RECONSIDERATION OF LEARNING THEORIES FROM THE PERSPECTIVE OF THEIR APPROACH IN THE VIRTUAL ENVIRONMENT*

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Abstract

The attempt of the scientists to understand and explain/describe the mechanisms of human learning has been an ongoing and important concern with implications in various fields of endeavor. Thus, the variety of learning theories that are objectified in learning models or styles is explained.

In the present study, we analyze the most important psychological theories of learning, viewed from the perspective of an environment that is increasingly present in people's lives, when we talk about learning - the virtual environment. A reassessment of these theories is important, because although they are well-known, they have an explanatory power, facilitating learning in the online environment, with the mention of correctly capturing the pedagogical/educational demands of designing such an activity.

On a practical-applicative level, we have carried out pedagogical micro-research of a constative type, following the attitude of teachers towards learning carried out in virtual environments, the challenges that the act of designing entails, psycho-pedagogical demands of learning in the virtual environment. The questionnaire applied to more than 100 teachers in pre-university education captures their needs regarding the organization of the training space in the virtual environment.

So, the ubiquity of learning is a modern characteristic of instruction and education, it remains for teachers to identify solutions for achievement, adaptation to situations and contexts as different as possible, as well as revaluing the psychological theories of learning from the perspective of technological learning environments.

Key words: Theories of learning; Models of learning; Learning style; E-learning; M-learning.

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1. Introduction

The literature records numerous researches/studies regarding the examination of how learning is achieved. Living things learn, and more often than not, differently. Behavior/conduct, emotions, mental actions or how society intervenes in the learning action are just four of the essential conditions from which theories start and develop.

But what is a theory of learning?

To understand the phrase *learning theory*, R. Iucu (2008) conceptually defines three notions:

- **Paradigm**, which he explains either from the normative-axiological perspective, referring to Th.S. Kuhn, either from an instrumental perspective, citing Borovin; in both situations, the paradigm seeks to explain, interpret an aspect of reality (educational phenomenon), in a certain period, it being known that articulations, reorganizations, changes, evolutions are conditioned by cultural, psychosocial aspects, but grounded by the same scientific truth through -a larger community of specialists; "is a global interpretation parameter of a reality" (Iucu, 2008, p. 59).

- **The theory** is that which regulates the relationship between scientific phenomena, having explanatory but also predictive value; "it is an ideal and abstract explanation of a scientific phenomenon" (Iucu, 2008, p. 59).

- **The model** is the link between theory and practice, a construction of a reality, having a certain purpose;

- **Learning style** - the authors of the Praxisological Dictionary of Pedagogy, quoting Schmeck (1988, apud Bocoș, coord., 2019, p. 402), consider that the learning style represents "a cognitive, affective and psychological modality, through which the people who achieve the learning perceive, interact and respond to the challenges of my life, in a certain way of processing and organizing information".

Having become a current reality, as a result of the development of information technologies and their implementation in didactic activities, in teaching and learning, the latter, carried out both in a formal, but also non-formal and informal environment, e-learning represents "the totality of educational situations in which the means of information and communication technology are used, as support for teaching, learning, evaluation or as a means of communication" (Albulescu, 2021, p. 21).

M-learning refers to "Mobile learning is the capability to attain or provide educational content on individual pocket devices such as PDAs, smartphones and mobile phones" (Kumar, Vasimalairaja, 2019, p. 97). In Mobile learning, contents are accessible to anyone, anytime and anywhere (Bocoș, coord., 2018).

According to Bocoș (coord., 2019, p. 476), learning theories represent "theories that try to describe, explain and conceptualize the conditions and process of learning".

With evidence of evolution over time and bringing a different and enriched perspective on the realization of the learning activity, learning theories know permanent adaptations, in accordance not only with the evolution of science, but also with changing social realities. In an era dominated by the use of communication and

information technologies, these theories need to be re-analyzed, in order to be able to identify the points of intersection with what is, for the current generations, learning.

