

EDUCATIONAL INNOVATION THROUGH INFORMATION AND COMMUNICATION TECHNOLOGIES: THE CASE OF PEOPLE ANALYTICS COURSE

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Abstract. *Recently, education and teaching have been significantly impacted by information and communication technologies. New cohorts of students, COVID-19 pandemic and pressure in the labour market on the labour force to master the technology-related skills and competence serve as main drivers for universities to redesign the way of teaching. A radical transformation of education caused by technologies is related to several aspects, such as online teaching or using other technologies in both physical and online learning environments with the focus on student-centred learning. The existing literature suggests that educational innovation through technologies allows for the adoption of collaborative, inclusive and student-driven pedagogy. The paper aims at revealing educational innovation through information and communication technologies in one of the courses for master's students, namely People Analytics. While disclosing the particular case of one course, the paper seeks to provide the argumentation (advantages and disadvantages) for choosing specific tools and how these tools are embedded. The use of tools such as Zoom, digital escape rooms, Mentimeter, and Padlet, is presented. The paper concludes that technologies may offer many wide-ranging benefits in education; however, the further study is needed for revealing the students' acceptance of technologies and the impact of technologies on learning outcomes.*

Keywords: *ICT, educational innovation, Zoom, Mentimeter, Escape rooms, Padlet, People analytics.*

Reikšminiai žodžiai: *informacinės komunikacinės technologijos, inovacijos švietime, Zoom, Mentimeter, pabėgimo kambarys, Padlet, Žmonių išteklių analitika.*

Introduction

University studies in business and management have experienced significant changes in Europe over the last 30 years (Núñez-Canal et al., 2022). First, with the Bologna Process, a new perspective in higher education was introduced with the focus on student-centred learning, competences, and learning outputs (Marcelo & Yot-Domínguez, 2019). Later, universities extended their activities beyond teaching and learning, becoming complex institutions linked to society and business world (Forliano et al., 2021). Further, due to the pandemic, universities have had to adapt to the new restrictions and accordingly the transition from face-to-face teaching to distance teaching has become a must (Myrty et al., 2022). Within a couple of days and nights, the former call to use technologies in the education process, and particularly, in higher education more intensively (García-Morales et al., 2021; Portuguese Castro & Gómez Zermeño, 2020), was

responded to revealing no readiness to do this as “teachers found themselves in a challenging situation where they had to transform overnight all of their teaching plans to fit the needs of online distance learning” (Myrty et al., 2022, p.1). More recently, a new hybrid educational model that combines in-person learning with online education has been discussed and proposed for universities widely (Nikolopoulou, 2022; Núñez-Canal et al., 2022).

Information and communication technologies (ICT) are becoming increasingly critical in higher education (Fernández-Batanero et al., 2021). Teachers employ technology in two ways (Sayaf et al., 2022; Tubin, 2006). The first way refers to applications that simply make it easier, faster, or more convenient to continue teaching in traditional ways (Tubin, 2006). In other words, teachers use ICT for achieving the same traditional aims in the same settings without having to drastically alter classroom activities (Sayaf et al., 2022). The second way involves using technology into the classroom to break down the barriers, connect students to real-world activities, and help them in becoming self-sufficient learners (Sayaf et al., 2022). Despite two different pathways, in general ICT are believed to enhance the design of student-centred learning environments (Myrty et al., 2022).

The argumentation behind the choice and need to implement ICT in teaching-learning process has several facets. First, the acceptance of technologies is a part of the process. ‘Digital Natives’ students of today think and process information differently, thus posing a challenge to their teachers to keep them motivated and engaged in the learning process (Fotaris & Mastoras, 2019).

Second, the COVID-19 pandemic had a massive impact on the education sector, especially on higher education (García-Morales et al., 2021). The shift from physical learning spaces to digital ones due to the pandemic was both rapid and dramatic: with little or no preparation, many teachers started working online without prior experience, knowledge, or training (McArthur, 2022). Technologies, especially conference organising tools, invaded life and occupied most of the working – studying time. As such, terms like “Zoom fatigue” and “Zoom exhaustion” became well known (Nesher Shoshan & Wehr, 2022). However, despite some challenges, in the future, the technologies will take an even bigger role in teaching (Myrty et al., 2022).

