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ATTITUDES TOWARD THE INTEGRATION OF DIGITAL GAMES INTO INSTRUCTION IN TEACHER EDUCATION COLLEGES DURING THE COVID-19 PANDEMIC

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ABSTRACT

Aim/Purpose	This paper examines how senior academic staff from a large sample of teacher education colleges regard the integration of digital games into teacher instruction. These colleges serve general or religious populations, and we examine what, in practice, their policy and vision were in this regard in the context of the COVID-19 pandemic.
Background	The sudden adoption of online teaching-learning due to the pandemic has been termed disruptive in that it drastically disturbed higher education in Israel and worldwide. The senior academic staff of Israel's colleges of education was responsible for leading policy decision-making during this period. The use of digital games for pedagogic purposes may be direct when used for knowledge acquisition and reinforcement and student development or indirect.
Methodology	Using semi-structured interviews, the current study applied an interpretive-constructivist approach to examine how senior academic staff from several teacher education colleges perceived the integration of digital games into teacher instruction and elicit their policy and vision in this regard, in the context of the COVID-19 pandemic.
Contribution	The findings suggest that discussions surrounding technology-related vision and policy and their translation into practice should relate to the specific cultural needs and academic preparedness of the population(s) served by the college.
Findings	Half the participants expressed a desire to integrate digital games into teaching and learning but acknowledged that in practice this was uncommon. Only a

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	small minority considered themselves to have achieved successful integration in practice, with doubt and skepticism expressed by some of the religious colleges. Most colleges had policies to encourage the integration of technology in general into teaching, with these, in turn, supported by ongoing funding. Although a considerable gap between policy and implementation remained, the COVID-19 pandemic was viewed as having considerably accelerated the integration of digital games into preservice teacher instruction.
Recommendations for Practitioners	Discussions pertaining to technology-related vision and policy and their translation into practice should relate to the specific cultural needs and academic preparedness of the population(s) served by the college.
Recommendations for Researchers	The findings reflect the spectrum of challenges faced by the different populations the colleges employ and serve and the outcomes of the colleges' ongoing attempts to negotiate and reconcile different concerns.
Impact on Society	The findings have implications wherever colleges serve other socially and culturally conservative populations that are interested in or compelled to adopt techno-pedagogies.
Future Research	We call for further research into whether continued pandemic-related restrictions have increased the practical integration of techno-pedagogical tools such as digital games into the curricula of teacher education colleges.

Keywords	senior academic staff, COVID-19, digital games, pedagogy, teacher education colleges

INTRODUCTION

The economic, cultural, and social crises sparked by the ongoing COVID-19 pandemic have changed lifestyles worldwide. From pre-K through to tertiary institutions, education systems closed their doors, with nearly 1.6 billion learners affected during peak closures in late March/early April 2020 (UNESCO, 2021).

The wide-ranging measures that were taken to reduce morbidity during the pandemic dramatically impacted all aspects of the operation of educational institutions (Camilleri & Camilleri, 2021). Two-thirds of higher educational institutions (HEIs) shifted to online learning (Marinoni et al., 2020). In Israel, two days' notice was given before all educational institutions, including teacher education colleges, shifted to online learning mid-week in March 2020 (Donitsa-Schmidt & Ramot, 2020). This sudden change compelled academic institutions and students to adjust rapidly to new modes of teaching and learning. The formerly most common approach – frontal, face-to-face, and on-campus – was replaced by synchronous and/or asynchronous online learning (Donitsa-Schmidt & Ramot, 2020). In Israel, as in other countries (Crawford et al., 2020), the new reality posed complex challenges for teacher educators, such as changing the nature of the assignments or exams they set, affecting their expectations vis-à-vis students, and changing how they graded their courses (VanLeeuwen et al., 2021). The required changes were so great that they affected all teaching staff, irrespective of whether or not they had previously utilized online learning tools (Johnson et al., 2020).

In the educational literature, the sudden adoption of online teaching-learning has been termed disruptive in that it drastically disturbed education systems worldwide, producing a chaotic new context characterized by upheaval and ambiguity that de-skilled academic staff and management everywhere (Fullan, 2020, 2021). The shift to online learning involved the immediate uptake of unfamiliar technological innovations, such as video-conferencing platforms that had not been designed for use in an educational context, as well as learning management systems and pedagogical technologies (Donitsa-Schmidt & Ramot, 2020). Furthermore, the adoption of these technologies often occurred in challenging and unwelcome contexts, such as in the homes of members of faculty and academic staff

using the household's internet connection, and often while they were simultaneously supervising their own children (VanLeeuwen et al., 2021). Furthermore, the colleges of education faced a variety of problems vis-à-vis their students, online teaching technologies, the content being taught, and time management in the emergency online context, for which they sought solutions (Jung et al., 2021). Nevertheless, in Israel, it has been claimed that this disruption ultimately accelerated the introduction of technology into teaching and learning in teacher education colleges (Donitsa-Schmidt & Ramot, 2020).

