

Research Paper

# A quantitative study of teacher trainees' experiences of board game pedagogy

Beatrix Szilágyi<sup>1</sup>, Zoárd Ecsedi<sup>2</sup>, Zsófia Kocsis<sup>3</sup>

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## Abstract

Nowadays, educating the young generation is a challenge for educators, as traditional teaching methods are no longer sufficient (Khalaf & Zin, 2018), so teaching methods that build not only on the cognitive but also on the social and emotional dimensions of learning must be employed as well (Illeris, 2010; Lim et al, 2019.) Board game pedagogy is proving to be a useful method for solving the problems of education: board games can be used to introduce new topics or to teach specific parts of the curriculum (Brydges & Dembinski, 2019; Ezezika et al., 2023; Khalaf & Zin, 2018). In our quantitative, pilot study (n=103), we seek to answer the question of the extent to which teacher trainees are familiarized with board game pedagogy during their training, and to assess the frequency of didactic methods and working methods used by university lecturers. Of the students surveyed, only 54 had heard of board game pedagogy, but a large proportion of them consider it to be a motivating and effective teaching tool and would like it to be part of their training. Regarding the variety of working methods and forms of work of university teachers, the more traditional methods of lecture and explanation, as well as individual and frontal forms of work, predominate. Despite these limitations, we have data that could serve as a basis for future research and also contribute to the development of teacher training.

*Keywords:* board games; educational games; higher education; teacher education

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## Introduction

In the higher education context, the “challenges of today’s society” primarily refer to digitalisation, increasing student diversity, declining motivation, and rapidly changing labour-market expectations. These tendencies are documented in several European-level analyses, which highlight the growing need for active, competence-based learning environments (European Commission/EACEA/Eurydice, 2020, Kocsis & Pusztai, 2024). This is turning out to be an especially difficult endeavor in 21st-century education (Khalaf & Zin, 2018). The obstacles that arise require a turn towards new, innovative methods such as gamification, game pedagogy or board game pedagogy, the usefulness of which has been highlighted in special literature (Damsa & Fromann, 2016; Jesztl & Lencse, 2018; Szabó et al., 2021; Plass et al. 2015). Our current research focuses on the application of board games in education. According to the literature, board games can be used to teach specific parts of a curriculum and can also be used to introduce a topic (Kocsis et al., 2025; Radzi et al., 2020; Vijayakumar & Kulkarni, 2020), yet in Hungary research on this kind of pedagogy is sparse (Jesztl & Lencse, 2018) and the most domestic studies focus on public education. In teacher education, it is important not only to keep trainees motivated, but also to ensure that they take the importance of motivation and the ability to motivate with them and develop it in their work.

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<sup>1</sup> University of Debrecen, Debrecen, Hungary

<sup>2</sup> University of Debrecen, Debrecen, Hungary

<sup>3</sup> Institute of Educational Studies and Cultural Management, University of Debrecen; Center for Higher Education Research and Development, University of Debrecen; MTA-DE-Parent-Teacher Cooperation Research Group, University of Debrecen, Debrecen, Hungary; zsofikocsis6@gmail.com (corresponding author)

We seek answers to the question to what extent board game pedagogy is part of higher education, particularly within pedagogical education. In the first part of the paper, we briefly describe the problem areas of public education and higher education, highlighting the pedagogical value of board games and their role in higher education and teacher education. We then introduce the methodological considerations of the research. The paper concludes with a discussion of the results, summary of the limitations and recommendations for future research.

## Theoretical background

### Changing needs, changing learning environment

Today's primary and secondary school pupils are members of Generations Z and Alpha, respectively, who are taught by Baby Boomers, Generations X and Y. Although the latter are the least represented in the teaching profession at present. In Hungary, there is at least a generation gap between the majority of teachers and students, and this not only reflects age differences, but also significant differences in their culture, ethics and value systems (Varga, 2017). According to Malcom Brown (2005), students born before 1990 had preferred fact-based education, while members of Generation Z need to know why they need to learn the subject matter. As information acquisition has reached lightning speed, what matters to students is not whether they know the material, but how they can apply and use it. They also need their teacher to point out the practical applications of the topics. To motivate them, we need to make education lively, to give more importance to creativity and problem-solving (Jekkel & Jekkel, 2017). The toy industry has built the bridge to today's generations and education should do the same (see: LEGO or Minecraft applications in education) (Kazez & Zülfi, 2016; Clarke et al, 2017; Jamutai, 2019; Péter-Szabó, 2023).

