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Scaling up the training of teachers through digitalization: the case of the aeioTU network

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The use of digital platforms opens up the possibilities to scale up and strengthen interventions in the field of early childhood development, but also entails challenges regarding engagement, connectivity, or digital literacy. In this paper, we describe and critically assess the use of Monitoring, Evaluation, and Learning (MEL) to guide the process of digitalization undergone by aeioTU, a well-established Colombian organization working in the early childhood development ecosystem, to improve and scale up their educational practices. We reflect from the organization's perspective on two phases of this process: the creation of a digital learning community to share aeioTU's educational knowledge and experience, and the expansion of this learning community to become a network aimed toward the development of collaborative relationships and the co-creation of knowledge. From a policy viewpoint, three main learnings are obtained from this process: start with the needs from the local communities; use digital tools already available, and embrace technology without compromising the organization's core values.

KEYWORDS

teacher training, digitalization, scaling up, MEL, community of practice

1. Introduction

aeioTU is a social enterprise aimed at developing the full potential of early childhood through direct service provision as well as the training of other actors in the early childhood scene in Colombia. They have been an active organization for over 14 years and so far have impacted more than 30,000 children through direct service provision and over 470,000 via their training and advisory activities.

One of the key elements in reaching that level of impact has been their use of digital tools to both refine and scale up their activities. For example, the organization uses digital tools to centralize their administrative processes or to track the development of the children attending their centres. Regarding the scaling up processes, they have focused in the development of digital platforms to sustain learning communities that make easier to train, guide, and nurture a larger group of educators, families, and communities around Colombia and other parts of the world.

Therefore, the main purpose of this article is threefold: first, describe the different stages of the digitalization process undertook by aeioTU, summarize the main learnings obtained from the scale up using digital tools process, and reflect on the current characteristics of the digital learning communities that they have promoted.

This paper also makes two major contributions: first, it informs other organizations and initiatives of the benefits and challenges that are present in scaling up processes via digital tools, by presenting a detailed description of the processes, and changes undertook by the organization.

The paper also contributes to the literature that analyse digital learning communities for teachers and educators. This strand of the literature has been burgeoning in recent years [see (Lantz-Andersson et al., 2018) and (Dille and Røkenes, 2021) for a review], so the study of the characteristics of a digital community implemented within an organization that is undertaking a scaling up process will provide a relevant insight for academics and organizations alike.

The rest of the article is structured as follows: section 2 describes aeioTU's activities, section 3 present the various stages of the digitalization process by aeioTU and reflects on aeioTU's digital learning communities characteristics, section 4 summarizes the main learnings from the digitalization process, section 5 discusses some existing challenges, and section 6 concludes.

2. Context

aeioTU started its activities in 2008 in collaboration with the Colombian government to provide and scale early childhood services throughout the country via the establishment of center and family-based care services and professional development and technical assistance in early childhood development. Currently, aeioTU operates 10 early childhood development centers in 5 cities and municipalities in Colombia, and so far has reached 31,291 children, 59,139 parents and caregivers and 6,368 educators.

The activities of aeioTU lie within Colombia's national strategy De Cero a Siempre (DCAS), which aims to "increasing access and improving the quality of early childhood services provided to poor children. Its objective is to deliver high-quality integrated early childhood services for 1.2 million in poverty under age 6" (Nores et al., 2018, p. 201).

In 2015, aeioTU started accompanying other early childhood organizations, teachers, and educational leaders, helping them to improve their daily practices. In 2021, they formalized those activities with the Consulting and Special Projects direction, through which they have impacted 471,449 children, 891,220 parents and caregivers, 25,271 educators and 3,745 educational spaces.

All these projects are immersed in an advocacy strategy aimed to mobilize different actors around important issues for early childhood education, seeking to improve public policy and ensuring that stakeholders are aware of the importance of education and culture in children under 5 years of age.[1]

In May 2020, aeioTU created the digital direction with the objective of scaling the impact of their educational model by leveraging the advantages and functionalities of digitalization. To do so, they launched an online platform aiming to articulate the different actors in Early Childhood Ecosystems. The platform currently has 21,100 users and has impacted 54,781 children.

Regarding aeioTU's activities, their main goal is to provide a strong and solid foundation to children development in all of its spheres including socio-emotional development. To this extent, previous literature has evaluated both the effects of the programme (Nores et al., 2019) as well as the development and strengthening of its methods in more initial stages (Nores et al., 2018).

