

# Theoretical and Practical Issues of Learning Support, in Teacher Training

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*Abstract: Lifelong learning is a basic requirement, in all areas in our rapidly changing world. One of the most important pillars of lifelong learning, is the teaching of learning by transferring basic knowledge of learning methodology, developing learning and thinking skills, through “self-knowledge discoveries”, that are associated with learning and by developing self-regulated learning. In this process, an important role is played by those methods, techniques and digital applications, that result in effective and successful learning, by adjusting to the learning style, habits and strategies of students.*

*Keywords: self-regulated learning; learning methodology; online applications; effective learning*

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## 1 The Role of Learning Support in the Development of Self-regulated Learning

*“If there is a lack of interest, curiosity, activity joy in learning, if purposeful efforts do not increase performance day by day, if the student does not feel that they are taking over the world more and more this way, the school will become a compulsive institution in which neither the student, nor the teacher can feel good.”*

(Péter Oroszlány) [1]

According to Endréné Réthy, the education process as a complex, interactive process, includes not only the process of teaching and learning, but also the process of building and developing of cognitive self-regulation and motivational self-regulation. In this process, not only the active processing and effective acquisition of the curriculum (cultural goods) should take place during the joint activities of the teacher and the student, but also the student’s ability to learn autonomously, their cognitive self-regulation and the high-level self-regulation of their learning motivations. However, all this happens if the teaching material in the education process is mediated in a pedagogically justified differentiated dosage and by taking the regularities of learning into account, ensuring continuous feedback and

motivation, with the active participation of students, and if, at the same time, the teacher takes into account the composition of the class, the individual characteristics of the students, their level of development, their prior knowledge and experience, the nature of the curriculum and their own methodological possibilities. [2] According to Endréné Réthy, “We can talk about self-regulated learning when a person motivates himself and plans, structures, directs and controls his learning activities independently and self-responsibly.” [3] In the development of this not only the conscious and differentiated planning and organization of the education process plays a central role, but also the teaching of learning and the establishment of the basics of learning methodology.

All these would be increasingly necessary, but unfortunately not enough emphasis is put on them in the practice of education today.

Unfortunately, the thoughts of Árpád Lappints, published in 2002, in which he explains that a significant part of the students, unfortunately do not like and cannot learn, are still valid today. Their typical characteristic is that mechanism prevails both in learning and in recalling, even if it is not justified. In many instances, they do not know the importance of learning techniques, learning methods and strategies, and they do not even seek to learn and apply them. Another typical characteristic of them is that they do not differentiate between different contents and there is an excessive extent of adaptation to the method of assessment. Another bad innervation is that learning habits and methods do not change with advancing age, and learning failures gradually lead to the lack of learning activity. [4] If we add the challenges of our present time to this, we can also see that the digital competences of the digital generation are very different. Despite the online education period, young people leaving high schools use various digital opportunities and applications very modestly to facilitate their own learning, according to our experience [17] [21].

## **1.1 The Most Important Phases of Teaching Learning**

According to Endréné Réthy, the most important phases of teaching learning include *getting to know the individual learning methods of students, discussing and developing together the correct individual learning methods*: supporting and helping the conscious rethinking of individually applied learning methods is of high importance. She also emphasizes in her work that *the purpose of introducing various learning styles, techniques, strategies and ways is to help the students find the most effective one for them*. *Ensuring the psychological conditions of learning* is of great importance: the “ritual” attunement to learning, the permanent place of learning, the optimal order of the things to learn (from the moderate through the most difficult to the easiest), the use of multiple sensory channels during learning (e.g. reading, representation, listening, telling, discussing), the forms of various breaks, alternation of learning activities, the “brave” transformation and problem-solving of things to learn, the use of aids, the initiation of factors that impede

learning, the application of multiple forms and tricks of self-checking, e.g. trial telling, summarizing the essence, explanation of keywords, and self-reward after successfully completing a more difficult learning task. [2]

