidad Nacional de Educación a Distancia (UNED). In effect, these experiences show that it is also possible to 'learn by doing' and enjoy the benefits of international mobility through digital technologies, with programmes conducted exclusively in cyberspace. No doubt can remain that the participation of students in practices and actions of internationalization and interchange are fundamental

to their training. Having said this, whether for physical, financial, family or any number of other reasons, clearly, not all students have equal access to this type of experience in a face-to-face format. In this way, the virtual world constitutes a fundamental pedagogic resource by facilitating access to this type of learning experience, removing barriers, and thereby enabling it to take place. In the case of virtual mobility, for example, the student might be able to take up any placement without having to leave their own home or their everyday duties and without having any particular time constraints on completing said placement, making it possible to tailor experiences to personal situations (Ruiz Corbella and García Aretio, 2010).

From the virtual perspective, the notion of internationality has a central role in educational processes. This role is made more active and dynamic through technology's ability to blur geographical and temporal boundaries. Nevertheless, while this may seem like a positive at first glance, it can generate other problems, helping to "blur" the very educational experience itself. Here, we refer to the concept of cultural homogeneity and the "monetization of education", that is, considering the learning experience from an exclusively economic standpoint. In effect, on one hand, the net marginalizes all discussion, experience and reflection that is not in the English language, this being the most widely used language on the net. The end result of this is that, via the language, an Anglo Saxon model of culture is transmitted and perpetuated to the detriment of cultural and linguistic pluralism. Moreover, the need of these digital platforms and processes to "objectivize" or "virtualize" the practices and processes of education means that, in many cases, the pedagogic experience of the student is seen purely in terms of the market. Education becomes a "user experience" and is not an authentic educational experience in which interaction with others is a key element.

Basic Elements of Virtual Service-Learning

We understand VSL as a specific modality where learning and service take place together in cyberspace. That is to say, it concerns a combined teaching-research offer that integrates service to the community with academic learning in the form of a compact online project, enabling teaching staff to transfer knowledge with social value and enabling students to develop on a foundation of experience acquired from tackling real-life needs and problems. From this perspective, VSL combines research, teaching and the transfer of socially valuable knowledge so achieving the linkage and coordination of the three pillars or missions of the university, directing the activities of that institution to the social good (García-Gutiérrez and Corrales, 2020). In this definition we find several elements that were already present in other conceptualisations (ACUP, 2019), but with the addition of a key component that was previously absent: the transfer of knowledge, specifically that with social value.

On the other hand, to develop an adequate model for VSL it is necessary to take into account the technical support that will underpin the project, such as the personalized progress tracking that needs to take place for all participants, especially students. Technological support will vary as a function of the principle objective to which the "service" to be provided is addressed. However, in the case of learning, the majority of teaching institutions have their own platforms to facilitate progress tracking and student participation in their different subject areas and courses. In both cases, technological support from the web 3.0 generation enables the acquisition of information and knowledge, as well as communication and interaction between collaborators on a project. In these projects, the interconnection between the technological dimension and the human is key; we cannot forget that behind the screens and applications there are always people. The transmission and experience of human values through technological media is central to the success of VSL projects. Values such as empathy, listening and respect, but also creativity, imagination and solidarity can be developed and experienced through cyberspace.

From experience in conducting VSL projects (García-Gutiérrez et al., 2020) we can say that this pedagogical modality not only integrates those values that are typically human, but also those elements that are characteristic and belong to other modalities of SL, such as internationalism and globality (Santos-Rego et al., 2020). In effect, and as we saw earlier, internationalism is reinforced in the virtual environment, not only due to the blurring of territorial boundaries but also because the virtual element can give the student opportunities to approach a range of problems and not just those of other regions (more or less distant) but also those that affect the whole of humanity globally. This is the reason that VSL is especially suited to the development of global citizenship. That is, not only in how it raises awareness of global or common problems but also in the way it forms identity and a sense of global responsibility in that we are all members of the same human community.

As might be expected, the principal characteristics upon which VSL projects are built are determined, naturally, by the purpose given to the technological or digital elements within them–as already occurs in distance learning (Kinshuk, 2012). Thus, the characteristics that emerge in these projects can be defined by the following elements:

Ubiquitous Learning (U-Learning)

This type of learning alludes to the idea that any circumstance can become, at any moment, an educational opportunity and all the more so if we consider the pedagogic possibilities of connectivity via devices and apps, something which implies an understanding of cyberspace as an immersive learning environment. In this way, the key element to unlocking ubiquitous learning is the pedagogic intentionality with which project activities are conceived. Díez-Gutiérrez and Díaz-Navafría (2018) describe three characteristics of this type of learning. The first refers to the dissolution of spatiotemporal frontiers, and indeed, curricular and methodological boundaries; the second concerns access to and production of knowledge in a more horizontal, participatory format; and the last addresses the ability to interact and work collaboratively on the internet. In this way, the internet and social networking sites not only facilitate an expanded, permanent form of learning, but they also constitute a resource and an opportunity for participation, and for social and civic engagement, one of the fundamental goals of VSL projects. For this reason a coming together of education and technology is needed, not simply in an instrumental form but thinking from a pedagogic stance, how to

incorporate and make use of it in a given project. Questions as to whether it helps to implement some activity or enables communication or whether it also facilitates ways of relating, or even, whether it develops certain socio-affective values or attitudes, and so on, will offer answers to the true meaning of the inclusion of technology into educational project design.

A Human Focus to Technology

If the starting assumption of all VSL projects is that both learning and service elements take place entirely in cyberspace, we must be wary of the technological element eclipsing the human. Therefore, as a pedagogical premise, we must ensure the presence of those values and virtues that are specifically human and that most humanize us, precisely in order to promote them through this type of project. In other words, information and communication technologies must aid the conversion of information into knowledge and learning, and communication into relationships or links of solidarity. In the same way that technologies can "depersonalize", and do depersonalize, human beings, they can also ensure personal development through the design of formative processes that foster responsibility in the face of global concerns, dialogue, discovery, reflection, etc. Looking toward the virtual horizon, it is important not to lose sight of the need to cultivate creativity, critical thinking and empathy.

Global Citizenship

Related to the previous point and from the perspective of the internationalism that can be generated by web 3.0 technologies we take a step further in linking those specifically human values with the notion of global citizenship, international solidarity, responsibility and care in a global, interdependent world. In effect, and in this context, we can understand the concept of citizenship in the broadest and most complex terms, and not simply as the acquiring of a legal status but, above all, as a moral practice in which we are able to identify ourselves and engage with the things that affect us and unite us all as human beings. A moral practice in which we are all capable of assuming the Kantian ethical imperative of: "So act as to treat humanity, whether in your own person or in another, always as and end and never only as a means". Thus, VSL projects should help us to recognize the relationships of interdependency and reciprocity that link human beings to one another and to our "common home".

VIRTUAL SERVICE-LEARNING: A VENUES FOR ITS DEVELOPMENT AND IMPLEMENTATION

Having outlined the process of configuring and consolidating the VSL paradigm, and with its theoretical framework defined, we will now examine some of our successful experiences. Specifically, we will look at two projects, 'Español *en vivo*' (Spanish Live) and 'Virtu@l-aps', both of which were developed by the 'Grupo de Innovación Educativa' (educative innovation group) COETIC[2] at UNED. Both projects arise from UNED's defining notions of civic engagement and social responsibility, that, at present, include a concern for promoting life-long learning for all (SDG 4), as set out in the United Nations' Agenda 2030. Taking this as a reference point, the 'Grupo de Innovación Educativa' COETIC was set up in the 2015/6 academic year with the purpose of launching innovative online projects, supported by community based methodologies and focused on the development of ethical skills and civic engagement in higher education.

Virtual Service-Learning and the Promotion of Global Citizenship

The VSL Project 'Español *en vivo*' is aimed at improving skills in communication and spoken Spanish amongst students at certain universities in Africa and Spain at the same time as promoting ideas of global citizenship and intercultural dialogue. The African universities involved include: the Ecole Normale Supérieure, in Benin; Abomey-Calavi University and Strathmore University in Kenia; and Dschang University in Cameroon, while the Spanish institutions include UNED (Faculty of Education and Faculty of Computer Engineering) and the Universidad Complutense of Madrid, Faculty of Education).

This project is developed through online conversations and interviews during which students from the African institutions mentioned practice Spanish by speaking to natives and the Spanish students deepen their subject knowledge from an intercultural, global citizenship perspective. The project is an immersive experience that takes place entirely in cyberspace, supported by a diversity of digital resources and applications: Skype, Hangout (Google), Zoom, Facetime and Whastapp which facilitate communication and interaction between all participants and that each group chose on the basis of their own available resources both in terms of access to the net and devices.

On the other hand, all information about the project is available on a dedicated website, in which participants can find examples of best practices for this type of project, the video presentations recorded by the African students to introduce themselves, the "intercultural field diaries" produced by every student, and links amongst other things.

The project was designed such that the key learning objectives of this initiative included students being capable of: defining their own ideas and motivations concerning their experience; identifying the most significant values and initiate their own action in accordance with these; and internalizing what they have learned not simply as content, but as a way of approaching reality. That is, to see knowledge not as 'packed bags' but as, 'something that allows us to travel with a different vision' (Esteve Zarazaga, 2012, *p*. 48). It was decided that, in this project, the most appropriate methodology to encourage reflection would be a biographical-narrative, in the form of a personal "field diary". Termed the 'Intercultural Field Note-book', this instrument, specifically developed for this initiative, actively encourages reflection, at the same time as enabling access to the type of experience and the acquisition of ethical competence and civic engagement within the established parameters of the project (García-GutiérrezRuiz-Corbella and del Pozo, 2020).

[2]www.uned.es/coetic

TABLE 1 | Virtu@l-ApS Functionality

Basic functionalities	• There is an area of registered users in which different profiles are defined for the different actors (teacher, student, service beneficiary, . . .). The user's profile determines his or her subscription, search and publication capabilities, and the private project spaces to which he or she has access. • Interactions between users are to be carried out through web forms, forums and email. For example, NGOs may offer topics for projects, students may express their interest in participating in projects, lecturers may offer to tutor them, supervise them, or co-supervize them with NGO staff or companies etc.
Functionalities to support the community in the sharing of experiences and resources, and establishing partnerships	• Services for the publication of experiences, initiatives and material of all kinds related to VSL in higher education. • Services for the dissemination of offers and requests for participation in SL project proposals.
Functionalities to support the definition of SL projects and, especially, VSL projects	• A service connecting requests and offers of participation in SL projects will provide search for requests or offers with the possibility of filtering according to different characteristics, depending on the user's profile. • A subscription will enable to receive notices about offers or demands in a certain area of interest, also depending on the user's profile. • Support for the parties involved in SL project proposals to refine them and make them more concrete will take place through connection to, or integration of, software tools for the support of collaborative work such as tools for videoconferencing or audioconferencing, cooperative edition, shared blackboard, shared screen, wiki, chat, calendar forums. . .
Functionalities to support the development of SL projects	• A formal framework to guide a development in coherence with SL methodologies will be provided, thus favoring its systematic application and the delimitation of roles of the different actors involved. • Connection to, or integration of, software tools for the support of collaborative work, as well as tools for the support of software project management, which facilitate planning, task assignment, generation of reports, etc. These tools should be adapted to assist the processes and work dynamics characteristic of SL. Support tools for project development in specific disciplines will also be integrated. By way of example, regarding software development projects, attention should be paid to design support tools that are "user-centered", "community-based", "context-oriented", "participatory", "sensitive to cultural aspects", etc.
Functionalities for the support of teaching work	• Assessment, both of students and of SL projects will also be supported by different means: Connecting project activities with curricular content, suggesting assessment criteria and tools appropriate to each case, including selected rubrics from those referenced in the SL literature, providing support for alternative assessment tools as discussion groups. . . • Online questionnaires, designed and validated according to recognized methodological practices will be incorporated as well for several different purposes, including the measurement of attitude toward SL, and assessment both of the students' competences and of the SL projects, on the part of all the actors involved etc.
Resource management functionalitie	• The management of the SL project proposal and project versions will also be supported through a version control system. This system will give support for project tracking, through tools that automatically generate reports of activities carried out using the collaboration tools and of the submission of project documentation. • Automatic tracking tools and assessment tools based on the tracking information would also provide continuous feedback to the student.
Functionalities for the usability of the application	• A recommendation module (as a basic chatbot-like virtual assistant), will guide the members of the SL community through the different phases of an SL action, e.g. in the case of students, starting with helping them to choose a suitable project, adapted to their interests and personal profile.
Other needs	• Forums and blogs. • Access to a document repository on VSL, which should include academic articles, multimedia pedagogical resources, project reports, etc.; documentation, in particular user manuals. . .

In the case of the Artificial Intelligence MSc students, interviews were part of a requirements-engineering process aimed at the development of customisable online learning environments, adapted to the idiosyncrasies of the educational context and the needs of the students, taking an ethical and human rights approach. In particular, in the academic years 18/19 and 19/20 the students had to design, develop and implement a prototype 'mentor conversational chatbot' for students at the University of Dschang in Cameroon. The function of this chatbot was to help beginner students, by emulating an experienced student, guiding and advising them through the difficulties and doubts that commonly arise when starting studies. One of the learning objectives was to reflect on how the knowledge codified in the chatbot revealed some of Cameroon's

development priorities, and to place these priorities within the framework of Agenda 2030, the United Nations Sustainable Development Goals, drawing conclusions on how Artificial Intelligence can contribute, in the context of Cameroon, to their satisfaction. The students were tasked with identifying the relevant factors for developing the educational environment (personal, community, cultural, ethical, economic and social factors, pedagogical and organizational practices, resources that condition viability and sustainability, foreseeable impact, etc.), as well as identifying suitable indicators for evaluating its success.

An "App" to Promote the Development of Service-Learning in Spain

Virtual Service Learning (VSL) has to be mediated by Information and Communication Technologies, both for the provision of the service, and for the support, monitoring and assessment of the learning by teachers. This is why COETIC has proposed the development of not only methodological but also technological tools to support this pedagogical approach. As far as we know, there is no web App dedicated specifically to the support of the SL in the higher education sector providing the aforementioned functionalities. There is no doubt, however, of the interest of such an application, given the growing expansion of the SL methodology in the Spanish higher education sector and the relevance of VSL, in both face-to-face and distance-learning modalities, in the context of the global health crisis that emerged in 2020, as we write before.

In the academic year 2016/17 COETIC launched then a development project for a web application, Virtu@l-ApS, to support and promote VSL in various academic contexts (bachelor's degree projects, Msc degree projects/theses, doctoral theses, internships, etc.) and teaching areas (engineering, law, education, sciences, for example). In this project COETIC counts on the collaboration of lecturers from the Sistemas Informáticos y Computación department of the University Complutense de Madrid. To date, this software-development project has been carried out in the context of four collaborative and interdisciplinary UNED bachelor's degree projects, one of them from the Social Education degree (Rodriguez, 2017) and the others from the Computer Engineering degree (Alonso, 2018; Jiménez, 2020; López, 2020), and the project 'Portal de soporte a la implementación de la metodología ApS en la UNED' (Portal to support the implementation of the SL methodology in UNED), project approved in the Call for Computer Applications of the UNED Vice-Chancellor of Digitalization in Innovation 2019. Virtu@l-ApS further development and deployment is also subject of an ongoing collaboration between COETIC and the Sistemas Informáticos y Computación department of the University Complutense de Madrid (see, Manjarrés et al., 2020).

The web-application development was conceived in itself as a VSL project in which students from different disciplines would participate, documenting themselves in depth on SL, compiling existing SL pedagogical tools, conducting studies on potential enabling technologies in consistency with SL pedagogical principles and objectives, and performing software engineering tasks, including requirements engineering, design, implementation, and testing. Service recipients were members of the educational community including the project supervisors, drawing on years of experience of voluntary work in technology-oriented NGOs and in SL projects, in both the face-to-face and distance education contexts.

Pilot VSL projects that had been promoted and implemented by COETIC in different UNED degrees in previous years (García-Gutiérrez et al., 2016) have also provided feedback for the specification of the Virtu@l-ApS functionality. The AI MSc part of these VSL projects helped to clarify the technological needs that arise when SL involves computer engineering processes. Finally, all the lecturers involved in the project participated in the validation of the application, testing the application as a potential user in order to detect problems and weaknesses, and to assess its usability.

Virtu@l-ApS Functionality

Virtu@l-ApS could facilitate the identification of potential partnerships as well as the collaboration between the potential service provider and receiver in the task of refining an initial idea and turning it into a realistic project proposal that meets the needs of both parties. Additionally, this computer support could serve to guide and coordinate the work of the different stages of SL projects already underway, providing a formal framework for their development. Such a framework would promote a systematic and rigorous approach to SL methodologies, facilitating the monitoring and continuous evaluation of the students and of their learning, as well as that of the SL projects themselves. This monitoring and evaluation is particularly important for the implementation of VSL in distance-learning institutions. The functionalities of the application are described by distinguishing different categories in **Table 1**.

The current prototype of Virtu@l-ApS provides the following main functionalities:

- Services for the publication of experiences, initiatives and material of all kinds related to VSL in the University, as well as offers and requests for participation in specific projects.
- A service for the connection of demands and offers of participation in ApS projects, and search of demands and offers with the possibility of filtering by several characteristics according to the user's profile.
- Private access to areas according to the user's roles, to participate in the development of an SL initiative until its completion in a project.
- A discussion area within the areas of each project, partnership and initiative respectively. The access to this discussion zone will be defined by the roles of the participants.
- Support for the refinement and concretion of SL project proposals between the parties involved.
- Management of an historical archive of the information exchanged between the parties within the framework of an SL project: messages, files. . .
- Collection of project information in structured fields, using forms designed for this purpose, so that in the future this

information can be converted into the official project documentation required in different formats.
- Historical archive of all the initiatives, partnerships and projects that have taken place over time.
- Forums and blogs.
- A VSL document repository, which would include academic articles, multimedia pedagogical resources, project reports, etc., and a respository of SL experiences.
- A chatbot developed for the Telegram messaging platform that guides students, teachers and organizations interested in participating in an SL project, helping them to access the information contained in Virtu-ApS about the experiences developed, new project initiatives and ongoing projects, classified by each of the fields of study. The chatbot integrates a recommendation module, which recommends new initiatives in SL to users according to their interests (based on projects, past or present, that the user has previously seen using the chatbot).

Virtu@l-ApS Further Development and Deployment

Though the currently available version of the web application lacks important functionality, the experience of developing it has been extremely useful, in particular, in helping to clarify the requirements for a fully operational application which we expect will contribute to the support and expansion of SL in the Spanish higher education sector. In the ongoing development, partnership relationships will be established with possible future beneficiaries of SL services by asking representatives of third-sector organisations to participate in the development of the application, at least in its validation and verification and hopefully also in the elicitation of additional requirements.

Regardless of the technological aspects, it will be necessary to draw up and implement an application deployment plan that will involve, among other things, establishing contacts and agreements with NGOs, and with different university departments for collaboration in the management of multidisciplinary projects.

LESSONS LEARNED FROM THE VSL EXPERIENCE

It cannot have escaped anyone that one of the factors that has recently catalyzed the increased use of information and communication technology in education has been the lock-down suffered by nations across the world as a result of the COVID-19 pandemic. In this case, these technologies have demonstrated themselves to be inextricably linked to people's sense of wellbeing and of achieving a good quality of life. It has enabled many to make the best of the situation, although we also recognize this is not always the case. Indeed, it is certainly true that digital technologies, social networking sites and artificial intelligence can be a source of alienation, but it is also undeniable that they can help to improve the living conditions of communities. Through the COETIC project, we have achieved the latter by designing and using technology with the intention of serving people and their goals independently of where they live, their cultural or other differences.

In this way, we will conclude by enumerating certain quality criteria that must be observed in the development of VSL projects and, more generally, in the inclusion of technology in this educational modality.

1 Human (and Humanistic) Orientation

The human should take precedence over technology in two areas. On one hand, pedagogically, it is relevant in VSL, as in any other type of education or training, that we do not lose sight of the importance of full human development and, as a result, the humanizing dimension that learning should have even in virtual environments. This is especially so because, 'the most difficult things to automate are precisely all those things that are inherent to being human: creativity, critical thinking, emotional intelligence, the ability to inspire and work collaboratively and other human skills (. . .)' (Escamilla, 2018, pp. 13–14). Quite properly, these are the elements to which we should pay most attention.

2 Wholistic and Balanced Personal Development

In this way, educational purpose should always be aimed at the whole person and not simply at enabling or training them to manage the ever greater range of devices to which people are exposed or at the development of particular skills. VSL projects are about widening the horizons of training to encompass the global person and not simply addressing specific aspects of personal development. For this reason, while SL projects, including those that are virtual, may be directed toward 'objects' or 'relationships', in one way or another, our capabilities as people are what need to be central to project design.

3 Meaningful Integration of Technology

There is no doubt that information and communication technologies, in all and every one of their manifestations, are a part of our lives and education cannot continue to ignore them. Now, their integration into the processes of teaching and learning needs to be meaningful, with a clearly specified educational objective. The pedagogic dimension should predominate over the instrumental, such that in every project design we must be able to explain and justify the technology's educational purpose, i.e., the pedagogic contribution of the technology to the achievement of the objectives designed into each proposal.

4 The Value of Virtual Education

Although, little by little, programmes of virtual learning and training are being consolidated, from the design perspective we still focus on their instructive value rather than their formative value. Virtual education is not only a powerful tool for teaching, but also, a channel for learning, facilitating the social, emotional and ethical development of the person. The problem that we need to avoid is that these are often invisible, thus we need to include them explicitly into the design of our virtual training programmes.

5 The Reality of Global Citizenship

Let's go back to Agenda 2030 which stated that a clear objective was the creation of a successful education strategy for sustainable development and sustainable ways of life, human rights, gender equality, promoting a culture of peace rather than violence, world citizenship and valuing cultural diversity and the contribution of culture to sustainable development. SL and VLS are an obvious and practical solution that favors this kind of learning, and enables students to put into practice, in real-life situations, the knowledge acquired in a learning environment that promotes the culture of global citizenship.

In sum, the objective of this article has been to highlight the formative potential of the internet, of the emerging situations where we interact in ever more diverse human contexts, and in which it is ever clearer that we are immersed, throughout our lives, in a continuous process of learning, in which, 'perhaps more than ever, today, education is on a round trip during which we can all be, simultaneously, students and teachers' (Furman, 2020, *p*. 55).

Finally, it is important to underline the new perspective for institutionalization of SL in Higher Education Institutions as it is followed by Farnell (2020) and the recent EHEA Ministerial Conference (Rome, 2020) about the role of community engagement and SL into the Social Dimension of Higher Education in the EHEA:

"Community engagement should be considered as a process whereby higher education institutions engage with external community stakeholders to undertake joint activities that can be mutually beneficial. Like social dimension policies, community engagement should be embedded in core missions of higher education. It should engage with teaching and learning, research, service and knowledge exchange, students and staff and management of higher education institutions. Such engagement provides a holistic basis on which universities can address a broad range of societal needs, including those of vulnerable, disadvantaged and underrepresented groups, while enriching their teaching, research and other core functions (*p*. 8)".

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

JG-G, MR-C, and AMR contributed to the conception and design of this pedagogical experience. JG-G, MR-C, and AMR wrote and edit the manuscript.

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Service-Learning in Europe. Dimensions and Understanding From Academic Publication

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Service-learning began within the framework of the New School in which constructivist experiential methodologies were particularly important following various studies, such as those by John Dewey and his "Learning by Doing" approach. From then on, this pedagogical practice has spread all over the world at varying rates. In Europe it was slower to spread than in the Americas. In this regard it is especially interesting to look at the current state of the matter. The object of this study was to analyze the academic publication in Europe since the year 2000 with a detailed bibliographic review of publications with roots in Europe. We examined the main databases and used an analysis matrix with various content levels. We found that service-learning has different names in Europe, and that there have been uneven epistemological advances depending on the countries examined. We also noted that, in general, it was about higher education that most literature had been published. One of our significant conclusions was the exponential growth of contributions over the last 20 years, particularly in Spain, which produced the most academic literature on this topic. We believe that service-learning faces the challenge of effective consolidation based on educational quality criteria, and which includes combining elements of virtuality, reality, and academic rigor.

Keywords: service-learning, scientific publication, literature review, community engagement, Europe

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INTRODUCTION

The unforeseen events of 2020 have threatened both advances in society and the ideas that lie behind them. To the already well-worn crisis of the welfare state something which is non-negotiable for some and mortally wounded if not subject to reinvention for others we have to add the social crisis that is a consequence of SARS-Cov-2. Numerous political, healthcare, environmental, and social challenges are forcing old inflexibilities to adapt to new realities in a global sense. Education is of course no exception. Challenges that only a short time ago seemed obvious to us in a sea of uncertainty (Caride, 2017) and which needed to be approached through various lenses beyond the four walls of the classroom must necessarily be reviewed again (Úcar, 2018). In the particular case concerning us, for example, the ubiquitous shift towards Information and Communication Technology (ICT) and its connection with service-learning (Santos-Rego et al., 2020; Sotelino et al., 2020; Tapia, 2020) that must now take place to deal with an unprecedented scenario of confinement. In this regard, the focus once again is placed on *who* will be responsible for educating

more creative, more flexible professionals and citizens who will know how to respond to continued uncertainty (Arbués et al., 2012), and also on the determinants of *how*, which not only ties our hands but also (forcibly) opens our minds.

Technological and methodological responses to this situation have appeared in various educational areas which have been validated through practice, but with pedagogical specialists also at the forefront. Service-learning is one of the methodologies which is gaining importance in the various levels of the school system, and also in non-formal educational spheres (Sotelino et al., 2019). This pedagogical approach, increasingly used in Spain (Aramburuzabala et al., 2019), aims to bring together curricular competencies with contextualized service in the community (Puig et al., 2011; Santos-Rego et al., 2015; Deeley, 2016). In this way, participants consolidate their learning from their experiences and the reflections that occur. More specifically, in terms of the latter, these types of projects have their origin in the Chicago school at the hands of John Dewey, who had already studied cognitive meaning from experience-based learning (Giles and Eyler, 1994; Sotelino, 2015; Gonzalez-Geraldo et al., 2017) which catalyzed what he called "reflective learning" or "reflective inquiry" (Saltmarsh, 1996).

The European history of service-learning is marked by some milestones. In 2003, the *European Service-Learning-Asociation* (ESLA) was created, the first meeting of which was attended by representatives from Germany, the Netherlands, Sweden, Norway, and Spain. One significant event at this level was the CIVICUS European research project, promoted by the *Vytautas Magnus University* in Lithuania—a country whose service-learning roots are directly tied to the United States—the framework of which explored forms of cooperation between universities, businesses, institutions, local government, and organizations (Santos-Rego, 2013). From that point onwards, service-learning started to develop rapidly in Europe, although unevenly distributed by country (Aramburuzabala et al., 2019. In addition to projects, in Europe there have been in-depth studies that have looked at the quality, dissemination, and development of this practice and its educational efficacy. In the United Kingdom, Spain, Switzerland, the Netherlands, and Ireland, to name some clear examples, various statewide general and subject-based (by educational level or sphere) networks have appeared. In recent years international networks have advanced the development of service-learning in Europe, such as *The European Network of Service-Learning in Higher Education* launched in Galway in September 2017. In 2019 the *European Observatory of Service-Learning in Higher Education* was created. Similarly, *The International Association for Research on Service Learning and Community Engagement* (IARSLCE), created in 2005 with the aim of promoting research and discussion about service-learning and the participation of the community (Sotelino, 2014; IARSLCE, 2016). Currently in Spain, together with the various research groups and experts dedicated to service-learning, there is a general network encompassing the various fields and educational levels, together with other more specific networks (Batlle, 2013).

Service-learning currently has sufficient scientific support to indicate that it is a route to acquiring relational and cooperative skills while not diverting attention from the curriculum or educational project of reference. We should not forget that service-learning is, above all but not to the exclusion of all, a teaching method. This idea is similar, but differs in terms of the activism and political positioning applied, from the substrate of critical pedagogy which it has, to the religious reminiscences present in some countries, such as Spain (Igelmo and Jover, 2019). However, nowadays, to look more at the present and the future of service-learning in the *new normality* and the more desired *post-new normality* (derived from the influence of COVID-19), there needs to be a balance between the different contributions, and future challenges need to be faced that affect this methodology. In this regard, it is worth asking questions that will guide our work. Is the academic production about service-learning the same throughout Europe? In which field, research area or European country has service-learning progressed most in terms of publications? These questions must be answered in order to locate the state of service-learning in Europe, knowing those areas of study, educational levels and European countries where it is being implemented to a greater extent.

In order to this, the objective of our study is to review the academic literature from Europe about service-learning from the last twenty years (2000–2020). We say *from* Europe rather than *in* Europe because our searches will locate European experts who may have been published in non-European journals, not surprising given the American roots of service-learning.

Before describing the study, it is a good opportunity to briefly look at the conceptual and pedagogical aspects of service-learning. This will help us understand some of the keys which have driven the expansion of this methodology and the academic literature about it.