It is also important for higher education to adapt to the needs of their students, today's generation of students increasingly demands practice-oriented courses, internships and competence development in line with labour market expectations. Theory-driven education is less and less motivating for higher education students, who are increasingly characterized by consumer-oriented attitudes, as they focus not only on graduation but also on subsequent employability (Tomlinson, 2017). Creating an active learning environment for higher education students is also essential to develop competences, teach learning and deliver curricula that are responsive to the challenges of today's society (Kövecsesné Gösi et al, 2023; Manzano-León, 2021). A 2020 study also emphasized that an active learning environment has clear benefits for the development of various competences and skills (European Commission/EACEA/Eurydice, 2020). According to Rapos (2015), the functions of the practicum in teacher education include developing and assessing teaching skills and acquiring experience. According to qualitative results of Kocsis & Pusztai (2024, 2025), students believe that university education provides a good theoretical basis, but that more practice is needed to develop certain competences. They point out that several of their interviewees are in teacher education and only two of them emphasized the frequent use of group work in the courses, while the other teacher trainees reported a predominance of independent work. The data are thought-provoking, as teacher education should provide students with many more interactive, practical tasks as a basis for their future work. Based on the previous results, practice-oriented learning does not imply the exclusion of theoretical knowledge. Rather, it refers to learning environments in which theoretical concepts are meaningfully connected to practical application, reflection, and experiential learning. In this sense, practice orientation can be understood as the integration of theory and practice rather than their separation. According to Knausz, Lubinszki & Takács (2018), methodological foci in teacher education include, among others, a teacher mentality open to development and change, reflectivity and the ability to change attitudes. For these, the work and role of higher education lecturers and the updating of their methodological repertoire is necessary, which would further expand the already diverse roles and responsibilities of lecturers (Kocsis & Hrabéczy, 2023). Recent research shows that there is a growing emphasis on diverse teaching methods, but less so for teaching researchers. Although research has shown that students want and need practice-oriented education, many courses do not meet these expectations (Kocsis & Hrabéczy, 2024). In teacher education, it is particularly important that university lecturers also apply and teach students the most modern teaching strategies.

### Board games in (higher) education

Traditional teaching methods and instructional techniques increasingly appear insufficient to address contemporary educational demands. Consequently, educational institutions and teachers are required to

continuously develop their pedagogical practices and adopt innovative teaching strategies. In recent decades, a growing body of research has focused on playful and game-based pedagogical approaches (Camacho-Sánchez et al., 2022). Board game pedagogy, as opposed to traditional methods, provides the opportunity to create an active learning environment as an educator (Lim et al., 2019). *“Board game pedagogy typically does not rely on specifically developmental games; instead, it selects from commercially available or easily produced games that provide a richer gameplay experience, choosing those that best serve its pedagogical objectives. These are well-established, thoroughly tested games that have undergone numerous trials and evaluations, and that children are intrinsically motivated to play.”* (Jesztl & Lencse, 2018, p. 29)

Incorporating board games into education gives children the opportunity to learn in experiential situations. In this way, students do not think of the tasks as a compulsory element, but as a fun reward (Nagy & Molnárné 2019). These activities can greatly contribute to the popularization of a subject or a subject (Szilágyi, 2023; Szilágyi & Kocsis, 2023), which is especially important for subjects that are less popular among students, such as science (Chrappán & Malmos, 2016). In Hungary, there is limited research and results available on board game pedagogy (see Jesztl & Lencse, 2018). Existing domestic studies tend to focus primarily on public education and are often pilot in nature, examining the use of games within specific subject areas (Csáki, 2025; Hajdu, 2025; Szilágyi & Kocsis, 2023). By comparison, research addressing board game pedagogy in higher education (particularly studies that explore students’ perspectives and experiences) seems to be less prevalent.

Several studies indicate that board game-based pedagogy can be effectively applied in various areas of higher education. For example, game-based interventions have been shown to support the development of soft skills in hotel management training (Radzi et al., 2020), foster peer interaction and conceptual understanding in physics education through adapted commercial games (Janiga & Haverlíková, 2024), and enhance cognitive engagement and collaboration in finance-related courses using Monopoly (Vijayakumar & Kulkarni, 2020). Additionally, educational board games such as BioRacer have been found to increase student engagement, knowledge retention, and teamwork in public health biology education (Ezezika et al., 2023). These examples illustrate that both commercial and purpose-designed board games can contribute to learner-centered teaching practices across diverse higher education contexts (Brydges & Dembinski, 2019).

The use of board games in higher education has received increasing attention in recent years, particularly in the field of medical and health science education. These interactive methods promote active student participation, develop practical skills and make the learning process more effective. For example, the "Friday Night at the ER" game allows understanding the dynamics of healthcare systems and practicing decision-making skills for teamwork in a safe environment (Baily, 2019). The British Journal of Nursing has pointed out that these games are particularly effective in teaching critical thinking and clinical decision making, as they provide interactive and experiential learning opportunities (Midgley & Simpson, 2023). Moreover, board games also seem to be promising tools for health promotion and prevention (Nakao, 2019), as they have the potential to increase participant engagement and the effectiveness of health literacy learning.

In the field of science, initiatives have also emerged that use board games to learn new skills and deepen their understanding. A board game called Catalyze! was used to create an active learning environment, while providing insight into the factors that influence university students' persistence and success in learning chemistry. The game scenario can be easily adapted to other disciplines and also contributes to teachers' professional development (Brydges & Dembinski, 2019). A collection of board games called Maths Arcade includes a number of games that have been shown to develop skills essential for learning mathematics, such as problem-solving skills, goal-directed inquiry, strategic thinking, and logical reasoning, which are critical not only in academia but also in the workforce (Smith & Golding, 2018). In addition, we can also find board games that develop effective time management in students (Falim & Prestiliano, 2018).