Specifically, aeioTU focuses on six areas within early childhood development: "a comprehensive combination of nutrition, health and education objectives, clear pedagogical objectives and a curriculum with an emphasis on continuity across the early years, continuous professional development, adequate physical space and materials, family participation, transition to formal schooling, strong centre management and planning for sustainability" (Mesa et al., 2021, p. 3).

Nores and co-authors (Nores et al., 2019) find that the programme had positive and statistically significant effects on various areas of language, cognitive, and motor development for a sample of over 450 infants and toddlers that attended two aeioTU centres in northern Colombia between 2009 and 2010. In terms of language development, the children had an improvement of 0.111–0.114 standard deviations – measured using the language items of the Bayley scales of infant development III (BSID III). The cognitive improvement was of 0.07 SD and the motor improvements ranged between 0.04 and 0.06 SD. The authors did not find significant changes in the socio-emotional development of the children.

About the strengthening of aeioTU's educational practices, Nores and co-authors (Nores et al., 2018) present the results of their assessment of those practices and facilities in various aeioTU's classrooms between 2011 and 2014. The authors use the ECERS-R, an observation and rating instrument for preschool classrooms serving children aged 3–5 where a rating of 1 indicates inadequate quality, 3 indicates minimal quality, 5 indicates good quality, and 7 indicates excellent quality.

The authors assessed 17 classrooms in 2011 and 30 in 2014 and they found that the programme averaged a score of 2.3 (out of 7) in 2011 while in 2014 that score increased up to 2.9 points. A closer look at that score shows that the language and reasoning and interaction activities were among the highest scoring in 2011 when they scored 2.04 and 3.16, respectively, and they grew to 2.80 and 3.89 in 2014 (Nores et al., 2018).

Given the nature of the special issue, it is relevant to mention here aeioTU's approach and use of MEL processes to strengthen their work.

For aeioTU, the MEL system fulfils four different goals: first, achieving greater effectiveness and efficiency in every process of the organization. Second, gain insights to ensure that efforts and resources are invested in activities that can be sustainable across time.

Third, it aims to foster organizational capacities to ensure effective use of evidence and learning as part of decision-making. Finally, aeioTU's MEL systems aim to strengthen the quality of data and monitoring, evaluation and learning systems or tools to, consequently, improve the goals described above.

More precisely, aeioTU's monitoring involves using tools such as surveys, focus groups, and SWOT analysis to track various processes and their outcomes. These results are recorded in the organization's balanced scorecard, and are followed up periodically.

Evaluation is conducted at predetermined intervals to improve processes, and be accountable to stakeholders. Different evaluation tools such as internal and external audits, "Beacons" (pedagogical and healthy operation evaluation instruments) evaluation instruments that are implemented in their educational centres to measure the quality

1 For further reading on aeioTU's activities and projects, we invite the reader to consult the following articles in both scientific and non-scientific outlets (Paz, 2018; PopatPlay - The Lego Foundation, 2020; Bernal et al., 2022; SUMMA, 2023).

their operations, and external evaluations are used to measure the quality of different processes in the organization.

Finally, the learning process takes place through joint meetings with relevant stakeholders and recorded in various formats, including root cause analysis, corrective actions, and change management by following these three processes, aeioTU can continually evaluate and improve their performance, innovate, and be accountable to their stakeholders.

3. Detail to understand key programmatic elements

3.1. Stages of the digitalization process

In this section, we explain the different stages during which aeioTU evolved in their use of digital tools to scale up their work. We also reflect on how their community of practice relates to the characteristics laid out by the relevant literature.

aeioTU started embracing digital technologies in 2012, when they were operating 16 centers with over 6,000 children. At that time, aeioTU had a significant need to access developmental information for each of those children in an effective way. So they created a software (ConecTU) to monitor children's development. With this software, teachers were able to input relevant information about every child and keep track of their changes over time. ConecTU allowed teachers to understand how each child progressed in terms of their own development, but also compare each individual with other children in their group, and with other children of the same age in other aeioTU centers. Later, this application evolved and became a management tool for the centers, which also allowed them to monitor other administrative processes such as the registration, assistance and others.

Despite achieving important progress, aeioTU found themselves with a challenge: their centers are located in remote places that do not have good internet access, which makes it difficult for the teachers to enter the information on a timely manner. An additional challenge was that teachers had difficulties in using the software, which required a significant effort to train them on its characteristics and uses.

