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Jorge Rojo Ramos,
University of Extremadura, Spain

*CORRESPONDENCE
Blerina Çibukçiu
✉ blerina.cibukciu97@gmail.com

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The relationship between constructivist approach and inclusive education in primary school

Blerina Çibukçiu*

Faculty of Educational Studies and the Arts, Sofia University "St. Kliment Ohridski", Sofia, Bulgaria

This study aims to present the relationship of the constructivist approach to help inclusive education in primary school and specify which aspects of the constructivist learning environment are related to inclusive education. This research employs a quantitative approach to examine the constructivist approach implementation in inclusive classrooms. Moreover, it is mainly focused on the students and their teachers of the primary schools of Vushtrri, Kosovo. The utilization of a sampling purposive technique has made it possible to select 10 teachers and their classes, while targeting children with specific needs in order to examine the role of constructivist methods in these inclusive environments. Collecting the data was done through two main instruments: The Constructivist Learning Environment Survey (CLES), which is adapted to measure teachers' perceptions of their teaching environment classroom, and the Teaching Primary Classroom Observation Tool: Strengthening Its Focus on Inclusion to observe structural aspects influencing classroom inclusiveness. This study highlights the importance of constructivist learning environments in fostering inclusive education in primary school. The results show a positive relationship between Personal Relevance and Classroom Culture, Critical Voice and Instruction, Student Negotiation and Socioemotional Skills. These findings suggest that enhancing the learning environment, especially when it is oriented towards a constructivist approach, can result in better inclusive education in primary school. Moreover, these findings help teachers and policymakers to apply constructivist learning environments to encourage Inclusive Education in Primary School.

KEYWORDS

constructivist approach, inclusive education, primary school, teacher, student

Introduction

Constructivism, based on the theories of Dewey (1938), Vygotsky (1978), and Piaget (1954), emphasizes the importance of students actively constructing knowledge through experience, collaboration, and reflection. Differentiated instruction is a constructivist approach where teachers adopt instruction to address the needs and learning style of each student (Tomlinson, 2014) and this method ensures that all students benefit effectively from the teaching. Constructivist approaches to teaching 21st century skills involve new roles and demands on teachers. Teachers should understand the goals of the constructivist curriculum, the students in their classrooms, and how to structure the learning environment to meet their needs (Anagün, 2018). Constructivist teaching and learning processes in an inclusive classroom must be in the following ways. The main assumption of the constructivist approach is that each person has previous knowledge, and a person is capable of constructing knowledge. Teachers expect that all students will learn; acknowledge that learning will most likely take