Third, as increasingly more jobs require ICT skills, university must play a pivotal role in enhancing and fostering such skills in the younger generation (Núñez-Canal et al., 2022). Considering that universities are responsible for developing student competences as bridges to employment (Núñez-Canal et al., 2022), teachers should also take initiative to increase the student employability.

Fourth, the added value of technology integration in teaching is widely recognised (Vlachogianni & Tselios, 2022). Technologies can be used for many purposes, such as supporting collaborative learning and knowledge building, facilitating student understanding of the topic, implementing online examinations and assessments for learning (Myrty et al., 2022; Qaddumi et al., 2021)

Rogers (2003) defined innovation as “an idea, practice, or object that is perceived to be new by an individual or other unit of adoption” (Rogers, 2003, p. 12). Thus, the concept of innovation involves something new, changes in the way things are done, changes to processes or modifying what has already been done (Portuguez Castro & Gómez Zermeño, 2020). Education is one of the fields in which technologies have modified the way of teaching and learning; the functioning of established educational models has been transformed in unexpected way (García-Morales et al., 2021). Accordingly, the courses for students are designed and taught in different ways promoting new means of communication, knowledge creation and delivering, and learning.

The paper aims at revealing educational innovation through ICT in one of the courses for master’s students, namely People Analytics. While disclosing the particular case of one course, the paper seeks to provide the argumentation (advantages and disadvantages) of choosing one or another tool and how these tools are embedded. The technologies described include Zoom, digital escape rooms, Mentimeter, and Padlet. The paper does not analyse specific tools for People Analytics such as Power BI or SPSS, which are

also part of the course as these tools are related to material content delivery. The paper has no intention to describe good practice, as it is more aimed at demonstrating one of the examples.

The paper is structured as follows. It starts with a short presentation of the People Analytics course. Further, some insights into ICT as a source for educational innovation is presented. Later, technologies used in the People Analytics course are described. Finally, discussion and some conclusions are provided.

People Analytics – what does it mean?

People Analytics has recently become an emerging trend within the field of human resource management (McCartney & Fu, 2022). Generally speaking, People Analytics seeks to help organisations understand their workforce by making data about employee attributes, behaviour and performance more accessible, interpretable and actionable (Tursunbayeva et al., 2018). While most hiring, training, promotion and reward decisions are based on intuition, People Analytics offers a more data-driven approach to making those decisions (Kremer, 2018). Accordingly, the term “People Analytics” does not refer to a technology, but to a novel, evidence-based, quantitative, and data-driven approach to manage the workforce (Giermindl et al., 2022). Although scholars disagree on People Analytics conceptualisation, one of the most influential definitions provided by Marler and Boudreau (2017) describes People Analytics as “A HR practice enabled by information technology that uses descriptive, visual, and statistical analyses of data related to HR processes, human capital, organizational performance, and external economic benchmarks to establish business impact and enable data-driven decision-making” (Marler & Boudreau, 2017, p. 15).

For delivering the competence in people analytics field, the course named People Analytics was offered at the university. The aim of the course is for the students to acquire the knowledge of people analytics, to acquire practical skills needed to perform human resource and people analytics and to make data-driven decisions striving for human and organisational sustainability.

ICT as a source for educational innovation

Educational innovation can be described as the implementation of a significant change in the teaching–learning process in terms of materials used, methods of delivery of sessions, and contents or contexts that imply teaching (Krstikj et al., 2022). Such innovations are seen as a source to attract students and to earn a competitive advantage (ADELOWOTAN, 2021). Several educational innovation trends have been introduced in the last two decades, such as collaborative learning, cooperative learning or student centered pedagogy (Caliskan & Zhu, 2020). However, the most influential trend refers to the implementation of information technologies in education (Krstikj et al., 2022).

The literature review supports the notion that progress in ICT field has arguably dominated all aspects of our life, including teaching (Qaddumi et al., 2021). One of theories that lies behind ICT use for education is connectivism. Connectivism is a learning theory that is based on the idea that people process information and learn by forming connections (Waltemeyer, Shaunna; Hembree, Jason R.; Hammond, 2021). Connectivism suggests that students should combine thoughts, theories, and general information in a useful manner; it accepts that technology is a major part of the learning process; it promotes group collaboration and discussion, allowing for different viewpoints (*Connectivism Learning Theory*, n.d.). As such, technology is transforming the ways in which teachers teach and accordingly students learn. ICT allow creating, storing, spreading and sharing content of the course in the collaborative way. Thanks to ICT, teachers can guide the students to achieve educational objectives and to enhance competences when it comes to decision-making or problem-solving. It is widely accepted that technology can be defined as “the systematic application of scientific knowledge” (Qaddumi et al., 2021) leading to more intensive use for various purposes, including educational. Integration of ICT in teaching reflects educational innovation as ICT create a more flexible and inclusive environment for various stakeholders, teachers, and students.