A prerequisite of effective learning is that each student finds the most effective subject-dependent learning techniques and tricks for themselves [12]. Teachers also have an important role in teaching learning, namely, providing students with differentiated and well-prepared tasks, as well as providing additional learning opportunities and learning aids. Another task is to incorporate the necessary individual correction procedures: to apply corrective, supplementary, remedial, compensatory, preferential procedures. [2] In the age of digital culture, these processes must be completed with a system of digital tools related to learning style and learning strategy [18] [28]. There are several good practices today in the use of different applications in education, either related to augmented reality-based learning or in relation to VR education spaces. [5-11] [26] [27] [29] [30]

## **1.2 Learning Support in Teacher Training**

In case of students entering higher education, we often find that despite the fact that there are many resources and help available to them through the World Wide Web, frameworks and applications that promote online learning, it does not somehow result in more effective and enjoyable learning. In higher education dropout campaigns try to help young people, during which, in addition to pedagogical methods and the organization of learning, it would be important to offer students a “menu” – given their learning habits and strategies – to successfully meet the various challenges. In teacher training, we pay a special attention to the topic, since prospective teachers need to be prepared to support the learning of the children entrusted to them. However, based on our experience, this has to start with them, which requires a high degree of self-knowledge, as well as the acquisition of techniques and methods, that can make their own learning activity more effective.

## **2 Research into Learning in Teacher Training**

The paper presents the initial phase of a research. The aim of the research was to map whether the pedagogical students enrolling in our study programs had dealt with learning methodology during their studies so far, what they think about learning and teaching as future teachers. How do they see the effectiveness of learning, teaching? What assumptions do they have about the issue? This paper also tries to interpret all of this, in relation to online education.

## 2.1 Analysis and Method

The data collection by means of questionnaire took place in the autumn of 2020. A total of 64 first-year, full-time students (teacher of special education study program (37 students), teacher training study program (19 students), social pedagogy (8 students) filled in the online questionnaire. The questionnaire can be divided into more parts, the first group of questions recorded impressions of learning, teaching and knowledge, as well as questions related to their experience with learning methodology. The second group of questions investigated thoughts on effective learning, namely, what the key to effective learning might be, and what motivates them the most in learning. It was also asked where the role of the teachers is seen the most in this process. The next group of questions concerned specific remarks about teaching, effective methods, and judging the success of lessons. The final questions of the questionnaire revealed the status of online education in the pandemic period (pre-graduation period), as well as the difficulties related to it.

The present paper highlights some areas of this research, without claiming to be exhaustive.

### 2.1 Hypotheses

**Hypothesis 1:** Students enrolling in our study programs participated to a small extent in learning methodology classes during their previous studies.

**Hypothesis 2:** The use of different digital possibilities and applications as well as the knowledge of their role in learning support requires development.

**Hypothesis 3:** Students can very well delineate the factors of pedagogical effectiveness with their laical pedagogical experience.

### 2.2 Results of the Questionnaire Survey

With regard to the questions if they had studied learning methodology as a separate subject during their primary and secondary school years, 90.6% of the students answered no referring to primary school, 6.3% did not know and 3.1% answered yes. Referring to secondary school, 78.1% of the students did not deal with learning methodology in a separate subject, 4.7% did not know and 17.2% participated in such a lesson. Although in secondary school the number of those who received support in learning in this form increased, this number is still very negligible. In my opinion, much more emphasis should be placed on this area. It has a key role in reducing dropout rates, strengthening learning motivation, maintaining interest in learning, shaping self-esteem and self-reflection, defining learning goals and successfully navigating the path to reach the goals.

With regard to the question, “Write down the 5 words that first come to your mind about learning.” (Figure 1), I mostly found positive approaches and terms.



Figure 1

Word cloud about concepts that come to the respondents' mind about learning (own compilation)

The most frequently mentioned term was knowledge, knowledge-transfer followed by perseverance, then diligence and scheduling, then books, school and knowledge acquisition, development were highlighted. Mostly positive or neutral expressions were mentioned, however, some more negative ones like difficulty, monotone, tiring, stress, anxiety, struggle also appeared. Many expressions were associated with personal qualities such as creativity, confidence, willpower, patience, discipline. Terms like future, opportunity and success were added to another group. Among the answers, several concepts were related to learning methods and techniques, such as note-taking, making figures, highlighting in color, practicing, revising, swotting. It is a very good result that basically positive attitudes were reflected in the responses of the teacher candidates.