place in different ways. Teachers must use multiple teaching methods and strategies to assist students and to demonstrate their knowledge (Patil and Patankar, 2016). In the context of social constructivism, pupils should participate in an active dialogue between the participants in the classroom as a place of educational inclusion. The role of the teachers and their given emphasize in order to ensure the autonomy of pupils in the process of acquiring necessary knowledge and skills for their future education, lives and work. In the context of school practice, the principles of inclusive education are based on the definition of classrooms as communities in which every child feels happy and in which every child has the opportunity to achieve knowledge, regardless of differences (Brčić et al., 2015). In order to consider the implications of a social constructionist approach to inclusion, it is important to return to the definition of an inclusive classroom as a place where teachers have high expectations of all students and work toward developing appropriate programming to meet the needs of their students (Stainback and Stainback, 1990; Villa and Thousand, 2000). Rather than focusing on a lack of ability, placement considerations should account for the class population and teachers' ability to create an environment of acceptance while developing tasks in ways that enhance learning through positive social interactions for students with disabilities (Block, 2000; Place and Hodge, 2001). Matthews (2024) explains that in the context of an inclusive classroom, it is essential that teachers use evidence-based practices to ensure that all students achieve educational outcomes. In addition, he conducted a literature review that focuses on two evidence-based pedagogies, specifically direct/explicit learning (DI/EI) and social constructivist approaches, and analyzes their impact in an inclusive classroom, which proves that the complementary effects of combining DI/EI and social constructivist practices provide sufficient evidence to prove their positive effect within inclusive classrooms. Several learning approaches exist in the literature. However, it seems that approaches other than constructivism do not meet the needs of all students and do not go deep enough to help them construct knowledge in depth (Akpan and Beard, 2016). The National Association for the Education of Young Children (NAEYC) is also an organization that adopts the constructivist approach. It is seen that they adopt a constructivist approach in intervention programs that also include parents within the scope of special education in early childhood (Karaaslan and Mahoney, 2013). Children with special needs need more interactive and collaborative efforts than those without special educational needs (Bricker et al., 2022). Thus, different researchers encounter numerous controversies about whether the constructivist approach is appropriate for children with special needs or not. Approximately 35–40 years ago, the applicability of constructivism in special education was questioned in several studies, and some researchers encountered negative consequences. Constructivism, which came to the fore again in the 2000s, became the subject of empirical studies again, and this time its effectiveness began to be tested for different special education groups. Children with learning disabilities supported their reading performance with their peers on a social constructivist basis (Özer Şanal, 2020). It provides social and cognitive support to children with Autism Spectrum Disorder, along with social constructivism (Cotter, 2011; Guazzaroni, 2019; Jamero, 2019), and the social constructivist perspective is considered to have seminal potential in education programs for these children (Walker and Berthelsen, 2008). It has been stated that the constructivist learning approach provides positive

outcomes in special education interventions for children with ADHD (Sajadi, 2015). However, it is seen that these experimental studies are limited, and it is thought that this limitation causes a fearful approach to constructivism. While many educators explain the theory of constructivism, emphasize the need for change in educational processes, and produce constructivist teaching methodologies, they fall short in presenting information about student outcomes in both general and special education (Apps and Carter, 2006).

The education system for children with special needs in Kosovo has undergone changes over the last decade. These changes were powerful and necessary for this education because they moved from traditional models of special education to inclusive education. Ministry of Education, Science, Technology and Innovation (MESTI) (2020) has introduced the “Inclusive Education” platform, which offers various learning activities adapted for children with special needs, and Ministry of Education, Science, Technology and Innovation (MESTI) (2024) collaborated with organizations such as Handikos and Save the Children to draft guidelines on inclusive education. “Learning is the result of interaction with others and with the world,” “Learning means participation in the learning community” and “Learning becomes visible through action” (UNICEF, 2014, p. 11). In line with these statements, this study supports the application of a constructivist approach in inclusive classrooms, as it aligns with these principles and provides a pedagogical framework suitable for the needs of diverse learners and according to Ministry of Education, Science, Technology and Innovation (MESTI) (2020), modern teaching should be oriented towards a constructivist approach that places the student at the center of the learning process and according to Zabeli (2017), linking the curriculum with the constructivist approach helps in the development of key competencies in students. This study aims to examine the role of the constructivist approach in inclusive education in primary schools.

Methodology

This study included schools in the municipality of Vushtrri, Kosovo. The sample of this study was conducted with 10 primary school teachers and their students. The sample type is purposive sampling, because its selection had a specific criterion of selection: First, a list of the number of students in the urban and rural areas of Vushtrri was obtained from the municipal directorate of Vushtrri, and then only the classes that included children with special needs were classified for the study. This sample selection was done to know exactly the role of the constructivist approach in inclusive classrooms for children with special needs.

