ONLINE UNIVERSITY TEACHING SYSTEM, WITH 7 MODULES, QUANTIFIED WITH EXPERIENCE POINTS (XP), IN COMPUTER-ASSISTED TRAINING, PSYCHO-PEDAGOGICAL TRAINING MODULE

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ABSTRACT. In the present study, a gamified didactic system structured on 7 modules was built. Each training module offered students mandatory and optional assignments. A number of 53 assignments were designed for this didactic system, distributed on the 7 modules, of which 23 assignments were mandatory and 30 were optional. Each assignment had an equivalent number of experience points (XP). For the correct solving of each assignment the student received the grade "admitted" and the equivalent XP. It was verified, by evaluating the implemented system, the general level of attractiveness and students' perceptions on the level of pragmatism and on the hedonic aspect. Our research has shown that the degree of attractiveness of this system has been high enough to motivate us to implement it in the future. The stimulation and innovation that such a system brings are strong points that can promote involvement in didactic activity, but we must look for very effective ways to properly condition the solving of as many assignments as possible.

Key words: *teaching system, experience points (XP), computer-assisted training, education, online.*

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REZUMAT. *Sistemul didactic universitar online, cu 7 module, cuantificat cu puncte de experiență (XP), la instruire asistată de calculator, modul de pregătire psihopedagogică.* În studiul de față s-a construit un sistem didactic gamificat structurat pe 7 module. Fiecare modul de instruire a oferit studenților teme obligatorii și teme facultative. Au fost proiectate pentru acest sistem didactic un număr de 53 de teme didactice, distribuite pe cele 7 module, dintre care 23 de teme au fost obligatorii, iar 30 de teme au fost facultative. Fiecare temă a avut un număr echivalent de puncte de experiență (XP). Rezolvarea corectă a fiecărei teme aducea studentului calificativul "admis" și XP echivalent. S-a verificat, prin evaluarea sistemului implementat, nivelul general de atractivitate și percepțiile studenților asupra nivelului de pragmatism și asupra aspectului hedonic. Cercetarea noastră ne-a arătat că gradul de atractivitate al acestui sistem a fost suficient de mare astfel încât să ne motiveze pentru implementarea lui și în viitor. Stimularea și inovația pe care o aduc un astfel de sistem sunt puncte forte care pot promova implicarea în activitatea didactică, dar trebuie căutate modalități foarte eficiente care să condiționeze corect trimiterea unui număr cât mai mare de teme didactice.

Cuvinte cheie: *sistem didactic, puncte de experiență, instruire asistată de calculator, învățământ, online.*

Introduction

The pandemic caused by Covid-19 has had severe effects on the global community, leading to significant restrictions on all branches of society. Educational institutions have had to react quickly by moving from face-to-face teaching to online teaching (Nordmann et al., 2020).

Online teaching has been made possible by the continuous development of digital technology. Technology gives students much more access to information and promotes creativity, but it also requires teachers to find ways to optimally stimulate student engagement in the educational process (Nieto-Escamez & Roldán-Tapia, 2021).

According to Opre et al. (2020) for an effective online teaching, the following aspects must be taken into account:

1. A well-structured instructional plan;
2. Encouraging interaction with students and setting up learning groups: studying the bibliography before each meeting;
3. Supporting persistence in assignments and motivating students to learn;
4. Developing the most effective learning strategies and tools.

In recent decades, the development of strategies to improve student motivation and maximize knowledge acquisition has been approached with great interest. Among these strategies, gamification has attracted the interest of many teachers who have explored its potential to improve learning (Nieto-Escamez et al. 2021).

Gamification has emerged as a new approach in solving everyday tasks, in various fields, by applying the concepts used by digital game designers, being defined by some promoters of this system as "a process of using game thinking and game mechanics to engage users and solve problems" (Zichermann & Christopher, 2011, p XIV).

A mini-review conducted to analyze the use of gamification-based learning during the pandemic lockdown highlights a predominantly positive perception of students, who described gamified learning systems as innovative, engaging, effective in delivering curriculum and fun (Nieto-Escamez et al. 2021). An essential condition, which must be taken into account in these gamified learning systems, is the assumption and observance, from the very beginning, of a healthy pedagogical paradigm to guide our teaching, learning and assessment sequences (Opre, 2020).