Regarding the question, “What does learning mean to me?”, very exciting answers were given. The majority of them were related to development, prosperity, and positive impressions, which can be a good starting point in teacher training. As an illustration, here are some answers to this question: “Expanding our knowledge, openness to the world, broadening our perspective in several areas”; “It means spiritual fulfilment, a positive thing for me.”; “I like learning new things in a way that I can recall them later.”; “It means a kind of challenge that I want to fulfil.”.

Of course, more negative approaches were also found in some cases. *“Learning has always meant something mandatory that, as much as I can remember, I have never enjoyed, or have never thought it would teach me good, pleasant, or overly useful things”*. Our important aim could be to change these attitudes, to create and support positive learning experience.



Figure 2

Word cloud about concepts that come to the respondents' mind about teaching (own compilation)

With regard to the question, *“Write down the 5 words that first come to your mind about teaching.”* (Figure 2), similar concepts were mentioned as in the case of learning.

The most frequently mentioned expressions about teaching was also knowledge-transfer. The second most frequently mentioned term was patience followed by the concepts of profession, knowledge, responsibility, attention, creativity, love, challenge, and child-centeredness. They were followed by the concepts of joy, playfulness, wisdom, difficulty, experience, perseverance, empathy, definiteness, and upbringing. The other terms mentioned were related to school tools and methods, as well as to assessment methods and learning techniques.

With regard to the question, *“What is it that helps you learn effectively?”*, the different learning styles of the students were very clear, as the factors related to the different learning styles (e.g., movement, silence, peers, music) as well as the methods and techniques applied in practice (e.g., note-taking, revising, explanation, drafting, figures, highlighting in color) were mentioned.

In the research I also sought for an answer to how teacher training students think about effective methods with their laical pedagogical views and previous experience.

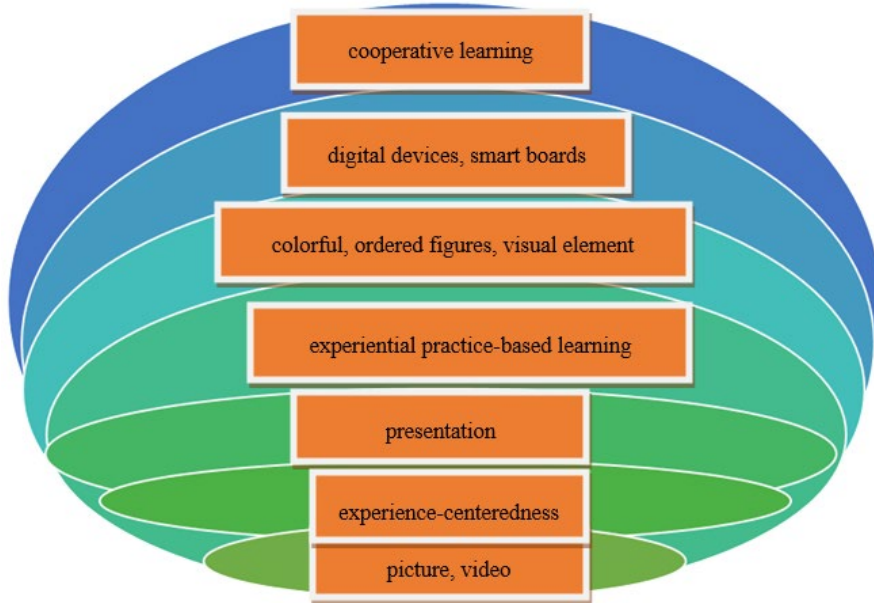


Figure 3

What are the most effective teaching methods based on your student experience so far?

Figure 3 illustrates the students' answers in groups. Answers given to the open-ended question were categorized, with the largest group being collaborative group work. *“Interactive, group tasks as you can effectively gain experience from others.”* The next large group of answers was related to digital devices and the use of smart boards. The third large group consisted of answers in which colorful, ordered figures, visual elements were highlighted. Another high proportion of answers highlighted interactivity as well as experiential practice-based learning. The next large group consisted of lectures, presentations, then experience-centeredness, and the use of pictures and videos.