2. The revaluation of learning theories in the virtual learning environment

These theories of learning presented above are added to others equally established or less known, with the specification that " *there is not a single theory of learning that is complete and serves explanations (...); there are certainly several theories of learning, based on which we can approach the substance of a behavior under the scope of the concept of learning" (Neacșu, 1999).*

So, learning theories have value:

- informative, as it presents scientifically validated information;
- explanatory, in that they describe a mechanism by which learning occurs;
- normative, because they are closely related to educational practice, being a foundation for answering questions such as: "how to teach to generate easy learning?", "how to assess to stimulate learning?" or "how to learn to ensure efficiency and effectiveness of the work involved or the desired results?"

Their importance is reflected both at the level of theory and at the level of pedagogical practice, being the ones that lead to the outline of some psycho-pedagogical models of learning, to the establishment of didactic principles, those that govern the instructive-educational activity, to the elaboration of the instructional design by reference to the paradigms imposed or required by social evolution, as well as by the desirable profile of contemporary man, etc.

Knowing and applying a theory has effects down to the smallest levels of educational design.

In the context of blended learning, the need to reorganize the design approach developed by the teacher from the perspective of learning theories is all the more necessary, in order to capture their advantages and limits, the relevance of some at the expense of others, as well as the pursuit of some psycho-pedagogical requirements of their application. Blended learning is a form by which forms of online education (asynchronous and synchronous) are combined with offline and/or on-site education, both ways of delivering learning being intensely affected by the evolution of information technology.

We summarize, in table 1, the psycho-pedagogical requirements of reporting to learning theories, carried out in a virtual context.

Table 1. Psychopedagogical requirements of the application of learning theories in the virtual environment

Theories of learning	Psychopedagogical requirements
Behaviorist theories - follow human behaviors as a result of learning; -direct training (Engelmann), programmed training (Skinner) and social learning (Bandura), etc.	-Teachers must formulate the learning outcomes in "visible" and "measurable" terms and communicate them to the students, in order to provide them with benchmarks of the learning activity, as well as the possibility of authentic self-evaluation

	- online tests or other forms of assessment can be used to ensure feed-back; - the study material must be presented structured, by units, having scientific accuracy, didactic logic, methodical; the presentation must be made diversified: auditory, lyrical, educational film, tutorial , etc.
Cognitive theories **-** their interest is related to the way information is processed, through mental mechanisms	- the volume of the presentation, the rhythm or sequence of the information, the color, the graphics, the size of the font, the way of presentation (audio, video, animation, etc.) lead to the formation of perceptions, which will influence the way of transforming/processing/cognitive processing of the information - it is recommended to use schemes, conceptual graphs, mental maps - the use of some strategies to realize the transfer from the virtual environment to real life: applications, analyses, syntheses, evaluations - providing individualized support to each student in the virtual environment according to the specific learning style; applying the principles of the theory of multiple intelligences -stimulating students to use metacognitive skills
Constructivist theories -social interactions, the discovery, the interpretation of reality by each person lead to learning, claim the followers of this theory; - the student re-builds the universe of knowledge, through involvement in activities;	- teachers create an active learning environment for students -in the online environment, information can be provided to students, who will process it for the first time without help; thus, everyone personalizes their knowledge, by reference to existing anchor knowledge - learning in small groups, pairs, collaborative, interactive is indicated - the teacher must create moments of reflection on what has been learned, but also enough exercises, application topics, which give students the opportunity to integrate the new not only in the old knowledge structures, but also in cognitive schemes - the teacher must provide as many examples as possible, non-examples to ensure the desired meaning and significance of the learning - methods are used to stimulate critical thinking, creativity, etc.

In essence, the products of mixed learning will be the desired ones when a wide range of learning theories is used, adapted to the specifics of each didactic sequence, making the role of the teacher responsible in their choice, by adapting

them according to the existing circumstances. Moreover, there are theories that emphasize that, with the emergence and development of virtual learning communities, the teacher's role will be secondary, but not negligible.