SERVICE-LEARNING: CONCEPT AND PEDAGOGY

The term service-learning was coined and began to be conceptualized in North America at the end of the 1970s in the framework of a proliferation of both obligatory and voluntary youth service programs. It was born out of the New School pedagogical movement occasionally also called active schooling where experiential constructivist methodologies were particularly important following various studies. The thinking of William James and John Dewey and their premise of "Learning by Doing" was especially influential (Tapia, 2012; González-Geraldo et al., 2017). Paulo Freire also played an important role, as at that time the North American tradition of *experiential learning* combined with the Latin American *social experience*. From that point on, this pedagogical practice has spread all over the world, albeit unevenly.

The methodology of service-learning has been most developed in the United States and that is where most of the literature on the topic can be found. Because of that, it would be a mistake not to refer to the United States development of service-learning, as it arose there, it was constructed there, and it spread from there to many countries (Santos-Rego, 2013). The United States was where the term *service-learning* was first used, in 1967 when

William Ramsay, Robert Sigmon, and Michael Hart used it to describe a local development project implemented by students and teachers from the *OAK Ridge Associated Universities* in Tennessee, although the expression was not consolidated until the first *Service Learning Conference*, which took place in Atlanta in 1969 (Sotelino, 2015).

In Latin America it is possible to find good examples of service-learning with governmental and social support in countries such as Mexico, Argentina, Chile, Uruguay and some Central American countries. In Central and South America there is a consolidated tradition of service-learning both in schools and universities, as well as in other kinds of civic-social organizations. It may be understood as the citizen response to the profound crises many Latin American countries suffered through in the 1980s and 90s, leading to many community service projects being implemented by various institutions. Service-learning arose as a resource that helped make more sense of these community minded practices. In this respect, the role played by CLAYSS (The Latin American Center for Service-Learning) was not trivial, as they drove the spread of this methodology to various countries (Tapia, 2010).

European development was slower than in the Americas, and one might even say that in some cases it was a direct consequence of American development (Mažeikienė, 2019), but its production is being extensive, especially in countries where its expansion is increasing. In Europe, the cradle of service-learning was in English-speaking countries, and was linked to the idea of *community education* (Luna González, 2010). In recent years projects such as the *Europe Engage Project* have appeared, supported by the European Union with the objective of promoting the use of service learning. This project emphasizes that, at the university level, for example, future professionals must be trained through practical learning linked to the social environment, helping to solve problems for the community (Europe Engage, 2014). Even so, as McLeod and McLeod (2015) noted, the first experiences of this in some Eastern European universities were not until 2004, and we can currently talk of a two-speed Europe; one group of countries in which service-learning is consolidated (United Kingdom, Ireland, Spain, and Germany), and another group where it is emerging (Austria, Belgium, the Netherlands, and Portugal, to name a few). This is a duality which may lead to service-learning becoming less visible in countries where it is more accepted through a process called *blackboxing* in which, paradoxically "the more science and technology succeed, the more opaque and obscure they become' (Latour, quoted in Mažeikienė, 2019).

From a methodological perspective, service-learning combines two methods from active pedagogies: learning through experience and action in service to the community. As Castle and Osman (2003) noted, service-learning offers opportunities to integrate learning, research, and communication at the same time as offering a service, intensifying the social aspect of education.

Both elements, learning and service, are key to understand what service-learning is. By overlapping, they produce a new reality to which reflection is added as the combining element that enriches the significance of the experience (Campo, 2008). If a reciprocal relationship can be achieved between the two components, the academic learning will have an impact on the delivery of a quality service to the community, and at the same time the service will strengthen and enhance the students' learning, providing benefits to both the students and the community from improvements at the cognitive and social level (Mella-Nuñez et al., 2015; Santos-Rego and Lorenzo, 2018).

Throughout its existence, service-learning has accumulated various definitions. Bringle and Hatcher (1996) understood it "as a credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility" (p. 222).

For Eyler and Giles (1999), service-learning is a form of experience-based education in which learning is constructed through a cycle of action and reflection. Students work with other classmates in a process of applying what they have learned to issues in the community and, at the same time, reflecting on their experience of trying to achieve improvements for the community and increasing their own understanding and skills.

Puig et al. (2007) understood service-learning as an educational approach that combines learning processes and serving the community in a single, well-articulated project in which the participants learn while working on real needs in their environment with the aim of improving it.

After examining nine definitions, De la Cerda et al. (2009) identified seven common traits. They are: responding to social needs or carrying out an action to benefit the community, learning something, performing a service, having a meaningful experience, performing activities of reflection, collaborating with other social institutions, and contributing to training for citizenship. In turn, they analyze the service-learning journey based on their definitions. Finally, Furco and Norvell's (2019) synthesize that service-learning is an innovative pedagogical approach that integrates meaningful community service or engagement into the curriculum. They also indicate that the service-learning brings together resources, academics and the community whereby all became teaching resources, problems solvers and partners.

The variety of possibilities and the many practical approaches combine to give rise to multiple definitions such as those mentioned above. Its geographical demarcation and the scope of application also influence this question. What seems clearer, and where all the definitions coincide, is that service-learning seeks experiential learning while carrying out an action that improves community life, the natural or cultural environment, or intervenes in specific areas such as health or educational causes. Although each of the definitions are consistent with the idea of experienced-based learning, it is important to remember that activities that provide a service to the community are not always service-learning. As Furco (1996) noted, many *service programs* share similarities such as allowing students to get close to their future professional roles and to work on social and collaborative skills, or to explore their own interests. However, the idea of service-learning, which focuses on learning at the same time as service, should not be

confused with other educational experiences which focus only on service or only on learning.

It is interesting to note that the spread of this "learning philosophy" has given rise to different labels in different areas; one might talk of "service-learning", in the United States, "Social service", in Mexico, "Practical Social Experience Semesters", in Colombia, "Educational volunteerism", in Brazil, "Community Service Learning", in Turkey, "Communal work", in Costa Rica, and "Learning Service", in Bolivia, etc. (Tapia et al., 2005; Kucukoglu, 2012; Alcón, 2014; Gezuraga, 2014). There are also differences within individual countries, such as the general use in Spain of the term Service-learning or Solidarity-Learning, although on some specific occasions the term "Learning and Solidarity Service" is used (Gezuraga, 2014; García-Pérez and Mendía, 2015).

On occasion, when referring to service-learning, concepts such as "voluntary", "community service", "field studies", and "community education" are used interchangeably, although in reality these terms do not always refer to the same thing. This, as Furco (1996) states, means that the student is faced with a certain terminological complexity when referring to these experiences.

Currently, and with the extensive published research, we can have some certainty of which experiences we can call service-learning, and which are not. From the field of Educational Theory it is fundamentally a certain way of understanding learning based on exploration, action, reflection, and social responsibility. Far from being a merely instructive approach of accumulating knowledge, it requires the student to be the protagonist of their learning, and that fundamentally they only learn what they do and reflect on. This aspect, the reflection that all service-learning experiences should trigger and which therefore must be evaluated, is usually ignored when service-learning is used and understood from a biased perspective placing the service at the center. Service-learning is a methodology that addresses everyday issues and contextualizes learning in real situations (Uruñuela, 2011). The difference of service-learning from other methodologies such as internships, clinical experiences in health sciences, community research or field experiences, is that in addition to an explicit link with an educational plan or academic curriculum, there is a social commitment that entails the development of awareness ethics. Linking theory with practice and classrooms with professional surroundings allow students to approach a real professional learning environment (Naval and Arbués, 2016). In addition, as Howard (1998) noted, it is important to emphasize that service-learning will not occur if there is not a solid union between the demands of the community, the service that is needed, and linked academic learning.

The main learning outcomes of service-learning projects are not only in the content, but also the overall experience and personal transformation, allowing the development of many varied, complementary competencies in different aspects of the individual. In addition, it is important to highlight the acquisition of civic learning that implies the execution of responsibility with the reference community group, its needs, and its potentialities. In this sense, social, educational, environmental, cultural, neighborhood or health entities take on a special role by becoming co-educators of the participants in service-learning projects (Conway et al., 2009; Hatcher et al., 2017). Using this methodology combines learning various basic and specific competencies, such as working in interdisciplinary teams, interpersonal skills, ethical commitment, and critical reasoning (Agencia Nacional de Evaluación de la Calidad y Acreditación-ANECA, 2005). Studies and experience have shown that this methodology positively affects students in various areas, including motivation to study (Flournoy, 2007), civic responsibility and commitment (Hébert and Hauf, 2015), the development of critical thinking (Deeley, 2010), personal and interpersonal development (Eyler, 2000), the development of life skills (Fullerton et al., 2015), and ethical and moral awareness (Rhoads, 1998). The study by Warren (2012) showed that it is a methodology that improves students' learning compared to other previously used teaching methods. There have also been multiple studies that support the argument that service-learning combines several dimensions of learning in a single methodology: civic, academic, social and political (Novak et al., 2007; Celio et al., 2011; Yorio and Ye, 2012). Despite this, we must reiterate that the difference of the service-learning in relation to other dynamics of pedagogical work is the civic-social component that the participants develop in their bond with the community (Conway et al., 2009; Mella-Nuñez, 2019).

In summary, and as a proper definition, we believe that service-learning is a pedagogical methodology (with what this implies) that requires the explicit connection between curricula or educational plans and the performance of a community service in a single project. Thus, service-learning participants develop complex cognitive strategies that require questioning what they have learned, and their own role in the social and environmental framework.

Although the academic trajectory around service-learning is broad, there are many challenges that arise today, opening new avenues for researchers. We highlight two of them. The first one is the internationalization, as a connection between different physical spaces for the performance of services; and on the other hand, virtuality, adapting projects to new needs derived from greater interconnectivity between people (Santos-Rego et al., 2020). These are the lines that mark the future paths of the service-learning, without neglecting the advances in its optimal evaluation and maintenance of quality (Sotelino et al., 2020).

The didactic and pedagogical potential of service-learning seems clear. This may be why in recent years there has been such an increase in interest in implementing it and in the academic literature about it. Our study looks at exactly this issue, with the main aim of creating a diagnostic map of the European academic literature about service-learning. We believe this is not a trivial question for two main reasons. Firstly, examining European academic publication development in various countries will provide information about the current state of service-learning in Europe and that will make possible to establish international collaborative networks. Secondly, identifying important aspects of European academic publication, such as type of document, language, area of study or education level where it is implemented, will improve our

understanding of this methodology and its impact. Both issues will help improve our research in the international context.

Below, we describe the study we performed and the results we obtained.

THE ACADEMIC LITERATURE ON SERVICE-LEARNING IN EUROPE

To carry out this study we reviewed the main international databases: Web of Science (WoS), Scopus, the Educational Resource Information Center (ERIC), and the Directory of Open Access Journals (DOAJ), in order to find documents related to the various aspects of service-learning (e.g., academic, social, community, cognitive). We followed a qualitative methodology using a matrix review method, followed by a quantitative analysis of the results. We used an analysis instrument created *ex professo* in which we established different levels of content.

Objectives

Our objectives were as follows:

a. Determine how many academic publications there were about service-learning in the main international databases.
b. Evaluate how the diffusion of the service-learning methodology in different types of publication has increased over time.
c. Compare the academic literature, mainly in terms of research productivity and geographic variables.

Method

We planned a bibliographic document analysis using the main international databases (WoS, Scopus, ERIC, and DOAJ). These databases were chosen because WoS and Scopus are very significant international databases, while ERIC is one of the most important database in education and DOAJ include Open Access Journals.

Our research methodology has broad epistemological support. As Clausó (1993, p. 11) noted, this concept has been dealt with by many authors and has developed in step with the documentation, one can state that there are two tendencies with respect to how it is conceived, one which considers document analysis to include various phases, of which bibliographic description is one, and another which believes that document analysis must be exclusively considered as the description of content and not as a formal description. In our case we adhered to a quantitative description based on our objectives, laying out the current state of service-learning in Europe. Nevertheless, in a more qualitative approach, we also examined educational fields and/or educational levels of study referred to the various documents.

At the applied level, we created an instrument in the form of a table in which the rows correspond to the levels of analysis created, and the columns to those criteria we examined in each stratum. They are as follows: number of documents, document type (article, book, chapter, doctoral theses, other), language (English, Spanish, other), and country of publication. Secondly, and in order to have complete information where available in the databases, we also recorded, but not explored their content in depth, the number of publications per year and the research area or field they referred to.

Procedure

We established two search criteria referring our study objectives. We focused on reviewing documents published between 2000 and 2020 (September). In this case, it has been considered this range of 20 years because, after trying to make searches with other range of years, it was possible to check that the vast majority of documents were included in this period of time.

We also only looked at publications referring to European countries, and in the search criteria we restricted it to countries belonging to the European Higher Education Area (EHEA). We did not limit the publication language, as that would be an indicator in our subsequent analysis.

Once the general criteria were set, we established the different levels of document analysis. To that end, we considered the labels used for service-learning in different areas. Keywords used were taken after analyzing a significant number of potential options and checking which were mostly used in different documents related to the topic of this article. Finally, we establish two levels of filtering. The first one refers to the terms that most frequently name it ("service-learning" and "service learning"). At the second level, we choose terms referring to commitment to the community ("community engagement") and participation in it ("community service activities"). These levels of analysis were considered after checking that some documents about service-learning (despite referring to the same reality) use the idea of participation and commitment to the community instead of just the term "service-learning".

In relation to the language, we have carried out the search only in English, because this is the most widespread language in academic publications. In addition, both keywords and abstracts of articles and other works are usually identified in this language. For this reason, regardless of the language of origin of the academic work, the existence of its translation into English is very common to favor its dissemination. The levels were as follows:

- First level:
  - "service learning" OR "service-learning"
- Second level:
  - "service-learning" OR "community engagement"
  - "service-learning" AND "community engagement"
  - "service-learning" OR "community service activities"
  - "service-learning" AND "community service activities"

Results

Following the bibliographic search, we give the results for each of the databases. The tables provide the data extracted from the document review. The results of the study, in addition to

TABLE 1 | Total number and type of documents (WoS).

Keywords	Number of documents	Type of documents				
		Article	Conference paper	Book chapter	Review	Others
"Service learning" OR "service-learning"	510	363	111	38	14	30
"Service-learning" OR "community engagement"	1939	1,517	211	99	123	149
"Service-learning" AND "community engagement"	19	14	6	3	0	1
"Service-learning" OR "community service activities"	512	364	112	38	14	30
"Service-learning" AND "community service activities"	1	1		1		

TABLE 2 | Number of documents by country and numbers published (WoS).

Keywords	Languages			Country/territory with more publications (EHEA)				
	English	Spanish	Others	1st	2nd	3rd	4th	5th
"Service learning" OR "service-learning"	340	159	11	Spain	United Kingdom (England)	Ireland	Turkey	Germany
"Service-learning" OR "community engagement"	1758	163	18	England	Spain	Netherlands	Scotland	Switzerland
"Service-learning" AND "community engagement"	19	0	0	United Kingdom (England)	Spain	Finland	Ireland	Kazakhstan
"Service-learning" OR "community service activities"	342	159	11	Spain	United Kingdom (England)	Ireland	Turkey	Germany
"Service-learning" AND "community service activities"	1			Turkey				

comparing the data from different databases, allowed us to gauge European interest in the service-learning methodology.

Web of Science—WoS (JCR)

The search engine for the Web of Science indexes a large number of publications, and allows classification using numerous filters, including year of publication, countries, languages, topic areas, type of document, authors, financing bodies, participating universities and many more, all of which is continually updated.

From the "Web of Science Core Collection" database, we gathered the data detailed below (note that the number in the data may be variable owing to the continual updating). More than 500 documents were identified using "service learning" or "service-learning" as the search term for the topic. This number changed depending on the combinations used for the search. If we added (OR) "community engagement", the number rose considerably to over 1900, however when we looked for both terms together (AND), it fell to below 20. The same happened when we added other combinations such as "community service activities", slightly increasing the number of hits when either term was used, but lowering it when both terms were used together (note that some documents were recorded as multiple document types simultaneously). In terms of publication type, articles stood out, with more than 300 compared to other documents such as conference papers, book chapters, or reviews. The results are given in **Table 1**.

In terms of the countries with the most published content about service-learning, the number varied depending on the combination of levels used. Looking at the keyword "service-learning", the country with the most publications was Spain (291 documents) followed by the United Kingdom-England (68), Ireland (28), Turkey (23), and Germany (20). However, this changed when we used combinations such as "service-learning" OR "community engagement", and "service-learning" AND "community engagement", with the United Kingdom leading the way. When we searched for "service-learning" AND "community service activities", Turkey had the highest number of publications. English was by far the most common language of publication, followed by Spanish and other languages as shown in **Table 2** (please note that some documents are in more than one language).

In terms of production in the last 20 years as indicated by this database, there has been a notable rise, especially in the last 5 years. The first publications were in 2002, and there was a significant increase in 2015 with more than 50, then in 2019 there more than 100. So far this year (September 2020) more than 40 documents have been indexed.

The area of study producing most documents was "Education and educational research" (works on education, theoretical and applied) (345), followed by "Education scientific disciplines" (educational resources in the different scientific disciplines) (21), "Green sustainable science technology" (19), "Environmental sciences" (18), "Business" (14), "Environmental studies" (13), and "Management" (13). These research areas are which the database shows because every document covered by Web of Science core collection is assigned to one category or another depending on the journal where it has been published.

Lastly, the main collaborations were with the United States and Canada, where we found countries such as the Czech Republic, Kazakhstan, and Lithuania; a large proportion of their scarce publication on the topic was in collaboration with the aforementioned countries.

TABLE 3 | Total number and types of documents (Scopus).

Keywords	Number of documents	Type of documents				
		Article	Conference paper	Book chapter	Review	Others
"Service learning" OR "service-learning"	525	363	60	69	20	13
"Service-learning" OR "community engagement"	2,249	1,591	234	174	158	90
"Service-learning" AND "community engagement"	32	18	5	6	2	1
"Service-learning" OR "community service activities"	529	365	62	69	20	13
"Service-learning" AND "community service activities"	0	0	0	0	0	0

TABLE 4 | Number of documents by language and countries with most publication (Scopus).

Keywords	Languages			Country/territory with more publications (EHEA)				
	English	Spanish	Others	1st	2nd	3rd	4th	5th
"Service learning" OR "service-learning"	432	87	18	Spain	United Kingdom	Ireland	Germany	Turkey
"Service-learning" OR "community engagement"	2,150	96	27	United Kingdom	Spain	Netherlands	Germany	Switzerland
"Service-learning" AND "community engagement"	32	0	0	United Kingdom	Spain	Ireland	Italy	Croatia
"Service-learning" OR "community service activities"	436	87	18	Spain	United Kingdom	Ireland	Germany	Turkey
"Service-learning" AND "community service activities"	0	0	0					

Scopus—SCIMAGO (SJR)

The Scopus database contains a significant number of publications and also allows the use of different filters, including country, language, type of publication, authors, financing bodies, annual publication, etc.

In our search we found that the total number of articles returned varied depending on whether the "Title-Abstract-Keywords" search terms were "service-learning" or "service learning" alone (525 documents) or whether they were combined with other terms such as "community engagement" (2249/32 documents) or "community service activities" (529/0 documents). In this regard, the number of documents increased when "community service activities" was added as it includes Turkish publications that would not appear otherwise but which are about service-learning (which is called community service learning/experiences in Turkey). In all of the searches, most of the hits returned were articles, followed by book chapters and conference papers in similar numbers, then reviews and other documents such as books, editorials, letters, etc. This is detailed in **Table 3**.

There were also variations in country depending on the search terms used. Searching only for "service-learning" returned the most documents from Spain (176 documents) followed by the United Kingdom (139 documents) and Ireland (42 documents), and then other countries with five or fewer publications. However, when the search included "community engagement", the United Kingdom overtook Spain as shown in **Table 4**. Furthermore, in this database, the majority of documents found were in English, followed by Spanish, then other languages.

One thing which stood out was the growth in published documents about service-learning indexed in this database over the last 20 years (2000–2020), with a particular increase in the last 5 years. The first publication was in 2002 and there were fewer than 10 per year until 2008, when 18 publications were recorded. This rose gradually and then rapidly to around 50 in 2017/18 and 88 in 2019. This year so far 40 documents have been recorded.

Most of the documents were in the social sciences area (373 documents), which, in this case, was considered as a single research area because it was not possible to obtain the results by separate due to the characteristics of this database. Despite this, it is known that other subareas, such as "Education" or "Developmental and Educational Psychology" among others, are included in this category. Other popular areas were "Business, Management, and Accounting." (61), "Psychology" (53), and "Computer science" (52). We found smaller, although not insignificant, numbers of publications in "Engineering" (49), "Medicine" (44), "Arts and humanities" (38), "Environmental Science" (25), and "Nursing" (21). On occasion, one document could belong to multiple areas.

Finally, there were various collaborations between European publication overall and publication in other countries, mainly the United States. In some countries such as Bulgaria, Hungary, and the Czech Republic work on this subject was scarce and much, or all of it has been in collaboration with countries outside the EHEA.

Educational Resource Information Center—ERIC

The Educational Resource Information Center (ERIC) database is the most important database in the field of education sciences. It was created with the support of the United States Department of Education Institute of Education Sciences, the National Library of Education, and the Office of Educational Research and Improvement, indexing articles from around a thousand journals.

Before looking at the bibliographic analysis from this resource, it is important to note some limitations in its use that will help interpret the results. ERIC provides some predetermined filters that appear based on the search, grouping results depending on the relationships between publications. Although this makes rapid investigation easier, it also restricts systematic selection

TABLE 5 | Total number and type of documents (ERIC).

Keywords	Number of documents	Type of documents			
		Paper	Book	Thesis	Others
"Service learning" OR "service-learning"	7,996	6,322	203	457	1,014
"Service-learning" OR "community engagement"	1,008	797	26	62	123
"Service-learning" AND "community engagement"	289	257	9	10	13
"Service-learning" OR "community service activities"	6,826	4,660	202	420	1,544
"Service-learning" AND "community service activities"	37	27	1	2	7

TABLE 6 | Number of documents by country with most published (ERIC).

Keywords	European country		
	1st	2nd	3rd
"Service learning" OR "service-learning"	United Kingdom (301)	Turkey (57)	Others
"Service-learning" OR "community engagement"	United Kingdom (22)	Ireland (13)	Others
"Service-learning" AND "community engagement"	United Kingdom (7)	Ireland (3)	Others
"Service-learning" OR "community service activities"	United Kingdom (211)	Others	
"Service-learning" AND "community service activities"	Turkey (1)	Others	

and because of this, with ERIC was not possible to specified, for instance, the accurate year of the first publication or the most productive year. In this regard the general results we present are at a global level (**Table 5**), although in a second table we have selected the results more in line with our study objectives. It is also important to remember that ERIC only searches texts in English, which means a bias when it comes to work in other languages.

This table refers to a global analysis given the nature of ERIC searches. However, there are some aspects that follow the trends that we have already pointed out. Most of the work is located in the United States and in the field of higher education, which is possible to be known because this database, in comparison to the others, shows results related to the education level. In addition, the academic publication obtained through the search for "service-learning" or "community service activities" stands out.

At this level of analysis, we looked at the European countries that most often appeared in this database (**Table 6**). Because ERIC is limited to searching texts in English, it was clear that the United Kingdom and Ireland would dominate in the rankings, although Turkey's position is curious. The United States Department of Education database only shows the first 25 results, which leads us to conclude that publications from other countries are below that. It is also important to note that ERIC does not group by country, but instead by areas (states, zones, areas) where there are a series of studies under a single criteria, leading to the first positions being occupied by North American States. Additionally, it is necessary to take into account that it was not possible to obtain information about concreted fields because of the characteristics of the database.

Directory of Open Access Journals—DOAJ

Unlike the previous cases, the DOAJ is not a database but rather an online directory giving access to high quality scientific and academic journals. Its purpose is to increase the visibility of open access journals and make them easier to use, increasing their use and impact. The directory aims to be global, and covers all of the open access journals which use quality control systems. It includes publications from 133 countries.

It was founded in 2003 and initially administered by the University of Lund (Sweden). Nowadays it is managed by *Infrastructure Services for Open Access CIC,* a non-profit organization based in the United Kingdom. It is funded by donations from members and indexes around 15,000 journals and more than five million articles.

In this case, the only document type found by the search will be articles, although the directory offers the possibility of accessing information about the open access journals related to this topic. When searching, the directory offers some preset filters related to topic, publication, and year. However, it is not possible to filter by country of publication, which means it is impossible to determine which are European in origin. When using "service learning" or "service-learning" as the search term, the total number of articles returned was 684. This changed when adding other search terms. When additionally searching for (OR) "community engagement", the number of hits rose to 2039. However, when searching for the two terms together (AND) the number of hits fell to 60. The same happened when adding "community service activities" to the search term. Looking for either term gave 790 hits, whereas looking for both terms together gave only three articles. In addition, the same as happen with ERIC database, it was not possible to have access to information about research areas due to the filters that this database uses.

A total of nine open access journals published articles on the topic. They were published in the United States, Australia, and Indonesia, in English and in Indonesian. They were:

United States: *Partnership: A Journal of service-learning and Civic Engagement; Michigan Journal of Community Service Learning; International Journal for Service Learning in Engineering.*

TABLE 7 | Total number of documents (DOAJ).

Keywords	Number of articles	Journals	
		Number	Language
"Service learning" OR "service-learning"	684	3	English (3)
"Service-learning" OR "community engagement"	2039	9	English (5) Indonesian (4)
"Service-learning" AND "community engagement"	60	0	
"Service-learning" OR "community service activities"	790	3	English (3)
"Service-learning" AND "community service activities"	3	0	

Indonesia: ASEAN *Journal of Community Engagement; Abdihaz; Riau Journal of Empowerment; Jurnal Pengabdian Kepada Masyarakat (Indonesian Journal of Community Engagement); Jurnal Abdi.*

Australia: *Gateways: International Journal of Community Research & Engagement.*

The fact that this number of journals provide open access to original papers on service-learning and community participation gives us an idea of the amount of research on the topic. However, the absence of open access journals at the European level is clear.

The search results are shown in **Table 7**.

The first article on the topic was published in 1997. Over the following ten years there was a gradual increase, with 116 articles published in 2012 and 383 in 2019. So far in 2020, there have been 229 articles on the topic.

Limitations

One of the strengths of our work comes from the broad study of international databases. However, like any study, it is not without its limitations. We are aware that the nature of the literature review we performed brings with it a limitation in how deep the analysis can be. We have presented a more quantitative and descriptive than analytical view. It is true that quantity does not necessarily mean quality but, after the results that are being found, it is possible to think that there has been an evolution. There is a significant number of researches by comparison with some years ago and these publications are registered in relevant databases, which means that they has passed a review process previously and, because of that, they are reliable and relevant.

The main obstacle we found was related to the differences between the databases, which apply different search filters, that is why they were analyzed by separated. We addressed this by balancing the levels of investigation and creating our own instrument to balance the analysis. The second limitation was also related to the nature of the databases, some do not reference autonomous city-states (The Vatican, San Marino, Monaco, etc.), and there were also issues around the topic classification of the work contained therein.

Finally, there were questions of interest we did not address but nor did we forget. Future lines of research may, for example, look more deeply into the researchers and research groups producing documents, as well as the institutions and the various financing bodies for service-learning. The content of service-learning programs themselves, now put to the test as social distancing makes certain community practices particularly difficult, would be another issue to address in a society where service-learning is ever more ubiquitous (Tapia, 2020).

DISCUSSION AND FINAL CONSIDERATIONS

The main objective of this paper is to study the evolution of service-learning in Europe, through academic publications. In addition, we have reviewed some questions such as place of publication or educational level/field based on the information provided by different databases.

In this sense, service-learning is already a reality in Europe in curricula at all educational levels as well as in other non-formal education projects. The progressive increase of the academic literature supports this idea, and as we noted previously, this is also demonstrated in the broad range of different types of publications we found, especially regarding higher education as it was commented on the ERIC results. Additionally, the presence of some associations like European Observatory of Service-Learning in Higher Education[1] (cited in the theoretical framework), the increasing existence of research projects about service-learning in higher education (that can be verified in the different resolutions of regional, state and European research projects[2][3][4]) and different meetings and educational activities focused on higher education could presuppose that there is a tendency to implement this methodology in this educational level. Beside this, the general growing interest in this methodology was shown by the year on year growth in publications on the topic.