In 2015, they were operating 28 centers, and the management of processes such as accounting, purchases or hiring needed a robust tool to support it. To help with that, they started using SAP, an ERP (Enterprise Resource Planning) system. Its implementation allowed aeioTU to migrate the company's data from different programs to a single tool and centralize the management of the entire administrative operations.

However, they also faced a great challenge in terms of process adaptation. Getting all the centres and the aeioTU staff to be comfortable with the new system was a long process. Migrating all the data that had been stored for years on other platforms also took considerable time and effort.

In 2018, they began developing a tool that would allow teachers to strengthen their knowledge and improve their educational practices within the aeioTU Educational Model. They wanted to create a learning community for teachers and families, both from aeioTU and other Early Childhood operators that aeioTU was offering training to. They developed a LMS (Learning Management System) called *Learning*, which they launched in May 2020. The platform offered over a thousand of free educational contents for teachers and parents, and a pilot digital course.

However, the high level of digital illiteracy among their users, and the cumbersome navigation through the platform, made the whole process very difficult for users. Teachers gave up using the tool and the interaction between users was not working to foster the intended community of practice.[2] With this learning experience, they carried out some structuring and analysis sessions to develop a new platform.

In March 2021, after a rigorous optimization process, they launched the aeioTU Network. A much friendlier and easier platform to navigate that allows users to communicate with each other, develop collaborative relationships and co-create knowledge.

Currently, they face a challenge on this platform regarding to its role as a network.[3] Although they have a community of 21,500 users, those users engage with the platform mainly to strengthen their knowledge using their e-learning module, but they still do not use it as much to meet or dialog with others.

3.1.1. Effects of the COVID-19 pandemic

One of the main effects of the COVID-19 pandemic was the sudden pivot toward remote learning, forced by the school closures implemented to stop the spread of the virus. That created an adaptation challenge amongst teachers all over the world, who needed to adapt their usual pedagogical strategies and activities to a digital environment that difficulted personal interactions.

In the case of aeioTU, this sudden change was a challenge, but they were able to continue with their digitalization strategy and implementation thanks to two main elements.

First, aeioTU was already working on the development of their professional development platform since 2018, and their original plan was to launch it on December 2020. The onset of the COVID-19 pandemic accelerated that process by a few months, but there was already enough material and work done for the platform to start operating.

Secondly, the materials uploaded to the platform by March 2020 (around 1,000 educational activities and materials) were already developed in a way that made them useful also in the pandemic context. The materials were largely produced by aeioTU educators, promoting interactive virtual sessions between adults and children, fostering parental participation in play and exploration experiences, learning from everyday moments, and working with materials from the families' environment. Incidentally, that reflected the way in which virtual care was provided to children during the COVID-19 pandemic, even though the materials were not originally developed to be used during a pandemic.

3.2. aeioTU network as an online teacher community

As stated in the 3.1 section, the development of the aeioTU Network aims to create an online platform that serves as a meeting

2 Internal data from aeioTU shows that the average session duration was below 2 min long and the completion rate for the main course offered on the platform at the moment was around 6% only.

3 Personal communications with staff members from aeioTU.

point for teachers' professional development and strengthens the formative relationships amongst all the relevant stakeholders within the aeioTU sphere.

The aeioTU Network is an example of an online teacher community, a type of community aimed at professional development for teachers that takes place online. In recent decades, there has been a substantial increase in the number of such communities thanks to two main reasons: first, the improvement of information and communication technologies, and second, the acknowledgment of the importance of sharing knowledge and experiences with others to achieve an effective professional development (Dille and Røkenes, 2021).

Another consequence of the expansion of those online communities is the wide variety of characteristics they can have: formal vs. informal communities, their purpose, communication mechanisms, etc. And accordingly to that, the literature has already explored which characteristics and elements are relevant to design successful online communities that can scaffold the professional development of their members (Khalid and Strange, 2016; Lantz-Andersson et al., 2018; Dille and Røkenes, 2021).

Therefore, in this section, we present those characteristics and compare them to the current state of the aeioTU Network. With this comparison, we can critically assess the aeioTU Network's potentialities, limitations, and challenges to develop into a successful professional development space.

A relevant taxonomy of important elements in successful professional development spaces is the one laid out by Dille and Røkenes (2021). In their overview, the authors divide those elements in three main categories that are crucial to achieve professional development in online communities: (i) internal factors, (ii) communication factors – that can be subdivided between support and collaboration elements, and (iii) the content of the programmes implemented within those online communities.