E-learning developers suggest that the increasing influence of the Internet and people's online communication will significantly affect educational practice. The rapid development of technology, the manifold increase in the use of the Internet and the improvement of mobile technologies will create a variety of new educational structures and organizations. And at the center of the learning activity will be the student, not a teacher and an institution.

Connectivity theory highlights two important points that contribute to the explanation of learning activity: the ability to search for current information and the ability to filter secondary and unnecessary information. Learning is considered a process of knowledge creation and not just knowledge consumption. Students can connect to knowledge networks in many areas. Peripheral areas of knowledge are porous, which allows the creation of interdisciplinary connections. Siemens (2008) claims that the ability to see the connection between fields, ideas and concepts is the core skill.

Siemens says that learning is a network, and networks are not only made up of digital environments and are not solely based on neurological mechanisms.

In addition, hybrid learning is much more attractive to digital native students, extremely accustomed to text-messages, with the sound-word connection, with a discontinuous but intense way of knowing reality, establishing other kinds of connections, configurations, using- and intense multitasking skills. Ciprian Ceobanu (2016) illustrates the fact that the generation of those who learned in logical and reasoned progression is facing a great challenge: that of educating a generation that can use two or more devices at the same time. This reality will have to be the premise of new educational paradigms.

3. Research design

The purpose of the research is to identify effective ways of organizing the learning space in the virtual environment, by reconsidering the design of didactic activities.

In close connection with the mentioned purpose, the research objectives aim to:

O1: Knowing the teachers' opinion regarding the general aspects of the implementation of a curriculum adapted for the virtual environment (e.g. efficiency, challenges, elaboration of curriculum documents, etc.);

O2: Identifying the advantages and limits of learning in the virtual environment;

O3: Highlighting effective teaching-learning strategies in the activities carried out in a blended-learning context.

The research hypotheses and variables

The investigation aimed at establishing the truth value of the following hypotheses:

H.1: *Knowing the teachers' opinion regarding curriculum adaptation in the context of learning in a virtual environment will allow the identification of concrete training methods, effective for this context.*

H.2: *The identification of teaching-learning-evaluation strategies in the activities carried out in a blended-learning context with different categories of students will ensure the increase of their school results.*

The variables that can be derived from the previously formulated hypotheses are:

- Independent variables: knowledge of the teachers' opinion regarding the curricular adaptation in the virtual environment; identification of teaching-learning strategies in the activities carried out in a blended-learning context with different categories of students

- Dependent variables: effective concrete ways for the virtual environment; increasing the school results of students.

The sample of subjects was made up of 100 teachers from pre-university education, who come from the pedagogical practice base of the "Ştefan Odobleja" National College, Drobeta-Turnu Severin. Through the legal way of establishing the bases of pedagogical practice (rural/urban, center/outskirts, theoretical/ vacation/ technical schools, early education/secondary/high school, special schools/hospital, etc.), we consider that the sample ensures representativeness, because it investigates the opinion of teachers from different school environments, with different specializations, seniority and teaching degrees.

The research method used was the survey based on the questionnaire, the corresponding tool, the opinion questionnaire, being administered through Google forms. It included 10 items of different types (with multiple answers, one with an open answer or items that required assigning numerical values to the offered options).

4. Results and Discussion

Next, we present the significant results, obtained following the application of the research tool, intended to help validate the research hypotheses.