Some combined different methodological elements in their responses:

*“The exact draft dictation of the teacher, and then the gathering of the students into small groups where they discuss the already dictated draft together.”*

*“Playful, experience-based curriculum elaboration. Practice by repeated revising. Joint elaboration of a given problem with the peers. Practical tasks related to everyday life.”*

*“Using electronic boards, making presentations, the playful elaboration of the curriculum, teamwork.”*

*“The teacher should not only give the curriculum orally to the students, but also should project the outline of the issues on the board and should help students learn by illustrating pictures. It is easier to learn the curriculum if we use more senses during learning.”*

*“This includes the countless options provided by the Internet, including video-sharing interfaces and sites.”*

*“For me, experiential learning or having as many examples as possible to explain the given topic, and a visual or musical approach helped me learn faster.”*

*“Combining subjects and study them as a whole is also an excellent method.”*

There was a respondent who emphasized the importance of the teacher’s personal experience, own examples and way of seeing things in the lectures.

It can be seen from the responses of the digital generation that they have a need for group work, projects, interactive, experience-based learning that supports collaboration between students and teachers.

In this context, their experience with cooperative methods was also investigated.

**How often did you do group work during your high school years?**

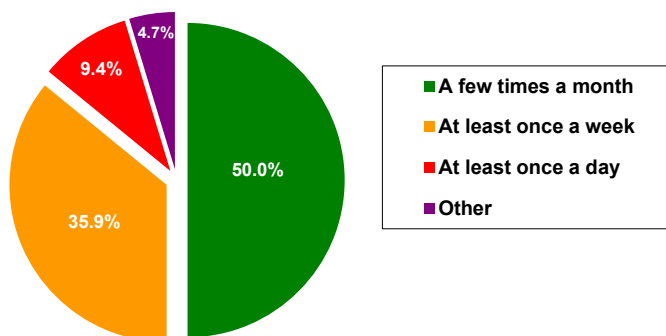


Figure 4

Frequency of group work during high school years

Answers given to the question, ‘How often did you do group work during your high school years?’ (Figure 4), show that 9.4% of the students did so at least once a day, 35.9% of them did so at least once a week, whereas 50% of them did so a few times a month. Nobody marked the answer, ‘in each lesson’. These data show what we perceive at the beginning of their higher education studies, namely that students have very little experience in group work, the division of labor in the group as well



as individual responsibilities in the group work are less known to them. This area needs to be developed in higher education, since it is an important and necessary key competence in the labor market.

In the rest of the questionnaire, questions related to online education were formulated. With regard to the question, ‘*What was the hardest thing for you in the time of online education?*’, a lot of students mentioned the lack of explanations from the teacher in connection with the lack of lessons held online (many teachers sent tasks, materials to be processed individually via email). A significant proportion of the respondents reported the difficulty of time management, and the lack of face-to-face interactions. The lack of attention and motivation, as well as the length of time spent in front of the monitor were also a problem for many. The respondents also lacked ‘tangible’, practical learning. One respondent also stressed the difficulty deriving from the integration of private and professional life:

*“Being at home itself means that online education has ruined the concept of home”*

With regard to the question, ‘*How would you describe your own online learning in three words?*’, I tried to organize the concepts into categories, however, I did not succeed in doing so, because it was impossible to create explicit categories based on the answers given. Nevertheless, it is informative that 97 concepts are negative, and only 62 are positive. Most of them mentioned difficulty, but time-consuming, monotone, tiring, impersonal were also mentioned as negative concepts. Stress, anxiety, loneliness, under-motivation, and little help from the teacher were also among the responses. Positive concepts mentioned were as follows: independence, a sense of freedom, purposeful, challenging, enthusiastic, eager, prepared, diligent, successful, time-saving, accurate, organized, conscientious. One student highlighted that *“It is a personalized Heaven for people who prefer hiding”*. We have very mixed experience with online education, but based on the answers it can be said that there is need for improvement in this area too.