### **Board games in teacher education**

The integration of board games into teacher education is in line with current research on experiential and active learning, as it provides a practical and reflective approach to skills development (see Kocsis et al. 2025). Games create a learning environment in which teacher trainees can engage actively and experientially with the subject matter, while developing their collaborative and problem-solving skills. For teacher trainees, playing or designing (board) games can play an important role in developing learner-centered teaching approaches (see Brydges & Dembinski, 2019; Frossard et al., 2012, Kocsis et al. 2025). It is important to highlight the dual function of board games in teacher education. On the one hand, it supports the development of key skills among university students such as collaboration, communication, adaptability and problem-solving (see Kocsis et al.

2025). On the other hand, it also serves as a transferable pedagogical method that prospective teachers can apply in their own classroom practice (Szilágyi & Kocsis, 2023). This duality strengthens the methodological relevance of incorporating board games into teacher training.

The use of board games in teacher education is also supported by Fink (2013) and Prince (2004), who argue that learning experiences based on active and powerful impressions are essential. Games also offer students the opportunity for self-reflection (Schön, 1983), as participants can analyze and improve their strategies after each game. This type of competence is crucial for educators to develop the adaptive thinking skills needed in dynamic classroom environments. Whitton and Moseley (2012) also found that game-based learning enhances motivation and persistence, which are critical factors in adult learning environments. Intrinsic motivation and a healthy competitive spirit are also enhanced by board games (Kapp, 2012; Plass et al., 2015). Darling-Hammond and Bransford (2005) emphasize that an essential part of effective teacher preparation is to develop students' reflective and adaptive thinking during their training. Game can be an ideal method for developing these essential skills in various university courses. Communication, collaboration, critical thinking and creativity (the 4Cs) are considered as the most important competences for the 21st century labor market (González-Salamanca et al. 2020), which are not only relevant for all workers, but are particularly necessary in the teaching profession, as they are essential factors for working with students, parents and colleagues. For teacher trainees, not only using games, but even designing a board game can help develop the ability to teach in a learner-centered way at several points.

These factors inspired the MTA-DE-PARTNERS Research Group to develop a board game for teacher trainees and teachers. The topic of interaction with parents, which has been a gap area in teacher education, is introduced to students through an educational board game. Their aim is to integrate their research findings into teacher education, while combining it with a learning experience. The co-operative board game is called K.Ö.SZ. I. - Communication and Coherence between Parents and School, in which players work together to solve the challenges of family-school communication and parental involvement. The challenges represent situations and life situations that are based on reality, research findings and teacher experiences. After testing the board game, the players filled in a questionnaire evaluating the board game and seeking feedback on the knowledge they had acquired during the game. Their results showed that respondents described specific concepts and terms, some named programs, while most respondents noted down the information contained in the quiz questions. Several of the teacher trainees and teacher educators stated that "I have never played a game like this directly with teachers, it was a completely new experience", or mentioned international good practices as a novelty, as well as quiz questions exploring research findings (Kocsis et al., 2024).

According to these studies and experiences, board games in teacher education (also) provide an interactive learning opportunity to develop practical skills while enhancing the cooperative and reflective thinking essential in the classroom. This approach, based on a range of research, is not only consistent with contemporary theories of learning, but also prepares prospective teachers to use these new opportunities in their future careers.

### **Research design and Methods**

The aim of our pilot research is to assess the extent to which teacher trainees are exposed to board game pedagogy in their higher education. We also focus on assessing the working methods and didactics used by university lecturers, who can serve as role models for students. These areas are key to enable teacher trainees to motivate students and maintain their interest in their future work, which requires knowledge and effective use of modern teaching methods. In the context of this pilot study, the perceived effectiveness of board games refers to teacher trainees' subjective evaluations of how board game pedagogy contributes to motivation, engagement, and the learning process within higher education settings, rather than to objectively measured learning outcomes.

#### **Presentation of measurement tools and methods**

In our research we used a quantitative method, as the use of questionnaires is easy to implement and can provide relevant information. In contrast to qualitative methods, questionnaires can have the disadvantage of lack of honesty and subjectivity, so we tried to use more open-ended questions in the survey to compensate for this to some extent (Boncz, 2015).

Our target group are teacher trainees of the University of Debrecen with an active student status. We used convenience sampling, relying on subjects who are easily and conveniently available among "acquaintances, colleagues, etc.". It is suitable for testing questionnaires, to establish a larger representative study" (Boncz,

2015, p. 28). The self-completion questionnaire was designed using Google Form. Completion of the questionnaire was anonymous and voluntary. The data collection was carried out between October and November 2024.

Based on Boncz (2015), when constructing the questionnaire, we also aimed to ask quick and easy-to-answer questions, which would allow for less time-consuming and stressful responses. In most cases, we used a 5-point Likert scale, but we also used open-ended questions. The latter are of particular importance, as students' independent thoughts and opinions are relevant to the topic.

In the first and final section of the questionnaire, we mainly asked about the demographic and educational data of the respondents: gender, age, study field, year, etc. In the next section of the questionnaire, we asked some questions to assess students' knowledge and opinions about board game pedagogy. This was followed by the section on board game pedagogy, which formed the largest part of the questionnaire, in which we assessed students' knowledge of the method, where they had encountered it (if at all), and how useful and effective they considered it to be in terms of teaching. We focused on where and in what ways the teacher trainees had encountered educational board games and their applications during their university education, and assessed how important they thought it was for this new, innovative method to be part of teacher education and for teachers to be familiar with it. We also examined the frequency of teaching strategies and working methods used by university lecturers.