Teachers were provided with a guide for using constructivist methods, developed by researchers and professional development collaborators, which is based mainly on the work of “Art of constructivist teaching in primary school: A guide for students and teachers” (Selley, 2013) and The BSCS 5E instructional model: Origins and effectiveness (Bybee et al., 2006) and the CRA model (Special Connections, 2005). Besides this, teachers were trained to use constructivist methods. The training duration was 16 h and theoretical components and practical activities to better understand the use and application were included. After the training, there was a huge support for training continuation with an opportunity for further professional development linked with constructivism methods. As for inclusive

education, teachers had various trainings on inclusiveness which they completed as part of their professional development. Data collection included two main methods:

- 1 Questionnaire for teachers: The Constructivist Learning Environment Survey (CLES), adapted for teachers and assesses their perceptions of the degree to which the classroom learning environment is constructivist-oriented. The original CLES was developed by Taylor and Fraser (1991). Johnson and McClure (2004) created a shortened and revised version which was used in this study. This instrument includes: Personal Relevance, Uncertainty, Critical Voice, Shared Control and Student Negotiation.
- 2 Classroom observation through the instrument: Teach Primary Classroom Observation Tool (Molina et al., 2018)–released by the World Bank, this tool underwent revisions to better capture inclusive teaching practices. It assesses teaching quality and includes a checklist to observe structural aspects influencing classroom inclusiveness. In this study, this revised instrument was used as “The Teach Primary Classroom Observation Tool: Strengthening Its Focus on Inclusion” (Singal et al., 2023). This instrument includes the quality of teaching practices:
- 3 Classroom Culture (Supportive Learning Environment, Positive Behavioral Expectations)
- 4 Instruction (Lesson Facilitation, Checks for Understanding, Feedback, Critical Thinking)
- 5 Socioemotional Skills (Autonomy, Perseverance, Social & Collaborative Skills)

Findings

In order to assess the reliability of the questionnaire Constructivist Learning Environment Survey (CLES), the Alpha value was counted. The results show a value of $\alpha = 0.718$ for five items that are included in this instrument. This is considered an acceptable level of internal consistency. Furthermore, this indicates that the questionnaire items are linked between each other, and they measure in a sustainable way the construct of the constructivist learning environment in the context of this study (Table 1).

In order to assess the reliability of the questionnaire Teach Primary Classroom Observation Tool, the Alpha value was counted. The results indicate a value of $\alpha = 0.880$ for nine included items. This is considered to be a high level of internal consistency. This shows that the items of this instrument are highly linked between each other, and they measure sustainably the corresponding construct in the context of this study (Table 2).

Table 3 presents descriptive statistics for five CLES variables (Constructivist Learning Environment Survey), which are measured on a scale from 1 to 3. The table shows that Student Negotiation has the highest average ($M = 2.70$, $SD = 0.483$), while Uncertainty has the

TABLE 2 Reliability statistics of the teach primary classroom observation tool: internal consistency measured by Cronbach's Alpha for the nine observation criteria.

Cronbach's Alpha	N of items
0.880	9

lowest average ($M = 2.10$, $SD = 0.738$). Critical Voice has an average of 2.50 ($SD = 0.527$), while Shared Control has an average of 2.40 ($SD = 0.699$) and Personal Relevance has an average of 2.30 ($SD = 0.675$).

Table 4 shows descriptive statistics of observation for each of the instruments' components. Teach Primary Classroom Observation Tool: Strengthening Its Focus on Inclusion. The data are based on 10 observations and each subcategory provides range, minimum, maximum, mean, standard deviation, and variance. The mean for most of the categories is 2, and this indicates an average level of fulfilling the elements assessed in the classroom (on a scale 1 out of 3). Categories with the highest level are: Supportive Learning Environment, Checks for Understanding, Perseverance and Social and Collaborative Skills, with an average of 3, which shows that these elements are evaluated maximally in most cases. Variance and standard deviation are relatively low, and this indicates a limited distribution of outcomes. Thus, there is a consistency between the observed classrooms.

Considering that the variables are presented on a Likert scale and are considered categorical variables for analysis, the value of the Spearman correlation coefficient was obtained.