According to Dille and Røkenes (2021), the most relevant internal factors are "participants' fear of 'losing face' and technological fear." In their definition, losing face refer to teachers that are afraid of receiving bad or negative reviews and comments from other teachers or supervisors in the online space. Through their review, they find that that fear is a factor that shows up in different studies and is mentioned as driving element to reduced engagement. Meanwhile, technological fear is a fear rooted in participant's low technological knowledge that acts as a barrier that also leads to reduced engagement and contributions.

In the case of the aeioTU network, we also have suggestive evidence of this technological fear that diminished engagement and participation in the platform. Educators do not necessarily have the level of digital literacy needed to operate the platform, but aeioTU has encountered that this 'technological fear' is easily overcome if the educator is motivated to learn.[4] In other words, if there exists an internal motivation to learn, technological barriers are set aside – an idea that is already presented in the literature by Graham and Fredenberg (2015). But on the other hand, aeioTU has also dealt with educators who are still reluctant to use technology and find themselves in situations where they do not progress as quickly as others to complete their courses, stalling in their progress and even dropping out of the online community.

Moving to the communication factors (Dille and Røkenes, 2021) divide those between what they call 'horizontal scaffolding' factors, that are those related to the collaboration between peers within those online communities, and 'vertical scaffolding' factors, referring to all those processes that involve the presence of facilitators or initiators to guide the development of participating teachers.

A prevalent factor in the horizontal scaffolding process is the creation of a sense of community amongst the educators that participate in the digital community. Building an environment based on confidence and trust is crucial to foster the improvement of the educators involved because "teachers reported new perspectives, insight and experiences" which in turn "strengthened and created a sense of belonging to the community" (Dille and Røkenes, 2021). An interesting fact, reported by Karam et al. (2018), is the existing correlation between the teachers' sense of isolation in the school, mostly present at rural schools, and their high interest and engagement in the online community. This points toward the benefits of the diffusion of both geographical and temporal boundaries that happens in online communities (Trust and Horrocks, 2019).

Describing the 'vertical scaffolding' elements (Dille and Røkenes, 2021) highlight that all agents with facilitating roles are key elements in those online development communities to support and foster participation. Their description as vertical scaffolding comes from the existing difference in power and/or status with respect to the participants. The literature mention that facilitators have both affective and cognitive roles in their support work and that they could also take different roles, ranging from choosing to place themselves as experts to a more horizontal and collaborative role (Dille and Røkenes, 2021).

In relation to how the horizontal scaffolding elements have been developing in the aeioTU's Network we note that they are still on an early stage. aeioTU identifies that educators are recognizing the Network as a source of professional development, due to its free content and courses, but they think there is still long way to go before positioning it as a hub for practitioners. That is like that because so far the interaction pattern of the educator on the web is mostly centred on themselves (discovering courses, etc.) rather than in a communal sense (see in foot note text 4).

Linked to that, another relevant element of the current development state of the network is that communication between peers in the community happen in a superficial level, praising or motivation each other's work but without approaching in deeper and more critical feedback. aeioTU has observed that, especially in the e-learning module course forums, educators compliment others on their strategies, or the ideas or experiences they have shared in the groups, but they have yet to see examples of educators questioning others, or asking for help, or even inviting others to reflect on their strategies/actions in a more critical way - a phenomena that has already been described in previous literature (Erixon, 2016; Zhang et al., 2017). In order to promote better interactions between the Network members aeioTU hired a Community Manager and is currently structuring a strategy to foster a more insightful and deeper engagement amongst the network members.

Regarding the vertical scaffolding roles in the platform, aeioTU has also found the key mentoring role that facilitators have. For example, when an educator is following a course on their own but does not have a mentor to guide them in the process, the process of

4 This statement is based on personal communications with members of aeioTU staff that have a large involvement with the platform and its members (i.e., accumulating more than 10 thousand logins to the platform).

effective change in their educational practice is slower than if they had a mentor. The role of the mentor who accompanies the acquisition of this knowledge and helps to "ground" it in practice is a very positive element in fostering this process of change.