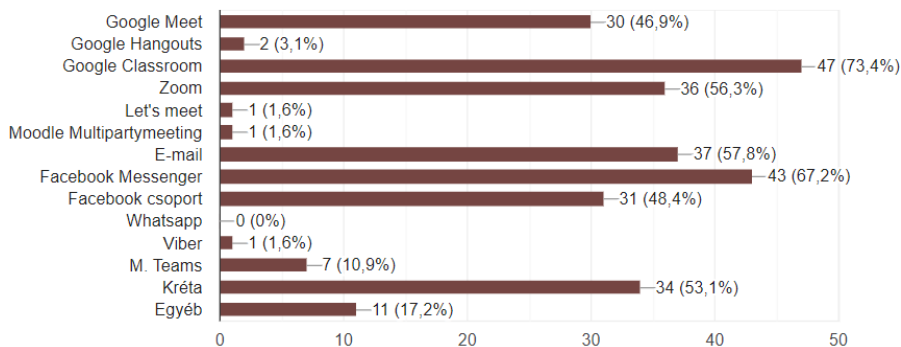


Figure 5

Forms of communication (keeping in touch) with teachers

Figure 5 illustrates the answers given to the question, ‘*What opportunities were used to communicate/keep in touch with your teachers in the spring semester?*’. The most popular forms of communication were Google Classroom, Facebook Messenger, email, Zoom, Kréta, and Google Meet. Skype and Discord were mentioned among others.

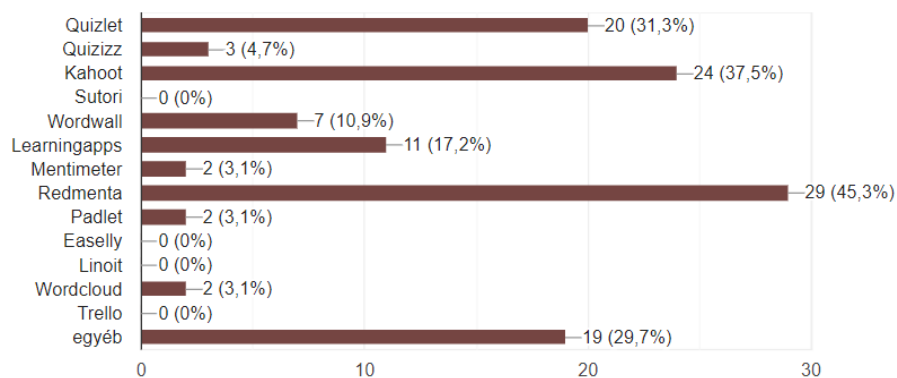


Figure 6  
Applications in online education

The most commonly used applications (Figure 6) included Redmenta, Kahoot, and Quizlet, but some students have also encountered Learningapps and Wordwall applications. 13 students did not use any application supporting learning during the online learning period. This is quite sad, as excellent programs and digital tools help young people’s learning activities, enabling them to have diverse, creative learning and practice.

In answering to the question, ‘*What do you think are the benefits of online education?*’, students most frequently highlighted the concept of own time management and comfortable environment, and the fact that they did not have to travel. They saw their own time management and greater freedom, the fact that everything is available on the Internet as benefits. Several students said that it was a good option not to be left behind in case of an illness, and that it was a good solution in the pandemic situation, but more people said that it was only good for being a temporary solution. Several respondents reported that they did not see the benefit.

In answering to the question, ‘*What do you think are the disadvantages of online education?*’, students mentioned several factors.

The biggest disadvantage mentioned by the respondents was the lack of personal contacts, interactions and direct help from the teacher. Many students reported the lack of exercise, health hazards (spinal disorders, eye deterioration), technical problems, the loss of motivation and interest, and a lot of abuse made by students.

*“Live human relationships are no substitute for online contact. Thus, the motivating effect of the community ceases. Less stimuli. There is no boundary between ‘school’ and free/home time. It is unhealthy to spend so much time in front of a screen.”*

*“Not everyone has enough independence, not everyone has the infrastructure, a supportive environment.”*

Responses included lack of motivation, inattention, dispersion, inaccuracy, and fatigue.