One of the items of the applied questionnaire sought to know the subjects' opinion regarding the effectiveness of learning in the virtual environment (graph no. 1).
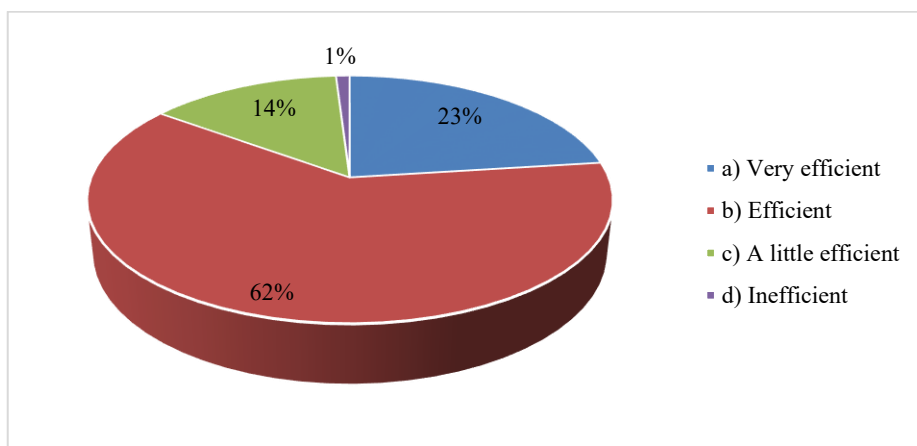
Figure 1. Effectiveness of learning in the virtual environment

As can be seen from figure 1, more than half of the respondents believe that it is effective, only 23% being of the opinion that it is very effective.

Another item of the questionnaire sought to capture the difficulties encountered in adapting the curriculum to the virtual environment. From the centralization of the answers, it appears that the biggest challenge for teachers is the need to identify relevant digital educational resources for the different categories of students, from the need to achieve a differentiated, student-centered instruction. We mention that, for this item, teachers had the opportunity to choose several answer options, the options of the subjects being presented in figure no. 2.
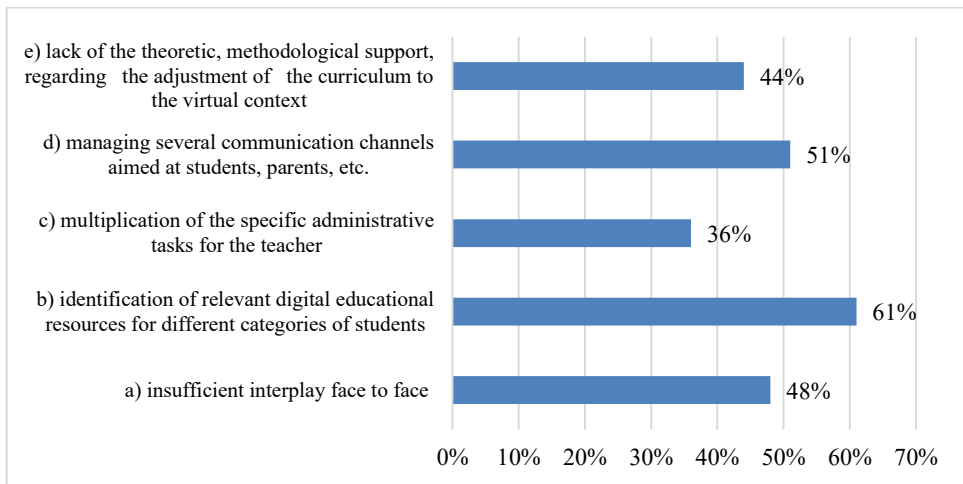
Figure 2. Challenges in adapting the curriculum to the virtual environment