Thus, in the present study, a gamified didactic system was built based on the following premises:

- Students receive a coherent and clear document at the beginning of the semester outlining the assignments they must complete during the semester, with all deadlines set;

- Students are given the freedom to build personalized versions of their teaching content, depending on their personal preferences and how the assignments and grading were built into this gamified system;

- The personalized course of the students is supported by a grading system based on experience points and a leaderboard.

The asynchronous teaching activity allows the students to go through the materials sent by the teacher and to solve the assignments at their own pace, also having a feedback provided by the teacher. Asynchronously, online teaching activities are usually complemented by synchronous ones, so as to best support the learning objectives that are targeted (Opre et al., 2020).

Moreover, it is important that the teacher's expectations are clearly communicated at the beginning of the course, highlighting the number of synchronous participations, as well as the time they have to spend for the activities carried out asynchronously. These expectations will help students form a routine (Nordmann et al., 2020). The student is the one who, assisted correctly and constantly by the teacher, builds his own baggage of knowledge and skills (Opre et al., 2020).

A good education system gives students the freedom to recognize their individual abilities and potential and to plan their time and learning strategy (Radovic-Markovic & Markovic, 2012). A fundamental goal of education is supposed to be to develop in individuals the ability to make their own decisions about what they think and do (Boud, 1987).

Objectives

1. Measuring the level of attractiveness of the system at the beginning of the semester, immediately after presentation of the system, and at the end of the semester, after completing the system.
2. The level of pragmatism (perspicuity, efficiency and dependability) perceived at the beginning of the semester, immediately after the presentation of the system, and at the end of the semester, after completing the system
3. The hedonic level (stimulation and novelty) perceived at the beginning of the semester, immediately after the presentation of the system, and at the end of the semester, after completing the system.
4. The difference in perception of the system (attractiveness, pragmatism and hedonic) between students who solved a few optional assignments (maximum 10 optional assignments), marked with UEQ-Fmin, and those who solved many optional assignments (at least 15 optional assignments), marked with UEQ-Fmax.

Material and methods

The didactic system was applied in the academic year 2020-2021, first semester, during the Covid-19 pandemic period, with online teaching, at the Faculty of Physical Education and Sports within the Babeş-Bolyai University of Cluj-Napoca. The students enrolled in the psycho-pedagogical module within the Teacher Training Department benefited from this didactic system. For these students this model of didactic system was applied for the first time, they had no experience with such a system until that moment.

To meet the research objectives, the UEQ questionnaire tool (User Experience Questionnaire (UEQ), n.d.) was applied, built for online use with the help of Google Forms.

The didactic system was built on 7 modules (course and seminar) that covered the entire semester related to the subject Computer-Assisted Training. Each training module offered students mandatory and optional assignments.

In order to solve the assignments related to each training module, the students had at their disposal a minimum of 16 days and the support of the teacher both at the synchronous meetings and through asynchronous discussion channels within the IAC team from MS Teams. Also, the students had at their disposal several didactic tutorials uploaded on the RV didactic channel on YouTube (IAC - YouTube, n.d.). This didactic system, applied in the academic year 2020-2021, was influenced by Paul Andersen's practice and experience with Biohazard 5 (Văidăhăzan, 2020).

A number of 53 teaching assignments were designed for this didactic system, distributed on the 7 modules, of which 23 assignments were mandatory and 30 assignments were optional. Each assignment had an equivalent number of experience points (XP). The correct solution of each assignment brought the student the grade "admitted" and XP equivalent. The 23 mandatory assignments summed up 111 XP, the minimum number necessary to promote the subject. The total number of possible XP to be obtained was 300 (for all 53 didactic assignments - 23 mandatory assignments + 30 optional assignments). The final grade given to the student at the end of the semester, depending on the XP number obtained along the way, can be extracted from the following table.

Table no. 1 – Final grade based on the XP number obtained during the semester.