One of the main results, and which responds to one of the proposed objectives, is the prominent role played by Spain, which highlighted in the European publication on service-learning, followed by the United Kingdom, and Ireland. This has also been confirmed by other recent studies in which the production of literature in Spain was graded "exceptional" and "extremely high" compared to other European countries, avoiding the aforementioned *blackboxing* that threatens practices that become institutionalized (Mažeikienė, 2019). It is also worth

[1]www.eoslhe.eu

[2]https://www.usc.es/apsuni/

[3]https://ec.europa.eu/programmes/erasmus-plus/about_en

[4]https://www.fh-krems.ac.at/en/research/projects/service-learning-in%20europe/

noting that the United Kingdom stood out in publications linked to Community Engagement. These terms are related but they are not synonyms and a deeper look could distinguish in which educational context are they mainly being used it seems as though the domination of the United Kingdom and Spain in publication is waning and there are more publications in different countries and areas, notably Turkey, which appears in this ranking. Something else that clearly stands out was the number of publications that refer—due to their title, abstract and/or keywords—to the university environment, where the greatest growth and development has occurred in the last 20 years. At the macro level, publications referring to projects and studies in non-formal education were much more scarce than those to do with all phases of formal education, from infant to higher education. In relation to research areas, the filters of the databases make difficult to define which are more related to service-learning, even so, in general, it could be possible to assume that it might be Social Sciences and, specifically, areas of study related to education.

The methodology called service-learning has different labels, which could be interpreted as different trends based on terminological, historical, social or even epistemological issues. Even so, and accepting a broad conceptualization of the service-learning, the philosophy behind all of them points towards a common theoretical denominator (see González-Geraldo et al., 2017). In this regard we have been able to integrate the different aspects to produce a general map of the spread of service-learning in Europe. We found that the most commonly used labels were "service-learning" (both hyphenated and not), "Learning and Solidarity Service", and "community engagement". However, other options arose in the search referring to this experience-based methodology as "community service activities" or "community service experiences/learning". Again, a deeper look could determine if these adjacent terms are being progressively used frequently, something that could help us to see if and how this methodology spreads and is considered not only geographically but also along time.

In summary, and to respond to the objectives of this paper, we confirm the development and progress of service-learning in Europe. At least in terms of academic production. Thus, and with the data presented, an evolution in research and knowledge transfer in relation to service-learning was confirmed, which is a clear symptom of how this methodology is also consolidating, specially within our higher education institutions. Although it arrived on the continent with relatively little fanfare, it seems that its academic spread is bearing fruit in Europe at two speeds. There has been uneven progress in different countries and academic fields, with the spread of service-learning having been weaker in some countries. At the present moment, there are various challenges that service-learning must face, and it must adapt to the coming virtualization, as well as develop better quality control for projects so that cognitive and sociocommunity objectives are met with rigor.

The current situation of strengthening the presence of service-learning in the educational context and in social entities also poses challenges that must be faced. This includes the need to establish an appropriate theoretical foundation of its pedagogical dimension. It will be useful to understand service-learning as a teaching tool—a path towards a broader aim- in the framework of a community-based educational paradigm (Naval and Arbués, 2016) and not simply as a means to a laudable end that the service aspires to. This will help win the argument for its pedagogical contribution to a broad vision of education for social transformation. The contributions it can make to this transformation include the promotion of active citizenship, its contribution to social justice, and its contributions to the challenges of sustainability.

In terms of the civic dimension, including students' real, committed intervention in the search for common good is a fundamental educational mechanism for achieving comprehensive and holistic citizen education regarding all the dimensions of the learner. The concept of practical citizenship allows service-learning to be posed as an ideal methodology to achieve the education of a participative citizenry capable of contributing to the common good (Puig et al., 2011). The services performed in the various entities often contribute to civic education, as it helps improve political understanding, citizen responsibility, awareness and understanding of social issues, and express commitment to community service. Students end up contributing to the development and well-being of a community that requires intercultural and civic skills and abilities (Priegue and Sotelino, 2016).

All service-learning projects, when they comply with their basic requirements (such as the aforementioned reflection and subsequent assessment), have the potential to develop a vision of social justice. Students learn to question society from a critical perspective, and to analyze the situations that they will find in their lives with a reflective approach to these realities, where they come from, how to prevent them, how to deal with them, and the impact of service in improving unfair situations and in social change (Aramburuzabala, 2013). Thus, service-learning, as the data we found indicate, is a teaching tool that is mostly used in higher education, where the students are mature enough to better understand the complex reality of our time. It is reasonable therefore, to consider service-learning as an excellent teaching approach to make universities truly aspire to be institutions of higher education (González-Geraldo, 2014).

In terms of sustainability, it would be useful to train professionals to be able to use their knowledge, not only in the academic context, but also for social and environmental needs. This means addressing the entire process holistically, introducing competencies for sustainability transversally so that students learn to take decisions and carry out actions from sustainable criteria (CRUE/Comisión de Sostenibilidad, 2015). There is no doubt that service-learning is a potentially appropriate strategy to encourage the transformation and development of skills and competencies in students that are needed for the sustainable development of our societies (Vázquez-Verdera, 2015).

It is worth noting that service-learning is a methodology that has many proponents, including experts, teachers, and members of community organizations, who advocate its institutional use to promote, for example, knowledge transfer (Santos Rego, 2020). It stands as a methodology that will allow students and participants

in educational projects to gain new adaptive skills that will be indispensable in the historic times we are living through, and with which we will have to respond to the new needs thrown up by uncertainty. We believe that teachers at all levels should seek new ways to guide their subjects so that, in addition to learning specific content, students can develop social and civic values and incorporate skill-based learning (Naval and Arbués, 2017). Finally, as we showed, this paper contributes to identify how the European academic production increases along time and the countries in which this methodology is progressively developed. A clear symptom of the good health of this research framework within the European scholar community. But, of course, there is still a lot to say regarding the content of this academic production, their institutions and their research groups and researchers. Future lines of research in which quality awaits to meet quantity.

Before concluding, we believe that we must incorporate a brief reflection because the year 2020 has implied a change in human relations due to COVID-19, restricting presence in the different educational processes (formal and non-formal), and therefore in the service-learning projects. This fact has led to the adaptation of this experiential methodology opting for a greater virtuality both in the field of service and in its pedagogical link (Tapia and Peregalli, 2020). Thus, The European Association of Service-Learning in Higher Education (EASLHE), in collaboration with the Latin American Pact for Human Quality Education (Palech), the European Observatory of Service-Learning in Higher Education and the National Distance Education University (UNED) have developed a Practical guide on e-Service-Learning in response to COVID-19 to support adapting Service-Learning courses to new reality (Albanesi et al., 2020). There are also multiple academic publications that have emerged in these months identifying the adaptation of multiple service-learning projects to the new needs arising from this pandemic (Red Española de Aprendizaje-Servicio, 2020; Beaman and Davison, 2020; Martínez-Vivot, et al., 2020; Morton and Rosenfeld, 2021). In this way, we can observe that this type of initiative can be adjusted to different realities, even the most extreme, as it has been the case of the outbreak of the coronavirus, we even reaffirm the words of Krasny (2020) when he tells us that social distancing is no reason to stop service learning, just do it online.

Finally, the path of service-learning in Europe is still under construction, but with this review we can see that the joint knowledge that is being built is increasingly solid. Now the challenge is clear, the service-learning must penetrate other educational fields, and even generalize its regular expansion in European countries. All of this cannot go against the quality of the initiatives, because in pedagogy, talking about quantity does not always mean an educational improvement.

DATA AVAILABILITY STATEMENT

Publicly available datasets were analyzed in this study. This data can be found here: Web of Science; Scopus; ERIC; DOAJ.

AUTHOR CONTRIBUTIONS

The AS-L author together with JLG-G have been working on the theoretical justification of the paper. These authors have carried out analyzes of the different databases, completing their interpretation. On the other hand, LG-D has been the person who has created the instrument for evaluating the databases, and making the inquiries in the different repositories. EA-R has contributed to building the theoretical body of the article, reviewing the entire content, and ordering the results obtained.

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Civic Learning: A *Sine Qua Non* of Service Learning

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Civic learning is an essential element of service learning, but one that is often underdeveloped in practice. This article surveys various conceptualizations of civic learning that are in use in higher education around the world, discusses approaches to designing service learning courses to generate civic learning outcomes, and proposes two methods for assessing student attainment of them. The intent is to build instructors' capacities to cultivate the knowledge, skills, dispositions, and behaviors that lie at the very heart of civic learning and of public life in the ever-more complex and interconnected 21st century.

Keywords: service learning, civic learning, course design, assessment, civic engagement, student learning

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INTRODUCTION

Virtually all definitions of service learning implicate, if not explicitly name, civic learning as one of the categories of learning outcomes the pedagogy can and should be designed to generate (Furco and Norvell, 2019), including many from North America (e.g., Bringle and Clayton, 2012; Taylor et al., 2015; Clayton and Kniffin, 2017), Europe (e.g., Aramburuzabala et al., 2019; Europe Engage, n.d.), Asia (e.g., Xing and Ma, 2010; Ma, 2018), South America (e.g., Tapia, 2012; Centro Latinoamericano de Aprendizaje y Servicio Solidario, n.d.), and Africa (e.g., Pacho, 2019). We acknowledge that the terms "civic learning" and "civic outcomes" are concepts deeply embedded in American frameworks for, operationalizations of, and analyses of service learning and civic education (Torney-Purta et al., 2015; Hatcher et al., 2017; Hemer and Reason, 2017). Alternative terms that express the other- or public-oriented learning goals intended by the term civic learning are used in discussions of service learning and other forms of curricular and co-curricular civic education in the United States and around the world, including social responsibility, knowledge and skills for democracy, values clarification, moral development, public good, citizenship, democratic competences, sense of solidarity, ubuntu, commitment to and capacities to advance social justice, civic identity, cosmopolitan citizenship, life purpose, and global citizenship. Each of these terms has attributes that overlap with the term civic learning, and each has attributes that are unique to its nature, context, and uses. We use civic learning as an umbrella term to encompass this rich and ever-expanding set of learning outcomes, and we believe it can provide a strong rationale for adopting service learning as well as guidance in designing, implementing, and assessing the learning generated by the pedagogy. Regardless of how civic learning is defined, theorized, and operationalized, it is our conviction that civic learning is a *sine qua non*–an essential, defining characteristic – of service learning. Although its civic learning potential is by no means the only answer to the question "Why do we need service learning in the curriculum?", our position is that service learning presents a powerful, perhaps even the best, pedagogical opportunity for students to achieve civic learning outcomes.

Why should we care about civic learning? In addition to faculty and staff, there is evidence that students, funding agencies, community members, civic leaders, higher education executive leaders, and quality assurance frameworks are demonstrating increased attention to the public purposes of higher education. Employers value civic outcomes among the graduates they hire as much or more than they do discipline-based learning outcomes. A survey commissioned by the Association of American Colleges and Universities confirmed that employers look for attributes such as the following in prospective employees: civic knowledge and skills, intercultural competence, problem solving skills, communication skills, teamwork skills, understanding of cultural diversity, applied knowledge, ethical decision making, and critical thinking skills (Hart Research Associates, 2013). These are all outcomes that transcend academic majors, that are related to civic learning, and that can be strengthened through well-designed service learning.

At the global level, the importance of civic learning is reflected in the aspiration of the United Nations Special Rapporteur Singh's (2016) report on education:

> The 1998 World Declaration on Higher Education for the Twenty-First Century: Vision and Action . . . called upon higher education institutions to give the opportunity to students to fully develop their own abilities with a sense of social responsibility, educating them to become full participants in democratic society and promoters of changes that will foster equity and justice (para 109).

In the United States, Newman's (1985) assertion that "The advancement of civic learning . . . must become higher education's most central goal" rests on the contemporary relevance of the academy's "original purpose of preparing graduates for a life of involved and committed citizenship" (p. xiv). The value of civic learning might also be articulated as a necessary aspect of or complement to professional education (Sullivan, 2005). Matthews (1995), for example, asked, "Why do we need more than a vocational education?" and he suggests as an answer, "In part, because we live more than a vocational life: we live a larger civic life and we have to be educated for it" (p. 70).

Despite such expressions of the value of civic learning, however, it is an underdeveloped aspect of higher education in general and, ironically, of service learning in particular, at least as we have encountered it throughout the United States and around the world. Part of the difficulty is due to the conflation of service learning with volunteerism or with other community-based pedagogies and to the prevalence of an underlying technocratic paradigm. Service learning is not volunteering as part of a course. Unless this is clearly understood, it is too easy to simply add service hours to a syllabus and not integrate the experience of partnering with community members carefully into the overall teaching and learning process so as to generate any learning, much less specifically civic learning. Furthermore, service learning is conceptually distinct from other forms of experiential learning in that they historically have not by definition included an explicit civic learning component as has service learning. Internships, work integrated learning, applied learning, community research, field work, and clinical experiences typically emphasize pre-professional preparation and perhaps personal growth more so than civic-related learning goals. Civic learning can be included in the mix of learning goals associated with these pedagogies—indeed, this is increasingly happening, as in the case of civic internships and justice-oriented clinical education (Bringle, 2017). Too often, however, service learning is thought to be just another community-based pedagogy and is not viewed as, much less designed and implemented as, an inherently "civic" pedagogy that should be designed to generate civic learning along with, and sometimes integrated with, academic and other learning goals.

This article surveys various conceptualizations of civic learning, discusses approaches to designing service learning courses to generate civic learning outcomes, and proposes two methods for assessing those outcomes. Rather than positing one definition of civic learning, we highlight many with the intent that instructors can identify one or more civic constructs that fit their purposes, discipline/profession, and context (e.g., institutional, national, historical, linguistic, political). Thus, this article is intended to stimulate instructors and their co-educators (e.g., community partners, students) to identify and more clearly articulate civic learning objectives, improve the design of a service learning course to reach those outcomes, and incorporate strategies for assessing civic learning. Although our primary focus is on higher education, much if not all of what we discuss is relevant to service learning, other pedagogies, and co-curricular civic programs with civic learning objectives in pre-collegiate, and continuing studies contexts. Action civics is an example of a framework that has been developed for K-12 civic learning (http://actioncivicscollaborative.org).

FRAMEWORKS FOR CIVIC LEARNING

The multiplicity of definitions of civic learning is a strength of service learning: The variety allows the tailoring of pedagogical design to specific civic learning objectives as they are understood and valued across the full range of settings in which the pedagogy is implemented, whether within a single campus or across the world. Thus, we agree with Furco and Norvell (2019) who reviewed various lists of essential elements of service learning and stated, "while there are fundamental definitions, elements, and principles of service learning that apply no matter what the situation or context, the cultural fiber of the societies in which [it] is practised will ultimately shape [its] overall character" (p. 32). We contend that civic learning is one of those essential elements and that its nature depends on context. Jackson (2019) pointed out that some particular possibilities for civic learning outcomes are taboo topics in some national contexts but work well in other settings. She noted, for example, that generally moral education is avoided in public higher education in the United States and that politics and patriotism are often seen as problematic topics in Hong Kong. In addition, she suggested that in countries where political dissention is not tolerated, civic education may

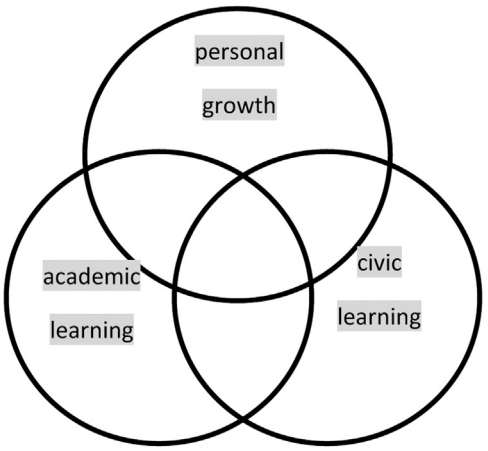

FIGURE 1 | Categories of learning in service learning.

be viewed as a means of promoting conformity and maintaining the status quo, and those deviating, even in the name of justice, may risk sanctions.

This appreciation for the contextualized nature of civic learning should not be viewed as an endorsement of ambiguity with regards to what civic learning means in any particular course. Rather, precision in defining civic learning outcomes is extremely important to the integrity of the pedagogical ecosystem that encompasses course design, implementation, reflection, and assessment (Stokamer and Clayton, 2017). Regardless of the constraints on conceptualizing civic learning that arise due to contextual factors, service learning can be significantly enhanced when the full range of co-educators contributing to teaching and learning develop civic learning goals, clearly articulate them as specific learning objectives, design the pedagogy to generate that learning, assess the extent to which that learning is achieved, and critically examine and refine courses to ensure their fidelity to the selected meanings of civic learning.

Jackson (2019) noted that civic education involves learning to live together within and across society and in relationship with others; it encompasses what people learn about human social life and about relations, duties, identities, loyalties, connections, and the world at large. This type of definition of civic learning is laudable but is very general and not useful to educators who want to design pedagogies to achieve specific civic learning objectives. Frameworks with more precision have greater utility because they identify learning domains within which learning objectives can then be articulated.

As illustrated in **Figure 1** service learning is widely understood to include three defining categories of learning: academic learning, personal growth, and civic learning. These categories are both stand-alone and interdependent. Thus, civic learning may be understood to be distinct from academic learning and personal growth and to overlap with either or both of these other categories (Stokamer and Clayton, 2017; Bringle et al., 2016). For example, leadership may be a topic in a course and students can analyze how their community experiences and the civic nature of leadership are related to academic research, findings, and theories (i.e., the intersection of academic learning and civic learning). Alternatively, students can examine examples of civic leadership that they encounter in their community-engaged activities in order to develop an appreciation for how civic leadership is enacted in communities (e.g., in government, in community-based organizations, in nonprofit organizations) (i.e., civic learning). Alternatively, students can examine their own approaches to leadership, how they appraise their own leaderships skills (e.g., strengths, weaknesses, alternative approaches), how they learn about and develop their own leadership skills, and how they can engage in collaborative leadership in communities in the future (i.e., personal civic growth). The strongest learning potential may exist when civic learning objectives are supported by, connected to, and aligned with the intersection of all three learning categories.

Presumably, in any service learning course, there can be multiple civic learning objectives that are part of the learning experience and each of these can draw upon different sources of learning, either separately (i.e., some learning objectives are independent of the academic content, some are not) or sequentially during a semester (i.e., students analyze a civic learning objective with regard to different academic content during the semester, different community-based experiences over time, and different insights into their own growth). As instructors consider which civic learning objectives are appropriate for their service learning course, they can consider how these three domains (i.e., academic content, service activities, and critical reflection activities) can stimulate civic learning for students. In addition, how any civic learning objective is achieved will be dependent upon how reflection activities promote students developing and deepening their understanding of their learning associated with the objective.

Generally, frameworks for civic learning contain some combination of the following components that instructors seek to cultivate in their students: beliefs, knowledge, attitudes, values, skills, behavioral intentions, and behaviors. Chapters in Hatcher et al. (2017) analyzed civic outcomes from various disciplinary and intellectual perspectives: social psychology, political theory, educational theory, philanthropic studies, well-being, critical theory, and boundary zones. The authors of each chapter surveyed existing theoretical perspectives and generated key questions to guide future inquiry into the role of service learning in contributing to student civic learning outcomes as conceptualized within each of these perspectives. The volume is not exhaustive in its coverage of theoretical perspectives on civic learning, and analyses of and frameworks for civic learning from other disciplines have also been developed (e.g., religious studies, Devine et al., 2002; sociology, Follman, 2015; economics, McGoldrick et al., 2000; science, Newman et al., 2016; other disciplines and professions, Zlotkowski, 2000). In this section, we summarize several prominent frameworks for civic learning with the intention of helping instructors to identify civic learning outcomes that might be relevant to their service learning courses and contexts.

Battistoni's Disciplinary Frameworks

Battistoni (2002, 2013) acknowledged that most of the discussions and analyses of civic learning at that time were

anchored in the social sciences. Associated frameworks for civic learning included: **constitutional citizenship** (individual rights, voting), which is most aligned with political science, law, and policy studies; **communitarianism** (being a good neighbor, advancing the common good), which is allied with philosophy, religious studies and social work; **participatory democracy** (being an active participant in public life), which is often found in education and political science courses; **public work** (co-creating community objects that are of public value), which is linked to political science, public administration, and some professional disciplines; and **social capital** (membership in associations of civil society), which is aligned with sociology and not-for-profit management majors.

His major contribution was to develop distinct conceptions of civic learning that serve as frameworks outside the social science disciplines. **Civic professionalism** is particularly applicable to the professional disciplines (e.g., business, engineering, law, architecture). The fundamental ideas are developed in Sullivan's (2005) "Work and Integrity" in which the professions are viewed as having a covenant with society, and professional training and work generate responsibility for the professional to give back to society. Thus, professional work is viewed as having a civic purpose, not simply one of accruing personal benefits. Service learning in such disciplines, then, requires asking the questions, "What does it mean to be a civically-oriented business person?" and "What does it mean to be a civically-oriented lawyer?"

Social responsibility is also applicable to professions (e.g., health, computer science, business) as it explicitly links to professional activities through such organizations as Physicians for Social Responsibility and Business for Social Responsibility. This orientation connects the professions with broader social issues and political knowledge (e.g., inequities in health care). Social justice orientations to civic learning emphasize the solidarity between the individual and broader communities in order to address injustices. Critical service learning (Mitchell, 2008) and criticality as a learning goal (Stokamer and Clayton, 2017) reflect the emphasis on systemic analysis of injustices, awareness of how personal choices may support systems of injustice, and issues related to power and oppression. A social justice orientation to civic learning is particularly salient at faith-based institutions (e.g., Catholic, Jesuit) and is particularly dominant in the southern hemisphere (Tapia, 2012). Developing social justice learning objectives can enrich any service learning course and is well-aligned with those in religious studies, philosophy, and social work.

The ethic of care builds upon the intellectual foundations of connected knowing (e.g., Belenky et al., 1997) as a means of moving from personal orientations to learning to more civic and community-oriented ways of viewing learning and its implications (e.g., social, political, organizational). The ethic of care is especially relevant to gender studies, nursing, and psychology. **Public leadership**, from a civic perspective, emphasizes collaborative leadership that encompass community building and servant leadership (Frick and Spears, 1996). Service learning courses in management, leadership studies, and public affairs can build upon these understandings of leadership and contrast them with traditional, hierarchical, and power-oriented views.

The framework of the **public intellectual** is well aligned with the humanities, arts, and literature and involves developing the civic impact of writers, artists, poets, and thinkers on social issues. Their concern for and contributions to civic discourse, discussions, public works, and commentary highlight the relevance of their work beyond the individual. **Public scholarship** orients research, analysis, and scholarship toward social issues so as to deepen understanding, mobilize action, and inform decision making in a way that involves and supports communities. This type of civic learning may be particularly relevant to journalism, communication studies, sociology, and psychology.

Battistoni (2002, 2013) noted that there is a set of skills that transcends any one particular framework of civic learning. These skills include political knowledge and critical thinking, communication skills, public problem solving, civic judgment, civic imagination and creativity, collective action, coalition building, and organizational analysis. Service learning experiences can be designed to facilitate the development of these overarching skills as part of or in addition to any particular other civic learning objectives.

Council of Europe

The Council of Europe's (2016) *Competences for Democratic Culture* provided a framework for civic learning that consists of 20 competencies categorized into a) values, b) attitudes, c) skills, and d) knowledge and critical understanding. Values include human dignity, cultural diversity, democracy, and social justice. Attitudes encompass openness to cultural otherness, respect, civic-mindedness, responsibility, self-efficacy, and tolerance of ambiguity. Civic skills consist of learning, analytical and critical thinking, listening and observing, empathy, flexibility, communication, cooperation, and conflict resolution. Civic knowledge and critical understanding can be of self; of language and culture; or of the world's politics, law, human rights, cultures, religions, or history. This framework can provide guidance in designing service learning for democratic citizenship, especially through the explicit incorporation of intercultural dialogue. Intercultural dialogue is defined by the Council of Europe as "an open exchange of views, on the basis of mutual understanding and respect, between individuals or groups who perceive themselves as having different cultural affiliations from each other" (pp. 20–21). The Council published a second monograph (2017) on pedagogy, which identified service learning as one of the means of developing these competencies.

Confucian Five Relationships

Ma et al. (2018) provided an historical analysis of moral education and Chinese philosophical traditions and related them to service-learning as it is being explored and developed in China. Five relationships are viewed as fundamental to the spirit of service, social justice, and the welfare of persons who are disadvantaged: benevolence (i.e., caring for others), justice (i.e., justice that serves the common good), propriety

(i.e., social norms and order), wisdom (i.e., understanding of others and society), and integrity (i.e., trustworthiness and honesty in dealing with others). These "form the core of Chinese ethics, social values, and personal conduct" (p. 29) and can serve as a framework for conceptualizing civic learning.

Association of American Colleges and Universities: Civic Engagement VALUE Rubric

The Civic Engagement VALUE Rubric is one of 16 rubrics collaboratively developed in the United States to provide guidance for developing criteria for evaluating learning outcomes (https://www.aacu.org/value-rubrics). As with any well-designed rubric, it articulates domains of learning and can thus function as a framework for conceptualizing civic learning. The Civic Engagement VALUE Rubric focuses on how students view their public lives as members of communities. The components of the rubric include: diversity of communities and cultures (including self-awareness and attitude change), analysis of knowledge (connections between academic studies and civic issues), civic identity and commitment (evidence of past activities and future commitment), civic communication (with others to produce civic action), civic action and reflection (initiative, team leadership, insights), and civic contexts and structures (collaborative work within communities to achieve civic aims). Each of these five domains of learning can be parsed into specific civic learning objectives.

Civic-Minded Graduate

The construct of civic-mindedness was developed to integrate various conceptualizations of civic learning. It is defined as "a person's inclination or disposition to be knowledgeable of and involved in the community, and to have a commitment to act upon a sense of responsibility as a member of that community" (Steinberg et al., 2011, p. 20). The Civic-Minded Graduate (CMG; Bringle and Steinberg, 2010; Bringle et al., 2011; Steinberg et al., 2011; Bringle et al., 2019; Bringle and Wall, 2020) is a construct that integrates personal identity, civic experiences, and educational experiences; it refers to "a person who has completed a course of study (e.g., bachelor's degree), and has the capacity and desire to work with others to achieve the common good" (Bringle and Steinberg, 2010, p. 429). The CMG construct (http://scholarworks.iupui.edu/handle/1805/2667) is composed of ten domains: a) knowledge of volunteer opportunities, b) academic knowledge and technical skills, c) knowledge of contemporary social issues, d) communication and listening skills, e) appreciation of and sensitivity to diversity, f) skills to build consensus, g) valuing community engagement, h) self-efficacy, i) social trustee of knowledge, and j) intentions to be personally involved in community service (Steinberg et al., 2011, p. 22). These domains of CMG are viewed as being common across many service learning courses, and there is evidence that supports their coherence (Bringle et al., 2011; Bringle et al., 2019; Bringle et al., 2020).

Intercultural Competence

Service learning typically involves students interacting with individuals who are different from them in some ways. Even for domestic service learning, but particularly for international service learning, having learning objectives that are focused on knowledge, skills, attitudes, and behaviors that encompass dialogue across difference, collaboration, humility, cross-cultural understanding, and effective communication is both important and feasible. Deardorff and Edwards (2013) presented the following domains of intercultural competence as representing a consensus of the perspectives of many scholars: attitudes (respect, openness, curiosity/discovery), knowledge (cultural self-awareness, culture-specific knowledge, deep cultural knowledge, socio-linguistic awareness), skills (observing, listening, evaluating, analyzing, interpreting, relating), internal outcomes (flexibility, adaptability, empathy, ethnorelative perspective), and external outcomes (effective and appropriate behavior, communication).

UNESCO's Framework for Global Citizenship

Some views of civic learning transcend any single national context so as to avoid the charge of being too narrow, divisive rather than inclusive, and potentially ethno-centric (Brooks and Holford, 2009). Replacing a nationally-oriented approach with a global perspective on civic learning can reflect the multiple levels of identities individuals hold (i.e., local, regional, national, global). As one example, UNESCO's (2015, p. 16) delineation of global citizenship aims to enable learners to:

- develop an understanding of global governance structures, rights and responsibilities, global issues and connections between global, national, and local systems and processes;
- recognise and appreciate difference and multiple identities, e.g., culture, language, religion, gender, and our common humanity, and develop skills for living in an increasingly diverse world;
- develop and apply critical skills for civic literacy, e.g., critical inquiry, information technology, media literacy, critical thinking, decision-making, problem solving, negotiation, peace building and personal and social responsibility;
- recognise and examine beliefs and values and how they influence political and social decision-making, perceptions about social justice and civic engagement;
- develop attitudes of care and empathy for others and the environment and respect for diversity;
- develop values of fairness and social justice, and skills to critically analyze inequalities based on gender, socio-economic status, culture, religion, age, and other issues;
- participate in, and contribute to, contemporary global issues at local, national, and global levels as informed, engaged, responsible and responsive global citizens.