### 3 Some Applications Supporting Learning

#### 3.1 Systematization, Process-Planning with Sutori

The screenshot displays the Sutori program interface. At the top, the word "Sutori" is visible on the left, and navigation tabs for "Stories", "Students", and "Resources" are in the center. On the right, there are icons for a user profile and a count of "0". Below the navigation is a large, colorful graphic featuring several interlocking gears of different colors (orange, green, blue, purple) with small human figures inside them, symbolizing teamwork and learning. Underneath the graphic, the name "Viktória Kövecsesné dr. Gósi" is shown on the left, and "Present" and "Share" buttons are on the right. The main content area shows a presentation slide titled "Cooperative teaching and learning". The slide has a light blue background and contains text on the left side, a video thumbnail on the right with the text "So what is cooperative learning?", and a "Comment" button below the video. At the bottom of the slide, there is a "Share" button and a "Remove" button. The overall interface is clean and modern, with a focus on collaborative learning.

Figure 7

Processing the topic of cooperative learning with Sutori program (own compilation)

I try to incorporate the possibilities provided by digital devices in my work. Sutori (Figure 7) is a more and more popular program among students, which is very effective, as we can plan the lesson process along a vertical timeline from attunement and motivation through curriculum elaboration and meaning creation to reflection and evaluation. Several types of documents, videos, and useful applications can be built into the process, with reflections and chat options. The tasks placed in the windows can be easily downloaded, the curriculum can be built on a good logical order, it allows for various curriculum elaboration and, last but not least, it responds to the visual needs of the digital generation. After use, students highlighted that “it is applicable, easy to edit, and share for all ages”. Many students reported that it was good to be able to “go through the material as a process” and that “the surface was easy to handle”. An important aspect for them was that “it included a wide variety of written and oral sources and thought-provoking tasks.” [11]

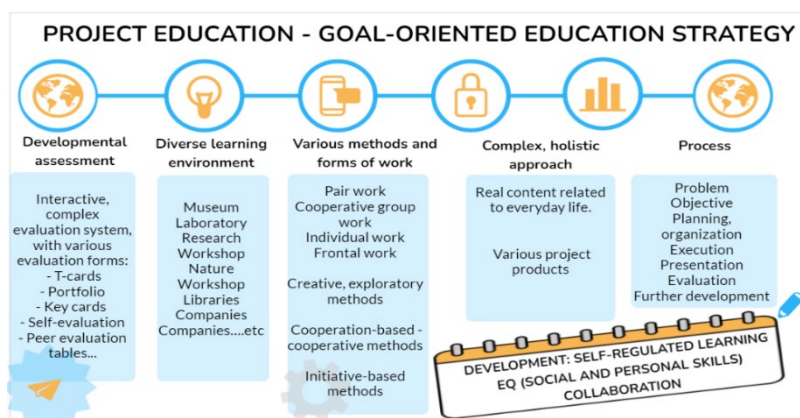


Figure 8

Illustration and logical systematization by making infographics (own compilation)

From the viewpoint of learning methodology, it is also useful to create posters that illustrates the essence of what we have to say with figures and graphs, in addition to effective note-taking techniques and keyword-making. It can also be used to elaborate new curriculums, but also to synthesize existing curriculums. The easel.ly program (<http://easel.ly>) or Genially (<https://app.genial.ly/dashboard>) is a good opportunity for students to learn the proportionate display of visual and textual information, and the editing of digital graphs. [16] In their work, teacher candidates can choose from posters with different styles and themes for the subjects they teach according to the themes. A similar program developing creativity is Designcap. ([www.designcap.com](http://www.designcap.com))

### 3.2 Creating a Word Cloud with Wordart Program



Figure 9

Word cloud for systematizing the topic of cooperative learning (own compilation)

There are several programs available ([www.wordart.com](http://www.wordart.com), [www.tagul.com](http://www.tagul.com), [www.tagxedo.com](http://www.tagxedo.com), [www.wordle.net](http://www.wordle.net)) with the help of which we can create a word cloud (Figure 9). It is also an application that can be integrated into almost all stages of the teaching – learning process. These programs provide a very good opportunity to summarize and highlight the keywords of a topic. We can arrange the keywords into various shapes. The shape, the colors, the content all increase the effectiveness of learning.