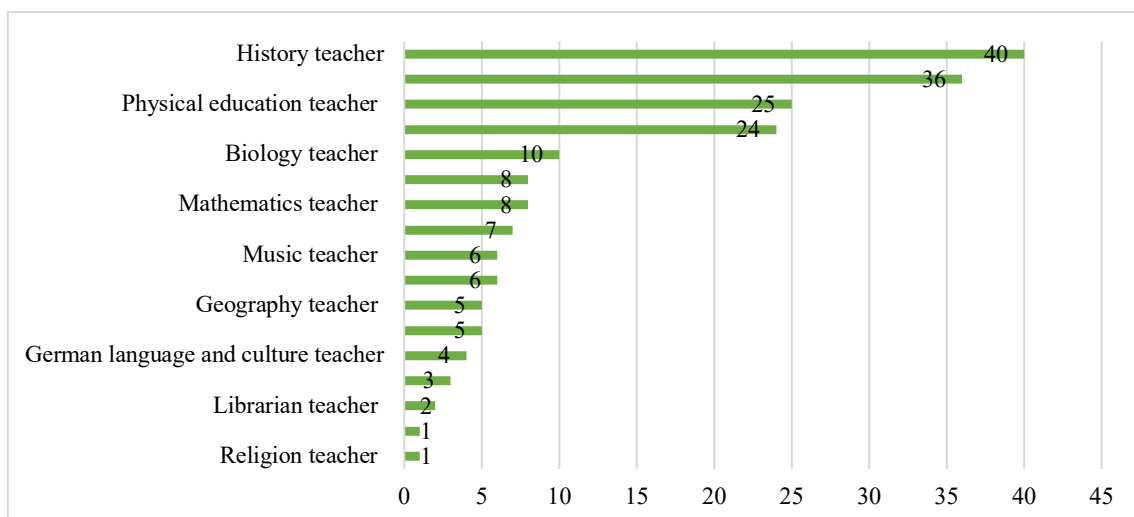
### Sample

The respondents are full-time teacher trainees of the University of Debrecen. A total of 103 students completed the questionnaire.

First, we present the demographic characteristics of the respondents, then their socio-cultural background, and finally their institutional characteristics. In terms of gender distribution, 62% of the respondents were female. The educational level of the parents was also assessed, and the responses showed that there was not much difference between the educational level of mothers and fathers. 39 students have a mother with a higher education (college, university, PhD, DLA), 21-21 students have a mother with a secondary education (vocational or technical school), 18 students have a high school education and two teacher trainees have a low education (less than eight primary). Regarding the education of the fathers, the majority of students have a higher education degree (30), but the same number of students have a vocational or technical school degree (30-30). Eight students have a secondary school degree and three students have a father with less than general education. We also asked about the financial situation of the respondents' families, 49 out of 103 students said that they had everything and could afford major expenses, 46 said that they had everything but could not afford major expenses, while six students' families could not even afford everyday expenses.

The age of the students ranges from 18 to 27 years. The average age of respondents is 21, the youngest student is 18 and the oldest is 27. There was a wide range of responses in terms of pairs of professions, as shown in Figure 1. The majority of respondents are studying history or English language and culture, with the smallest number of students in the sample studying history, history and ethnology, librarianship and religion.

**Figure 1.** Respondents' field of study in teacher education (number of respondents)



More than half of the respondents were in their second or third year at university (67.9%), with the lowest response from fourth and fifth year students (5%). Students were also asked what age group they planned to teach in the future, with the option to indicate more than one response. The overwhelming majority envisage their future in secondary school. The lowest number of students who would like to teach lower primary school pupils and one student who envisaged a language school as his future job. For the purposes of our research, we also thought it was important to find out how many of those who completed the questionnaire had already taken part in a placement during their training and what type of placement they had had. After all, modern teaching methods are not only encountered in university courses, but also during the various internships. More than half of the respondents had not yet participated in any placements, while there were also students who were already in their last year of continuous placements.