United Nations' Sustainable Development Goals

The United Nations (https://www.undp.org/content/undp/en/home/sustainable-development-goals.html) proposed 17 interconnected Sustainable Development Goals (SDGs) as a "a call for action by all countries–poor, rich and middle-income–to promote prosperity while protecting the planet." The SDGs represent a "universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere." Although not themselves a conceptualization of civic learning, the SDGs do provide a framework for focusing service learning activities in areas such as responsible production and consumption, education, gender equality, affordable and clean energy, environmental issues, and reduced inequality. Civic learning objectives can be developed within or across one or more of the SDGs. For example, the Commonwealth Secretariat (Osman et al., 2017) developed a *Curriculum Framework* related to the SDGs, offering it as a "guide for countries to conceptualise, review or further develop their national curricula and ensure that education is integral to any strategy to create a resilient generation that will advocate for action and the attainment of the SDGs in a holistic, integrated manner" (p. iii). "Core competencies" named in the Curriculum Framework as being relevant to all of the SDGs include (pp. 8–9):

- Envisioning–being able to imagine a better future
- Critical thinking and reflection–learning to question our current belief systems and to recognise the assumptions underlying our knowledge, perspectives, and opinions
- Systemic thinking–acknowledging complexities and looking for links and synergies when trying to find solutions to problems.
- Building partnerships–promoting dialogue and negotiation, learning to work together, so as to strengthen ownership of and commitment to sustainable action through education and learning.
- Participation in decision making–empowering oneself and others.

Derived from these core competencies are a set of "integrated competencies" (p. 11) that are categorized into three domains: a) Knowledge and Understanding (e.g., multiple literacies; social, environmental, and economic challenges and complexities), b) Skills and Applications (e.g., analysis, fact finding, observing, independent learning, planning), and c) Values and Attitudes (e.g., sense of purpose and hope, resilience, adaptability, commitment to justice). The Curriculum Framework also includes further specification of learning objectives within these three domains for each of the 17 SDGs. The Curriculum Framework can be found in its entirety at https://www.thecommonwealth-educationhub.net/wp-content/uploads/2017/01/Curriculum_Framework_for_SDGs_July_2017.pdf.

ARTICULATING CIVIC LEARNING OUTCOMES

Any one of the civic domains in these frameworks warrants more specific adaptation to each particular context. For example, growth in students' self-efficacy would be tailored to the particular course (e.g., self-efficacy with regard to advocacy directed toward a particular group of stakeholders on a specific public issue). There are likely to be several civic learning objectives in a course that span academic content, civic growth, and personal growth, and each civic learning objective should be developed and clearly articulated by one or more of the partners (i.e., community partners, students, instructor).

Table 1 contains questions from Musil (2015) that can help instructors explore current and additional civic learning outcomes that might be relevant to their service learning course. Like Battistoni, Musil started with a position that the discipline/profession can provide a basis for exploring civic learning objectives, some of which are embedded in the discipline and, alternatively, some of which need to be added to the discipline. Her prompts challenge instructors to examine the landscape of their discipline/profession for possible civic learning objectives. This can be an enriching curricular development activity for, as Huber and Hutchings (2018) noted, "when faculty from different disciplinary communities teach their fields wearing a civic lens, both the concept of citizenship and even the field itself (as taught and learned) are subject to change" (p. x).

However, the discipline or profession is but one starting point for generating and articulating civic learning goals. Frameworks such as those summarized above provide additional sources of ideas for instructors to draw on when they are considering what civic learning objectives are appropriate for a service learning course. Further elaboration of a civic learning objective can be undertaken collaboratively with community partners and students.

For example, an instructor might be integrating service learning into an environmental science course in order to enhance students' skills in advocating for environmental stewardship. The nature of that environmental stewardship objective might be modified or clarified by community partners and students, but it originates primarily with the instructor. Alternately, it may be that the leaders or staff of a community organization come into the partnership with a course having already determined their own civic learning goals for anyone they work with. In a service learning course in which the community-engaged activities are project based, a community partner may add an advocacy component to the students' activities in order to help them understand policy issues associated with the activities and the importance of systemic analysis of the social issue beyond the project itself. As a specific example, a social justice and animal welfare organization in North Carolina seeks to cultivate three capacities in anyone who

TABLE 1 | Civic prompts excerpted from Musil (2015).

What is civic about or related to your course content or your discipline?
Which of these civic capabilities does your disciplinary domain especially embrace?
Or put another way, which are associated as outcomes for your disciplinary domain?
How might the learning capabilities that your disciplinary domain is deeply committed to suggest ways to frame a set of civic inquiries and actions that embed such civic learning easily for all students within your discipline?
What are some big civic issues that are common to your disciplinary domain or course that lend themselves to civic inquiry or civic actions?
What various civic angles on the issues do you raise in your courses?
What responses/outcomes do you expect from students?
What additional issues might acquire greater prominence within your domain if civic inquiry were given priority?
Write down any of the civic learning outcomes that flow from your course or discipline, either from the lists provided or from your own experience/knowledge.

partners with them: cultural humility, empathy, and systems critique (Hensley et al., 2018).

Similarly, students who shape and participate in community-engaged activities may articulate civic learning goals before beginning a project, either on their own or in partnership with community members and faculty. Once the project is underway, they may also demonstrate civic learning outcomes that were unanticipated by any of the partners. Thus, civic learning objectives may also be generated organically from the cumulative and emergent experiences of students, the instructor, and community partners. They may also be developed collaboratively with other stakeholders, such as individuals in leadership positions on campus (e.g., dean, director, chair) so that they too understand what learning is being aspired to, why, and how it will enhance the educational experiences of students.

DESIGNING SERVICE LEARNING COURSES FOR CIVIC LEARNING OUTCOMES

Only after civic learning outcomes have been articulated can a service learning course be deliberately designed or revised to generate those outcomes and other learning objectives. There may be civic learning outcomes that are unique to each student due to background, context, community-engaged activities, or community partners. For example, demographic diversity within and across classrooms and communities highlight the "double consciousness" that may be experienced by students who identify closely with members of the communities with whom they are partnering. Hickmon (2015) contains reflections by a Black student at a predominantly white institution that generally provides service to minority communities. Also, students who are experiencing such challenges as geographic dislocation, housing or food insecurity, loss of significant family relationships, or cultural barriers may find their own levels of meaning and civic learning. Thus, instructors need to consider the prospect of both unique and shared learning outcomes. However, the use of the service learning as a pedagogy does presume that some civic learning outcomes are viewed as central to the purposes of the service learning course and should be common for all students. Then the following question can begin to be answered: "What specific aspects of your course are or can be designed to generate particular student civic learning outcomes?"

Stokamer and Clayton (2017) presented a case for the interconnected nature of three primary course components: a) service, b) academic activities, and c) critical reflection. None of these stands alone, and course design to achieve civic learning outcomes must embody a systems approach in which these components of the service learning course are "mutually reinforcing and equally necessary for civic competence" (Stokamer, 2011, p. 67). In this section we provide an overview of the civic learning potential of each of these three components. The community-engaged activities, the setting for those activities, the community members with whom the students are interacting, and the historical, cultural, political, and economic contextual factors can all contribute to the process of deepening civic learning in a service learning course. Stokamer and Clayton (2017) suggested that instructors "be guided by their civic learning goals when collaboratively determining service tasks" (p. 52). The community-engaged activities might involve a) direct service, b) indirect service, c) collaborative research, or d) advocacy for social change (Bringle et al., 2016). However, it may be that all service activities are not well-suited to support a particular civic learning outcome. Boyle-Baise (2002) noted, "A charitable task probably will not generate insights for social change" (p. 33). Stokamer and Clayton explained that

> although critical reflection can generate learning of a particular concept through examination of an experience in which the concept is notably absent, service is generally designed to immerse learners in settings, processes, and interactions in which the concept in question is present and can be critically examined. Students may thus be well positioned to compare and contrast diverse worldviews . . . through service tasks that enlist their capacity to listen or document, such as through co-producing oral histories with community members . . . [and] to build such civic skills as giving and receiving constructive feedback and to develop civic identities as cogenerators of knowledge [through service that takes the form of community-engaged research]. (p. 52)

Bringle and Clayton (2012) similarly explored the ways in which reciprocal partnerships "lend themselves readily to civic learning, variously defined," suggesting that when students are

co-creators of the work of the partnership "they are well positioned to learn about teamwork, project management, leadership, and communication … [and] to transform their sense of identity and of agency as civically oriented persons" (p. 116). Stokamer and Clayton (2017) further suggested that "Both the nature of academic activities and their content can be designed through the lens of civic learning goals" (p. 53). Readings, videos, reports, podcasts, websites, artwork, and music can be carefully selected to both introduce diverse worldviews and provide information related to the public issues the service learning partnership addresses. The authors noted "academic activities in and beyond the classroom can ... provide firsthand experience with and opportunities to examine dynamics related to … civic learning goals." Activities such as non-traditional speakers, debates, role playing, and team-based civic problem-solving activities, for example, can all be designed to "help participants determine and problematize the conditions under which they do and do not tend to listen attentively to unfamiliar or contrary perspectives" (p. 54).

Neither service nor academic activities on their own, however, generate civic (or any other) learning without the integration of critical reflection on those activities that has been designed specifically to facilitate meaning making in accordance with the learning objective. Critical reflection is the component of service learning (and any form of experiential learning) that generates, deepens, and documents learning and improves the quality of practice, partnerships, and inquiry. Whitney and Clayton (2011) suggested that intentional design of critical reflection happens at two levels: the overall strategy (which includes when and where it occurs, who participates, how and by whom feedback is provided) and the specific mechanisms that compose that strategy (which consist of prompts that are clearly aligned with learning objectives to guide reflective meaning making, whether in written, oral, digital, artistic, or embodied formats). "A critical reflection strategy designed such that all partners are, at one time or another, involved—as learners, in developing prompts, in giving and receiving feedback—may provide otherwise missed opportunities for civic learning" according to Stokamer and Clayton (2017, pp. 55–56).

The DEAL model of critical reflection is an example of a structure for the design of critical reflection mechanisms in any format (or mix of formats)—individual, collaborative, written, oral, digital, etc.—to generate civic (and other) learning goals (Ash and Clayton, 2009). DEAL is a customizable, research-grounded model in which the prompts support learners in **D**escribing their experiences, **E**xamining them using prompts specifically linked to learning goals, and then **A**rticulating **L**earning in a way that leads to enhanced future action and learning (specifically, by answering four questions: What did I learn? How did I learn it? Why does this learning matter? What will I do in light of it?). Depending on the particular civic learning goals of interest, Examine prompts such as the following might be used (Whitney and Clayton, 2011; Bringle and Clayton, 2012):

- What was I/someone else trying to accomplish? In taking the actions I/they did, was the focus on symptoms or underlying causes? Was the focus (symptom or cause) appropriate to the situation? How might I/they focus more on underlying causes in the future?
- What roles did each person/group/organization involved in the situation play and why? What alternative roles could each have played? Did I/other individuals act unilaterally or collaboratively and why? Should I/they have worked with others in a different way?
- In what ways did differentials in power and privilege emerge in this experience? What are the sources of power and privilege in this situation, and who benefits and is harmed? How might any inappropriate dependencies be eliminated?
- What is in the interest of the common good in this situation? In what ways is the individual good (mine/others) linked to and/or contrary to the common good? What trade-offs between them are involved? In what way did any other trade-offs (long-term/short-term, justice/efficiency, etc.) emerge in this situation? Who made the trade-offs? Were the trade-offs made appropriate or inappropriate and why?
- How do other members of this community define such concepts as "community" and "service"? What cultural, historical, political, and other factors help explain these definitions and the impact they do or could have in this particular situation?

Norris et al. (2017) explored critically reflective digital storytelling as a particularly powerful type of critical reflection mechanism that "has the potential to be a particularly civic approach to critical reflection" because it "leverages the power of story to both bring to the surface and problematize dominant ways of thinking and acting and capitalizes on the potential of the digital environment to enable and connect private and public dialogue and meaning-making" (p. 178). Stith et al. (2018) provided guidance for designing critical reflection especially in the context of critical service learning to support examination of issues associated with justice and injustice (**Table 2**). Any of these prompts can provide a basis for problematizing and potentially shedding a technocratic orientation (e.g., "We are here to help you solve your problem.") and can help instructors, students, and community partners explore some of the civic issues implicated in their collaborative community engagement. Bringle et al. (2016) presented sets of DEAL prompts for various combinations of personal growth, academic learning, and civic learning.

Research that investigates the relationships between particular design choices in each of these three arenas (service, academic activities, critical reflection) is needed in order to produce and continually refine evidence-based guidance for instructional design that is intended to generate specific civic learning outcomes. As one starting point, Stokamer and Clayton (2017) suggested inquiry that positions civic learning as both the dependent variable—examining the factors that influence student attainment of any particular civic learning outcomes—and the independent variable—examining the influence particular conceptions of civic learning have on the design of service, academic activities, and critical reflection. Battistoni (2013) encouraged similar research into design issues at the program or curricular level to determine, as one example, whether "a sustained, developmental, cohort-based

TABLE 2 | Critical service learning prompts excerpted from Stith et al. (2018).

Examine whether/how their service work addresses root causes of social problems.
Understand the connection between their service experiences and civic life, public policy, and social systems.
Examine their preconceptions about social problems, community, or citizenship with which they entered the course.
Understand the ethical challenges that arise during the service experience.
Recognize the strengths of the community in which they work.
Consider current interventions to the social problem and explore alternative solutions.

curricular approach to service learning [is] better able to produce, over time, persons with stronger measures on all of the indicators of civic knowledge, skills, identity, and motivation, among other categories?" (p. 126).

ASSESSING CIVIC LEARNING

Because there is no one definition of civic learning, there can be no one method, procedure, or instrument for assessing civic learning. With the exception of civic knowledge, the vast majority of approaches to assessing civic learning outcomes have taken the form of self-report measures such as surveys (Torney-Purta et al., 2015; Hemer and Reasons, 2017). A survey is simply an interview that is conducted on paper and it can provide phenomenologically meaningful information. Self-reports are indirect measures of civic learning outcomes, as are peer evaluations and reports from community partners. However, indirect measures can suffer from a social desirability response set, inaccurate recall of past behaviors, inaccurate predictions of future behaviors, cognitive biases, and inaccurate accounts of causal phenomenon (Dunning et al., 2004; Bowman and Seifert, 2011; Kolek, 2013).

Direct measures that encompass demonstrated performance and learning provide some advantages over self-report and avoid some of their limitations. Examples of direct assessment include examinations, written products evaluated with rubrics, and observations of skills and behaviors evaluated with rubrics. Multiple choice examinations typically assess a particular type of learning (descriptive knowledge) and may not adequately capture higher order cognitive processing or the nuances of civic learning that can be generated in a service learning course.

This raises the question of the purpose of the assessment. At the most general level, assessment can communicate learning objectives to students and others when the goals of assessment are shared prior to conducting it. Formative assessment can provide feedback to students before final products are submitted and to instructors about how well the course is progressing. Summative assessment can be a basis for grading and for communicating to others (e.g., department chairs, executive institutional leaders, future students, community partners) the value of the service learning experiences. There may be purposes for assessment beyond the course, for example when a curriculum is being assessed, when institutional quality assurance is being documented, as part of grant-supported activities, and when research is being undertaken. The nature of assessment needs to be tailored to its purpose.

Bringle et al. (2013) suggested that, in addition to issues such as these that apply to virtually all assessment of student learning, assessment of civic learning (and diversity and global learning) raises additional considerations. One of these is the question of whose voices are included in the assessment process, which is particularly salient given the democratic, co-creative aspirations of service learning. Broad participation in establishing the civic learning goals, determining the nature of meaningful evidence of their attainment, and gauging the quality of learning helps "ensure that assessment is shaped by and is useful to multiple constituencies within and beyond the academy" (p. 5). Another issue that arises in the context of assessing civic learning in particular is that such learning is often intended to be transformative in nature, meaning that "it may develop over extended periods of time, across multiple courses, and in a variety of contexts," a set of conditions that may require "developmentally designed and integrated strategies that depend on collaboration across multiple teaching and assessment contexts" (pp. 5–6).

A variety of approaches to assessing civic learning have been developed, two of which we describe here. They were selected because they are research-grounded, cover a range of civic learning outcomes, and are applicable not only in service learning courses but also as part of any pedagogy that seeks to cultivate civic learning and co-curricular programs that have civic learning objectives (Bringle et al., 2011; Bringle et al., 2020). The DEAL model, which integrates critical reflection and assessment, lends itself to assessing any civic (or other) learning objectives. As noted above, the CMG framework, in contrast, encompasses multiple pre-established elements of civic learning and is therefore most useful when one or more of them matches a learning objective in the course. We encourage service learning practitioners to build on these and to develop and share additional approaches to assessing civic learning.

DEAL Framework for Assessment

The DEAL model for critical reflection provides a basis not only for structuring reflection prompts but also for assessing the learning generated and deepened through critical reflection. There are two types of rubrics associated with DEAL, both of them relevant to civic learning (Ash and Clayton, 2009). The first lays out four levels of critical thinking for each of several critical thinking standards (adapted from Paul and Elder, 2001), including, for example, accuracy (supporting claims with evidence), breadth (considering multiple perspectives), and fairness (representing others' ideas with integrity). This rubric has a corollary feedback tool that explains each of the standards of critical thinking and provides questions to ask oneself or one's learners to help strengthen each standard (e.g., accuracy: How do I know this? breadth: Is there another way to interpret what this means?). Several of the frameworks summarized above include critical thinking as an important civic learning goal.

TABLE 3 | Example Bloom-based rubrics for select civic learning goals.

Learning Goal	1 (Identify)	2 (Explain)	3 (Apply)	4 (Analyze)	5 (Synthesize)	6 (Evaluate)
Students will understand the complexities of relationships between individual rights and the common good	Defines "individual interests/rights" and "common good"	Explains "individual interests/rights" and "common good" in my own words so that someone unfamiliar with these concepts would understand them	Provides an example of the presence or absence of "individual interests/ rights" and "common good" in a particular situation	Compares (similarities) and contrasts (differences) what an "individual interests/rights" focus might prioritize in this situation with what a "common good" focus might prioritize	Proposes at least two potential resolutions of the tension between "individual interests/rights" and "common good" in this situation	Evaluates these potential resolutions in terms of their long-term consequences and justifies my judgment as to the most appropriate resolution accordingly
Learning Goal	**1 (Identify)**	**2 (Explain)**	**3 (Apply)**	**4 (Analyze)**	**5 (Evaluate)**	**6 (Synthesize)**
Students will understand the complexities of access to power	Identifies multiple sources of power	Explains these sources of power in my own words such that others who are not familiar with them can understand them	Provides examples of the presence and absence of these sources of power in the context of my service-learning project (i.e., Who is and is not using power from which sources?)	Compares (similarities) and contrasts (differences) the access of the various stakeholders in my project to each of these sources of power AND considers what processes enable and hinder access AND considers the consequences of that access on the situation overall and on the stakeholders	Critiques the access to these sources of power sources in this situation in terms of equity (i.e., should it be changed and why? What trade-offs would be required to change it?)	Produces an alternative set of processes to enhance equity in access to these and/or additional sources of power in this situation

The second type of rubric uses Bloom's (1956) Taxonomy to structure indicators for up to six levels of learning. This structure is used to generate rubrics for learning goals in any category, whether academic learning, personal growth, or civic learning. See **Table 3** for example rubrics for two potential civic learning goals.

Civic Minded Graduate Framework for Assessment

Steinberg et al. (2011) presented three different methods for assessing civic-mindedness as conceptualized in the construct of the CMG: a) a CMG Scale, which is comprised of 30 self-report items; b) a CMG narrative prompt, which produces a written narrative that is scored with a rubric; and c) a CMG interview protocol, which produces a transcript that is scored with a rubric. Generally, these three assessment strategies demonstrated convergence in measuring CMG (Steinberg et al., 2011).

The self-report measure of CMG has received extensive validation as a measure of civic-mindedness. Steinberg et al. (2011) found that responses on the CMG Scale were correlated with Morton's (1995) construct of integrity. Morton viewed integrity as the degree to which civic values and civic behaviors are aligned with and integrated with the self. Bringle and Wall (2020) found correlations between identity as a student and CMG, civic identity and CMG, CMG and all of the motives for volunteering on the Volunteer Functions Inventory (Clary et al., 1998), and CMG and measures of interest in charity, service programs, and advocacy types of service. Bringle et al. (2019) found that CMG was related to openness to diversity, self-efficacy, both social change and charity orientations to service, and endorsing the principle of care. In addition, they found CMG to be correlated with non-prejudicial attitudes and self-confidence for social behaviors.

Although the CMG Scale might be relevant to assessment at the program level and in research, in order to obtain alternative direct evidence of civic-mindedness, the following prompt was developed and students were asked to write a response:

> I have a responsibility and a commitment to use the knowledge and skills I have gained as a college student to collaborate with others, who may be different from me, to help address issues in society.
>
> Please indicate the extent to which you agree or disagree with this statement by circling the appropriate number.
>
> Strongly Agree 1 2 3 4 5 6 Strongly Disagree
>
> Considering your education and experiences as a college student, explain the ways in which you agree or disagree with this statement and provide personal examples when relevant. (Steinberg et al., 2011, p. 23)

The rating scale was included to prime the respondent's thinking about the issues raised in the prompt before writing a response. A rubric for scoring written responses was developed that focuses on the degree to which written narratives reflect civic identity, understanding of social issues, participation in society, collaboration across differences, and the benefit of education to address social issues (the rubric can be accessed at http://hdl.handle.net/1805/2667).

ISSUES RELATED TO CIVIC LEARNING

Service learning has helped civic learning become more visible as a category of learning for educators and students. It is a relatively new and unfamiliar pedagogy to many academics and presents challenges with regard to learning goals, design, and assessment.

Civic learning in particular raises additional issues. One set of challenges involves the push back that may come from some colleagues who believe that "civic learning is not my job" or, indeed, an appropriate function of higher education at all. Promoting and enhancing civic learning may not need to be everyone's responsibility. However, it is desirable that most if not all members of the academy understand why some instructors take civic learning seriously, why some courses warrant identifying and cultivating civic learning objectives, how service learning enriches the learning environment in ways that are empirically supported as effective (e.g., active learning, collaborative learning, meaningful learning), how civic learning contributes to significant learning across the curriculum, how service learning promotes authentic relationships that benefit communities, and how service learning results in desirable outcomes for students in their future lives, including careers. Such shared understanding, if not buy-in, raises the likelihood that instructors will be better supported in using innovative pedagogical approaches to a broader and deeper set of learning goals. Slowly, around the world, there is increasing appreciation for the contribution that service learning as a pedagogy and civic learning as a category of learning can make to the public purposes of higher education (e.g., Xing and Ma, 2010; Tapia, 2012; Ma, 2018; Aramburuzabala et al., 2019; Pacho, 2019).

Any civic learning objective raises the issue of the complexity of its scope or range of focus. Does it encompass a local, national, and/or global scale? Jackson (2019) noted that locally-oriented perspectives on social issues may be more natural, intuitive, efficient, and easier for educators and students. However, this perspective runs the risk of being clannish, filial, and alienating others as being different or irrelevant. Focusing on the national level of a social issue can be more challenging because of its scale and intra-national variability. It can also be complicated by issues related to individuals' identities as residents in multiple nation-states, their (and the state's) complicated mix of desires for and concerns about both assimilating and retaining the distinctiveness of cultural heritages, competing loyalties and sense of duty, and the sometimes incompatible priorities between national and other (e.g., regional, state, local) levels of governance and allegiance. Service learning courses may immerse students in experiences that challenge their status quo. On the other hand, service learning may have the potential to provide new meaning and purpose to their lives and provide a basis for improving well-being, trust, and connectedness (Konrath, 2016; Stukas et al., 2016).

The 2020 pandemic and the increasing use of technology in education raise interesting prospects for transforming the nature of service learning through reimaging, redefining, and redesigning many key aspects of the pedagogy (Bringle and Clayton, 2020). How are "communities" constituted in a digital and technologically interconnected world? How are "relationships" established and maintained via technological means, and how do virtual relationships contribute to learning and collaboration? How can "service" activities occur in a digital world? How can "reflection" take different forms using technology? And, most central to the current topic, how might the meaning of "civic" change in virtual contexts? What does it mean to be civic in a virtual world? What new versions of civic knowledge, skills, dispositions, and behaviors are critical to operating in both virtual and physical communities?

Another complexity related to civic learning involves the extent to which democratic engagement is, in fact, the paradigm within which any instance of service learning operates. Pervasive technocratic orientations to education focus on the transfer of knowledge from academically-credentialed experts (i.e., faculty) and view students and communities alike in terms of deficits and needs (Saltmarsh et al., 2009). Thus, service learning is too often reduced to a focus on the transmission and application of disciplinary knowledge and, if there is any intention to educate students for roles in broader communities, the focus is on the cultivation of "proto-experts who will be able to perform civic tasks in and on communities that they work with because they will have the knowledge and credentials to know what to do to help communities improve" (Saltmarsh et al., 2009, p. 8). Under those conditions, service learning fails to position everyone involved as co-responsible members of communities who collaborate to further their own and one another's knowledge of and capacities for participation, agency, systems critique, and democratic co-creation. It thus tends to minimize, if not neglect entirely, the intentional development of the knowledge, skills, and values encompassed by civic learning understood in other than managerial, bureaucratic, and hierarchical terms. Along these lines, Jackson (2019) points out that education for global citizenship can be approached from a neoliberal perspective that emphasizes meritocracy and competition rather than more cosmopolitan perspectives that emphasize interdependency and common goals. A key to fulfilling the rich and essential civic learning potential of service learning, then, is conceptualizing the pedagogy as democratic civic engagement, which "seeks the public good *with* the public and not merely *for* the public as a means to facilitating a more active and engaged democracy" and which "adheres to the shared understanding that the only way to learn the norms and develop the values of democracy is to practice democracy as part of one's education" (Saltmarsh et al., 2009, p. 9 and p. 6). It is worth noting that the paradigm of democratic engagement itself generates additional civic learning goals such as the three explored by Stokamer and Clayton (2017, p. 48):

a. *inclusivity*, which has at its core capacities to think beyond the single perspective of one's own worldview and act accordingly;
b. *criticality*, which has at its core capacities to recognize and challenge enshrined structural inequities that limit social justice;
c. *co-creation*, which has at its core capacities to bring an asset-based orientation to collaboration and to integrate the knowledge, perspectives, and resources of all partners in determining the questions to be addressed, possibilities to be pursued, and strategies for collaborating effectively and with integrity.

Finally, there is the contested issue of how explicitly political service learning courses, civic education, and the other activities of students should be. Hartman (2013) asked practitioners to consider the degree to which service learning avoids confronting the "impossibility of an apolitical democratic civic education" (p. 68). He stated that institutions of higher education and their staff must explicitly articulate their commitment to democratic values (which can include inclusivity, participatory, and fairness; Saltmarsh et al., 2009), lest the normative apolitical stance of technocratic engagement prevail. For some practitioners, it is only when service learning is political that social change is possible. Indeed, it is useful to ask whether "apolitical" service learning ever exists. We acknowledge that context matters in answering these questions and that, in some national settings, politically oriented community engagement activities may be inappropriate, unwise, or possibly dangerous.

CONCLUSION

> Higher education institutions . . . should increase their interdisciplinary focus and promote critical thinking and active citizenship. This would contribute to sustainable development, peace, wellbeing and the realization of human rights. . . . Higher education must not only give solid skills for the present and the future world but must also contribute to the education of ethical citizens committed to the construction of peace, the defense of human rights and the values of democracy. (UNESCO, 2009, p. 2).

Service learning is a component of civic engagement in higher education that understands teaching, research and other creative activity, and service (or third mission) as interrelated activities that can be done in collaboration with community partners in ways that benefit and respect communities and that are consistent with the missions of higher education (Bringle et al., 1999; Saltmarsh and Hartley, 2012). As such, the development of service learning courses is not an end in itself but rather a means toward broader public purposes of all types of civic engagement activities. Service learning can be a powerful pedagogy for enhancing academic learning and personal growth, and it can uniquely accentuate the salience of civic learning in higher education and cultivate the knowledge, skills, dispositions, and behaviors that are so crucial to the flourishing of democracy, the advancement of justice, preparation for meaningful careers, and the realization of world peace. Accordingly, it can be a model for democratic approaches to engagement for other activities in the academy (Saltmarsh et al., 2009). For these reasons, improving our understanding of what constitutes civic learning and how civic learning objectives can be achieved and assessed will serve the public purposes of higher education.

AUTHOR CONTRIBUTIONS

RB and PC contributed to all aspects of the manuscript.

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The Evaluation of Social and Professional Life Competences of University Students Through Service-Learning

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The view previously held in the university regarding teaching-learning processes has changed significantly over the past few years. Undoubtedly, in the case of Europe, this change of pedagogical model has gone hand in hand with the creation of the European Higher Education Area (EHEA). Some of the pivotal areas of EHEA are the independent work of the individual student, the social dimension of learning, and the acquiring of skills, which are not reduced to the mere technical and/or subject matter knowledge. Generic competences and the so-called "soft skills" have also become important, given their significant contribution to the students' academic, personal, social, and professional development. Predictably, within this framework, new methodologies appear, in line with this educational focus on competences; among these new methodologies include service-learning (SL). It basically consists of introducing a community service into the traditional academic and curricular tasks thereby seeking a better relevance and applicability in the learning processes. This article analyzes the way in which SL contributes to the acquisition, by university students, of a certain skill set which is useful for their social and professional life. To this end, we used a quasi-experimental design, which included pretest and posttest assessments based on a total sample of 1,153 students (789 SL students and 364 non-SL students). The used questionnaire evaluates three important components relevant for the purpose of the present article (perception of the university education, social participation and civic-social competences). The conclusion is that students involved in SL not only show a more positive evolution, but also obtain better results after the projects are completed (regarding satisfaction with the training, and social participation). By the same token, not all students included in the experimental group achieve homogeneous results; the differences are according to variables such as gender, the cycle/year they are enrolled in,

area of study or whether or not they previously participated in university service activities. Finally, we observe that this methodology is capable of approaching university education in a holistic way by asserting cross-section type learning processes likely to be useful in the transition from the students' academic to their professional life.