According to chart no. 2, the biggest challenges for teachers were related to the need to identify relevant digital resources for the different categories of students they work with, but also the difficulty of managing several communication channels at the same time, to maintain contact not only with students, but also with their parents or colleagues.
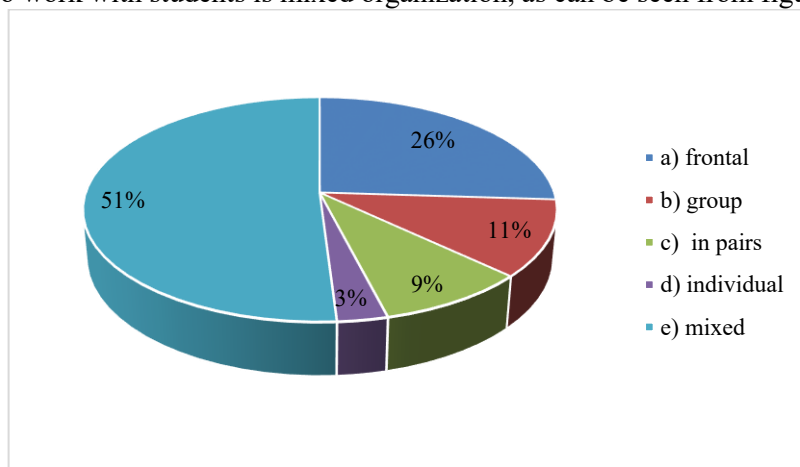
The activity carried out in a virtual context also implies the adaptation of the didactic methodology to the new training situations. Graph no. 3 presents the teachers' answers regarding their choice for certain categories of methods, which they adapted to the virtual environment. And this item allowed the choice of more response options.
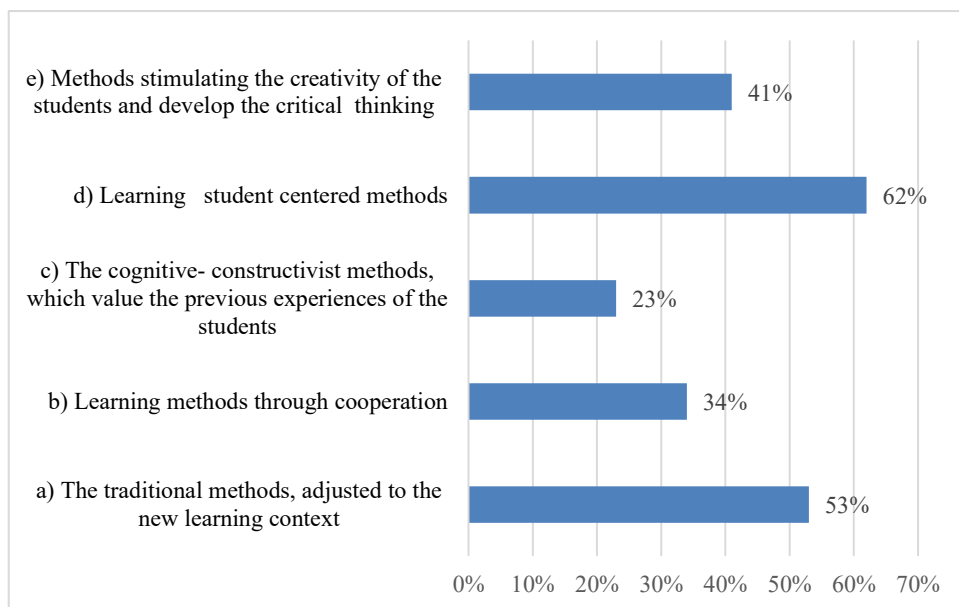
Figure 3. Subjects' opinion regarding the categories of methods used in the virtual context

Most of the subjects stated that they use student-centered methods, but also traditional methods, adapted to the new context.

For activities carried out in the virtual environment, teachers believe that the best way to work with students is mixed organization, as can be seen from figure 4.


Figure 4. Subjects' opinion on the preferred form of organization for online activities

Another aspect pursued in the investigation carried out by us was the one related to the organization of the assessment in a virtual context. Two of the items of the