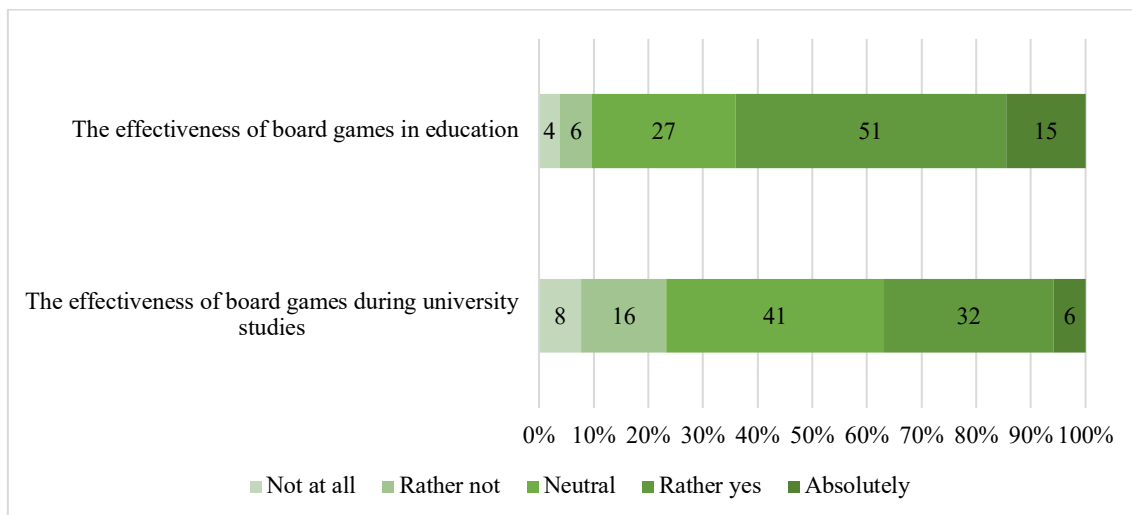
## Results

First, we investigated the extent to which teacher trainees were familiar with the term "board game pedagogy" and where they had encountered this method. 52.4% of the students surveyed had heard of board game pedagogy. Of the students surveyed, 38 had heard of the term in a university course, 18 had heard of it through an online platform and 19 had heard of it from a colleague or friend. Ten students had learned about the method through literature.

An open-ended question was used to test their word association and opinion on the topic. Many responses included the word 'play' in some form (such as learning by playing, playful learning, board game activities, etc.). Words such as 'motivation', 'creativity', 'experiential' also appeared in response, while some respondents mentioned specific board games (Monopoly, Dooble). There were a high number of responses that referred to cooperativity and group work (such as community building, motivating students in a playful way, social experience, group, playful task, group work). There was one student who tried to visualize the method in her mind, quoting her idea verbatim: *"I can see myself playing with the members of a class, while indirectly learning and developing a lot."* Some of the students associated competences with the method: *"It helps to manage emotions"*, *"Developing cooperation and collaboration skills"*, *"Community education"*. Some respondents suggested that board game pedagogy is associated with younger age groups, while one student considered it to be an *"extra investment of energy on the part of the teacher"*. Some teacher trainees pointed to the positive aspect of board game pedagogy as a method that *"allows for greater involvement of children, as it has a physical form, unlike online games"*. Some responses outline that the students had already been involved in board game pedagogy not as teachers, but as learners, but were not aware of its educational background.

As shown in Figure 2, students perceived board games as more pedagogically useful for teaching in general than for their own learning in higher education. Perceived usefulness or effectiveness refers to students' subjective evaluations of how board games support motivation, engagement, and the learning process, rather than to objectively measured learning outcomes.

**Figure 2.** Students' perceived pedagogical usefulness of board games at different educational levels (number of respondents, N=103)



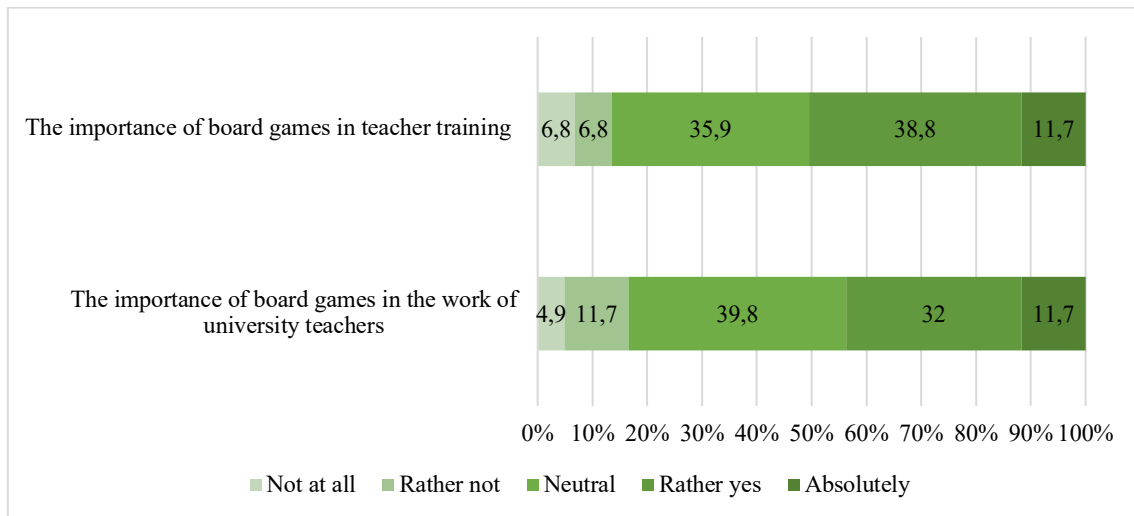
The high proportion of neutral responses may indicate limited exposure to board game pedagogy, making it difficult for students to form well-grounded judgments about its usefulness.

Among those students who had already experienced the use of board games in an educational context, the majority (76%) reported that they enjoyed or very much enjoyed the activity. This finding supports the assumption that direct experience with board game pedagogy may contribute to more positive perceptions of its pedagogical usefulness. The idea that board game pedagogy is mainly associated with younger age groups is reinforced by the fact that the majority of respondents think that the primary school age group would be the most useful, but similar views were expressed about its effective use in upper secondary education. 36 students thought it would be useful for all ages, while 35 teacher trainees would prefer to use it in secondary schools.