Table 5 presents the Spearman correlation coefficients between the variables: Constructivist Learning Environment and The Teach Primary Classroom Observation: Strengthening Its Focus on Inclusion. There is a strong positive relationship between “Personal Relevance” and “Classroom Culture” ($r = 0.949$, $p < 0.01$). This is a very strong and statistically significant correlation. It shows that the more the learning is connected to the personal experiences of the students, the more positive is the classroom culture, which includes Supportive Learning Environment (through which the teacher treats all students respectfully, uses positive language with students, responds to students' needs, does not exhibit gender bias and challenges gender bias in the classroom, does not exhibit disability bias and challenges disability stereotypes in the classroom and grows positive behavioral expectations, in which the teacher sets clear behavioral expectations for classroom activities, acknowledges positive student behavior and the teacher redirects misbehavior and focuses on the expected behavior, rather than the undesired behavior).

There is a weak positive relationship between “Critical Voice” and “Instruction” ($r = 0.475^{**}$, $p < 0.01$). This correlation, although it is weak, it shows that more students are encouraged to express their critical opinions, more structured and effective is the teaching, respectively Lesson Facilitation (through which the teacher explicitly articulates the objectives of the lesson and relates classroom activities to the objectives, the teacher explains content using multiple forms of representation, makes connections in the lesson that relate to other content knowledge or to students' daily lives, models by enacting or thinking aloud), also increases “Check for Understanding” (through which the teacher uses questions, prompts or other strategies to determine students' level of understanding, monitors most students during independent/group work, adjusts teaching to the level of the students), increases “Feedback” (through which the teacher provides

TABLE 1 Reliability statistics of the Constructivist Learning Environment Survey (CLES): internal consistency measured by Cronbach's Alpha for the five subscales of the instrument.

Cronbach's Alpha	N of items
0.718	5

TABLE 3 Descriptive statistics for Constructivist Learning Environment Survey (CLES) subscales.

Subscales	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Learning about the world (Personal Relevance)	10	2	1	3	2.30	0.675	0.456
Learning about the science (uncertainty)	10	2	1	3	2.10	0.738	0.544
Learning to speak out (Critical Voice)	10	1	2	3	2.50	0.527	0.278
Learning to learn (Shared Control)	10	2	1	3	2.40	0.699	0.489
Learning to communicate (Student Negotiation)	10	1	2	3	2.70	0.483	0.233

TABLE 4 Descriptive statistics of inclusive teaching dimensions assessed by the teach primary classroom observation tool (strengthened for inclusion).

Dimensions	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Supportive learning environment	10	1	2	3	3	0.516	0.267
Positive behavioral expectations	10	2	1	3	2	0.699	0.489
Lesson facilitation	10	2	1	3	2	0.699	0.489
Checks for understanding	10	1	2	3	3	0.516	0.267
Feedback	10	2	1	3	2	0.667	0.444
Critical thinking	10	2	1	3	2	0.632	0.400
Autonomy	10	2	1	3	2	0.699	0.489
Perseverance	10	1	2	3	3	0.483	0.233
Social and collaborative skills	10	1	2	3	3	0.516	0.267

TABLE 5 Spearman correlations between dimensions of the constructivist learning environment and inclusive teaching practices (the teach primary classroom observation: strengthening its focus on inclusion).

Dimensions	Classroom culture	Instruction	Socioemotional skills
Personal relevance	0.949**		
Uncertainty			
Critical voice		475**	
Shared control			
Student negotiation			0.757*

** $p < 0.01$, * $p < 0.05$.

specific comments or prompts to help clarify students' misunderstandings provides specific comments or prompts that help identify students' successes, and also increases "Critical Thinking") (through which the teacher asks open-ended questions and provides thinking tasks).

"Student Negotiation" has a moderate positive relationship with Socioemotional Skills ($r = 0.757$, $p < 0.05$). This connection is important and shows that the better students develop their skills to negotiate and discuss in the classroom, the better their socio-emotional skills as "Autonomy" (through which the teacher provides students with choices, provides students with opportunities to take on roles in the classroom and the students volunteer to participate in the classroom), Perseverance (through which the teacher acknowledges students' efforts, has a positive attitude toward students' challenges and the teacher encourages goal setting), and "Social Collaborative

Skill" (through which the teacher promotes students' collaboration through peer interaction and the teacher promote).