An example of this is the testimony of a community leader who lived in Soacha, a town close to Bogotá, where there is currently a large migrant population from Venezuela, like her. As part of a training project in the area, she received personalized support to understand how to offer comprehensive early childhood care in alternative infrastructures (other than schools). In addition to the accompaniment, she completed the aeioTU Educational Experience diploma, which is a 120-h asynchronous certificate offered on the Network. With these two experiences, at the end of the project, she decided to receive children in her home, where she currently offers them comprehensive care and helps them to develop their full potential.

Another interesting experience from the Network is the role played by self-organized groups of educators that chose a mentor amongst them. Although the Network offers bi-weekly synchronous virtual meetings, and the number of educators attending is growing, it is still minimal compared to the number of educators who could take advantage of them (enrolled in the Network and in courses). However, sometimes when a group of educators have appointed a leader (of their own, not Network staff) to accompany them aeioTU finds that they progress more quickly in the development of their courses. This type of events point to two relevant elements: first, as already mentioned, the importance of mentoring and guidance to exploit all the advantages of online communities, and second, the emergence of parallel structures decoupled from the originally intended, an element that will require further research in order to clarify its prevalence and effects.

Finally, referring to the content of the programmes implemented within those online communities, two categories stand out according to Dille and Røkenes (2021) successful online communities tend to be flexible to accommodate the various usage profiles of their users and also providing relevant contents for their daily practice as educators.

Flexibility is one of the most relevant aspects for the members of the Network who make use of the E-Learning module. In this sense, a survey conducted among 65 students who have paid for courses/diplomas in the aeioTU Network showed that most of them highlighted the flexibility offered by the platform, as it gives them to possibility to study asynchronously. This asynchrony allows them to study in their free time, study while working and reduce costs since they do not have to travel. They also highlighted positively the possibility of learning at one's own pace, with one student answering that "I can take important notes more calmly and repeat if I do not understand something."

On the other hand, the same survey showed that, as disadvantages of E-Learning, network members felt that they lost interaction with others, especially with teachers; and that they lacked the support of a tutor to clarify doubts when they had them.

Therefore, there seems to be a consensus on the importance of face-to-face classes and that training should tend more toward a hybrid solution than face-to-face or digital-only training, so that digital can be a gateway to more robust training, which also includes on-site accompaniment.

On how relevant the platform is for the daily practices of educators, the contents of the aeioTU Network present practical ideas and strategies on how to put into action what the educators are studying. To do this, the platform is structured in such a way that the educator is first invited to reflect on their prior knowledge - how do you do this today; how did this happen to you when you were a child; or how have you handled this situation when it has come up? These kinds of questions help the educator to comprehend the situation by reflecting on them from their own perspective. Then, the platform contents invite them understand the reasons behind their answers and behaviors. Is in that moment where they can access videos and supporting documents with relevant content. Special attention is given to provide the educators with practical examples of how to put into action what they are learning.

In the different satisfaction surveys that have been carried out so far, the students value their learning experience on the platform because it allows them to transform and improve their educational practice; they learn things that they can apply in their daily lives with the children, and they find practical examples that allow them to understand more clearly the concepts they are learning.

4. Discussion and limitations

In this section, we summarize the main learnings that have emerged from the digitalization process undertook by aeioTU to scale up their activities so they can serve for future applications.

1. The digitalization process should always start with understanding the needs of both internal and external stakeholders and then develop systems based on those needs.

This learning is closely related the notion of relevance laid out by Dille and Røkenes (2021) on where programmes and activities develop within online development communities had a higher completion and engagement rate if they included examples and situations that the educators could relate to because they were likely to happen in a real world situation, and therefore, there is a need to understand and work on it.

2. The digitalization process should rely as much as possible on already designed tools and platforms.

For example, ConecTU was a great tool for aeioTU, as it was custom designed and was really tailored to their needs, processes, and goals at that moment, but it also became obsolete very quickly and they were forced to make a new investment to update it. This shows that tailored tools are really effective, but can become very costly to keep them updated to a dynamic environment where priorities and capabilities may change often.

Therefore, it is important to note that there are many platforms (e.g., LearnDash, Moodle, Ed-App) already developed and periodically updated that could be used for an annual fee; a fee that would be substantially less than the cost of updating and improving the tailored tool in various occasions.

3. The digitalization process should not compromise the values of the organization.

In the case of the aeioTU Network, the organization understood that there was a risk that the network it could get transformed in an

entertainment channel for children. That risk came from their assessment of other educational platforms available on the Internet that offered a wide array of audio-visual content for children, but without embedding those in a larger, more cohesive educational framework as it is the case of aeioTU.

aeioTU claims to understand technology as a tool that, if used properly, helps to enhance the development of children, but not in a way that might confront the values of their educational model and organization.