Final grade	minimum XP	Distinction
Final grade: 5	111	Utilizator novice = uN (Novice user)
Final grade: 6	125	Utilizator intermediar = uI (Intermediate user)
Final grade: 7	145	Utilizator avansat = uA (Advanced user)
Final grade: 8	175	Utilizator experimentat = uE (Experienced user)
Final grade: 9	200	Utilizator strateg = uS (Strategist user)
Final grade: 10	220	Utilizator instructor = uINS (INStructor user)

UEQ was applied at the beginning of the semester (UEQ-I), immediately after the presentation of the didactic system to be applied to Computer-Assisted Training and was applied at the end of the semester (UEQ-F), after all didactic activities in the subject of Computer-Assisted Training.
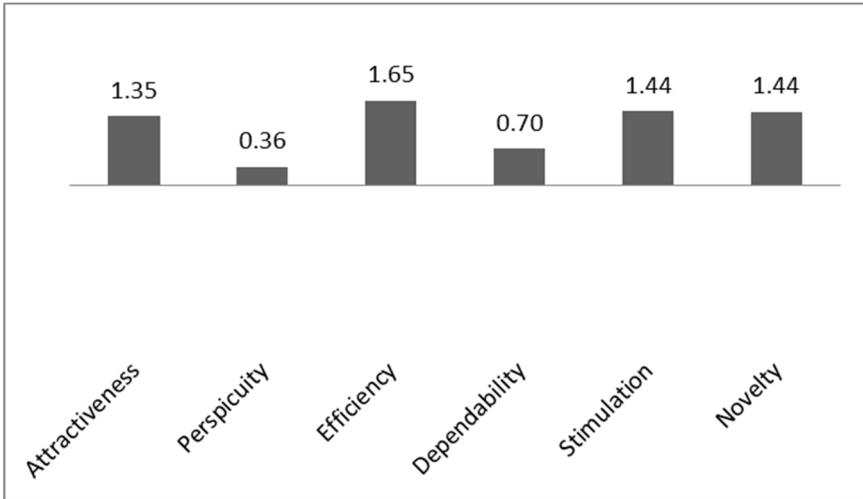
Results

Chart 1 – UEQ-I

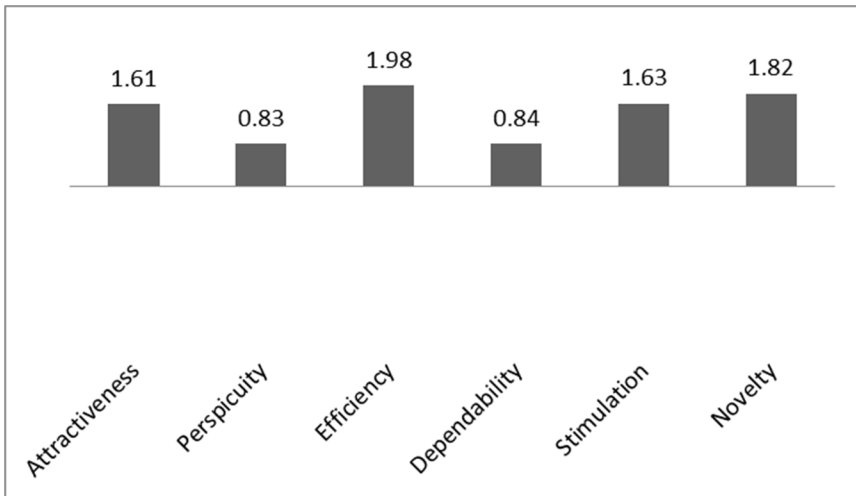Chart 1 shows positive results for all evaluation scales.

Chart 2 – UEQ-F

Chart 2 shows an increase in scores on all assessment scales.

Two sample T-Test (UEQ-I:UEQ-F), Alpha-Level 0.05 did not show a significant difference on any of the scales.

Table 2 - Two sample T-Test (UEQ-I:UEQ-F), Alpha-Level 0.05

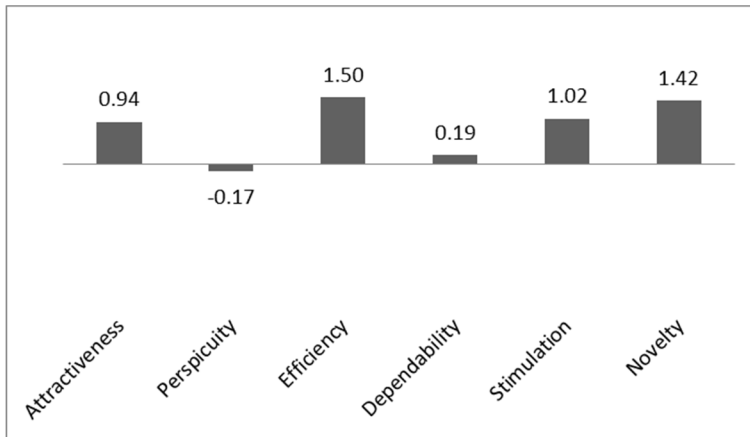| Attractiveness	0.9906	No Significant Difference
Perspicuity	0.4453	No Significant Difference
Efficiency	0.6906	No Significant Difference
Dependability	0.8202	No Significant Difference
Stimulation	0.7609	No Significant Difference
Novelty	0.4687	No Significant Difference