### 3.3 Learning Definitions Playfully with Quizlet Program

In recent years, as a university lecturer, I have experienced that the acquisition of basic definitions of didactics, which is the basis of the pedagogical language, is becoming increasingly difficult for teacher candidates. To solve this situation, I found the Quizlet (Figure 10) ([www.quizlet.com](http://www.quizlet.com)) application, with which we can provide learning methodological support to our students. This currently partially free web and mobile application has grown out of the idea of digitizing classic two-sided learning cards. [15] They can practice the definitions in several ‘modes’ and even test their knowledge at the end of their learning.

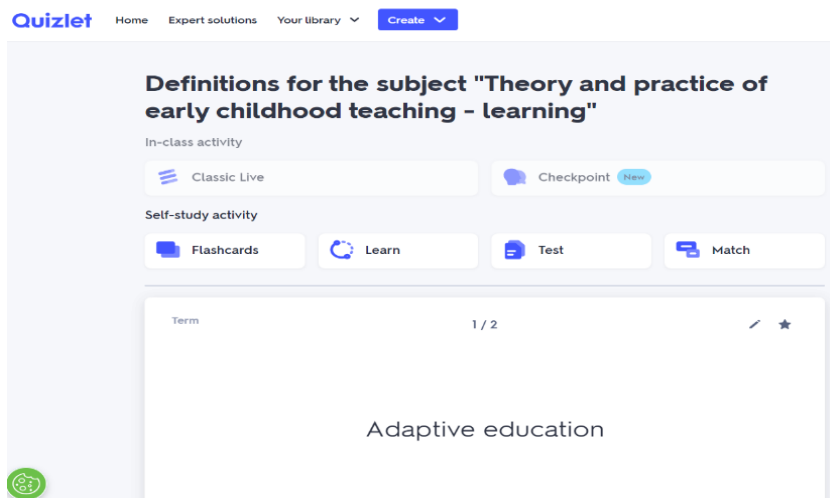


Figure 10

Memorizing definitions with Quizlet game (own compilation)

### 3.4 Playful Learning with Quizzes <https://quizizz.com>, <https://kahoot.com/schools-u/>

The quiz-making programs also support playful learning and practice. Kahoot (Figure 11) and Quizizz are popular among teacher candidates. Their ease of use, playful appearance, and structure based on excitement and anticipation make them popular. [15]

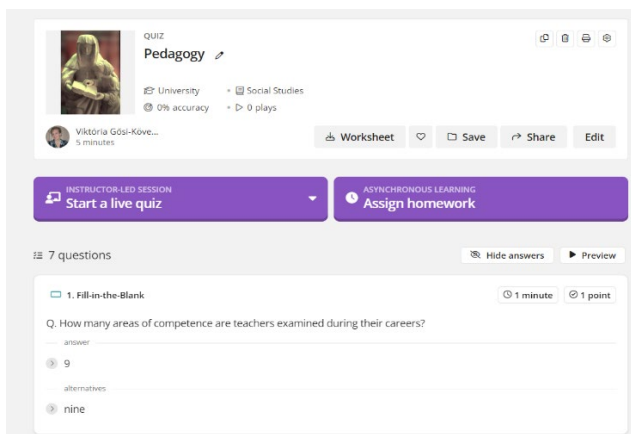


Figure 11

Quizizz (own compilation)

### 3.5 Joint Project work on Padlet Interface ([www.padlet.com](http://www.padlet.com)) and Application of Message Boards (<http://linoit.com>)

The digital form of corkboards is the easiest way to create and collaborate. [15] A number of goals can be achieved with the use of Padlet interface. The ‘message wall’ with diverse background and a wide range of layouts provides opportunities for communication, project work and cooperative learning. People assigned to the interface can write comments, upload different documents related to a topic, or even task solutions. In my experience, teacher candidates are very happy to use this application.