Teacher education colleges are expected to be agents of change and encourage preservice teachers to be innovative and use technology that promotes learning (Avidov-Ungar & Forkosh Baruch, 2016; Karadag, 2015). One innovative approach utilizes digital games, which have been found effective in enhancing student motivation while being engaging and potentially associated with behavioral change (de Freitas, 2018). Specifically, in the HEI context, digital games have a positive impact on a wide range of learning outcomes (Vlachopoulos & Makri, 2017). Nevertheless, the use of digital games in teaching and learning has faced resistance from schools, colleges, and universities (de Freitas, 2018).

The research literature on teacher education colleges during the COVID-19 pandemic focused on how they coped with the transition to remote learning and teaching. However, this crisis might have constituted a unique trigger for the integration of innovative technologies suited to remote teacher training, including the use of digital games. The inclusion of digital games by teacher educators might constitute modeling for the preservice teachers who will then be going into the schools. The study proposes offers a unique context that has been less researched – the integration of digital games in remote teaching at teacher education colleges during the COVID-19 pandemic. This study focuses on the perceptions of the senior academic staff at these colleges in Israel, who have become models for the students, who are future teachers, as to how to cope with remote teaching in times of crisis and in general.

THEORETICAL FRAMEWORK

Prior to the pandemic, there was already interest in integrating digital games into instruction. The principal reasons for this interest related to student learning (improving memory, cognitive skills, higher-order thinking, critical ability, and problem-solving), student behavior (developing social and collaborative skills), and student affect (heightening motivation and engagement) (Manesis, 2020; Vlachopoulos & Makri, 2017).

Digital games-based learning refers to strategies in which stand-alone computer-based games are used to enhance learning (Kucher, 2021). In an educational context, 'digital game' refers to the application of computer and console games developed or adapted primarily to help students achieve learning objectives (Hamari et al., 2016). The use of digital games for pedagogic purposes may be direct when used for knowledge acquisition and reinforcement and student development, or indirect. It can also serve pedagogic purposes such as maintaining student interest or engagement (Pinto & Leite, 2020; Xiao et al., 2018). Prior to the pandemic, there was also recognition that integrating digital games into teaching requires much of teachers. Beyond the technological and infrastructural aspects, teachers must identify suitable games, test and potentially adapt them, explain the game and its educational purpose, assist students during the game, and finally organize a debriefing session to establish links between the learning objectives and the game (Avidov-Ungar & Hayak, 2021; Feliciea & Egenfeldt-Nielsen, 2011; Hayak & Avidov-Ungar, 2020). Consequently, researchers have identified a need to integrate digital games into pre-service teacher education so they can be modeled to enable preservice teachers to employ them subsequently in their own classrooms (Feliciea & Egenfeldt-Nielsen, 2011). However, for teacher educators to be a model for the future teacher is a pedagogic and academic challenge that requires adaptation and professional training (Hayak & Avidov-Ungar, 2020; Xu & Xu, 2020). Indeed, preservice teachers consider negative attitudes on the part of policymakers and an unsupportive curriculum framework to be barriers to their integration of digital games (Kaimara et al., 2021). Likewise, academic heads of departments in HEIs have been shown to play a key role in

influencing their colleagues to adopt learning technologies (Liu et al., 2020). In teacher education colleges, members of the senior academic staff are likely to play a particularly important role in influencing their colleagues, as they are involved in the formulation of institutional policy and are responsible for implementing it in their area of responsibility, as well as bearing responsibility for curriculum development. However, research on their views concerning the integration of digital games in teaching and learning is lacking.

Many studies have been conducted to examine the efficiency and effectiveness with which digital games have been integrated into teaching-learning processes, with an emphasis on the characteristics of the game and the learners (Nietfeld, 2017; Papadakis, 2018; Tsekleves et al., 2016). Few studies have examined the perceptions of senior academic staff regarding the integration of digital games and even fewer have done so during the COVID-19 pandemic and the transition to online learning in teacher training. At the Middle East Technical University in Ankara, Turkey, preservice teachers identified the main barriers to integrating mobile games into teaching as relating to the learning environment and technology, teachers' characteristics and beliefs concerning technology, the appropriateness of the content, and design and development difficulties (Güleroğlu, 2015). At Michigan State University, research involving preservice, internship year, and in-service teachers identified five barriers to the use of digital games in teaching. These barriers were a mismatch between the game and the curriculum, negative perceptions on the part of administrators and parents, lack of technological and professional support, inadequate support for teacher preparation, short class periods, and the low quality of educational digital games (Wu, 2015).