The ICT tools used in People Analytics course

Today, there are no doubts that digital technologies play a crucial role in the success of teaching and learning (Myrny et al., 2022). There are many learning tools that can be employed to support teaching and learning activities. According to the functions and roles, various tools could be divided into four main categories, which are content creation, content distribution, content curation, and content assessment (Megat Mohd. Zainuddin et al., 2020). Further, the current paper explores and describes the tools used in People Analytics course, namely Zoom, digital escape rooms, Mentimeter, and Padlet. Zoom serves as a content distribution tool. Digital escape rooms deal mainly with content creation, content curation, and content assessment. Mentimeter serves as a content distribution and content assessment tool. In the meantime, Padlet is relevant mainly for content distribution, content curation, and content assessment. As it was mentioned before, the paper does not analyse specific tools for People Analytics such as Power BI or SPSS, which are also part of the course.

Online teaching via the Zoom platform. Globally, in the context of pandemic, rapid transition from classroom learning to distance learning was possible due to computer-mediated communication platforms such as Zoom (Katz & Kedem-Yemini, 2021). Recently, a growing number of studies provided evidence and encouraged the universities to opt for a hybrid education in the future (Nikolopoulou, 2022). Drawing on the idea of combining face-to-face and online sessions, comprehensive use of computer-mediated communication platforms is of high importance. Nonetheless, it should be admitted that although the media richness theory suggests that video conferences are “richer” than other communication media (e.g. phone calls and emails), compared to face-to-face communication, video conferences are considered not as rich (Nesher Shoshan & Wehrt, 2022). This aspect has been taken into account and having this in mind only some topics of the People Analytics course can be taught online.

Previous studies revealed several advantages and disadvantages of Zoom as a video conference platform for educational setting (Katz & Kedem-Yemini, 2021). Some examples of the advantages: students could join and leave the Zoom class without attracting attention or disrupting the others; the ability of teacher to mute students also minimised background noises and allowed everyone to stay focused on learning; lesson recordings allow for asynchronous learning. However, from a pedagogical point of view, more disadvantages could be revealed (Katz & Kedem-Yemini, 2021). First, teacher’s difficulty should be mentioned to convey the messages and understand the recipient responses to messages due to the fact that during Zoom class meetings, most students do not turn on the camera. Further, it is difficult for the teacher to interpret silence as most of the time, the teacher speaks and the students listen. Next, usually, on Zoom students start talking simultaneously and it becomes difficult for the teacher to conduct a fruitful and continuous discussion.

Following the literature (Katz & Kedem-Yemini, 2021; Nesher Shoshan & Wehrt, 2022), the teaching via Zoom in the People Analytics course is designed having in mind several features, which are:

- a) agreement with students regarding cameras (turned on);
- b) appropriate time proportions for delivering teacher’s message and solving individual or team tasks;
- c) invitations to ask questions regarding topics discussed by the teacher;
- d) limited use of Zoom - for student consultations, some team work, guest lectures (business and other universities) and under certain extraordinary circumstances.

Digital escape rooms. The escape room phenomenon has a quite short history (Taraldsen et al., 2022). The first well-documented activity of Real Escape Game Event started in Kyoto, Japan, in 2007, as a single room game for teams of 5–6 players (Nicholson, 2015). Following the most cited definition, escape room refers to a “live-action team-based game where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time” (Nicholson, 2015, p. 1). In general, use of an escape room may take different approaches;

however, the core idea is that the escape room concept involves several main attributes: a) a common goal, b) a need for collaboration to solve problems in time and c) achieve a common goal (Veldkamp et al., 2020).