It was also considered important to assess how often during the students' secondary and university studies their teachers used board games in lessons. Of the respondents, 45 students stated that they had not used board games in class in secondary school, followed by the majority who sometimes used them (38), with only one respondent mentioning that they often used board games. 19 respondents could not remember and were therefore unable to answer the question. For their university studies, similar results were obtained with very minimal variation (never: 50, sometimes: 36, don't remember: 17). Among the respondents who were teachers, 28 indicated that their teacher had used board games in courses related to the pedagogical-psychological module during their university studies, while 11 students indicated a methodology course, nine teacher trainees a subject course and one an optional course. When naming a specific game, 13 students also mentioned the board game Dixit.

The survey also asked students how important they felt it was for board game pedagogy to be part of teacher education and for university lecturers to be trained in this method. Figure 3 shows that respondents' opinions regarding the role of board game pedagogy in teacher education are divided. The relatively high proportion of neutral responses again suggests uncertainty, which may stem from limited familiarity with the method during university studies.

**Figure 3.** Perception of the importance of board games in teacher education and in the work of university lecturers (%)



It should also be mentioned that the high proportion of neutral answers could be interpreted as a disadvantage of the five-point Likert scale. Despite the fact that fewer students would prefer to have the methodology of board game pedagogy included in their training, more students (71) would like to read literature on the subject for self-development and knowledge acquisition.

Only 5% of students surveyed feel fully prepared to use board game pedagogy confidently in their lessons. 96% of respondents agree with the statement that using educational board games would otherwise increase students' motivation to some extent, and that nearly 72% of respondents would like to use this method in the future. In order to achieve this goal successfully, it is necessary that teacher education prepares them for this. 34 out of 103 students feel that they would not be prepared enough to use this method, and 37 students are neutral on the subject.

We also explored students' perceptions of the extent to which board game pedagogy could potentially support the development of specific skills (Table 1). The results therefore reflect teacher trainees' subjective

assessments of the perceived developmental potential of board games, rather than measured learning outcomes. Teacher trainees were asked to indicate, on a five-point scale, the extent to which they believed each skill could be developed through the use of board games. Based on these perceptions, collaboration, problem-solving, and strategic thinking were ranked as having the highest perceived developmental potential.

**Table 1.** Descriptive statistics of the perceived developmental potential of board games for selected competences (N = 103)

Competences	M	SD
Collaboration	4.30	0.89
Communication	4.25	0.85
Problem-solving	4.25	0.99
Strategic thinking	4.19	0.97
Creativity	4.14	0.91
Logical thinking	4.12	1.04
Concentration	3.97	1.15
Healthy competitiveness	3.96	1.05
Debate skills	3.92	1.06
Memory	3.87	1.10
Planning ahead	3.71	1.10
Critical thinking	3.60	0.97
Empathy	3.53	1.06
Use of professional language	3.15	1.11

There were few responses where students indicated that certain skills were not developed at all by board games, but one of these was the use of professional language. However, a carefully designed and pedagogically appropriate board game can also greatly assist the development of professional vocabulary. Empathy as a skill also came last. Perhaps teacher trainees have the nightmare of a possible argument, anger or quarrel during a game, which unfortunately can be a natural part of a cooperative teaching method.

We were curious to hear students' views on what they considered to be the biggest advantages and disadvantages of board game pedagogy, which was included as an open-ended question in the questionnaire. Several responses suggested that this method has a motivating effect, can make lessons more enjoyable and interactive, and that it can be very useful for team building and developing cooperation skills. According to one respondent, it is a "reward" for the students, a "teaser", a "mood booster" for the students. Quoting a student, "visual and auditory methods make it easy for students to remember such an unusual lesson better." One important idea we would like to highlight is that a teacher trainees mentioned openness as the biggest advantage of the method. This could also refer to openness towards the teacher and/or the subject. Both can positively influence attitudes towards a subject, which would be particularly important for STEM subjects in today's education system. According to one respondent, a community can be brought together more or less by one or more of these sessions, while other respondents see the differential potential of board game pedagogy. Several respondents see the main advantage of using board games as an opportunity to introduce topics in an experiential way, to work creatively on the subject matter or to relieve students of their workload, as they "learn almost by playing". The most frequently mentioned words in the responses are summarized in Table 2.

**Table 2.** The benefits of board game pedagogy, based on the most common words in the responses

	Motivation	Fun, game, play	Cooperation	Experiential
the number of times the terms are mentioned	12	12	7	4

The research also sought to assess the main drawbacks of board game pedagogy. Some respondents pointed out that they simply had not come across more board games that could be used in education, while several students highlighted the lack of time or extra preparation on the part of the teacher, or slower progress in the curriculum. Many teacher trainees expressed fears that using the new method would lead to a loss of seriousness of the

subject and students, and that they would be easily distracted. Some also feared colleagues' opinions on the method, not knowing *"how much students and colleagues value the use of board games"*.