4. The digitalization process will imply a substantial increase in the amount of available data from the various activities and projects run by the organization. Organizations should learn how to take the most potential out of it.

In the case of the Learning Community, Google Analytics was a tool that prove to be very helpful in determining that the platform chosen was not friendly enough for their users, and this took aeioTU to the next step: developing the aeioTU Network.

5. The digitalization process will foster all of their advantages if technology is used to integrate the different processes of the organization more cohesively.

The tools and solutions you develop can help you articulate areas that might not seem to be articulated together. Leveraging those synergies across areas within the organization will increase the efficiency of the overall processes.

One of the main takeaways that we can gather from the aeioTU experience is that scaling trainings in the field of early childhood development using digital tools is possible. Albeit the process is not straightforward and required different iterations and redesigns, aeioTU's progress shows that this scale up process can take place.

There are two elements of digital platforms that are highly relevant in the scaling up process. First, digital platforms give access to a large variety of resources that can be easily accessed by the educators in a much more convenient way that if those resources and materials needed to be shared and stored in a psychical format. And second, being able to access a large variety of resources also makes it easy to tailor the learning process to the individual needs of the educators. These two characteristics allow the organizations to streamline their contents and reach a larger group of people in an easier way.

It is also important to note that the success of that scaling and digitalization process lies in the fact that those are processes embedded within a robust and well defined organization – an element that becomes highly relevant in the horizontal and vertical scaffolding axis in digital communities of practice described in the literature.

5. Acknowledgment of any conceptual or methodological constraints

Despite the success in the aeioTU's scaling process described in this article, there are also a few limitations and challenges that are worth mentioning. For example, the existence of technological barriers amongst the targeted individuals or communities; scaling through digital tools may be hindered by limited access to the Internet, poor connectivity, lack of investment in information technologies, etc. in those communities and individuals.

We have evidence such as the number of courses completed, number of registrations, etc. that the training implemented by aeioTU can be delivered at scale, but we remain agnostic about the quality of those trainings in a digital environment, as we do not have robust evaluation evidence about its effects. We argue that online training is better than no training, but we do not have evidence to rule out that delivering trainings in person might be of a higher quality. Nonetheless, an internal qualitative study made in early 2021 showed that teachers considered "Aprendiendo" a necessary platform with reliable information, which also helps parents to have an active participation in their children's education; while making them digitally more active.

Finally, as an avenue for further research, the network is still on its early stages of development, so there is still a long way to go before it is properly established as a digital community of practice. To fully grasp all the mechanisms and interactions that may take place within such a community of practice we need to wait and leave the network grow and gain internal and external stability before we can engage in a deeper analysis.

6. Conclusion

In this article, we have described the process undertook by aeioTU, a Colombian organization working in the early childhood development ecosystem, to scale up their training programmes for teachers and educators by using digital tools.

We have presented the various stages of that scaling process, reflecting on the challenges that arose in each of those and how they were tackled in following iterations. The learnings of this iterative process of scaling through digital tools can be summarized in the following statements:

1. The digitalization process should always start with understanding the needs of both internal and external stakeholders and then develop systems based on those needs.
2. The digitalization process should rely as much as possible on already designed tools and platforms.
3. The digitalization process should not compromise the values of the organization.
4. The digitalization process will imply a substantial increase in the amount of available data from the various activities and projects run by the organization. Organizations should learn how to take the most potential out of it.
5. The digitalization process will foster all of their advantages if technology is used to integrate the different processes of the organization more cohesively. The digital contents produced should be included in already existing training programs to guarantee people will engage with those contents and the activation of the community of practice.

Additionally, focusing in the latest stage of this digitalization and scaling process: the creation of a digital community of practice, we have introduced the main characteristics of successful digital communities of practice for teacher training described in the

relevant academic literature and we have used those as benchmark for the current state of those same characteristics in the aeioTU's community of practice.

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.

Author contributions

ML and NQ conceptualized the original idea. EV-V expanded the original conceptualization and wrote the draft. NQ contributed to the draft writing. ML provided the input and supervised the draft. ML, NQ, and EV-V approved the draft for publication. All authors contributed to the article and approved the submitted version.

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Conflict of interest

ML and NQ were employed by the company aeioTU.

The remaining author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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