Keywords: service-learning, higher education, evaluation, competences, soft skills, employability, social capital

INTRODUCTION

Since the advent of the new century, we have witnessed a continuous appeal for a change of focus, or of paradigm, with regard to the optimization of learning processes, especially in the case of students in higher education. This call, expressed more acutely in academic forums and civil society instances was not unconnected to the fact that we live in a knowledge society, in which the impact of digital technology makes a difference in productivity patterns and development indicators (Etzkowitz et al., 2012).

Within such a context, the university again lays claim to being the most eminent and natural motor for the production, transmission, and transfer of knowledge. This is sufficient reason to start giving proper attention (thereby correcting some inertias of the past) to the skills and capabilities of one's students in order to ensure a better personal development and a progressive adaptation to constantly changing professional realities (Välimaa and Hoffman, 2008).

Although the interest in the particular dynamics of this society of learning and/or knowledge is relatively recent, the reflection about it and the very reality it refers to are not. In fact, the origin of the concept is ascribed to Professor Robert E. Lane from Yale University, in the 1960s (Lane, 1966; Välimaa and Hoffman, 2008). The changes which took place then (late 1960s and early 1970s) led, according to Delanty (2003), to the transition from what can be labeled as a "professional society", based upon industry and a utilitarian type of knowledge, to a post-industrial society much more oriented toward services.

Hence, as the influence of the society of knowledge grew, higher education also saw its traditional functioning patterns redesigned, both in matters of its social component and at a more strictly academic level. It was the Commission of the European Communities (2003) itself, which pointed to the existing link between the new model of social organization and the surging of new expectations from the university which gradually transformed into different educational necessities. In this paper we argue that, without minimizing the importance of the technical domain in each degree or academic title, one has to place value on the cross-section competences in the training of students and to enhance the opportunities of lifelong learning. Only in this way can one ensure that students will possess the necessary competences for an appropriate personal, professional, and social development, in an environment marked by change and uncertainty (Santos Rego, 2016).

Having said all the above, we can confidently state that the transmission of exclusively technical learning, articulated around theoretical contents and knowledge, becomes insufficient. This has given rise to a new educational model within the university, made possible by the focus on skill-based learning, skills becoming the point of reference meant to lead the training processes. One must contend, therefore, with one of the most stringent requirements faced by 21st century universities, referring, as stated by the Council of the European Union (2010) to the importance of students acquiring the competences likely to allow for the improvement of their employment prospects and to contribute to their personal fulfillment, social inclusion and active citizenship, without overlooking their capacity to organize themselves when faced with realities much less predictable than ever before.

We should remember that, in Europe, the groundwork for the gradual visibilization of the new focus was laid by the Tuning Project (González and Wagenaar, 2003), which coincided with the progressive construction of the European Higher Education Area and the adoption of the European Credit Transfer System (ECTS). What one proposed back then was that, pragmatically speaking, the concept of competences had to be understood broadly enough, as being acquired by the student throughout the learning process and the result of a combination of knowledge, understanding, skills and abilities. At the same time, a differentiation was made between specific competences (those related to the knowledge of a particular academic subject) and generic competences (transferable to any academic title) with the latter being those necessary for an appropriate professional development of students and also those likely to foster a type of learning which must be ongoing and/or lifelong (Council of the European Union, 2010).

On the other hand, one has to acknowledge that the important role which must be assigned to those cross-section and lifelong competences does not only correspond to a renewed vision of the university, given that those who employ university graduates (companies, organizations etc.) apart from the specific knowledge of their respective field, value another type of competences, both intellectual and personal. Without looking too far, it would be the case in communicational or teamwork skills (Wye and Lim, 2009). It is undeniable that the labor market requires technical knowledge within a real setting, but this is not the only requirement and sometimes it is not even crucial. Many organizations include in their selection or promotion grids other soft skills, of cross-section nature and linked, to a very large extent, to the social dimension of learning (Succi and Canovi, 2019).

It was precisely in the last decade that a heated debate around the concept of soft skills has been seen. There can be little doubt about the need for those skills to be promoted and cultivated, even if the problem, as usual, consists of the lack of an adequate conceptualization thereby resulting in a certain degree of ambiguity in its significance. When speaking

about soft skills, one points to a variety of qualities, features, values, attributes which also include some emotional aspects. They consist, ultimately, of a combination of personality traits, objectives, propositions, motivations and preferences of the persons and they are highly valued not only within educational contexts, but also on the labor market, as well as in other segments of daily life, even becoming guarantors of success (Heckman and Kautz, 2012).

The origin of the term "soft skills" dates back to some United States Armed Forces documents from 1972 (Touloumakos, 2011). Over these almost five decades, the term has encompassed different aspects, including: professionalism and work ethic; capacity of working and learning; decision making; creativity and innovation; interpersonal, social and teamwork abilities; communication and conflict resolution abilities; capacity of managing information and technology; or leadership skills (Andrews and Higson, 2008; Lazarus, 2013).

Delving more into the expression itself, it seems important that soft skills are considered actions, which entail a look at the person who acts (Matteson et al., 2016). These abilities are presented as generic properties which can be acquired and exercised in various contexts, transversally, and which continue to present difficulties in their analysis. Among these soft skills, preferences are given to those that are useful for social and professional life, the main axis around which the present article revolves. An indicative sample is the importance of the research on the promotion of interpersonal, social and team skills (Bancino and Zevalkink, 2007). The same could be said about the stimulation of communication skills (Mitchell et al., 2010) as well as of the negotiation and conflict resolution skills (Succi and Canovi, 2019).

The role of this type of learning processes in university education is even more relevant in the present-day society and professional reality (Naval and Arbués, 2018), given, among other reasons, the new functions which UNESCO (1998) ascribed to higher education in the 21st century, three of which we wish to highlight here:

- To train highly qualified graduates and responsible citizens who, through a series of theoretical and practical competences, would attend to the needs of society and actively participate in social life.
- To protect society's values, ensuring that those values, which promote a democratic and critical citizenship, are instilled in the youngest generation.
- To contribute to the understanding, interpretation, preservation, reinforcement, promotion and transmission of regional, national and international, as well as historical cultures taking as a reference a plural context, one of cultural diversity.

These ideas make more sense, in a socioeconomic moment as the present one (Naval and Arbués, 2016); it seems logical that the universities' collaboration should be requested in order to tackle this situation while taking into account the competences which students would need in their personal and professional life. Most certainly, the mission of higher education is social, cultural and that of transferring knowledge.

For this reason, numerous methodologies have taken root in the educational dynamics of the university over the past few years, in order to fit in with a model in which the factor of interest is constituted by the students' effort and the construction of learning processes which would be useful for the social and professional contexts in which one has to work. One of the methodologies which shows more potential in this regard is service-learning (SL). In the most elementary sense, it means introducing community service into the traditional academic and curricular tasks, including a strong component of continuous reflection which allows establishing mutual relationships between academic learning and action within community environment. More specifically, "it is conceptualized within experience-based education and is characterized by: (a) student protagonism; (b) addressing a real need; (c) connection to curricular objectives; (d) execution of the service project and (e) reflection" (Naval et al., 2011, p. 88).

Given its peculiar pedagogical features, we agree with Butin (2003) in suggesting that we are dealing with a shift in the patterns, from the passive and that of receiver of information to the active, where direct contact with the real world, as well as the relationship established between university and community allow for the connection between theory and practice, moving away from an instrumental vision of education. In this way, it directly affects the students' attitude toward the training they receive, given that the acquisition of practical knowledge constructed around their own experience shows clear repercussions in their levels of satisfaction, especially given the perceived usefulness of their learning processes (Thamwipat et al., 2018). From this point of view, students participating in SL report positive emotions such as interest, enthusiasm, inspiration and determination (Opazo et al., 2018); they also state that the educational experience provides them with satisfaction, commitment and growth (Watson et al., 2018); and they see their motivation and perception of self-efficacy transcend (Gonsalves et al., 2019).

The above is due, to a large extent, to the connections and reciprocity relationships established between university and community, because, in the latter, the students find the applicability of what they have learned, besides acquiring knowledge rooted outside of the classroom and the campus, strongly contextualized and located within the social dynamics (McIlrath, 2012). A special mention should be made of the capacity to develop civic and social competences, considered to be of great importance in order to guarantee a holistic development of the students (Jagla and Tice, 2019; Succi and Canovi, 2019; Cohen, 2020). Furthermore, as suggested by Bringle and Clayton (2012), SL is different from other methodologies in that, by considering civic learning as a top-level objective, it is directly connected to both the professional reality and the deontological responsibilities and does not limit itself to exclusively promoting cognitive-type learning.

Evidence of this is provided by the annual questionnaire distributed in the United States by Campus Compact (2015), in which the universities belonging to this network stated that SL allowed them to achieve visible levels of civic commitment in

their students. In particular, they acknowledge results in fields such as civic and democratic learning (81% of the institutions), social commitment to diversity (76%), orientation toward social justice (64%) or global learning (64%). Furthermore, Moely et al. (2002a) discovered that students participating in SL scored higher than their peers did in different dimensions of Civic Attitudes and Skills Questionnaire (CASQ): civic actions, interpersonal and problem resolution skills, political awareness, leadership competences, and attitudes of social justice. Another example is the study carried out by Einfeld and Collins (2008), in which evidence was provided for improvement in the sphere of social justice, especially with regard to inequality; development of multi-cultural skills; and civic involvement, which is understood as the exercise of an active citizenship and the commitment to community service.

The previous arguments are certainly strengthened by taking into account the vision of Opazo et al. (2015), who insisted on the opportunities provided by SL in putting different groups of persons who otherwise would not have the possibility to share time, thoughts or experiences into contact with each other. The authors also emphasized that these projects provided opportunities to know and acknowledge different social problems and real needs, thereby stimulating social commitments. Said commitments consequently lead to an impact in the levels of political and social participation by young people, its contribution being crucial in terms of motivation, given that it is through one's own involvement in social matters that the interest for public life is increased (Ugarte and Naval, 2010).

However, the concern for public matters must not be reduced to mere political participation, given that it also includes the attitudes, values and intentions to help and serve in the development of the community. There are many studies which prove the good contribution of SL in this regard and demonstrate an improvement in the students' predisposition to get involved in community service initiatives such as volunteer work, as well as in the perception of their own social responsibility (Markus et al., 1993; Fenzel and Peyrot, 2005).

All of the above shows SL as a methodology capable of coping with a new university model, in which the student's independent work is the basis of the teaching-learning processes and contact with day-to-day reality allows for acquiring skills which would guarantee an appropriate personal, social and professional transition of the graduates. However, what we are aiming for is to demonstrate this potential as part of a rigorous methodological approach, under a strongly contextualized view in the Spanish university system and, by extension, in the European university system. It is also important the different existing conceptions for the topics into which this work was organized, such as SL or soft skills in university education, as well as their value on the labor market and, moreover, in different societies (Santos Rego et al., 2020b). Precisely for this reason, our research question was: Is SL a sufficiently adequate and epistemically sound methodology to ensure the development of the relevant soft skills that can be useful to university students for their personal and professional development?

The importance of evaluating the relationship between SL and the development of social and professional competences has to do with the uniqueness of this methodology. In this regard, Bringle and Clayton (2012) stated that, while other educational strategies sought to promote academic learning (with a focus on content) and cognitive development, SL also aimed at achieving greater civic learning. It also promotes and strengthens the links of this civic learning with professional education, especially in relation to the ethical responsibilities of practice (Bringle and Clayton, 2012). In short, it is a methodology that enables a more situated learning experience by linking university students with community environments, beyond academic development, and influencing on other generic and transversal learnings.

In the case of the Spanish university system, we should study the way in which students develop social and professional competences, especially when active methodologies such as SL are used. In terms of social competences, the involvement of Spanish youth in associations and organizations can be greatly improved (Jover, 2016; Santos Rego et al., 2018). Moreover, if we focus on professional competences, the data on youth unemployment in Spain are alarming (39.9% according to the Eurostat barometer, 2021[1]).

Our motivation involves the intention of addressing a gap that persists in research and that, particularly in Europe, translates into a lack of attention to the links between SL and the new training models that have emerged with the consolidation of the EHEA, as is the case of the generic competences proposed by the Tuning Project (González and Wagenaar, 2003). The study is therefore aimed at analyzing the differences between university students participating in SL projects and those following an usual formative process, while addressing issues such as how university formation is viewed (in terms of motivation, satisfaction and uncertainty about one's professional future) as well as social participation, and the development of civic and social competences.

MATERIALS AND METHODS

The survey carried out aims to establish whether there are differences regarding the development of certain competences, which are considered to be of interest for an adequate personal and professional progress of university students, taking into account their participation in SL courses. In order to achieve this aim, we proceeded in accordance with a quasi-experimental design, in which the independent variable was given by the participation in the various SL experiences. More specifically, students participating in these projects made up the experimental group (EG), whilst those who followed a more conventional methodology acted as a control group (CG).

At the same time, another objective was to know the profile of students who were following the SL methodology where the impact was at its greatest, for which purpose we analyzed the differences within the EG according to some variables: gender, cycle of studies, area of study (grouping together, on the one hand, students of Social and Legal Sciences, and Arts and Humanities; and, on the other hand, students of Health Sciences,

[1]https://ec.europa.eu/eurostat/databrowser/view/UNE_RT_M__custom_676480/default/table?lang=en

and Engineering and Architecture) as well as prior participation to other community service activities promoted by the university.

Participants

The sample was made up of 1,153 university students, out of whom 789 (68.4%) participated in SL projects, whilst the remaining 364 (31.6%) followed a conventional methodology. In particular, the data was collected within the framework of the subjects taught at the University of Santiago de Compostela, which implemented SL projects during the 2016–2017 and 2017–2018 academic years. The results of 32 SL projects were evaluated (19 in the first year of the study; 13 in the second year); they were developed in different university degree programs under an institutional call for support for the implementation of SL.

From these subjects, students involved in SL projects made up the EG, whereas the CG was made up of those engaged in the more conventional academic tasks. This is the difference between the two groups: those who participate in SL learn the basic contents of the subject while being involved in addressing a social need in the university environment. On the other hand, the CG followed the normal classroom dynamics, i.e., expository and interactive classes or laboratory sessions. In short: in both cases the same contents of the subjects are worked on, but in SL the theory-practice link is more explicit, given the connection between learning and a social or community problem.

The students' ages ranged between 19 and 51 years, although 88.4% of them were in the 18–24 age segment, with an average age of 21.84 years. Out of them, 75% are women and 25% men. As far as academic years are concerned, they were homogeneously distributed across the 4 years of graduate study: 28.4% were in the first year, 21.9% in the second, 25.3% in the third, and 24.4% in the fourth. The majority were enrolled in Social and Legal Sciences (80.4%), followed by Health Sciences (15.8%), Arts and Humanities (2.8%), and Engineering and Architecture (0.8%). Finally, only 18 students (1.6%) indicated that they were part of a mobility agreement (Erasmus, SICUE-Séneca and bilateral agreements).

Instrument

This study made use of the Questionnaire on University Students' Civic and Social Competences and Self-Efficacy (CUCOCSA) (Santos Rego and Lorenzo, 2018). It is a questionnaire consisting of three open and 10 closed questions. The closed questions, for their part, are divided into dichotomic items, multiple choice single select questions, and scalar items. As far as their content is concerned, there are questions referring to the personal and academic biography of the student: age, gender, degree and academic year of enrollment, faculty, campus, participation in mobility programs, in projects involving some form of community service and in SL courses. Thereupon four scales are presented on: university training, social participation, civic-social competences, and perceived self-efficacy. The results of the present study come from the first three scale. The perceived self-efficacy was not used.

As far as the validity of the instrument's content is concerned, we used an external validation procedure, carried out by five judges, experts in the areas of knowledge which were relevant to the study. Subsequently, in order to test the reliability and validity of the scales, we carried out an exploratory and then a confirmatory factor analysis (CFA) (Mella, 2019). The psychometric analysis of the scales was carried out with a total of 996 university students, which was randomly distributed in two sub-samples (the first made up of 500 students and the second of 496).

With sub-sample 1 (calibration sample), we performed an exploratory factor analysis (EFA) as well as the calculation of the factors' reliability by means of Cronbach's α, thereby establishing the dimensionality of the scales, using the Principal Components extraction method and a Varimax rotation. The KMO tests = 0.846 and $\chi^2(190) = 2{,}833.81$, $p < 0.001$, reported good sampling adequacy and a significant correlation between items, respectively.

With sub-sample 2 (validation sample), we carried out a CFA using the AMOS 20 Statistics Package, with the purpose of checking whether the factorial structure previously obtained in the EFA adequately represented the information provided by the data, obtaining a good fit in all the cases. We will now go on to explain the factorial structure of each one of the scales:

University Training Scale

Its objective was to analyze the students' motivation and perception with regard to the training they receive in the university. In order to build it, we used as a basis the Evaluation System for Experiential Educational Programs (ESEE) designed by Furco (1995), a protocol for the evaluation of experiential education and, more specifically of SL projects. The scale is made up of seven items (from strongly disagree to strongly agree) out of which the EFA distinguishes three significant factors: link between the subjects and real life (α = 0.79), satisfaction with the training (α = 0.70), and uncertainty about the future (α = 0.50), which explained a variance of 66.11% and showed a good internal consistency.

Social Participation Scale

It seeks to measure the students' social involvement. They are asked to assess their degree of participation in civic matters, be they pertaining to the university or what is exterior to it. In order to build it, we took as a reference the *Civic-Minded Graduate Scale* of the Indiana University—Purdue University Indianapolis (Steinberg et al., 2011; Pike et al., 2014). It consists of five items (from never to on a weekly basis) which, upon applying the EFA, were grouped into a factor that explained a variance of 42.39%, showing a good internal consistency (α = 0.60).

Civic and Social Competence Scale

This third scale includes a set of items whose focus is the analysis of the degree to which students believe they possess a series of competences connected to civic and social matters. Four were the instruments serving as a reference for its construction: the CASQ (Moely et al., 2002b); a self-evaluation scale on the development of generic competences (Santos Rego et al., 2018); the *Public Affairs Scale-Short Survey* (PAS-SS) (Levesque-Bristol and Richards, 2014); and the *Evaluation System for Experiential Educational Programs* (ESEE) by Furco (1995). It consists of a total of 20 items which, following the initial extraction, are organized into four significant factors that explain

a variance of 50.96%: personal behavior (α = 0.79), leadership (α = 0.72), intercultural competence (α = 0.73), and teamwork and relationship with others α = 0.70).

Procedure

The instrument was distributed during the 2016–2017 and 2017–2018 academic years. This questionnaire was applied in a pretest situation, before the start of the SL projects, as well as at their end (posttest), in each case before the final exam for the subject. Given its estimated answering time of 10–15 min, it was carried on on-site, guaranteeing the confidentiality of the collected data (anonymity, system of codification and custodianship).

At the beginning of the study, the governing team of the University of Santiago de Compostela was also informed of the aim of the research project and of the procedure which was to be followed. In applying the instrument, we followed the recommendations of the University of Compostela's Bioethics Committee and of the Helsinki Declaration, complying with the stipulations which, in the case of Spain, are laid down in the Organic Law 3/2018, of December 5, on Data Protection and Guarantee of Digital Rights.

Data Analysis

To begin with, in order to calculate the dimensionality of the three scales, an EFA was carried out, in order to obtain the structural validity and the reliability of each one of them. The information stemming from the EFA was subsequently verified by carrying out a CFA, as presented in the previous section (Mella, 2019). This procedure is known as "cross-validation" (Cudeck and Browne, 1983).

Subsequently, comparison tests were carried out between the pretest and posttest, both for those students who were involved in a SL course during the academic year (EG) and for those who were not (CG). The dependent variables taken into account were the factors obtained in the EFA and validated in the CFA. The aim was to know the impact generated by the involvement in SL in the development of three of the dimensions making up the instrument (perception of the university education, social participation, and civic-social competences). Subsequently, by means of a comparison test, we studied the differences between both groups in the factor scores obtained at the end of the academic year, in order to find out whether any of them showed a higher level of development.

Finally, for each one of the factors, the profile of the students participating in SL activities were compared. For this purpose, the scores obtained by these students in the posttest phase were contrasted according to gender, cycle of studies, area of study, and previous participation in service activities promoted by the university. The significance level chosen for all the tests was α = 0.05, and all the analyses were carried out with the SPSS v. 24.

RESULTS

In order to present the results obtained in each one of the scales, one starts by presenting the scores obtained (EG and CG) in pretest and posttest, so as to analyze the evolution of both groups during the SL projects. Then, the differences between the two groups in the posttest are identified, the intended purpose being to assess the possible impact of the fact of participating or not in SL on the measured variables. Finally, we present the differences occurring within the EG's scores in the posttest stage.

University Training

With regard to the students' perception of the training received at university (**Tables 1**, **2**), we noted significant improvements in the EG, where, after the conclusions of the SL project, a greater degree of satisfaction concerning the connection between the studied subject and real life was evident. This satisfaction also extends to the training they receive. In the case of the CG, not only the lack of improvement in the studies is striking, but also the fact that these students show higher levels of uncertainty about the future.

Besides a better evolution between the pretest and posttest stages, the EG is significantly different from the CG in matters of their satisfaction with their university education (**Table 3**). What this indicates is that students who participate in the SL projects conclude their studies with a greater satisfaction with the training they received in the university, both in terms of its usefulness for their life and for their future profession.

Nevertheless, not all students involved in SL scored homogeneously on this scale. Looking at the profile of the

TABLE 1 | Pretest/posttest differences in the experimental group's (EG's) perception of the university training.

Factor	Experimental group						
	Pretest		Posttest		*t*	*df*	*p*
	Mean	SD	Mean	SD			
Connection between the studied subject and real life	4.62	0.489	4.69	0.476	−3.725	778	0.000
Satisfaction with the training	3.37	0.834	3.43	0.850	−2.278	779	0.023
Uncertainty about the future	3.06	0.940	3.12	0.988	−1.480	771	0.139

TABLE 2 | Pretest/posttest differences in the control group's (CG's) perception of the university training.

Factor	Control group						
	Pretest		Postest		*T*	*df*	*p*
	Mean	SD	Mean	SD			
Connection between the studied subject and real life	4.69	0.393	4.69	0.514	−0.102	358	0.919
Satisfaction with the training	3.16	0.854	3.23	0.882	−1.777	357	0.076
Uncertainty about the future	3.06	0.916	3.16	1.001	−2.026	351	0.044

TABLE 3 | Differences between the EG and the CG in the perception of the university training (posttest).

Factor	Levene's test for equality of variances		*t*	*df*	Bilateral sig.
	F	Sig.			
Connection between the studied subject and real life	1.112	0.292	−0.207	1,145	0.836
Satisfaction with the training	0.589	0.443	−3.672	1,143	0.000
Uncertainty about the future	0.390	0.532	0.600	1,131	0.548

students, we observed within the EG some variations in the scores obtained. Firstly, the women differentiated from men in that they had a more positive appraisal of the connection between academic subject and real life ($M_{\text{Women}} - M_{\text{Men}} = 0.17$, $p = 0.000$). In the same factor, the students who had already participated in university service activities scored higher, marking differences from those who had never been involved in this type of initiatives ($M_{\text{Previous service}} - M_{\text{No Previous service}} = 0.10$, $p = 0.005$).

Finally, in matters of the area of study, there are differences concerning the satisfaction with training. Students of Health Sciences and Engineering-Architecture who got involved in SL ended their participation in these projects markedly more satisfied with the training they received in the university ($M_{\text{Health Sciences and Engineering−Architecture}} - M_{\text{Social−Legal Sciences and Arts−Humanities}} = 0.59$, $p = 0.000$).

Social Participation

In the second of the scales, when measuring the levels of participations in activities of social outreach and volunteering, both in and out of the university, both groups shared a significant evolution between the two applications of the instrument (**Tables 4**, **5**). However, we must pay due attention in the means obtained here, which are quite low, reflecting a rather sporadic participation of the university students in volunteer work or community service activity.

Besides the evolution witnessed by all the students throughout the evaluated period, we also found differences between them in matters of their participation in SL projects (**Table 6**). Thus, in posttest stage, those who were involved in these experiences showed higher levels of participation in other service areas.

Again, there were significant differences within the EG at the end of the projects. In this case, the variables which had an influence were the cycle of studies and the area of study. As far as the cycle is concerned, students of the first two academic years showed higher levels of social participation and involvement in volunteering when they end the SL project ($M_{\text{First cycle}} - M_{\text{Second cycle}} = 0.10$, $p = 0.027$). The Social-Legal Sciences and Arts-Humanities students also finished their involvement in SL showing a higher level of participation in social outreach activities than students from the areas of Health Sciences and Engineering-Architecture ($M_{\text{Social−Legal Sciences and Arts−Humanities}} - M_{\text{Health and Engineering−Architecture}} = 0.21$, $p = 0.000$).

TABLE 4 | Pretest/posttest differences within the experimental group in matters of social participation.

Factor	Experimental group						
	Pretest		Posttest		*t*	*df*	*p*
	Mean	SD	Mean	SD			
Social participation	1.31	0.463	1.47	0.634	−7.757	777	0.000

TABLE 5 | Pretest/posttest differences within the control group in matters of social participation.

Factor	Control group						
	Pretest		Posttest		*t*	*df*	*p*
	Mean	SD	Mean	SD			
Social participation	1.29	0.469	1.34	0.543	−2.658	357	0.008

TABLE 6 | Differences between the EG and the CG in matters of social participation (posttest).

Factor	Levene's test for equality of variances		*T*	*df*	Bilateral sig.
	F	Sig.			
Social participation	6.123	0.013	−3.600	809.18	0.000

Civic and Social Competences

Finally, regarding the evolution in the students' perception on the level of development of a set of civic and social competences, both groups experienced significant improvement (**Tables 7**, **8**). Whereas all students increased their scores obtained in leadership, where at the start the numbers were at their lowest, those who participated in service learning, also improved their teamwork skills and the relationship with others.

In this scale no significant differences were found between the two groups at the end of the projects (**Table 9**). However, within the EG, there were numerous differences according to the students' profile and there we may list some relevant aspects in the four variables of our analysis:

- Regarding gender, women scored higher in most factors. More specifically, they differentiated themselves positively from the men with regard to pro-social behavior ($M_{\text{Women}} - M_{\text{Men}} = 0.23$, $p = 0.000$), intercultural competence ($M_{\text{Women}} - M_{\text{Men}} = 0.29$, $p = 0.000$), and teamwork and relationship with others ($M_{\text{Women}} - M_{\text{Men}} = 0.12$, $p = 0.017$). Nevertheless, in matters of leadership, it is men who scored higher ($M_{\text{Men}} - M_{\text{Women}} = 0.12$, $p = 0.011$).
- With regard to the cycle of studies, just as in the case of the social participation scale, it is again the students in the first 2 years who had the advantage over their colleagues in matters of intercultural competence ($M_{\text{First cycle}} - M_{\text{Second cycle}} = 0.13$, $p = 0.004$).

TABLE 7 | Pretest/posttest differences within the experimental group in matters of civic and social competences.

Factor	Experimental group						
	Pretest		Posttest		*t*	d*f*	*p*
	Mean	SD	Mean	SD			
Prosocial behavior	4.39	0.419	4.41	0.430	−1.409	754	0.159
Leadership	3.69	0.557	3.82	0.599	−7.440	774	0.000
Intercultural competence	4.26	0.594	4.27	0.625	−0.926	775	0.355
Teamwork and relationship with others	4.20	0.549	4.23	0.583	−2.267	780	0.024

TABLE 8 | Pretest/posttest differences within the control group in matters of civic and social competences.

Factor	Control group						
	Pretest		Posttest		*T*	d*f*	*p*
	Mean	SD	Mean	SD			
Prosocial behavior	4.39	0.395	4.40	0.390	−0.565	348	0.572
Leadership	3.63	0.575	3.76	0.558	−5.025	354	0.000
Intercultural competence	4.25	0.593	4.22	0.616	0.945	360	0.345
Teamwork and relationship with others	4.21	0.517	4.20	0.571	0.141	357	0.888

TABLE 9 | Differences between the EG and the CG in matters of civic and social competences (posttest).