Borrowing elements from point-and-click adventure games, live-action role-playing, interactive theatre, treasure hunts, or movies and TV shows (Fotaris & Mastoras, 2019), at the beginning, escape rooms have been mostly created for recreational purposes (Makri et al., 2021). However, over the last year, there has been a growing interest among teachers, adapting the escape room concept in classrooms, in both physical and online learning environments (Makri et al., 2021; Ouariachi & Wim, 2020), especially in the higher educational institutions (Makri et al., 2021).

From an educational perspective, escape rooms are linked to the methodology of gamification (Taraldsen et al., 2022). Game-based learning (Clarke et al., 2017) is not new to the educational environment, and it offers opportunities related to creativity, active learning, self-regulation, problem solving, fun, and social interaction (Taraldsen et al., 2022). In education, gamification is a technique that proposes dynamics with the purpose to stimulate and have direct interaction with students, allowing them to significantly develop their curricular, cognitive, and social competences (Manzano-León et al., 2021). Moreover, gamification increases students' concentration, motivation, engagement and flow experience (Oliveira et al., 2023).

From a pedagogical point of view, escape rooms are based mainly on three learning theories, namely behaviourism, social learning, and constructivism (Ouariachi & Wim, 2020). Constructivism is applied because learners construct their own knowledge based on real-time experiences of advancing through challenges they meet in the escape room (Fotaris & Mastoras, 2019; Vygotsky, 1978). As regards to behaviourism, "positive" behaviour is reinforced by providing progression through the escape room process, whereas "negative" behaviour either does not help the players escape the room or even negatively impacts their ability to escape (Zhang et al., 2018). In relation to social learning, it is acknowledged that learners imitate or perpetuate behaviours of successful puzzle solving and assimilate their previous knowledge and skills to help them to solve issues (Ouariachi & Wim, 2020). Additionally, according to the social learning theory, people learn from observing other people, and in escape rooms, learning is also related to social relationships (Ouariachi & Wim, 2020). However, due to its nature as being a "live-action team-based game", an escape room activity is primarily recognised to be a didactic tool (Ouariachi & Wim, 2020; Taraldsen et al., 2022). In other words, an escape room activity used for educational purposes is an example of how educators can help the students to cooperate, communicate, and be critical and active learners.

In the People Analytics course, digital escape room is used as it is immersive, engaging, dynamic, active-oriented, online learning experience (Makri et al., 2021). Following literature (Makri et al., 2021), the mentioned digital escape room has been designed having in mind several features, which are provided below:

- a) the escape room has a specific well-defined learning goal and objectives;
- b) learners are interactively involved in team-based and collaborative activities to construct knowledge;
- c) the puzzles in the escape room are balanced, as easy puzzles can become boring, while ones that are too difficult can cause frustration;
- d) balance between the teachers' supervision and the students' autonomy in learning is respected;
- e) single domain in terms of People Analytics is presented as part of the game experience.

Mentimeter. Mentimeter represents one of so-called the Audience-Response Systems (Mayhew, 2019; Wood & Shirazi, 2020) or Student Response Systems (Mohin et al., 2022). Audience-Response Systems are some of the student-centred and interactive technologies (Kocak, 2022) Using Audience-Response Systems students can answer the questions asked by the teacher via external devices or smartphones (Kocak,

2022). Systems analyse students' responses and present the results to the whole class as an abstract in a table, graph, or other methods (Kocak, 2022). The ideas, knowledge level, and opinions of all students are seen allowing teachers to test and evaluate the students' preparation (Mayhew, 2019).

Launched in 2014, Mentimeter has received a huge success as an Audience-Response System due to several reasons (Mayhew, 2019). The use of Mentimeter itself is intuitive, even for those who lack confidence using technologies. The platform adopts a similar layout style, and has some of the user features of PowerPoint. Moreover, it is possible to combine static slides with those requiring student participation. The timing and speed of presentations can be controlled by the presenter. Finally, Mentimeter offers a broad range of pre-existing questions and quizzes templates.

The literature review demonstrate the benefits of Audience-Response Systems in attendance, attention, anonymity, participation, engagement, interaction, discussion, contingent teaching, learning performance, quality of learning, feedback, formative assessment, and comparison between peers (Morillas Barrio et al., 2016). More recently, it was revealed that the use of Mentimeter in educational processes results in students significantly increasing their attention and participation, while promoting inclusion and commitment to the learning process (Pichardo et al., 2021).