Chart 3 – UEQ-Fmin

Chart 3 shows a negative score for Perspicuity and a low score, even if positive, for Dependability.
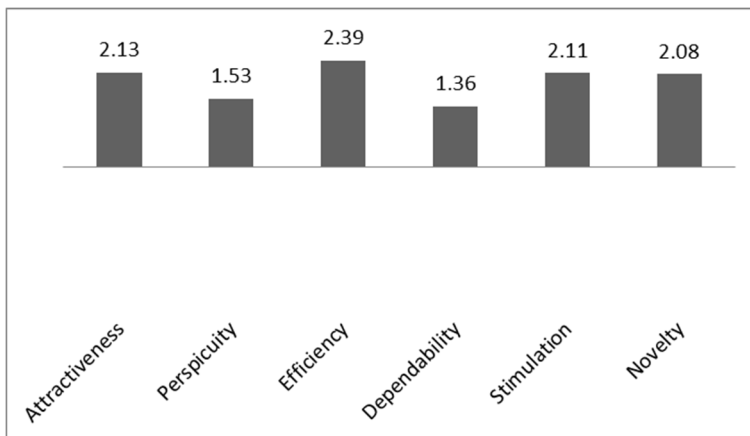

Chart 4 – UEQ-Fmax

Chart 4 shows large increases on all assessment scales, for students who submitted at least 15 optional assignments, thus registering significant differences in Attractiveness, Perspicuity, Efficiency, Dependability and Stimulation compared to students who submitted a maximum of 10 optional assignments, as can be seen in table 3, at Alpha-Level 0.05.

Table 3 - Two sample T-Test (UEQ-Fmin:UEQ-Fmax), Alpha-Level 0.05

Attractiveness	0.0180	Significant Difference
Perspicuity	0.0015	Significant Difference
Efficiency	0.0058	Significant Difference
Dependability	0.0002	Significant Difference
Stimulation	0.0282	Significant Difference
Novelty	0.0864	No Significant Difference

Discussions

From the beginning of the semester, positive values can be observed for all scales in the UEQ. The records made at the end of the semester show an increase on all evaluated scales, but not large enough to be a statistically significant, at p = 0.05. We note, however, that after participating in the proposed didactic system, the degree of attractiveness increased (from 1.35 to 1.61). We have, therefore, confirmation that participating in such a system did not "scare" the students.

We are also pleased with the values obtained for the hedonic aspects. The students considered that this system was stimulating and brought innovation. Even the efficiency part of the system was constructively appreciated by the participants in the didactic activity, obtaining the highest score at the end of the semester.

The lowest scores were obtained for Perspicuity and Dependability, an aspect we expected from the beginning, given that students have never seen such a didactic system. However, participation in this didactic system has greatly increased the score for Perspicuity. And, if we take into account the answers of students who sent, during the didactic activities, at least 15 optional assignments (half of the total optional assignments) then we notice that things become much clearer for participants who are involved above average in the didactic system.

In fact, all scores were much higher for participants who became more involved in the didactic activity during the semester. Except for the degree of novelty, on all the scales researched, statistically significant differences were obtained between the students who were involved with the minimum necessary and the students who were more involved in the didactic activity.

Conclusions

To sum up, we can say that the attractiveness of this system was high enough to motivate its implementation in the future. We recommend, however, to design a period of accommodation with the specifics of such a system in order to increase the degree of clarity and controllability among the participants.

The stimulation and innovation that such a system brings are also strong points that can promote involvement in didactic activity, but we must look for very effective ways to properly condition the solving of as many assignments as possible. This aspect, as it was observed, strongly conditions the success of such a didactic system, from the perspective of the affordances pursued.

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