Factor	Levene's test for equality of variances		*T*	d*f*	Bilateral sig.
	F	Sig.			
Prosocial behavior	0.854	0.356	−0.387	1,117	0.699
Leadership	0.774	0.379	−1.655	1,136	0.098
Intercultural competence	0.953	0.329	−1.453	1,141	0.147
Teamwork and relationship with others	0.288	0.592	−0.807	1,142	0.420

- Regarding the area of study, it is the students of Social-Legal Sciences and Arts-Humanities who scored higher on intercultural competence ($M_{\text{Social-Legal Sciences and Arts-Humanities}} - M_{\text{Health and Engineering-Architecture}} = 0.20$, $p = 0.003$).
- Finally, there were also differences within the EG according to the previous participation in service activities promoted by the university. Specifically, those who had participated in such activities were the ones who achieved better results in matters of pro-social behavior ($M_{\text{Previous service}} - M_{\text{No previous service}} = 0.08$, $p = 0.038$).

To finish with the interpretation of the results, **Figure 1** is presented below with the intention of facilitating the understanding of the results obtained by both groups in the two applications of the questionnaire.

DISCUSSION

The study was based on the students' perception of the extent to which they think they have developed a certain set of competences which would be useful in terms of life development and employability. Let us then start by assessing the way in which they perceive their training in the university.

The first finding has to do with the positive appraisal the students, having participated in SL courses, make of the connection between their subject contents and real life. At this point, the results are close to what we found in the renowned work by Eyler and Giles (1999). There as well possibilities to apply the theoretical knowledge in real life translated into a greater motivation of the students involved in SL. This bears close similarity to the findings of Alonso et al. (2013), since the students stated that participation in SL influenced their motivation, given its practical character and the possibilities to establish relationships with real life in a similar professional environment. Neither should we forget the studies in which it is the teaching staff who give a positive appraisal to the possibility of applying the concepts of the instructed material in real contexts, resulting in an increase in the students' satisfaction (Weglarz and Seybert, 2004).

What we are showing in this study is precisely the fact that those students who participated in SL not only evolved positively in their own satisfaction with the training that they received, but also finished the projects differentiating themselves from their colleagues in this dimension. In this way, we give a solid backing to results coming from studies as the one carried out by Astin and Sax (1998), in which a group of students participating in SL also reported higher levels of satisfaction with the training received, explained in terms of relevance for real life and for professional exercise, which are aspects identical to those we have considered in our own study.

It was also demonstrated, that not only were the students involved in SL more satisfied with the education they receive in the university, but that their peers in the CG seem to reduce their levels of optimism—initially higher—with regard to said training (Moely et al., 2002a). It shouldn't come as a surprise, therefore, that there are studies in which more than 90% of the students declare that they would like to participate again in SL courses and would also recommend that their colleagues do the same (Folgueiras et al., 2013).

The last element around which students' perception of the university education revolved was the uncertainty about the future. In particular, our data showed that those who participated in SL did not manifest significant changes in this respect, although their colleagues involved in a more traditional learning dynamic, seemed to have more acute levels of uncertainty when the end of their studies was drawing near.

In this sense, even if they varied in the magnitude of the difference shown, the results we present here back those given by studies which demonstrate that SL does influence the

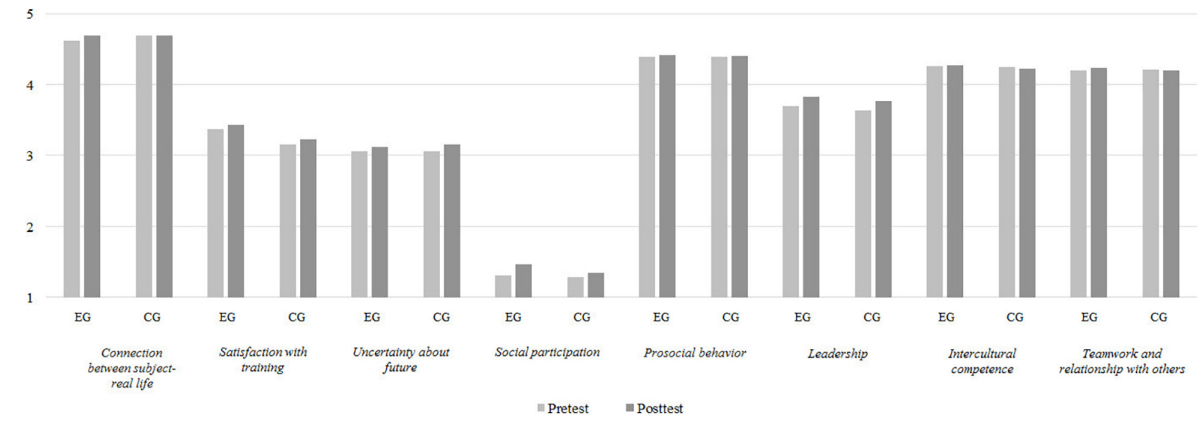

FIGURE 1 | Experimental group (EG) and control group (CG) scores in pretest and posttest. Source: own elaboration.

vocational development of students, seeming to contribute to their professional growth in terms of skill development (Weiss et al., 2016), with an orientative bias toward professional careers focused on service to the community (Astin et al., 2000). The most significant aspect is that it generates in the students some possibly more positive expectations regarding their future professional exercise (Aramburuzabala and García, 2012).

Once we have ascertained the degree of perceptive influence on the university training of students, we will approach the levels of social participation and of commitment to volunteering. That which is most clear in this particular aspect is that all students increased their levels of involvement in such activities, although those who participated in SL ended up doing it more assiduously.

This fact would, therefore, allow us to consider SL a methodology likely to connect the students with methods and issues rooted in community life, which promises some impact in the levels of social participation (Sotelino et al., 2019). The fact that it was shown that graduates who, during their student days, were involved in SL projects maintained non-negligible levels of participation in volunteer work is very significant (Fenzel and Peyrot, 2005; Moely and Ilustre, 2019). However, we cannot overlook the fact that our results point to a rather reduced involvement in social matters, which is more or less in keeping with what was already known about the Spanish student population (Jover, 2016).

Finally, changes have been observed in the levels of development of certain civic and social competences. The first of these is leadership, in which all students increased their scores, which does not allow us to associate this improvement with the participation in SL projects (Deeley, 2014; Moely and Ilustre, 2014). This is exactly the opposite of what was seen in the case of teamwork and relationship to others, where only the subjects from the EG significantly raised their scores. What becomes evident once more is that we are dealing with a methodology, with a marked interpersonal and relational component, given the reiteration of gains already observed in matters of teamwork (Hébert and Hauf, 2015), capacity of maintaining good relationships with others (García García and Sánchez Calleja, 2017), relational quality between professors and students (Alonso et al., 2013; Folgueiras et al., 2013) and certainly in the development of social capital (D'Agostino, 2010).

However, in the study we did not observe any significant results with regard to pro-social behavior and intercultural competence. This is in spite of the already recognized potential for SL to work on the pro-social disposition and civic competence of the students (Moely et al., 2002a; Celio et al., 2011), as well as on their intercultural competence and acceptance of diversity (Einfeld and Collins, 2008; Holsapple, 2012). It is, therefore, clear that on this scale no differences were detected between the two groups of students. Let us then go on to the last of the analyses carried out, that of the differences within the EG itself.

The first aspect is that this analysis revealed significantly better results in the case of women. More specifically, women scored higher in matters of how they appreciated the connection between subject contents and real life, the pro-social behavior, the intercultural competence, as well as teamwork and the relationship with others. As for men, they scored better in leadership. It is, therefore, clear that women are better when it comes to skills that are more strictly social; this is in line with the works conducted by McCarthy and Tucker (1999) and Moely and Ilustre (2019).

When considering the cycle of studies as variable for grouping the students who were involved in SL projects, we found that students of the first 2 years were the ones showing better levels of social participation in volunteer work as well as of intercultural competence. These data certainly did not support the idea expressed by Deeley (2015), who stated that SL could be a methodology more appropriate for students in the later years, invoking their better preparation for enrolling in this type of initiatives. In any case, the influence of SL on students in the earlier years was confirmed by other studies; they even showed that SL influenced decision making regarding the continuation of their university studies (Bringle et al., 2010; Reed et al., 2015).

We were also able to prove the appropriateness of devoting specific research efforts and initiatives to the different areas of study. In this regard, students of Social and Legal Sciences as well as students of Arts and Humanities scored far better in strictly social matters (social participation and intercultural competence), while those studying Health Sciences

and Engineering and Architecture scored better in their satisfaction with the training they received. These results are in line with the position taken by Zlotkowski (2000), mainly that SL cannot be designed and implemented in the same way in every subject of study, which will surely be reflected in non-coincidental results among the students.

We conclude by referring to the influence of the fact of having participated in other service-activities promoted by the university on the results obtained by the students in SL courses. Those who had previously participated in these initiatives showed a more positive appraisal of the connection between studies and real life and higher levels of pro-social behavior. Certainly, this has already been shown in other studies, considering the effects of prior participation both in other SL projects (Brandes and Randall, 2011) and in volunteering (Astin et al., 2006). What these studies indicated, to be more precise, is that those students had both a better preparation and pre-disposition.

We believe that the results obtained allow us to answer the raised research question, since we were able to confirm that SL leads to a better level of development of important life competences for university students, even in comparison with their classmates who do not participate in this type of courses.

Even so, it must be acknowledged that the scope of this work is not unrelated to the social and cultural context, in which it is also important to understand the role of the university in each era. What this means is that the soft skills, under this or any other name, have received much more attention in the European Higher Education Area than in any other university structures, especially under the European Union's educational and employment policies (Clarke and Winch, 2006). Precisely for this reason, there is an urgent need for further studies, such as this, that aim to address with appropriate methodologies the adaptability of SL to the European university model, beyond the benefits that have been demonstrated in other contexts, as is the case of the United States.

In short, the extracted data contribute to the development of knowledge about the social and community value that active methodologies may have in the learning process of university students. We believe that the analysis carried out allows us to reinforce the role of learning which, due to not being specific to an academic discipline, has a positive impact on the personal, social, and professional progress of students. We should bear in mind that SL is not only about providing coverage for a better mastery of academic content, but also about making this content available for civic and social development in response to the needs of the environment. Thus, it allows working on the pedagogical principles that define the new educational model that is inherent to the EHEA, in which learning is focused on the student's work and the social and community dimension becomes increasingly important as a context of practice and enrichment for future graduates (González and Wagenaar, 2003; Santos Rego et al., 2020b).

CONCLUSION

It is the experience accumulated in the scientific study of SL in the educational system in general and in university education in particular, which further strengthens our belief in the importance of not considering this methodology as only a vehicle for achieving a more complete education of the student in academic terms. It should also be viewed as a substantial part of a pedagogical program with practical perspectives, whose functionality has been constantly associated with gains in cognitive and non-cognitive skills, but in any case is unequivocally linked to some dimensions of the social and professional life of students, obviously including university students.

With all proper precautions, the results of the present article demonstrate that this path of research is not unimportant, nor lacking not strong epistemic promises so as to continue emphasizing the need to constantly evaluate, with solid procedures, the competences likely to optimize the options for the future of the graduates.

In our study, the differences between the EG and the CG confirmed the narrative of a considerable effectiveness of SL, given that the EG evolved positively in more variables than the CG. It is a fact, very well observed here, that in the posttest stage the first of the groups distinguished itself for the better in a considerable number of variables. Therein lies the support that the data gave to the use of SL as a way to develop certain types of learning and certain generic competences for life and employment, in a better way than other, more conventional, methodologies.

Another aspect, which must not be overlooked just because it has already been noted in the literature relevant to this topic, is the connection of SL with academic learning, without forgetting the frequent complicity between generic and specific skills. It certainly occurs with the variables we studied, i.e., the perception of university education, indicating motivation or satisfaction because of its usefulness; the social participation stemming from the involvement in SL, synonymous to commitment and action; or the civic and social competences, among which the pro-social behavior or the teamwork are relevant. These are—we should recall—variables which mediate the students' academic performance (Mella et al., 2015).

But, in addition to that, our intention was to approach these competences as if they were a passport for a better development of those abilities which are more relevant for employability. We see how the first of the scales highlighted the training that is linked to real life, the usefulness of this training or the uncertainty about one's future after graduation. In addition, it is precisely in these areas that SL manifests itself as a methodology which marks strong connections between theory and practice, bringing the students closer to some of the professional scenarios awaiting them.

Owing to the second scale, we can also reiterate the potential SL has within the framework of an informal education planting the seeds of competences related to the employability (Santos Rego et al., 2018). It is in the last of the scales that the possible association between the civic-social competences and the employment of university students was clearly shown, beyond the classical contrast between an integral training along humanistic lines and a training based on a strictly mercantile logic (Santos Rego et al., 2020a).

However, it would be rather naive to conclude that all the participating students showed an identical level of development. What we can infer from these results is the need to determine in advance, in certain variables, if we wish to optimize the implementation of the projects, as well as their impact in practical contexts. We are referring, among other things, to gender, to the academic year for which a SL project was designed, to previous participation in service activities, or the subject and field which we are dealing with. In line with very well-known references in the field (Zlotkowski, 2000), we advocate for further studies of SL tailored to the disciplinary structure of the various spheres of knowledge, with an emphasis on the students' vocational and professional dimensions.

We also need to emphasize a limitation of this article, which needs to be taken into account for the future. It is the attention which the pedagogical features of the projects deserve, especially if concerted efforts will be made to define quality criteria for them. What this can and must require is a closer monitoring of the experiences, in order to consider, on-site, keys of educational intervention likely to result in differences in the students' learning gradients (the quality and depth of reflection and the students' participation in the conception and implementation of the project would be some of them).

Coming to the end of this article and in a similar line of methodological self-criticism, we are displeased by the impossibility to have chance to determine the composition of the groups (the experimental and the control one) together with their allocation to the treatment (participation in the SL program). It is obvious that a study may be affected by the circumstance and/or type of participation (volunteer vs. mandatory) of the students.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Bioethics Committee of the University of Santiago de Compostela (Spain). The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MS and ÍM collected, analysed the data, and wrote the manuscript. CN and VV contributed to the theoretical framework and the discussion of the results obtained. All the authors contributed to the article and approved the submitted version.

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Design and Validation of a Questionnaire for University Students' Generic Competencies (COMGAU)

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University, as a social institution as defined in the European Higher Education Area, must be a benchmark in the preparation for beginning employment and education for the exercise of active citizenship. Therefore its functions include the development of knowledge and skills needed for appropriate personal performance in various social and professional arenas. This education is complex and requires bringing together specific and generic (or transversal) competencies. The fundamental aim of this study is to present the construction and validation of a questionnaire for evaluating generic competencies acquired via practical service-learning education and the potential employability of university students. Empirical analysis of the reliability and validity of the instrument was performed with a sample of 564 university students (67.2% women), aged between 18 and 59 years old, although with the majority between 18 and 22 (M = 20.96). Following exploratory and confirmatory factor analysis, as well as analysis of the items and the internal consistency of the scale, the results allow us to conclude that the internal consistency and validity of the Questionnaire on University Students' Generic Competencies are satisfactory. The proposed measurement model incorporates various prior theoretical contributions, and offers a complementary scale that may contribute to advancing research into service-learning and employability.

Keywords: generic competencies, employability, university students, higher education, learning-service, COMGAU

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INTRODUCTION

Twenty-first century society is in the middle of a social and technological revolution which is producing new contexts that people must adapt to, contributing to the construction of processes that improve people's overall quality of life. Sound training facilitates students' transition into the world of work and lays the foundation for social harmony (Ambrosy, 2015), however, achieving that requires us to predict these new social, economic, and educational situations, and use methodologies that combine theory and practice to bring these contexts into the university environment. In the areas of economics and employment, Drittich (2016) called these transformations the *Fourth Industrial Revolution*. In this revolution, the knowledge society (with particular attention to education and creativity) has become especially important, and it has

produced new dynamics between the educational system and the world of work, particularly due to the demand for academic training that is more suited to the needs of industry (Santos-Rego et al., 2018).

"In this way the mission of the university as a social institution emerges, as one of the most important elements of culture and society that must help in its transformation, maintaining quality and competitiveness and helping to respond to the general needs and problems in life that humanity is facing" (Rodríguez-Fernández et al., 2019, p. 7). The demands of modern society strengthen the need for students to have comprehensive training, they must take on responsibilities and develop key competencies for an ever-changing social and professional environment (Álvarez-Benítez and Asensio-Muñoz, 2020).

The Spanish response to the process of university convergence in Europe at the end of the 20th century was swift, with Spain adapting its university system to a new contextual framework. The new European Higher Education Area (EHEA) brought with it changes that Spanish universities took on board and which particularly had impacts on improving the teaching-learning process (encouraging initiatives so that students acquired competencies that met their aspirations and the needs of society), improving students' employability (and their acquisition of appropriate competencies that allowed them more effective entry into the job market), the structural reform of undergraduate degrees, and the trend toward creating more inclusive systems due to the growing diversity of the European population at this time (Mella, 2020). The EHEA is therefore, according to Rodríguez-Fernández et al. (2019), an excellent opportunity to reflect on the model of university that we want to create.

Continuous training and competency-based learning are two of the mainstays of the new educational model at university (Gargallo, 2016). Universities have the fundamental role of producing graduates with appropriate skills and competencies to satisfy the needs of employers and the modern world (Pheko and Molefhe, 2017; Mtawa et al., 2019), producing rounded citizens (Archer and Chetty, 2013; Walker and Fongwa, 2017) aimed at the public good (Walker and McLean, 2013), creating opportunities for all and reinforcing inclusive, humanist values (Murris, 2016).

The focus on competencies arose because of the difficulties graduates had in entering and staying in the job market (Brice, 2018; Mtawa et al., 2019). From a pragmatic perspective, the conditions of work, globalization, and the knowledge society are factors that place a series of demands on universities explaining the importance of introducing competency-based teaching-learning approaches (González-Maura and González-Tirados, 2008; Mella, 2020). González and Wagenaar (2003), via their *Tuning Project*, distinguished between specific competencies (strictly academic in nature, associated with each area of study) and generic/transversal competencies (covered in all courses or areas of study). The latter are the product of an open university with close ties to external social agents (Mella, 2020).

Chell and Athayde (2011) confirmed that nowadays the main concern related to graduates moving to the world of work is to have given them the skills and competencies that the labor system needs, taking for granted the fact that specific (academic) competencies alone are not sufficient. Studies such as the *Reflex Project* (Allen and Van der Velden, 2007), the aforementioned *Tuning Project* (González and Wagenaar, 2003), and the Galician University Quality System Agency (Agencia para la Calidad del Sistema Universitario de Galicia [ACSUG], 2014) highlight the importance of generic skills and competencies and new requirements for graduates in the job market, emphasizing skills such as working in teams and communication (Archer and Davison, 2008).

These generic competencies must be flexible and adaptable (Allen and Van der Velden, 2011), multifunctional, multidimensional, and have a high level of mental complexity (Rychen and Salganik, 2003). Santos-Rego et al. (2018) summarized the different generic or transversal competencies and related them to what the labor market most often requested from university qualifications. They included instrumental competencies (which need the combination of manual skills and cognitive abilities needed for professional competence, including cognitive, methodological, technological, and linguistic skills), interpersonal competencies (personal and relationship skills such as working in teams, expression of social or ethical commitment), and systemic competencies (involving skills and abilities concerning systems as a whole, such as the capacity to learn, adaptability, creativity, and leadership skills).

Griesel and Parker (2009) and Hinchliffe and Jolly (2011) highlighted the consistency in meaning in the attributes of employability defined as generic competencies, which include diversity awareness, interpersonal skills, self-management, digital literacy, communication skills, critical thinking, and team working, among others. In addition Pheko and Molefhe (2017) identified 14 generic skills: literacy, communication, enthusiasm/commitment, arithmetic, timekeeping, personal appearance, working in a team, information technology in general, dealing with customers, problem solving, specific vocational skills for the job, advanced professional skills for the specific job, entrepreneurial awareness, and enterprising abilities.

As we can see, the restructuring demanded of universities is aimed at balancing the production of "*useful machines*" for the labor market and the education of citizens with values that contribute to the development of a fairer, more just society, and all of that with an educational approach that encourages the complete development of the individual. Recent graduates need to be agile enough to adapt to a rapidly changing work environment (Coffelt et al., 2016), they need the attention necessary to learn this new work, and the humility to realize that they have a lot to learn despite having a university degree (Beaton, 2017). The university should also seek solutions to reduce graduate unemployment by developing and encouraging generic competencies (Mella, 2020).

Service-Learning, Development of Generic Competencies, and Employability

Not crediting the minimum competencies valued and required in our society means great difficulties entering the job market and places people in our country in this situation at greater risk

of social exclusion and vulnerability due to poverty (Sarasa and Sales, 2009; Boada et al., 2011; Gil-Flores, 2011). Service-learning is one of the educational approaches that best combines the social, ethical, and civic dimensions of professional profiles within the mix of professional competencies (Tejada, 2013). It is therefore an educational strategy with great potential to facilitate access to employment (Gallagher, 2007; Rodríguez-Izquierdo, 2018).

Sotelino et al. (2019) emphasized the notable impact of the service-learning methodology on participants and the community, with the greatest effects being in higher education (Chiva-Bartoll and Gil-Gómez, 2018). In addition, Santos-Rego et al. (2015) reiterated the suitability of service-learning for addressing the educational process in a comprehensive manner, from the acquisition of cognitive and academic skills to civic-social skills.

Brice (2018) and Mtawa et al. (2019) underlined the fact that, in addition to developing human skills, service-learning has great potential for improving graduates' employability. It is also a useful teaching tool for producing competent graduates because it allows close connections between the academic and working worlds. Participating in service-learning projects increases students' chances of finding and keeping a job (De Leon, 2014; Peterson et al., 2014; Hebert and Hauf, 2015). In addition to purely academic skills, service-learning develops students' social awareness and active citizenship (Bringle and Clayton, 2012; Mayor-Paredes, 2019; Opazo et al., 2019) along with socio-relational skills such as empathy, managing groups, resilience, and solidarity (Whitley et al., 2017; An and Decker, 2019; Calvo et al., 2019). In terms of professional skills, Folgueiras et al. (2018) showed that students acquired numerous generic competencies through service-learning, particularly working in teams, ethical commitment, adaptability to new situations, and problem solving. Similarly Naval and Arbués (2016) confirmed the positive effect of service-learning on the development of generic competencies including professional communication skills, leadership and motivation, working in teams, project management, techniques for beginning work and professional development, negotiation skills, decision-making and problem-solving, dealing with customers, initiative, creativity, and change management.

The goal of this study is to obtain evidence to support maximizing the educational potential of service-learning in modern universities, which are tasked with an ever more demanding professionalizing function. In Spain there have been contributions from studies referring to the implementation of service-learning, such as Resch et al. (2020), but sufficiently thorough work using appropriate methodologies is scarce. For this reason we have proposed the construction and validation of a questionnaire to evaluate acquired generic competencies and university students' potential employability from the practical educational approach offered by service-learning.

Specifically, our hypotheses guiding the study are as follows:

(a) The COMGAU (Questionnaire on University Students' Generic Competencies based on the initials in the Spanish version) will demonstrate adequate factorial validity via a two-scale structure, a Generic Competencies scale and a scale of competencies directly related to employability.
(b) The scales will demonstrate adequate internal consistency, with Cronbach alpha values above 0.70.
(c) The factors from the questionnaire will stand out as predictors of acquired generic competencies and the level of university students' potential employability.

MATERIALS AND METHODS

Sample

Empirical analysis of the questionnaire's reliability and validity was carried out using a convenience sample of 564 university students (67.2% women) aged between 18 and 59 years old, although most were between 18 and 22 ($M = 20.96$). The students were studying social and legal sciences (88.4%), engineering and architecture (9.6%), and lastly arts and humanities (2%). Data collection was carried out at the University of Santiago de Compostela (Spain), on the Lugo campus (40.4%) and the Santiago de Compostela campus (59.6%).

Instrument

The instrument we proposed was a questionnaire for evaluating acquired generic competencies and university students' potential employability.

The final questionnaire was the result of the following phases:

(1) Literature review, performed by the research team and triangulated with external validation from five expert judges (national and international) in service-learning using a correction template. They were asked to assess the items in terms of validity criteria, location, intelligibility, and non-duality.
(2) A Pilot test with 50 students to validate the linguistic suitability of the items and their fit to the starting construct.
(3) Psychometric validation of the instrument, which is reported in this article.

The final questionnaire, called COMGAU (COMGAU based on the initials in the Spanish version) was made up of two scales:

(1) One generic competencies scale made up of 17 items (of the 33 formulated initially) grouped in five factors: leadership ability (five items), interpersonal skills (three items), intercultural ability (four items), collaborative online skills (three items), and analysis and summary skills (two items).
(2) A scale of items directly associated with employability (nine items).

Responses to the items were given on a Likert-type scale –as it is one of the most commonly used formats in social sciences, in addition to performing well (Blanco and Alvarado, 2005)— with five response alternatives, the optimum number as indicated by Matas (2018), where 1 is *not at all* and 5 is *a lot*.

Following the review and the analysis, prior to its psychometric assessment, the COMGAU was organized as follows: (1) the objective of the questionnaire, instructions, and

thanks, (2) data on the person completing the questionnaire, (3) data on experience of service-learning, and (4) acknowledgments and contact details.

Procedure

The study was approved by the University of Santiago de Compostela Ethics Committee. Following that, the instrument was applied during the 2019/2020 academic year. It was distributed in the participating centers, accompanied by members of the research team who were present during the application. Prior to that a participation agreement was signed ensuring compliance with the ethical guidelines of the American Psychological Association [APA] (2009) with respect to consent, confidentiality, and anonymity of responses.

Students present at the time of the study participated voluntarily. They completed the questionnaire in approximately 15 min in a suitable, distraction-free environment. The study was performed via the application of a transversal survey design. This type of design allows the description of a population at a given point in time. In addition, it allows the establishment of relationships between variables and between the different segments making up the population (León and Montero, 2015).

To avoid falsified responses, we excluded any kind of question from the instrument that may have allowed subjects' identities to be recognized and recorded an identifying code that respected respondents' anonymity.

Data Analysis

To verify the psychometric properties of the questionnaire, we calculated the descriptive statistics of the sample for each of the scales, also analyzing the item properties. Following that, and also for each scale, we performed an Exploratory Factor Analysis (AFE) using IBM-SPSS.25, following the principal component extraction method with Varimax rotation. From that we obtained the reliability of each of the factors through Cronbach's alpha, and finally, using structural equation models with the AMOS.20 program, we assessed model fit using the corresponding statistics (Byrne, 2001).

RESULTS

Descriptive Statistics: Generic Competencies Scale

Table 1 gives the descriptive statistics and the item-total correlations which show: (1) acceptable values, (2) that symmetry and kurtosis indicate a sufficiently normal distribution, and (3) that the item-total correlations were all significant.

Exploratory Factor Analysis: Generic Competencies Scale

First we calculated the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's sphericity test was significant ($p < 0.001$), indicating the data was suitable. We performed the Kolmogorov–Smirnov test of normality, producing suitable values in all cases ($p > 0.05$). We performed an AFE by principal components and Varimax rotation, with the following descriptive statistics: KMO = 0.86; $\chi 2_{(136)} = 2490.867$; $p < 0.001$. **Table 2** shows the results, indicating a structure made up of five factors in which all of the items had factorial loadings above 0.40 (Mullan et al., 1997). We obtained eigenvalues above 1 and a total variance explained of 59.85%.

We used Cronbach's alpha (Cronbach, 1951) to assess the questionnaire's reliability which is considered the most appropriate for instruments whose final scores are found by additive processes or the accumulation of points (Nunnally, 1978). Analysis of the 17 items gave an alpha coefficient (Cronbach's α) of 0.87 indicating high internal consistency, which did not increase on the elimination of some of the items. **Table 3** shows the index of homogeneity and the alpha coefficient for each of the factors.

This first scale, the generic competencies scale, is made up of five factors. Factor I, composed of five items (E1_3, E1_8, E1_9, E1_22, and E1_26), Factor II with three items (E1_29, E1_30, and E1_31), Factor III with four items (E1_4, E1_5, E1_15, and E1_23), Factor IV with three items (E1_6, E1_11, and E1_32), and Factor V with two items (E1_1 and E1_2).

In terms of the internal consistency of the items making up Factor I, the α coefficient was 0.76 indicating good reliability. The values for the items making up Factors II and III was slightly lower (0.74 and 0.72 respectively), whereas the consistency for Factor IV was 0.57 and for Factor V it was 0.51 –which can be justified as the calculation of alpha is sensitive to the small number of items making up the factor–. **Table 3** shows that none of the values of alpha increased if items were eliminated.

Confirmatory Factor Analysis: Generic Competencies Scale

In order to confirm the factorial structure produced by the exploratory analysis, we performed a confirmatory factor analysis, using the maximum likelihood estimation method together with the Bootstrapping procedure which ensured that the results were robust, and thus not affected by the lack of multivariate normality (Byrne, 2001). Considering that the value of χ^2 is very sensitive to small deviations of the hypothesized model when working with large samples (Jöreskog and Sörbom, 1993), we used the following indices of fit to assess the fit of the model: χ^2/df (Chi-square/Degrees of Freedom), CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), IFI (Incremental Fit Index), NFI (Normed Fit Index), GFI (Goodness of Fit Index), SRMR (Standardized Root Mean Residual), and RMSEA (Root Mean Square Error of Approximation). For χ^2/df values below 5 are considered acceptable (Bentler, 1995), whereas Hu and Bentler (1999) consider values for GFI and the incremental indices (CFI, TLI, IFI, and NFI) above 0.90 to be acceptable, and values above 0.95 to be excellent. Finally, the model is considered to have a good fit if the SRMR is below 0.08 and the RMSEA is below 0.06 (Hu and Bentler, 1999).