More complex, serious responses also highlighted the difficulties of each method: *"It would be difficult to implement well in a 45-minute lesson due to lack of time. In principle it's a great idea, but I think it's not always the same in terms of the composition of the group and the emotional intelligence level of the pupils. It can be a very good and a very bad experience for a student. For example, if they are not as able and feel they are holding their team back."* Students are afraid of possible negative consequences such as disputes, unpleasant situations, disciplinary problems. Most students referred to a lack of time, with too much material and too little time for the teacher to teach experientially rather than just imparting lexical knowledge. This issue has been highlighted in previous research (see Szilágyi & Kocsis, 2023).

In the last part of the topic, we asked the students what could be the biggest obstacle to the use of board game pedagogy. Most of the students agreed with the small number of lessons and the shortness of the teaching hours, but most of them also mentioned the lack of preparation in terms of methodology and the scarcity of financial resources in some schools. Some students saw lack of interest as an obstacle, while some students saw the small number of board games that could be used effectively for certain subjects (e.g. science) as a difficulty. Respondents saw a future for board game pedagogy in the teaching of foreign languages, history, literature and biology, while the least effective were thought to be in the teaching of singing and music, physical education, art and computer science.

### Working methods and didactics used by university lecturers

In a short part of the questionnaire, we measured the frequency of teaching methods and forms of work used by the university lecturers of teacher trainees, as we agree with the findings of previous research (Kocsis & Pusztai, 2024) that in teacher education it is particularly important that teacher trainees encounter a variety of methods and forms of work during their university course, as these can serve as a model.

It is important to clarify that this part of the questionnaire referred specifically to seminar-based courses. At this university, seminars are typically conducted in smaller groups and are designed to allow for more interaction, discussion and the use of diverse teaching methods, in contrast to large-scale lectures. Therefore, when respondents evaluated the frequency of different working methods and didactic approaches, they were asked to reflect on their experiences in seminar settings rather than on lectures in general. The results show that frontal (lecture) methods were used most frequently ( $M = 4.35$ ,  $SD = 1.02$ ), followed by individual work ( $M = 3.83$ ,  $SD = 1.07$ ). Group work ( $M = 3.48$ ,  $SD = 1.12$ ) and pair work ( $M = 3.35$ ,  $SD = 1.30$ ) were less commonly employed. Overall, frontal and individual forms of work dominate seminar-based university teaching, while group and pair work are used less frequently.

**Table 3.** Descriptive statistics of the frequency of teaching methods as perceived by teacher trainees ( $N = 103$ )

Teaching method	M	SD
Lecture	4.49	0.98
Explanation	4.25	0.86
Discussion	3.83	0.94
Demonstration	3.83	0.94
Cooperative methods	3.44	1.13
Project-based learning	3.30	1.11
Games and simulations	2.54	1.14
Debate	2.53	1.02

Among the teaching and didactic methods used by university lecturers, Debate, games and simulations, project-based learning were the least frequently used methods. Yet, if we think of the teachers of teacher education students, simulation exercises should be essential. After all, they would enable the teacher trainee to prepare for and deal with events that may occur in the course of his or her work. But it is positive to see that many teachers make use of the demonstration tool, and that they also use the project method and other cooperative methods relatively often.

In addition to descriptive statistical analyses, bivariate analyses were also conducted to explore whether there is a relationship between the training characteristics of pre-service teachers and their responses regarding game-based pedagogy. The study examined connections between the students' majors, year of study, and experiences with board games, as well as their perceptions of the pedagogical usefulness of board games and the instructional methods and forms of work employed by educators. Based on the analyses performed, no statistically significant relationship was found for any of the variable pairs examined.

When interpreting the results, it is important to consider the characteristics of the sample and the pilot nature of the study. The distribution of respondents across majors and years of study is heterogeneous; however, the number of participants in each subgroup is relatively small, which limits the statistical power of the analyses. Furthermore, it can be assumed that students' higher education experiences (particularly within teacher education) are largely similar, regardless of their level of training or field of study, which may reduce observable differences.

Another factor that may explain the results is that the presence of game-based pedagogy in higher education programs is generally low, meaning that students' experiences are more incidental than regular or structured. As a result, the assessment of the usefulness of board games, as well as the perception of instructional methods and forms of work, may not have shown significant differences across student groups. These findings underscore the need for further research on the topic with larger samples and more targeted measurement tools.

### Discussion

Previous research has consistently highlighted the pedagogical potential of board games and game-based learning approaches across different educational contexts. International studies have demonstrated that board games can support motivation, active engagement, collaboration, and competence development in both public and higher education settings (e.g. Lim et al., 2019; Brydges & Dembinski, 2019). In Hungary, however, empirical research on board game pedagogy remains relatively limited. Existing domestic studies predominantly focus on public education and are often small-scale or pilot in nature, examining the application of games within specific subjects or age groups (Jeszl & Lencse, 2018; Szilágyi & Kocsis, 2023; Csáki, 2025; Hajdu, 2025).

Within this body of literature, studies that explicitly examine teacher trainees' experiences, preparedness, and perceptions are particularly scarce. While several international examples illustrate the successful integration of board games into university-level teaching, fewer studies have explored how future teachers encounter these methods during their training, or how higher education teaching practices model the use of innovative, game-based approaches (see Brydges & Dembinski, 2019; Frossard et al., 2012, Kocsis et al. 2025).