Following the literature (Kocak, 2022; Mayhew, 2019; Pichardo et al., 2021; Wood & Shirazi, 2020), Mentimeter is applied in People Analytics course having in mind several features which are provided below:

- a) each Mentimeter activity has specific well-defined learning goal and objectives;
- b) students responding to the questions and the results displayed on the screen in real time make it possible to measure the level of comprehension and to adapt the contents accordingly and to improve teaching in the coming academic years;
- c) all students have the opportunity to answer all questions, possibility to respond anonymously and finally to reflect on the questions;
- d) use of a broad range of pre-existing Mentimeter question and quiz template, as Word cloud, multiple choice, etc.
- e) assessment based on test results is included in general assessment.

Padlet. Padlet, is a platform where virtual walls can be created (Deni & Zainal, 2018). A virtual wall functions like a notice or a white board where it is possible to include different types of files (Deni & Zainal, 2018). Padlet can be used in multiple ways, such as pre-class preparation, in-class activities, post-class consolidation, and group project work (Fisher, 2017). Thus, Padlet serves as a tool to provide course content to students or as a web-based storage space for teachers to house resources including links, images, text, and files (Waltemeyer, Shaunna; Hembree, Jason R.; Hammond, 2021). The teacher (creator of a particular wall) has control over the content, design, layout, and privacy of the walls (Deni & Zainal, 2018).

Padlet can be employed in both traditional, face-to-face, and online learning environments. Padlet is seen as a collaborative tool, which is used to conduct interactive debates among students; it provides a backchannel for questions, discussions, feedback, opinions or comments on anything going on in class or related to the topic (Fisher, 2017). Actually, Padlet can reduce the communication gap among teacher and students, and among students themselves.

Following the literature (Deni & Zainal, 2018; Fisher, 2017), Padlet is applied in People Analytics course having in mind several features, which are provided below:

- a. each Padlet activity has a specific well-defined learning goal and objectives;
- b. Padlet serves mainly as brainstorming tool;
- c. Padlet serves as a board to share ideas.

The table which summarises the tools used in People Analytics course while explaining the purpose of

use, activities performed by students, intended and expected positive outcomes, challenges, and the role of teacher is provided below.

Table 1. Description of tools used in People Analytics course

Tool	Purpose of the use	Activities performed by students	Intended and expected positive outcomes	Challenges
Digital escape rooms	Enliven classroom learning experiences and lead to more learner-focused strategies (Makri et al., 2021)	Facing and solving new and often complex problems Interacting with peers Getting support from teacher	Team work Experience Sense of urgency Critical thinking Problem solving	Level of difficulty of puzzles Time restrictions Different students' backgrounds
Mentimeter	Promote and facilitate participation, collaborative learning and interaction between all the individuals involved in the learning process (Pichardo et al., 2021)	Providing answers Providing opinions Competing with peers	Active participation Involvement Getting quick feedback Possibility to reflect	Have to wait for all of students to finish Challenging to get an answer quickly and correctly
Zoom platform	Enable distance learning	Listening to teacher Asking questions	Listening to teacher Asking questions Possibility to attend from any place	Students' silence Being present
Padlet	Encourage student collaboration and provide a virtual bulletin board for students to collaborate on classroom tasks, share learning resources, and organise related course content in terms of files, videos, etc. (Waltemeyer, Shaunna; Hembree, Jason R.; Hammond, 2021)	Reading content Asking questions Providing opinions Sharing insights	Interaction Collaboration Feedback	Navigation in case of huge amount of material

Discussion and conclusions

Nowadays, in education institutions teachers are no longer asked but required to use ICT in their daily activities, including teaching (Sayaf et al., 2022). Teachers act as change agents while redesigning courses and adapting content they intend to deliver to students. Previous literature supported the notion that the use of ICT in education offers many wide-ranging benefits in terms of providing feedback to the learner; increasing achievement in learning; supporting the acquisition of learning skills and computer literacy; acquiring positive digital habits; speeding up the learning process; developing problem-solving skills; or diversifying learning experiences (Qaddumi et al., 2021). Various tools can be used for achieving the above-mentioned value. The paper describes 4 tools used in the People Analytics course, which reflect content creation, content distribution, content curation, and content assessment.