As **Figure 1** shows and given the indices in **Table 4**, we confirm that the proposed model is adequate, and is clearly consistent

TABLE 1 | Descriptive statistics, indices of asymmetry and kurtosis, and item-total correlation.

	M	SD	Asymmetry		Kurtosis		Item-total correlation*
			Standard error		Standard error		
E1_1	3.66	0.71	−0.016	0.103	−0.278	0.205	0.520**
E1_2	3.43	0.82	−0.104	0.103	0.002	0.206	0.414**
E1_3	3.75	0.94	−0.510	0.103	−0.170	0.206	0.493**
E1_4	3.61	0.78	−0.344	0.103	0.215	0.206	0.477**
E1_5	3.02	1.07	−0.002	0.103	−0.718	0.205	0.432**
E1_6	3.48	0.94	−0.225	0.103	−0.323	0.206	0.397**
E1_8	3.83	0.76	−0.355	0.103	0.306	0.206	0.558**
E1_9	3.69	0.99	−0.572	0.103	−0.194	0.205	0.570**
E1_11	4.10	0.84	−0.798	0.103	0.332	0.205	0.403**
E1_15	3.35	1.01	−0.053	0.103	−0.558	0.206	0.621**
E1_22	3.46	1.06	−0.228	0.103	−0.702	0.206	0.625**
E1_23	3.24	0.90	0.169	0.103	−0.296	0.206	0.541**
E1_26	3.64	0.91	−0.361	0.103	−0.221	0.206	0.634**
E1_29	3.27	1.10	−0.172	0.103	−0.625	0.206	0.645**
E1_30	3.40	0.92	−0.188	0.103	−0.308	0.206	0.606**
E1_31	3.74	0.81	−0.259	0.103	−0.089	0.206	0.616**
E1_32	3.70	0.83	−0.232	0.103	−0.176	206	0.535**

*Generic competencies scale. *$p < 0.05$; **$p < 0.01$.*

TABLE 2 | Exploratory factor analysis.

	Factor I	Factor II	Factor III	Factor IV	Factor V	Communality (h^2)
E1_9	0.72					0.605
E1_3	0.68					0.493
E1_8	0.71					0.559
E1_22	0.55					0.533
E1_26	0.58					0.587
E1_31		0.78				0.723
E1_29		0.76				0.670
E1_30		0.68				0.578
E1_5			0.82			0.682
E1_15			0.72			0.626
E1_23			0.70			0.546
E1_4			0.55			0.448
E1_32				0.76		0.669
E1_11				0.72		0.616
E1_6				0.63		0.538
E1_2					0.83	0.573
E1_1					0.65	5.73
% Variance explained	29.46	10.21	7.61	6.63	5.91	

Generic competencies scale.

with the theoretical structure that guided the creation of the scale and the corresponding items.

Descriptive Statistics: Employability Scale

Following the analysis of reliability, this second scale was made up of the nine original items. **Table 5** gives the descriptive statistics showing that the acceptable values, symmetry, and kurtosis indicate a sufficiently normal distribution and that all of the item-total correlations were significant.

Exploratory Factor Analysis: Employability Scale

We determined the dimensionality of the scale using AFE, following the method of principal component extraction and Varimax rotation, with the following descriptive statistics: KMO = 0.93; $\chi 2_{(36)} = 870.965$; $p < 0.001$. The initial extraction

TABLE 3 | Index of homogeneity (IH).

	IH	Cronbach's α if the element were removed
Factor I		
E1_3	0.455	0.745
E1_8	0.518	0.728
E1_9	0.570	0.705
E1_22	0.550	0.714
E1_26	0.581	0.702
Factor II		
E1_29	0.631	0.600
E1_30	0.539	0.698
E1_31	0.577	0.670
Factor III		
E1_4	0.429	0.705
E1_5	0.528	0.652
E1_15	0.561	0.627
E1_23	0.538	0.644
Factor IV		
E1_6	0.324	0.562
E1_11	0.346	0.517
E1_32	0.479	0.319
Factor V		
E1_1	0.351	
E1_2	0.351	

Generic competencies scale.

produced a single significant factor which explained 54.83% of the variance (see **Table 6**).

Analysis of the internal consistency of the final version of the scale and all of its components required calculating Cronbach's alpha coefficient. This analysis of the nine items gave an alpha coefficient (Cronbach's α) of 0.895, indicating high internal consistency. **Table 7** shows the index of homogeneity and the alpha coefficient for each factor making up the scale.

With a single factor, the employability scale was made up of nine items (E1_1, E1_2, E1_3, E1_4, E1_5, E1_6, E1_7, E1_8, and E1_9).

Confirmatory Factor Analysis: Employability Scale

Given the values cited for the first scale in this study and looking at the indices in **Table 8**, we confirm that the proposed model is adequate, and is clearly consistent with the theoretical structure that led the creation of the scale and its corresponding items (see **Figure 2** and **Table 8**).

DISCUSSION AND CONCLUSION

Service-learning is not only a process that involves transformation of academic life, personal, social, and citizenship development, but is also one that involves employability (Matthews et al., 2015). In this study we focused on the creation and validation of a questionnaire aimed at assessing university students' acquired generic competencies and their potential employability from practical service-learning education. We began from the conceptualization of professional competence as complex knowledge (Rychen and Salganik, 2003) linked to action, the socio-professional context, and experience, and how that is linked to service-learning.

As Tejada (2013) stated, the development of competencies means a close collaboration between what the individual brings to the work process and what the educational institution can provide for development of competencies (for example, time and space to reflect, the chance to take on appropriate levels of responsibility, etc.). Consequently, it is necessary to have criteria, evidence, and validated evaluation instruments that allow us to measure the acquisition of generic competencies that university students gain (Tobón et al., 2010) and their potential employability from the practical educational approach of service-learning (Brice, 2018; Rodríguez-Izquierdo, 2018; Folgueiras et al., 2018; Mtawa et al., 2019; Mella, 2020). We consider the factorial structure of the COMGAU to have a good theoretical fit.

Our results reinforce findings from previous studies such as Chiva-Bartoll and Gil-Gómez (2018); Rodríguez-Izquierdo (2018), and Sotelino et al. (2019), in which they concluded that service-learning notably facilitates the achievement of professional action skills in higher education institutions. This consistency means that we have a measuring instrument that can be used to check the acquisition of competencies.

To go into more detail, the proposed instrument has two scales: the generic competencies scale (17 items) and the employability scale (9 items), totaling 26 items. From the exploratory and confirmatory factor analysis, the solution is satisfactory both in the factorial structure of the scales and the high internal consistency, according to what various authors have stated in relation to the criteria to follow for confirming a questionnaire's validity (Merenda, 2007; Jackson et al., 2009).

With respect to the first scale, generic competencies, it is made up of five factors: leadership skills, interpersonal skills, intercultural skills, collaborative online skills, and analysis and summarizing ability.

The items in the leadership skills factor describe the ability to plan, coordinate, and organize, the ability to solve problems and take decisions, leadership abilities (the ability to motivate others), and the ability to take the initiative.

Factor II is composed of items directly related to social interaction, which is why we have called it interpersonal skills. The items refer to the ability to present products, ideas, and reports in public, the ability to negotiate effectively, and written and oral communication skills.

Factor III refers to intercultural skills. This is basic general knowledge (general culture), the ability to write or speak in other languages, the ability to work in an international setting, and knowledge of cultures and customs in other countries.

Factor IV is related to collaborative online skills, it includes the use of ICT, working in teams, and the ability to work online with people and teams. These are all skills that make up this emerging paradigm, as noted by Villa and Poblete (2011) of online learning based on global interactivity, collaborative learning, and lifelong

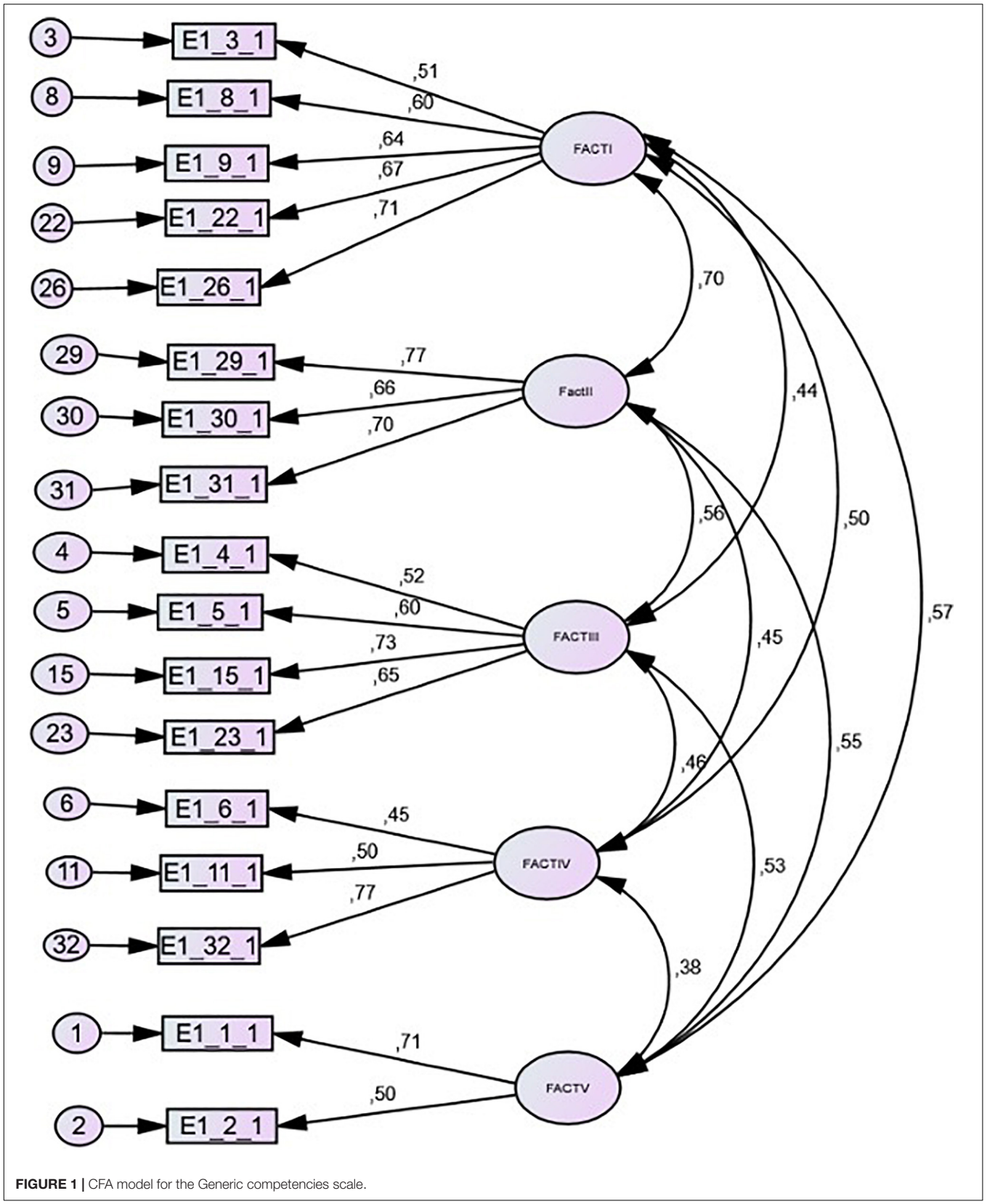

FIGURE 1 | CFA model for the Generic competencies scale.

TABLE 4 | Goodness of fit indicators for the model.

$\chi 2$	*df*	*p*	$\chi 2/df$	GFI	CFI	RMSEA (IC)	SRMR
314.22	109	0.000	2.9	0.94	0.91	0.058 (0.050 _0.065)	0.048

Generic competencies scale.

TABLE 5 | Descriptive statistics, indices of asymmetry, kurtosis, and item-total correlation.

	M	SD	Asymmetry		Kurtosis		Item-total correlation
			Standard error		Standard error		
E1_1	2.84	0.87	0.046	0.168	−0.147	0.334	0.772**
E1_2	2.76	0.92	0.344	0.168	−0.344	0.334	0.597**
E1_3	3.23	1.02	−0.319	0.168	−0.369	0.335	0.724**
E1_4	3.41	0.97	−0.405	0.168	−0.076	0.334	0.759**
E1_5	2.95	1.02	−0.093	0.168	−0.539	0.334	0.742**
E1_6	3.01	0.95	−0.234	0.168	−0.403	0.334	0.750**
E1_7	2.80	1.01	0.175	0.168	−0.497	0.334	0.774**
E1_8	2.96	0.92	−0.098	0.168	−0.170	0.334	0.766**
E1_9	2.79	1.00	0.048	0.168	−0.269	0.334	0.572**

*Employability scale. *$p < 0.05$; **$p < 0.01$.*

TABLE 6 | Exploratory factor analysis.

	Factor I	Communality (h^2)
E1_1	0.782	0.611
E1_2	0.581	0.337
E1_3	0.716	0.513
E1_4	0.758	0.575
E1_5	0.739	0.547
E1_6	0.748	0.559
E1_7	0.777	0.604
E1_8	0.775	0.600
E1_9	0.767	0.588
% Variance explained	54.83	

Employability scale.

TABLE 7 | Index of homogeneity (IH).

	IH	Cronbach's α if the element were removed
Factor I		
E1_1	0.708	0.880
E1_2	0.491	0.895
E1_3	0.633	0.886
E1_4	0.682	0.882
E1_5	0.655	0.884
E1_6	0.673	0.882
E1_7	0.698	0.880
E1_8	0.695	0.881
E1_9	0.684	0.882

Employability scale.

access to educational activities and resources (Harasim et al., 2000; Fisher, 2005; Guitert et al., 2007; Fainholc, 2008).

Finally, Factor V, called analytical and summarizing ability, as the name suggests, describes the ability to analyze and summarize.

All of the factors are consistent with the *Tuning Project* (González and Wagenaar, 2003), the Reflex project (Allen and Van der Velden, 2007), and the ACSUG project (Agencia para la Calidad del Sistema Universitario de Galicia [ACSUG], 2014). In addition, the factors refer to the availability of professional equipment and the use of necessary resources to perform a given activity, which is consistent with previous studies that have focused on generic competencies from this perspective (Santos-Rego et al., 2018). That means understanding the competencies examined in this study as a set of knowledge, procedures, and attitudes that are combined, integrated, and coordinated, as many previous studies have noted (Tejada, 1999, 2012; Echeverriìa, 2002; Naviìo, 2005; Rodríguez et al., 2010; Toboìn, 2007).

In addition, and owing to the fact that employers generally tend to be critical of the quality of recent graduates, blaming universities for the lack of training for the real world (Alonso et al., 2009; Brice, 2018; Santos-Rego et al., 2018; Mtawa et al., 2019), we present a scale which is directly associated with employability, with a single factor. In this way we refer to the connection between the content of university courses and the demands of the market, to personal development, and the preparation for a future occupation, the relationship between the academic and the professional trajectories, and also to the existing links between academic reality and the reality of work. Thus, through service-learning this gap between graduates' skills and the demands of a competitive and changing world can be shrunk (Salgado et al., 2012; Brice, 2018; Rodríguez-Izquierdo, 2018; Santos-Rego et al., 2018; Folgueiras et al., 2018; Mtawa et al., 2019; Mella, 2020).

All of the factors in the two scales consider the analytical elements, indicated by Rychen and Salganik (2003), needed

TABLE 8 | Goodness of fit indicators for the model.

$\chi 2$	*df*	*p*	$\chi 2/gl$	GFI	CFI	RMSEA (IC)	SRMR
75.419	27	0.000	2.8	0.92	0.94	0.092 (0.067_0.116)	0.046

Employability scale.

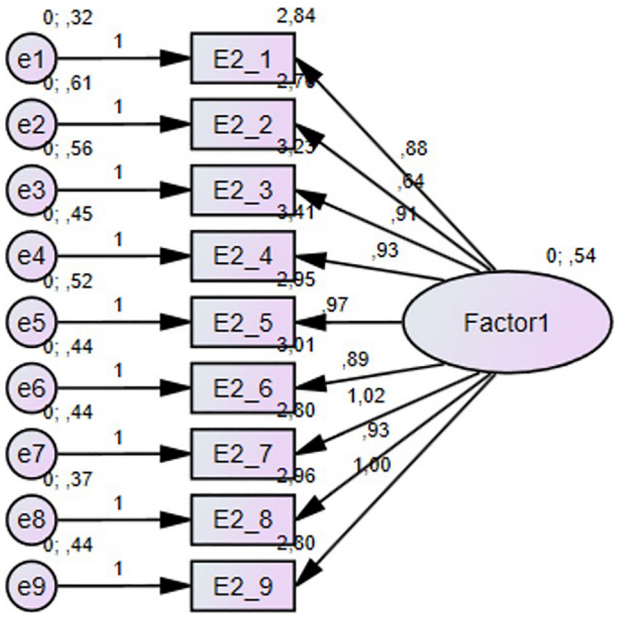

FIGURE 2 | Model of CFA for the Employability scale.

to define generic competencies: (a) they are transversal in different social fields; (b) they refer to a higher order of mental complexity, in other words they encourage the development of higher-order intellectual thinking such as critical and analytical thinking, reflection, and mental autonomy; (c) they are multifunctional, they are needed in a broad, diverse field of everyday, professional, and social situations, they are needed to achieve various goals and to resolve multiple problems in diverse contexts; and (d) they are multidimensional, as they address perceptive, normative, cooperative, and conceptual dimensions (Villarroel and Bruna, 2014).

In this way, our study maintains the connection with the objective of preparing citizens for the new challenges of the 21st century (Dearing, 1997; Bricall, 2000) along with the *Tuning Project* (González and Wagenaar, 2003), and the *DeSeCo model* (Definition and Selection of Competences) (Organization for Economic Cooperation and Development, 2001). In addition, it fills in a gap about how to incorporate, teach, and assess these competencies given that none of these systems are aimed at that (Villarroel and Bruna, 2014).

However, the results must be considered in the light of certain limitations. One is that the study only had data available from self-reports, which can mean biases due to possible intentionality in the responses (social desirability or magnification of difficulties for example).

There are also educational implications. In this study we have created and validated a scale allowing the assessment of training in professional competencies in higher education and the level of potential employability, via the service-learning educational approach.

Despite there being sufficient research evidence about the benefits of this learning methodology, one of the main criticisms made of it is the lack of specific instruments aimed at evaluating generic competencies acquired and the level of potential employability (Santos-Rego et al., 2018). For this reason, our study is a notable contribution to the body of knowledge, from a multidimensional perspective, which allows evidence to be obtained that may support maximizing the educational potential of service-learning as a methodological strategy in modern universities (Walker and McLean, 2013; Pheko and Molefhe, 2017; Walker and Fongwa, 2017; Mtawa et al., 2019).

Among these implications, the results of the COMGAU demonstrate its particular use as a tool for measuring the impact of service-learning on the self-perception of certain generic competencies commonly deemed necessary for quality professional development, and therefore as an instrument for studying the relationship between service-learning and self-perceived competency development. It is therefore not only useful for teachers but also for the students themselves.

Given that the validation of a questionnaire is a continuous process, our results are a preliminary step and future research should test the validity and reliability of the scale with samples in different cultures, as well as doing other types of analysis to confirm the suitability of the instrument, such as analyzing its temporal stability (Sánchez-Oliva et al., 2013). Not only would this improve the quality of the questionnaire's reliability estimators, it would also allow its validity to be more thoroughly examined in culturally distinct contexts. So, with further expansion of the tool and standardization it can be useful for intercultural groups also. Another limitation is the sample, it is necessary that in future studies it is extended to other regions or countries and areas of knowledge.

In conclusion, our results support the hypothesis we posed, highlighting the COMGAU (COMGAU based on the initials in the Spanish version) as an instrument with evidence of validity and reliability in the analysis of generic competencies acquired via the service-learning educational approach and the potential employability of university students.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article can be made available by the authors, with reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the University of Santiago de Compostela Ethics Committee. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

BR and JR-F contributed to the conceptualization, investigation, methodology, writing, and supervision of this study. JC contributed to conception and design of the study. MP-J organized the database. All authors contributed to manuscript revision, read, and approved the submitted version.

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Assessment Methods for Service-Learning Projects in Engineering in Higher Education: A Systematic Review

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Service-learning (SL) helps engineering students to be involved in community activities and to be motivated by their studies. Although several reviews and research studies have been published about SL, it is not widespread in sciences and engineering at the university level. The purpose of this research is to analyze the different community services or projects where SL is implemented by engineering students and faculty and to identify the procedures that were usually implemented to assess SL-based courses and activities. Assessment could be considered as the evaluation of a specific module and the engineering competencies, the evaluation of the effectiveness of the SL program, the assessment of the participation of the student in those programs, and the assessment of whether students have achieved certain outcomes or gained specific skills. We conducted a systematic review with a search in three scientific databases: Scopus, Science Direct, and ERIC educational database to analyze the assessment methods and what that assessment covers. From 14,107 publications related to SL, 120 documents were analyzed to inform the conclusions of this study. We found that SL is widely used in several universities as experiential education, and it is considered an academic activity. The most widely used assessment technique is a survey to evaluate the engagement and attitudes of students and, to a lesser extent, teamwork presentations.

Keywords: service-learning, assessment, assessment tools, data collection, engineering, higher education

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INTRODUCTION

Undergraduate students in engineering usually do not have the opportunity to develop their personal and social competencies and skills during their studies at the university level, except when they undertake practices in companies. Students will need a solid technical background as well as educational experiences that could help them to develop a sense of responsibility, self-efficacy, professional skills (e.g., leadership, communication, team-building, critical thinking skills, and sense of civic responsibility), and outside-of-the-classroom skills among fellow students and among the community (Oakes and Thompson, 2004; Dennis and Hall, 2007; McCormick et al., 2008; Finsterwalder et al., 2010). The limited use of different methodologies in university contexts is usually due to the lack of time of supervisors and sometimes the absence of knowledge of other

pedagogies (Abes et al., 2002; Andrews et al., 2005; Banzaert et al., 2006; Borkoski and Prosser, 2020). In this sense, service-learning (SL) could complement the training of the engineering student in the aspects and skills mentioned above.

The origin of SL can be attributed to the implementation of community service programs developed with the desire to accelerate the process of social evolution through the education of all people (Kenny and Gallagher, 2002). These cooperative education projects integrated real-world experiences into Antioch College studies in 1920 through an innovative set of learning and community-building strategies (Henderson and Hall, 1946). The USA government, under the authority of the Corporation for National and Community Service, implemented a program called Learn and Serve America (LSA) for K-12 and higher education institutions. LSA provides grants to support SL activities. The origin of SL is associated with a variety of government initiatives (Toncar et al., 2006). At the beginning of the twenty-first century, there have been numerous calls to reform engineering education in the USA to increase student understanding and engagement in society (Tucker et al., 2013).

The first study published in an international journal about SL dated 1950 (found in the Scopus search) was Simpson (1950), where SL was defined as "*learnings related to evaluation, record-keeping, resource getting and selecting, democratic discussion processes, and reading*" (p. 1). The widespread use of SL increased in the 90s. This pedagogy was defined by Jacoby (1996) as: "*Service-learning is a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development. Reflection and reciprocity are key concepts of service-learning*" (p. 5). As a result of the different definitions and interpretations that have emerged and the different contexts and objectives, the National Service Learning Clearing House (2005), seeking a core concept, indicated that "Service-learning combines service objectives with learning objectives with the intent that the activity change both the recipient and the provider of the service. This is accomplished by combining service tasks with structured opportunities that link the task to self-reflection, self-discovery, and the acquisition and comprehension of values, skills, and knowledge content" (National Service Learning Clearing House, 2005).

Service-Learning is considered a pedagogical methodology, as an experiential educational practice, as a community service, as a social justice orientation, and as a philosophical worldview that combines academic learning with community-based activities to improve the realities where the service is performed and which considers who receives the service as a central element (Tsang, 2000; Butin, 2006; Derreth and Wear, 2021). SL is included in learning through service, which encompasses SL and extra-curricular activities such as Engineers Without Borders, Engineers for a Sustainable World, and Engineering World Health (Cooper et al., 2011; Bielefeldt et al., 2013). The final beneficiary of SL is the wider community; it is not volunteerism or charity and it is different from other types of community service because it is a course-based learning experience and includes clear learning objectives (Bringle and Hatcher, 1996; Oakes et al., 2002; Karayan and Gathercoal, 2005; Butin, 2006; Brand et al., 2019; Furco and Norvell, 2019). It encourages students to "think outside the technical box" (Bielefeldt et al., 2009, p. 14.873.10) and use their creativity (Swan and Veit, 2003). Thus, SL could be understood as an educational application of engineering principles and concepts through real-life community and service-based projects (Christensen and Yurttas, 2009). SL projects cover different projects, from domestic projects dealing with issues in a local community to large-scale international projects in developing countries (Sevier et al., 2012).

The Engineering Projects in Community Service (EPICS) program began in 1995 at the Purdue University in the USA (Coyle et al., 2005; Cummings et al., 2013; Zoltowski et al., 2014). The SL special issue in the Journal of Business Ethics gave SL a great impulse in 1996 (Kenworthy-U'Ren, 2008). Since then, the concept of SL has evolved. The proceedings of several annual conferences of the American Society for Engineering Education (ASEE) published articles on SL in engineering, and the American Association for Higher Education published a monograph that includes some results from engineering projects (Tsang, 2000). SL is used by instructors at all educational levels and disciplines. It is considered an instructional method that motivates and creates opportunities for students to apply what they learn during courses to real-world issues and helps students to understand course content better than using traditional research projects or even better than project-based learning (Cooper et al., 2011; Cooper and Kotys-Schwartz, 2013; Brand et al., 2019).

To implement a SL program, teachers identify the topics or contents of the curriculum that will be addressed, and they may even establish a theoretical framework of the activities (Kenworthy-U'Ren and Peterson, 2005). For example, university students did different activities, such as a real-world client-sponsored marketing project and integrated out-of-class experiences (Finsterwalder et al., 2010); interviewed community business owners and prepared an article for publication in the Chamber of Commerce newsletter (Arney and Jones, 2006); shared EPICS (Oakes et al., 2002); worked with students from health professions (Seifer, 1998); and developed ICT-based resources for pre-school and primary school students (Estrella et al., 2017).

To our knowledge, no systematic review has been conducted for SL in engineering education related to assessment processes. This study provides a systematic analysis of publications about SL in engineering studies in higher education and, more specifically, of the assessment methods that have been deployed.

The goal of this review is to know if SL is used as a learning approach in engineering education and how it is being assessed by academic instructors. For doing this, we answered the following research questions:

(1) What is the general character of the corpus in terms of categories of published articles about SL in engineering education?
(2) According to the bibliography analyzed, what are the main courses where SL is implemented in engineering degrees? As SL is sometimes part of the curricula, this could shape how these SL courses are evaluated.

(3) Which assessment tools are used to assess SL activities and outcomes?

The population considered in this systematic review is engineering courses; the intervention is SL in engineering; comparisons are methods and tools for assessing SL in engineering; the outcome is SL assessment tools in engineering; and finally, the context is higher education.

This review is structured as follows: "Methods" section details the search method and the procedures that were performed to conduct the systematic review and to get the results; "Results" section summarizes the results of the review, including answers to the research questions. Finally, "Discussion and conclusion" section includes a discussion of this study.

METHODS

We searched three different databases: Scopus, Science Direct, and Education Resources Information Center (ERIC). The ERIC database is the only one (from the three chosen) devoted entirely to education. We decided to add Scopus and Science Direct databases because there is currently a great number of faculty and researchers working in educational research and publishing articles indexed in these databases. The results showed that this election was appropriate.

The search was conducted for published journal articles, book chapters, conference articles, or dissertations until 2019 in the context of higher education and specifically related to engineering students.

Figure 1 shows the graph of the publications from 1990 to 2019, after searching only "service-learning" (in the title, keywords, and abstract) in the three databases. Results from Science Direct are not as relevant compared with the rest. We have not included other searching words such as community service and community engagement, because we wanted to center on the academic work where service is developed toward the community. The SL experience seeks to extend student learning beyond the training classroom, adapting the educational objectives to the needs of the communication partners. On the other hand, community service aims to improve reciprocal learning (Thomson et al., 2011).

With this initial search, we found that it is not common to develop SL projects in scientific, technological, and engineering areas; and it is even less common to use this pedagogy in engineering courses at universities. Thus, from 5,993 results related to SL in the Scopus database, most of the activities were done in social science areas (46.46%) and the remaining articles are distributed in the rest of the areas with a smaller percentage: engineering (9.25%), computer science (6.32), environmental science (1.15%), mathematics (0.85%), chemistry (0.59%), physics, and astronomy (0.17%).