Against this background, the present pilot study seeks to contribute to the existing literature by focusing on teacher trainees' knowledge, experiences, and perceived preparedness related to board game pedagogy, as well as on the didactic practices they encounter during their university studies. The aim of our research is to explore the knowledge and experiences of teacher trainees about board game pedagogy. A further aim was to assess the prevalence of working methods and didactics used by the university lecturers in teacher education among the surveyed teacher trainees. As a measurement tool, we used an online questionnaire completed by 103 teacher education students from the University of Debrecen. During the research, we used convenience sampling.

The first part of our research question was to investigate the experiences of the students with board game pedagogy. The term board game pedagogy was known to 52% of the students who completed the questionnaire, but more than half of the students believed that it could be an effective method of teaching. Most of them would prefer to have a more in-depth introduction to the use of board games in the classroom during their university studies. This need is supported by the fact that, based on self-report, only 5 out of 103 students said that they felt fully prepared to use this method professionally. Some teacher trainees think that board games and their use in the classroom can only work well with young children. Previous research also confirms that these methods work well not only for children of preschool or pre-school age, but also in secondary school, university education and even in the workplace. So it is important that they learn about board game pedagogy and the literature supporting the effectiveness of board games during their university education. In our research, we investigated the frequency and variety of working methods and teaching methods used by university lecturers of teacher trainees. The results are in line with the qualitative research of Kocsis & Pusztai (2024, 2025), as the students we interviewed also emphasized the independent and frontal forms of work, which are most frequently

used by the lecturers, while group work and pair work are less frequently used. In terms of methods, lectures and explanations predominate, and discussion, simulation, games or group work are less frequent in the courses.

Our results show that the sample we surveyed is also dominated by traditional working methods and teaching tools, and that innovative methods are rarely used in the courses, both in theory and practice. This research provides insights into the experiences of teacher trainees with gamification and board game pedagogy, and the results of our pilot research suggest that more emphasis should be placed on the introduction of these methods in current teacher education. The impact of these methods on student achievement and competence development has been confirmed by several studies (Illeris, 2010; Lim et al., 2019). Updating the methods used in teacher education and providing innovative, up-to-date knowledge is important not only because satisfaction with the training, disappointment or lack of motivation in the training may be a predictor of drop-out (Kovács et al., 2019), but also because today's higher education students are less and less motivated by theory-driven education (Kocsis & Pusztai, 2024) and have increasingly strong consumer-oriented attitudes, i.e. they focus on employability in addition to their degree (Tomlinson, 2017). The increasing demand for practice-oriented education among teacher trainees should therefore not be interpreted as a rejection of theory-driven courses. Instead, it reflects a need for teaching approaches that demonstrate how theoretical knowledge can be applied in educational practice. In teacher education, it is therefore important not only to keep the theoretical material up-to-date, but also to put these new knowledge and innovative methods into practice, so that teachers can use them confidently in their future careers and be able to motivate the new generation of school students.

### **Conclusion**

Our research results can be interpreted subject to certain limitations. The first limitation of our study is that no broad, general conclusions can be drawn from the results, as our findings are specific to the sample we study. In our research, we only interviewed students studying at the University of Debrecen. Many of the students we interviewed are at the beginning or in the middle of their studies and have little practical experience. The time frame for data collection was limited, so the results of our pilot research only provide a preliminary insight into the topic. A further limitation of the research was the relatively small number of students we were able to reach due to time constraints, resulting in a small sample size. A larger sample is needed to draw deeper, more complex findings and conclusions. Our future plans include continuing the data collection and thus increasing the number of respondents. Our primary aim in continuing the survey is to reach as many teacher education students as possible from the above mentioned higher education institutions, but a longer-term goal is to explore the experiences of students studying teacher education at other higher education institutions, which would provide a good basis for comparison.

Although it is not possible to draw general conclusions due to the limitations mentioned above, we believe that this exploratory research could be a good springboard for future research. This research is a good starting point for further analyses and research on teacher trainees' proficiency in certain methods or on the methods used in higher education. Our work provides insights into an area that has been rarely studied in the past in a national context, such as the use of board game pedagogy in higher education. The findings highlight several implications for teacher education. First, university programmes may consider integrating structured modules on game-based and board-game pedagogy into the pedagogical-psychological curriculum. Second, supporting teacher educators through methodological training could help them apply interactive approaches more confidently. Finally, the results suggest that strengthening practice-oriented learning experiences may better prepare future teachers to employ innovative methods in school settings. Beyond teacher education, board game pedagogy has demonstrated relevance in several other fields of higher education, including medical training, business education and STEM subjects (see previous studies). These examples reinforce that the methodology is adaptable and can enrich diverse academic domains.

In conclusion, it is important to keep up with the latest methodological trends in teacher education and to provide opportunities for practical experience, so that teacher candidates leave higher education with up-to-date and innovative methods to motivate and effectively teach the younger generation. The main strength of our research is that it reflects on a relevant and timely problem, which we have tried to base on a solid international and national theoretical framework. The novelty of the research is that the use of board games in the classroom has received little attention in the domestic context, and the novelty is that the issue is examined from the perspective of teacher trainees. The research may contribute to the development of teacher education by highlighting the need for innovative teaching methods and may promote the wider uptake of board game pedagogy at different levels of education.

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