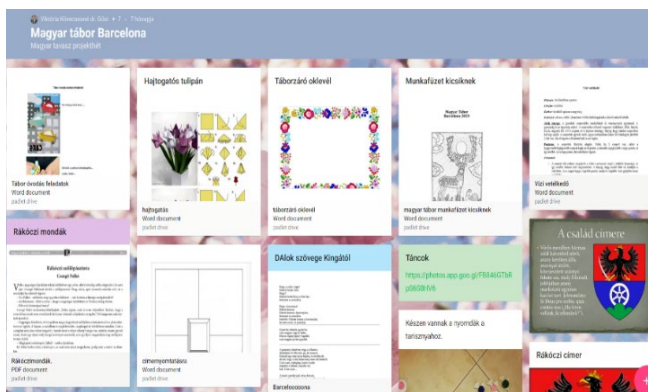


Figure 12

The Padlet interface of Hungarian Spring Project Week (own compilation)

On this interface we can place the results of our project work, the most important pieces of information, plans, shared tasks, and project results. The advantage of this interface is that it is easy to use, a wide variety of document types can be placed on it, and it is easy to review.

### 3.5 Offline Project with Online Support with MaxWhere 3D VR Background

At Széchenyi István University, several curricula have recently been developed in MaxWhere 3D VR spaces. [22] The spaces are perfectly adapted to the learning characteristics of the digital generation. The efficiency factors highlighted by first-year students, like visual stimuli, colorful, well-arranged curriculum and virtual educational spaces that meet the transparency criteria, can help ensure this [20]. The effectiveness of MaxWhere 3D virtual spaces has been proven by several studies in recent times. [24] [25] During my pedagogical practice, I tried out a project related to environmental education and forest pedagogy, in the first part of which we dealt with the topic in the forest school, but parallel to this, we also

worked with an online interface, 3D virtual space. During the work, the students received the basic documents, films and quizzes necessary for the implementation of the project in a space compiled by me and arranged with information and tasks, which purposefully helped the elaboration of the topic, providing an opportunity for further research. I chose the ‘Team member’ space for this purpose.

Different spaces have different layouts, and the number of smartboards varies. Depending on whether you want to do a lecture, a practical session, project work, or cooperative group work, or just a simpler presentation, you can choose from the spaces. We can insert Pdf documents, chat programs, videos, applications that can be used effectively in education (Kahoot, Quizlet, Redmenta, Wordwall, Learningapps, Sutori) into the smartboards [19].

The teacher can invent a ‘learning room’ arranged in a space, in which they can place important background information and task descriptions related to the topic according to a given logic. This ‘learning room’ was available for the students to support the completion of project assignments. During self-regulated learning, the students are able to create spaces according to their learning goals, supplemented with applications that support their learning activities in accordance with their learning style and habits.



Figure 13

‘Team member’ MaxWhere 3D VR space (own compilation)

By elaborating and displaying pedagogical projects in a 3D VR space, I believe that we can support, not only individual learning paths, but also group work. [23] This makes the arrangement and processing of information in the case of a given topic, more efficient and transparent, and the multilateral elaboration of the topic and the expansion of digital opportunities, during the elaboration of the project, can be a motivation for the students as well. [13]



## Conclusions

In the course of my research, my aim was to show what ideas first-year students, starting in teacher education, have about learning and teaching and how they consider effective teaching-learning methods. Although there are many good applications, it is thought-provoking, that no students highlighted, among the benefits of online education, that programs/applications could be effective for learning in a classroom education. I believe that it is our task to learn these tools and to make students aware of their roles and functions in higher education.

During my research, my first hypothesis proved to be true. The students who enrolled in our study programs, did indeed, take part to a smaller extent in learning methodology classes during their previous studies, thus, this area is unfortunately not emphasized enough in education. My second hypothesis was also confirmed, as the use of different digital opportunities and applications, the knowledge of their role in supporting learning requires development. We have to put greater emphasis on this during the training, in addition to the classical learning techniques and methods.

The examination of my third hypothesis showed that students had a fundamentally positive attitude towards learning and teaching, however, the same could not be said about online education. It could be also seen from their answers given to the questions, that they could very well delineate the factors of pedagogical effectiveness, with their laical pedagogical experience.

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