The search flow conducted for this study is detailed in **Figure 2**. The inclusion criteria for this search were the following:

(1) The study considered SL articles in higher education and engineering studies.
(2) Non-English results were discarded because English is the most widespread in scientific publications.
(3) The study included results related to SL assessment.

After these inclusion criteria, the final number of articles is 156, where:

(1) English results about SL. Total number = 5,998 (Scopus) + 2,187 (Science direct) + 5,922 (ERIC) = 14,107.
(2) Results in higher education and engineering studies. Total number = 315 (Scopus) + 18 (Science direct) + 106 (ERIC) = 439. To develop the search, as each database has its own queries format, filters, and technical specifications, we restricted the subject areas to engineering, proceeding as follows:
    - ★ In the case of Scopus, the search included the limitation to the exact keyword "Engineering Education" and subarea "Engineering."
    - ★ In the Science Direct database, the advance search included "engineering education" as title, abstract, or keywords.
    - ★ For the ERIC database (through EBSCOhost), the search was done by adding "engineering education" as "DE Descriptors [exact]."
(3) We made an exhaustive search for assessment or evaluation in the title, keywords, and abstract. Finally, the total number of articles that were considered for the systematic analysis, without 35 duplicates, was Total number = 123 (Scopus) + 33 (ERIC) = 156.

From those 156 results, we conducted a new filtration considering the title and abstract contents. By doing this, 36 articles were discarded because they were based on one of the following:

- Conference proceedings book: Proceedings were not included because specific articles from them are already included in the results. The number of excluded results: 3.
- Disciplines that were not related to engineering: English pedagogy, second language learning, "Fill-in Worksheets" tool, microbiology, and future secondary school teachers. The number of excluded results: 5.
- Proposals were not directly linked to university students: SL activities targeted at K-12 educators and students, related to STEM disciplines. The number of excluded results: 7.
- Activities, courses, and studies that did not add value to the research questions, such as, internationalization activities at the university (not related to SL), faculty workshops on LTS, EWB (note related to engineering students or faculty), game-based learning, a reform of chemical engineering undergraduate curriculum, and general assessment of Accreditation Board of Engineering and Technology (ABET) professional skills (without the specific characteristics of SL). The number of excluded results: 18.
- Monographs and reviews general SL activities and experiential learning. These search results were related to general aspects such as SL pedagogy in engineering, SL reflection, and the institutionalization of SL, with

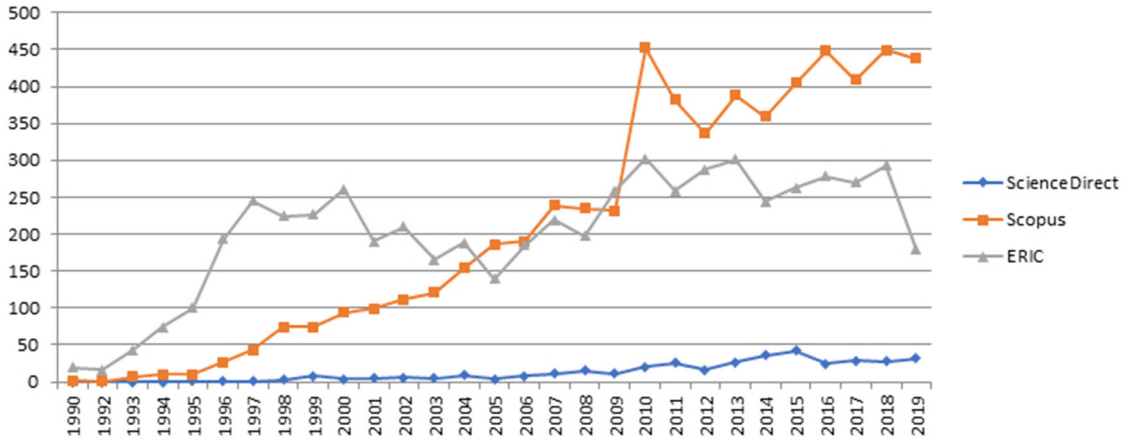

FIGURE 1 | Graphical representation of the graph of the number of publications from 1990 to 2019, after searching for "service-learning" in Science Direct, Education Resources Information Center (ERIC), and Scopus databases.

no relation with assessment. The number of excluded results: 3.

After screening for inclusion, the final number of publications was 120. These publications are indicated with an asterisk in the References Section.

RESULTS

There is a great difference between the number of articles published about SL in different countries. Of 120 articles, 93% were published in the USA. This is the country where SL started and probably where this methodology is most prevalent. Moreover, 75.20% of the results were published in conference proceedings of the American Society of Engineering Education Annual (ASEE) Conference & Exposition. This conference is organized every year (since 1893) mainly in the USA, but sometimes in Canada.

We have also analyzed the authors of those articles, and we found that Bielefeldt participated in 14 publications, Swan in 13, Oakes in 10, Paterson in 9, Duffy in 7, Barrington and McCormick in 5 publications each, Karmer, Pierrakos, Thomson, and Zlotkowski in 4, Canney, Dewoolkar, Matson, and Tsang in 3, 35 authors participated in 2 publications and 233 authors only appear once.

The big difference in country allocation could lead to the conclusion that SL has been implemented and is being carried out as part of the university studies in some countries. It has become an institutional pedagogy. However, SL projects are developed in many other places. Thus, for example, the European Observatory of Service-Learning in Higher Education, in the 2019 Annual Report, analyzed active SL projects in different European countries. In this report, 11 SL projects developed from Erasmus+ or H2020 proposals were mentioned (Cayuela et al., 2020). On the other hand, in Latin America, it is common for projects to be developed outside the university environment, with most of the pioneering programs being developed in primary and secondary schools (Redondo-Corcobado and Fuentes, 2020).

The ABET criteria is another reason (maybe the most important) to include SL in engineering curricula in USA colleges, faculties, and universities. ABET EC 2000 set the following requirements for engineering universities (McCormick et al., 2008): (a) an ability to apply knowledge of mathematics, science, and engineering; (b) an ability to design and conduct experiments and analyze and interpret data; (c) an ability to design a system, component, or process to meet desired needs; (d) an ability to function on multi-disciplinary teams; (e) an ability to identify, formulate, and solve engineering problems; (f) an understanding of professional and ethical responsibility; (g) an ability to communicate effectively; (h) the broad education necessary to understand the impact of engineering solutions in a global and societal context; (i) a recognition of the need for, and an ability to engage in, life-long learning; (j) a knowledge of contemporary issues; and (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Taking into account that all accreditation systems [e.g., CDIO Proposal (Crawley, 2001; International Project Management Association, 2006), Tuning Project (González and Wagenaar, 2003), and Tuning Latin America, 2013] are in agreement (Queiruga-Dios et al., 2020), this interest in incorporating SL into the engineering curriculum could be extended to other nations.

From the 120 articles, 28 included ABET (129 times). Some articles that will be detailed later in this review defined different tools to measure if these (a)–(k) criteria are achieved by students during SL activities.

General Character of the Corpus in Terms of Categories of Published Articles

In this systematic review, results were split into two different categories:

(1) General/SL results: General aspects of SL, including more theoretical aspects and reviews, deepening of SL pedagogy, and some results from analyzing experiences developed in different academic years (where the name of the project is not included in the article).

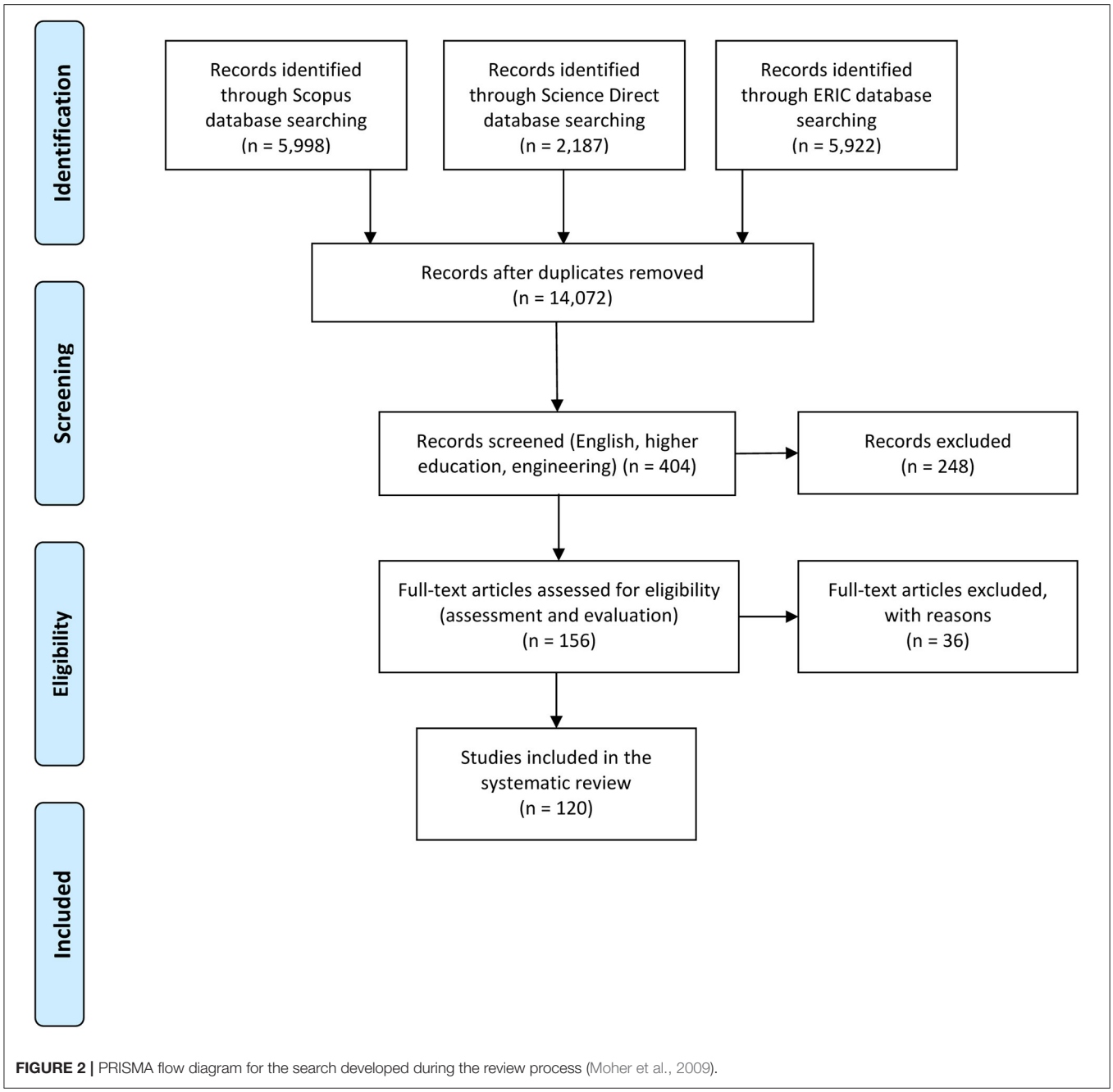

FIGURE 2 | PRISMA flow diagram for the search developed during the review process (Moher et al., 2009).

(2) Projects: This category included SL projects and the work that is proposed or developed for a specific project. This refers to literature that included specific studies about one or more projects. These articles included, in some cases, information about assessment methods.

Although most of the articles are related to specific SL projects, the main difference between both categories was that the first one does not include the name or title of the project.

General/SL results included, among others, the following topics: general views of Engineering for Developing Communities (EDC), which integrated social needs into the engineering courses and proposed new courses where SL was implemented (Bielefeldt et al., 2005; Ropers-Huilman et al., 2005; Duffy et al., 2007; Dukhan and Schumack, 2009; Green et al., 2009; Lucena et al., 2010; Hayden et al., 2011; Vernaza et al., 2012; Whitman and Mason, 2013; Balascio, 2014; Hayford et al., 2015; McLean et al., 2018); the technology integration framework for SL (Salam et al., 2019); studies to analyze the impact of the experience on students, faculty, and/or the affected communities (Mehta and Enger, 2004; Bauer et al., 2005; Zoghi and Pinnell, 2005; Banzaert et al., 2006; Schaffer et al., 2007; McCormick et al., 2008, 2010; Duffy et al., 2009; Huyck et al., 2009; Swan and McCormick, 2009; Paterson, 2010; Wiggins et al., 2011; Reynaud et al., 2013; Love et al., 2014; Armstrong et al., 2019); attitude

toward SL between male and female students (Tsang, 2001; Thompson et al., 2005; Tucker et al., 2013; Lens and Dewoolkar, 2015); analysis of ethics, civic, and social responsibility (SR) attitudes through SL (Williams, 2002; Zoltowski et al., 2013; Bielefeldt and Canney, 2014) and classroom discussions and critical reflection articles integrated into the ABET assessment plan (Newbolds et al., 2017); specific programs, such as EPICS program, designed for the integration of undergraduate engineering students from different engineering disciplines and from different educational levels, and SL incorporation throughout a College of Engineering (Service-Learning in Civic Education, SLICE) from University of Massachusetts Lowell, which is integrated into the mandatory first-year curriculum and has as its goal to serve as an introduction to engineering design for freshmen with limited technical backgrounds in engineering (Oakes et al., 2001; Immekus et al., 2005; Dutta and Haubold, 2007; Burack et al., 2008; Foster and Spivey, 2012; Bielefeldt et al., 2013; Cummings et al., 2013; Underwood, 2013); and others.

The remaining 52 results were part of the Project category. They included the implementation, development, and experiences in specific projects such as projects for school students (Wang et al., 2012; Ansari et al., 2013) or in local historical society (Douglas, 2017); engineering projects (Duffy et al., 2008; Birdsong, 2012; Najmr et al., 2018); and outreach projects (Ocif and Marshall-Goodell, 1996). Several projects were developed related to sustainability or environmental protection, for the community, or to improve the quality of life in several different contexts and countries (Christensen and Yurttas, 2009; Hayden et al., 2010).

We found a few projects directly related to engineering curriculum: more shop floor operations and lean manufacturing that are difficult to teach in a classroom setting (Miles et al., 2005); projects in three different technology companies of varied size and within diverse product sectors (Stockman et al., 2017); and a local infrastructure report card to increase awareness of the infrastructure (Roberts et al., 2007).

This list of projects is quite long as suggested by Dennis and Hall (2007), who claimed that "*One of the most critical tasks associated with service learning is selecting an appropriate project with the correct magnitude and technical complexity that will insure success in the achievement of the outcomes of the program*" (p. 5). Any of these published projects could give an idea to a reader about a new proposal for addressing SL activities.

A table with detailed information about all the search articles is included in **Supplementary Material**.

Main Courses Where SL Is Implemented in Engineering Degrees

The most common curricular model for SL in the reviewed literature was implemented in first-year courses as part of engineering introductory courses. However, SL is also commonly used in senior courses and, to a lesser extent, in the second and junior courses (nine results showed the use of SL in courses of graduate students). From the search result, 114 articles contained information about the level of students and 21.93% were related to all undergraduate years, 28.5% to first-year students, 10.53% to sophomore, and the same percentage to junior students, 17.54% corresponded to senior students, and the remaining 10.53% are projects developed by graduate students.

The way in which SL is implemented is through a curricular approach, cocurricular activities, SL-based courses, or also through extracurricular activities or SL programs, such as SLICE, or Engineers for a Sustainable World (ESW) project. When SL is integrated into existing courses or new courses are defined to implement this pedagogy, we consider a curricular approach. Cocurricular activities may be outside of class time, including the development of a capstone project or a research proposed by a teacher. Finally, extracurricular projects mean activities that may or may not be linked to the studies. Although SL is an activity integrated into credit-bearing courses, in many cases, projects can pass between curricular and extracurricular activities (Oakes, 2004; Bielefeldt et al., 2009).

Several introductory courses implemented SL as innovative pedagogy. These included Introduction to Engineering (Meadows and Jarema, 2006; Kazmer et al., 2007; Dimitriu and O'Connor, 2008; El-Gabry, 2018), Introduction to Engineering Design (Zoghi and Pinnell, 2005; Dutta and Haubold, 2007; Bernardoni et al., 2009), Introduction to Mechanical Engineering (Tsang et al., 1996), Introduction to Materials Engineering Design I, II, and III (Harding et al., 2010), Introduction to Civil Engineering and First-Year Engineering Projects (Bielefeldt, 2006a), Introduction to Engineering I, and Community-based Engineering Design Project I and II (Reynaud et al., 2013). Apart from these, there were other engineering courses where SL was used and is being used. Some of them are Civil Engineering, Materials Science and Industrial Engineering (Ansari et al., 2013), Environmental (Bielefeldt, 2006a), Chemistry (Najmr et al., 2018), Renewable Energy Engineering (Gleixner et al., 2011), or Studio and Laboratory courses (Cowan et al., 2013). Capstone senior design courses (Bielefeldt et al., 2007; Dennis and Hall, 2007; Lens and Dewoolkar, 2015) were also part of these sets of disciplines where SL is implemented.

After this detailed information about the courses in which SL is implemented in engineering, there was no course where SL could be considered the most frequently used pedagogy. It was usually implemented in different courses, but it was least common in core engineering science courses or specialized courses in upper levels. SL was considered most appropriate for design courses (Bielefeldt et al., 2012). Nevertheless, in some SLICE programs, SL was integrated into core courses, and it involved engineering theory, methods, and skills, such as statistics, thermodynamics, heat transfer, fluids, circuits, or dynamics (Duffy et al., 2009). From the search results, 61.90% corresponded to existing courses, 19.05% to SL programs such as EPICS or SLICE, 9.52% to cocurricular components, such as capstone projects or other research, and the remaining 9.52% were related to new SL courses.

Assessment Tools to Assess SL Activities

Like all educational contexts, SL assessment is a vital activity to evaluate the quality of student learning and to determine the learning outcomes acquired by students, including their engagement and improvement. Moreover, in the case of SL, the

ways of learning do not allow traditional modes of assessment, such as tests or quizzes (Cummings et al., 2013). Within engineering education, SL is generally conducted *via* PBL; thus, this approach is often referred to as project-based service-learning (PBSL) by its practitioners (Bielefeldt et al., 2009). Written reports, interviews with students, surveys, a portfolio, or a multimedia presentation are some of the assessment tools usually used for PBL (Frank and Barzilai, 2004). Assessment activities have been used to measure the impact of SL on students, faculty, and the community (less) and also to measure the impact of specific projects and their contributions to the community (Bielefeldt, 2006b). Assessing the SL activity from the point of view of the student, as SL is a pedagogical tool (Toncar et al., 2006), is most important. Assessment methods have been more commonly conducted in course-based SL than cocurricular/extracurricular SL activities. When analyzing assessment methods and assessment results, the nature of the course must be considered. They are different in compulsory or not compulsory or curricular or cocurricular courses. Assessment of student learning in extracurricular projects may lead to greater integration of these activities into credit-bearing courses (Bielefeldt et al., 2009).

One of the techniques most commonly used to assess SL activities was written surveys to get the opinions of students, to get the interests of faculty, and to improve SL programs. These surveys provided a different type of information that varied greatly in length, complexity, time to be conducted, previous use in engineering education, or other contexts (Banzaert et al., 2006; Bielefeldt, 2006a; Bielefeldt et al., 2009). Some of the surveys that were used in SL in engineering studies were:

- Community Service Attitudes Scale (CSAS) (Bauer et al., 2005).
- Survey-based on ABET/National Academy of Engineering (NAE) criteria with additional open-ended questions (Ansari et al., 2013).
- Engineering Professional Responsibility Assessment (EPRA) (Bielefeldt and Canney, 2014).
- The STAR (situation, task, action, and result) method of behavioral interviewing (Balascio, 2014).
- Service-learning Benefit (SELEB) scale (Toncar et al., 2006).
- The academic profile of the Educational Testing Service (Mehta and Enger, 2004).
- Cooperative Institutional Research Program's (CIRP) freshman survey, and the "Your First College Year" (YFCY) survey from the Higher Education Research Institute (HERI), and the BarOn Emotional Quotient inventory, which are implemented to assess leadership (Mehta and Enger, 2004).
- The Draw an Engineer Test (DAET) (Portsmore and Swenson, 2012), which focuses on the responses of students who answer the question "What does an engineer do?" (Knight and Cunningham, 2004).
- Cross-Disciplinary Functioning survey (CDFS) (Schaffer et al., 2010).
- Other surveys were conducted before (or in the middle) and at the end of the SL project (Birdsong, 2012). Some of these surveys include identical pre- and post-test questions (Brand et al., 2019).

TABLE 1 | Search results related to surveys (SV), reports (RP), and Presentations (PT) related to the learning outcomes that are measured (R, recruiting/retention/diversity; P, post-educational professional performance; T, technical skills; S, non-technical skills; K, knowledge; or A, attitudes).

	R	P	T	S	K	A
SV	16	14	22	43	19	50
RP	3	4	6	11	6	8
PT	3	3	4	7	2	5

- Classroom Climate inventory (Tsang et al., 1996).
- The Michigan Organizational Assessment questionnaire (Tsang et al., 1996).
- Job Satisfaction questionnaire (Tsang et al., 1996).
- The Engineering Ethical Reasoning Instrument (EERI) (Zoltowski et al., 2013).

To summarize, 63 articles out of 120 have used surveys (questions or questionnaires) to assess SL activities. So, this is the most widely used method for this purpose.

Some other methods that have been used to assess SL were:

- To write a short or a long final project report made by students summarizing their experience. This was used to improve and reinforce the written communication skills in engineering education (Bielefeldt et al., 2009; Birdsong, 2012; Balascio, 2014).
- Ten minutes short interview (Bielefeldt et al., 2012).
- Presentation of a poster where students compared their results with all of the other teams and were asked to explain technical aspects of the project (Birdsong, 2012).
- Preparation and presentation of a report and oral presentation to the class and community partner. Additionally, the students provided the community partner with materials, data, and final reports (if applicable) (Brand et al., 2019).

The assessment tools were analyzed related to the outcomes of students (as shown in **Table 1**). The assessed features were recruiting/retention/diversity (R), post-educational professional performance (P), technical (T) and non-technical skills (S), student knowledge (K), and attitudes (A). We found that 86 articles out of 120 included the learning outcomes that were measured by the assessment tools in students. The most measured outcomes were, in the order, A and S with 27.04 and 26%, respectively, and then T and K with 15.45 and 12.88%, respectively, and finally R with 9.44 and P with 8.58%.

Assessment processes usually included student self-assessments of achievement of learning objectives, summative assessments where students indicated some of the most valuable outcomes they learned, and the level of satisfaction of project partners (Bielefeldt et al., 2009).

Several studies did not include the assessment technique that was used to get results. But these results and sometimes the consequences were included in those articles (Bielefeldt et al., 2007).

On the other hand, students participating in an SL program (curricular or non-curricular, for freshmen, sophomore students, or as part of a capstone design course), no matter the

type of activity, were evaluated via standard grading (written exams, reports, presentations, or any other technique) (Bielefeldt et al., 2009). In almost all cases, the assessment methods that were used with students participating in SL activities included the assessment of the knowledge, non-technical skills, technical skills, attitudes, recruiting/retention/diversity, or post-educational professional performance (Bielefeldt et al., 2009), but all of them from the point of view of the student, i.e., without theoretical questions about course curricula. We could conclude, as was established by Toncar et al. (2006), that "*no effective instruments presently exist to measure students' perceptions of the benefits of service-learning*" (p. 226).

Rubrics were used in several SL projects to ensure that the students understand and meet the requirements of each module. Students presented midcourse and end-of-course reports and participated in questionnaires with these, and they received feedback from the instructor and community partners before the conclusion of the project (Carducci, 2014; Brand et al., 2019).

Structural equation modeling was used by Levesque-Bristol et al. (2011) to examine the effectiveness of SL. They used surveys to analyze the learning climate and positive forms of motivation, civic skills, problem-solving, and appreciation of diversity across more than 30 academic courses involving more than 600 students.

DISCUSSION AND CONCLUSION

This study has presented a systematic review about SL in engineering education, and specifically the way to assess SL activities. As far as we know, this review has not been done before.

During SL activities, it is important to integrate the course objectives with the service objectives and goals. As was mentioned in some published articles, SL has demonstrated to be a feasible way for improving professional skills and integrating non-technical and non-academic areas into undergraduate engineering courses (Oakes et al., 2002).

According to the categorization carried out on the corpus of the article, although there was a large number of articles included in the General SL category (which included articles on theoretical aspects, reviews, and ideas about pedagogy), a significant number of articles (around 44%) were related to the planning, design, and development of SL specific projects in different countries and communities. The use of SL in higher education and in engineering courses is increasing. There is a great difference between the number of articles published about SL in different countries. The USA is, so far, the country where SL is most widespread. This is related, presumably, to the interest in the publication of the research carried out regarding the SL projects. Some universities have established SL as a curricular methodology in several courses with specific programs, such as the EPICS program (Coyle et al., 2005; Cummings et al., 2013; Zoltowski et al., 2014) and SLICE (Duffy et al., 2009). However, as indicated, important SL projects have also been developed in other European (Cayuela et al., 2020) or Latin American (Redondo-Corcobado and Fuentes, 2020) countries, for example. The increasing use of SL pedagogy in engineering is due to the importance of acquiring social, professional, civic, and human competencies. This need for service to society was also included in the approval of the 2030 Agenda for Sustainable Development and the promotion of the improvement of the living conditions of humanity. New social and economic theories seek more moderate capitalism based on the common good, and for that to happen, it is necessary for the new generations to be socially responsible in the search for well-being and the sustainability of the planet through their professional development. Moreover, the value of the community is increasing with theories such as communitarianism, where members are responsible for the well-being of the rest of the members (Etzioni, 1996).

Detailed information about all the search results is included in **Supplementary Material**.

Regarding the development of SL projects, it was found that many of them have been implemented in engineering courses, from freshmen to graduate students. The level where SL was most extensive was in first-year courses, but it is also used in all undergraduate courses and capstone courses, where students develop research about their SL projects, and in graduate courses. SL serves as an introduction to engineering for first-year students with limited technical backgrounds. Furthermore, these activities favor the engagement of students and reduce dropout rates of engineering studies. SL in the first year can provide a basis for an engineering program building upon those early experiences in later courses.

On the other hand, from the 120 articles analyzed during this systematic review, 83 included the type of SL that was carried out regarding the course or curricular characteristics.

Finally, concerning the assessment activities, most used surveys (68.13% of 91 articles that include information about the assessment tools). Surveys allowed assessing students (75% of 98 articles), academics (8% of 98), and community partners (15% of 98) outcomes, although these last two actors were rarely taken into consideration in assessment processes. In the case of students, the assessment impact analyzed student knowledge, technical and non-technical skills, attitudes, recruiting/retention/diversity, and post-educational professional performance.

From these results, we can conclude that most of the assessment systems did not include technical (engineering) aspects of the courses. Only 29.9% of the assessment tools reported were not surveyed. Although SL is considered a curricular activity, technical aspects of the SL projects were not reported because technical aspects are assessed out of SL activities. No article in the literature reported using an exam to assess knowledge and skills acquired in the SL program, because these search results showed the outcomes of SL and not their relationship with the rest of engineering topics and courses.

As future research, we plan to study university websites and analyze whether they incorporate information about SL and what type of information they include. It is common to use websites and social networks while implementing SL activities and before publishing results. Some higher education institutions participate every year in local, national, or international projects where SL projects are being developed. This is promoting the use of SL.

Moreover, several countries have different associations for SL, such as the "European Observatory of Service-Learning in Higher Education" in Ireland[1], "*Red Española de Aprendizaje-Servicio*" in Spain[2], and "CLAYSS, *Centro Latinoamericano de Aprendizaje y Servicio Solidario*"[3] in Latin America. These associations include students and faculty from different disciplines. This will improve the quality of education through interdisciplinary and multidisciplinary works.

Finally, the authors want to express that educating engineering students with the SL pedagogy is investing in a better future for society and humanity. This was the idea of the first community service programs developed by the universities.

To this date, there are no studies like the one presented in this study, which is a relevant topic for engineering education, because project development is a key part of the engineering curriculum. A deepening in the experiences of already completed and ongoing SL projects and the assessment mechanisms of students will allow the implementation of this pedagogy in more universities. The limited use of active methodologies in university contexts is not very widespread. This is usually due to the lack of time of the faculty, the absence of knowledge of other pedagogies, and their benefits for the integral training of the student. In this sense, the SL approach could complement the training of the engineering student in the aspects and skills mentioned above.

[1]Available online at: https://www.eoslhe.eu/service-learning-in-ireland/ (accessed November 13, 2020).

[2]Available online at: https://www.aprendizajeservicio.net/que-es-el-aps/ (accessed November 13, 2020).

[3]Available online at: http://www.clayss.org.ar/ (accessed November 13, 2020).

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

MQ-D, PA, and AQ-D have contributed to the initial part of the documents search, the analysis of data, and results. MS and MÁQ-D contributed to the methodology and discussion. All the authors participated in the document elaboration and revision of the article.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.629231/full#supplementary-material

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