Discussion and conclusion

The findings of this study highlight the important role of constructivist learning environments in inclusive classroom practices. The results show that Personal Relevance has a strong positive correlation with Classroom Culture, indicating that when learning is connected to students' personal experiences, the classroom environment becomes more supportive and respectful. This emphasizes the importance of creating lessons that are meaningful and relevant to students' lives (Kember et al., 2000). However, Critical Voice shows a weak but statistically significant relationship with Instruction, indicating that when students are encouraged to express their opinions and engage critically with content, teaching becomes more structured and responsive to their needs. This conclusion shows that teachers should actively create an environment where students feel comfortable asking questions and discussing ideas (Yuen, 2007).

Additionally, Student Negotiation has a moderate positive correlation with Socio-Emotional Skills, demonstrating that students develop the ability to negotiate, discuss, and collaborate, and they improve their autonomy, commitment, and social skills. This reinforces the idea that classrooms should encourage dialogue and interaction among peers as essential components of learning and the inclusive classroom (Zhang et al., 2023).

These findings are also proved by the fundamental theories of constructivism, like Dewey (1938), Piaget (1954), and Vygotsky (1978), who emphasize that learning is an active and social process which is directly related to experience. The strong positive connection

between Personal Relevance and Classroom Culture is in accordance with the idea of Dewey (1938) that learning should be adhered to real students' experiences to create a commitment engagement.

Furthermore, the connection between Critical Voice and Instruction supports a social-constructivist approach, where active dialogue is fundamental to encourage critical thinking (Brčić et al., 2015). Teachers that prompt open discussions help students to develop critical thinking abilities, and they are more sensitive towards different students' needs (Anagün, 2018). The positive mean correlation between Students' Negotiation and Socio-emotional Skills is in accordance with the affirmation of Patil and Patankar (2016) that constructivist and inclusive classrooms should encourage collaboration and communication. These interactions help with team work and autonomy and empathy development. Simultaneously, these are the main competencies for academic and social success.

Overall, this study highlights the value of constructivist learning approaches in promoting inclusive classrooms and the results offer a valid basis for further research on the application of constructivist principles in inclusive classrooms.

Finally, it can be asserted that the results of this study illuminate the importance of teachers' training for constructivist and inclusive strategies, as stated by Ministry of Education, Science, Technology and Innovation (MESTI) (2020) and UNICEF (2014).

These results are substantial base that the constructivist approach is adequate but is also interconnected with fulfilling the different students' needs in inclusive classrooms.

Overall, this study highlights the value of constructivist learning approaches in promoting inclusive classrooms. The findings provide a basis for further research on how constructivist principles can be effectively implemented in inclusive classrooms. Despite the significance of the findings, this study presents several limitations that must be acknowledged. First, the sample consisted of only 10 teachers and their respective classrooms, which may limit the generalizability of the results to broader contexts. However, each teacher represented a complete inclusive classroom with a substantial number of students, including those with special needs. Furthermore, potential personal biases, teachers' previous experiences with inclusive education, and differences between urban and rural school settings may have influenced the way constructivist methods were perceived and applied. It is recommended that future studies examine these links using larger samples with more diverse demographic characteristics and additional research methods to better understand their impact on inclusive classrooms.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/supplementary material.

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Ethics statement

The studies involving humans were approved by The Municipal Directorate of Education in Vushtrri. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

BC: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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The 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.

Generative AI statement

The author(s) declare that Gen AI was used in the creation of this manuscript. The author(s) verify and take full responsibility for the use of generative AI in the preparation of this manuscript. The author declares the use of ChatGPT (version 4, OpenAI, www.openai.com) to assist in the rewording of certain passages of the text and during the translation into English, particularly to find appropriate synonyms and ensure linguistic clarity. This usage has not influenced the analysis or scientific interpretation of the data.

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