Drawing on the notion that video conferences would be considered richer than other media (for instance, emails and phone calls) but not as rich as face-to-face communication (Nesher Shoshan & Wehrt, 2022), the use of Zoom has some limitations. Zoom is mainly used in the course for such purposes as consultations, some team work, guest lectures and in some urgent cases. As Zoom allows multiple cues

via video, enables synchronic chat and screen-sharing (Katz & Kedem-Yemini, 2021), the content related to People Analytics course could be shared in a collaborative manner ensuring time for discussions and questions.

Treating escape rooms as a didactic tool (Taraldsen et al., 2022), the People Analytics course provides the opportunity for students to gain new knowledge, to test their knowledge level and to acquire new skills and competences by solving puzzles and to accomplish tasks in a limited amount of time. Such practice reflect the idea of educational innovation (Portuguez Castro & Gómez Zermeño, 2020) and corresponds to new stream in education while including gamification for foster learning outcomes (Makri et al., 2021).

Mentimeter, as technological innovation, is a key element for facilitating active involvement of students (Pichardo et al., 2021). As students' active participation in classes is one of key challenges teachers focus on, in the course of People Analytics, Mentimeter is supposed to act as catalyst in making educational environment more lively. In the case described in this paper, Padlet is used as a collaborative tool mainly for interactive debates among students, for questions, discussions, feedback, opinions or comments.

The paper has some practical implications as it describes the some of the technologies that could be used in teaching for achieving some positive outcomes like students' engagement or quick feedback. However, it should be admitted that practitioners should take into considerations several aspects while dealing with technologies for educational purposes, namely the teachers' digital literacy, university infrastructure, digital divide, and students' acceptance of technologies.

The paper has several limitations, which need to be addressed in the future. The paper provides only the description of ICT used by teachers in People Analytics course. However, the students acceptance of these tools and the impact these tools have on the learning process, outcomes and results are not included in the scope of this paper. Further research could focus on the view of students analysing their attitude towards the technologies' effect on attaining better academic results and better preparation for the labour market in terms of competence and employability. The second limitations refers to the call in the literature to use the technologies in pedagogically meaningful ways as introduction and use of technologies only do not guarantee an improved student learning experience and outcomes (Mayhew, 2019). This leads to future studies investigating the meaningfulness of the use of particular technologies. It remains yet to establish whether a set of technologies rather than individual ones might probably serve as a better tool for supporting the university's intent to contribute to future leaders' education.

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INFORMACINIŲ KOMUNIKACINIŲ TECHNOLOGIJŲ SĄLYGOTOS DĖSTYMO INOVACIJOS: ŽMONIŲ IŠTEKLIŲ ANALITIKOS MODULIO ATVEJIS

Santrauka. Pastaruoju metu informacinės komunikacinės technologijos tampa neatsiejama švietimo dalimi, darančia didžiulę įtaką ugdymo procesui, įskaitant dėstymą bei mokymąsi. Studentų ypatumai, nulemti jų priklausymo skirtingoms kartoms, Covid-19 pandemija bei darbo rinkos spaudimas potencialiems ir esamiems darbuotojams tobulinti skaitmeninį raštingumą yra pagrindiniai stimulai Universitetams keisti dėstymo prieigą ir metodus, aktyviau įtraukiant technologijų dedamąją. Nors radikali technologijų sąlygota transformacija dėstymo srityje visų pirma sietina su nuotoliniu mokymu, visgi gali būti naudojamos ir kitos technologijos. Mokslinės literatūros analizė atskleidžia, jog švietimo inovacijos pasitelkiant technologijas leidžia taikyti bendradarbiavimu grįstą, įtraukią ir į studentą orientuotą pedagogiką. Straipsnyje siekiama atskleisti dėstymo naujoves pasitelkiant informacines komunikacines technologijas viename iš magistrantams skirtų modulių – Žmonių išteklių analitika. Pristatomas Zoom, skaitmeninių pabėgimo kambarių, Mentimeter ir Padlet naudojimas. Atskleidžiant konkretų vieno modulio atvejį, straipsnyje siekiama pateikti argumentus (privalumus ir trūkumus), kodėl pasirinktas vienas arba kitas įrankis ir kaip tie įrankiai naudojami. Straipsnyje daroma išvada, kad technologijų įveiklinimas dėstant neabejotinai suteikia daug privalumų, visgi tolesnis tyrimas reikalingas siekiant atskleisti ar ir kaip studentai priima technologijas, ir ar ir kokia technologijų įtaka yra mokymosi rezultatams.

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