questionnaire requested the expression of the opinion regarding the relevance of the evaluation in a virtual context (see the responses of the respondents presented in figure 5), respectively the evaluation methods considered to be suitable for online activities (figure 6). The last mentioned item allowed the choice of several answer options.
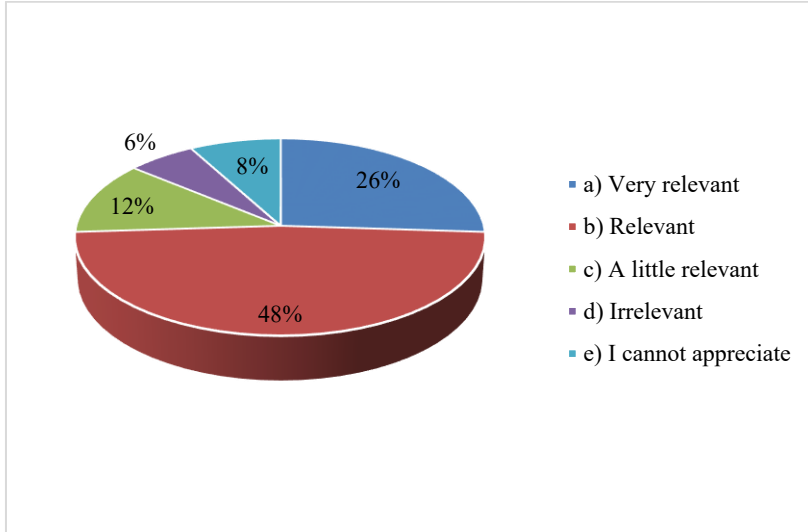
Figure 5. Teachers' answers regarding the relevance of the assessment carried out in a virtual context
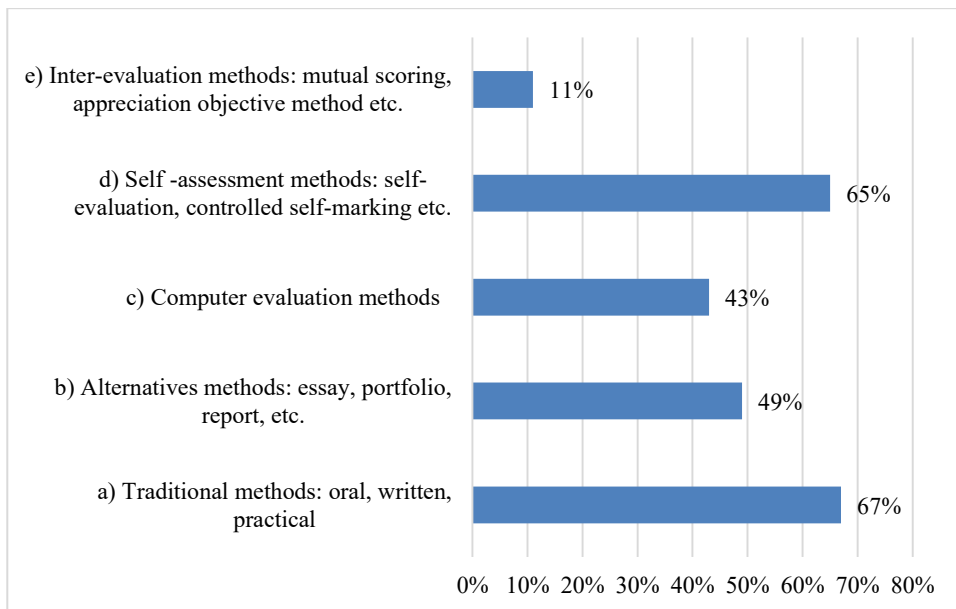
Figure 6. Teachers' answers regarding the assessment methods used in the virtual context

The most used assessment methods remain, also in the blended-learning context, the traditional ones, followed by self-marking and alternative assessment methods.

5. Conclusions

The results of our investigation highlight the special openness of teachers for the organization of teaching - learning - assessment in a virtual context, as well as the experience and ability to reflect on the work done. In the context of the numerous changes produced in recent years, flexibility and creativity are two essential attributes of teachers, necessary to achieve a differentiated training, to adapt the contents and methodologies on the one hand, at the level of each category of student and each one separately, and, on the other hand, to the new didactic contexts, which combine and combine direct and virtual interaction.

Although they recognize the difficulty of adapting to the new realities, teachers are aware of the need for change, in the sense of finding the best ways to integrate new technologies into the didactic activity. As in the case of direct, face-to-face activity, in the virtual environment there are no "recipes", templates, patterns regarding the ways of working. It is up to each individual teacher to best know and understand the situations they face in order to make the best decisions regarding curriculum design, adaptation, implementation and evaluation.

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