Earlier research on active teachers found that technical, pedagogical, structural, and personal factors hindered their integration of digital games into teaching and recommended integrating such digital games into teacher education as a way of overcoming these barriers (Hayak & Avidov-Ungar, 2020). In the current study, we focus on senior academic staff who play an important role in teacher training by creating an infrastructure that enables their students to cope with the challenges involved in integrating digital games into their classes.

The current study examines the perceptions of senior academic staff at teacher education colleges regarding the integration of digital games into the fully online learning context imposed by lockdowns and social distancing restrictions in response to the pandemic. The study also examines their views of the phase their college is in with respect to the integration of digital games into instruction while responding to the constraints of the pandemic. With respect to the response phase, we adopted the phases of the reimagining strategy developed by Fullan et al. (2020).

It has been suggested that, through their responses to the chaos caused by the pandemic, education systems may transition to a reimagined approach to education that includes using technology to leverage and accelerate deep learning. This is achieved via a three-phase strategy of (1) disruption, (2) transition, and (3) reimagining (Fullan et al., 2020). The disruption phase covers the shift from face-to-face to online learning during the first months of the pandemic, and itself comprises (a) unsettled, (b) learning, and (c) growth zones. These zones are conceived as being non-discrete and as potentially occurring non-sequentially. The unsettled zone is characterized by shock and a scramble to provide at-home learning to students, which only some systems can provide in the form of online learning. Teachers and education systems in the unsettled zone are survival-oriented, with any online learning involving little change from traditional teacher-centered, content-driven practice. The learning zone involves a shift in focus from surviving the change to navigating it and also sees a shift to encompass student well-being and equity issues. The growth zone is characterized by reflection on developing new learning models that move beyond blending traditional and online instruction (Fullan et al., 2020).

The second phase described by Fullan et al. (2020) is the transition phase, which covers planning for school reopening in a time of pandemic-related uncertainty and complexity. This planning requires addressing interconnected issues of student mental and physical well-being, achieving quality

learning, and operations. The reimagining phase sets out a vision for the hybridization of the best traditional and innovative practices with insights from online learning to enhance and accelerate deep learning by diverse learners (Fullan et al., 2020).

There is evidence for some initial movement in the direction suggested by Fullan et al. (2020). A small-scale exploratory study of leaders of university-based preservice teacher education (Ellis et al., 2020) suggested that the pandemic has indeed stimulated the adoption of an innovative stance with respect to teacher education practice by leading to the uptake of new ideas that add value to previous historical practices. Such ideas included many examples of using technology to mediate preservice teachers' academic learning, with this accompanied by teacher educators undergoing an attitudinal change from resistance to acceptance or enthusiasm regarding the use of technology (Ellis et al., 2020). We sought to examine whether similar processes are taking place in Israel. Rather than focusing on innovation in the form of learning technologies in general, we focused specifically on innovation in terms of the use of digital games in teaching and learning in the context of the shift to online learning imposed in response to the COVID-19 pandemic.

Research Questions

The current study examines the integration of digital games into instruction at teacher colleges offering four-year B.Ed. degrees. Integration is explored from the perspectives of senior academic staff, such as heads of departments, heads of schools, and deans, who are responsible for leading policy decision-making at academic teacher education colleges. In Israel, these senior academic staff positions combine a managerial role with teaching and academic research.

The study examined two research questions:

1. What were the attitudes of senior academic staff toward the integration of digital games into instruction in teacher education colleges during the COVID-19 pandemic?
2. In the view of senior academic staff leading policy decision-making at academic teacher education colleges, in which phase were teacher training colleges with respect to the integration of digital games into instruction?

METHODOLOGY

Research Method

We conducted a qualitative study based on semi-structured interviews, the transcripts of which were analyzed according to the interpretive-constructivist paradigm (Denzin & Lincoln, 2008). The analysis examined in depth the process the academic teacher education colleges were undergoing with regard to the integration of digital games, as perceived by the college's senior academic staff.

Participants

Participants in the study were 25 senior academic staff members. Senior academic staff members are likely to play a particularly important role in influencing their colleagues, as they are involved in the formulation of institutional policy and are responsible for implementing it in their area of responsibility, as well as overseeing curriculum development. These staff members were employed at 13 academic teacher education colleges providing instruction in Hebrew in Israel. These 13 colleges represent 68% of teacher education colleges offering instruction in Hebrew. Eight of the colleges did not define their target student population and can be assumed to enroll Arab and Jewish students who are fluent in Hebrew; we refer to these colleges as 'general.' Five of the colleges self-defined as 'religious' and their student body can be assumed to be comprised of students who identify with various Orthodox streams of Judaism.

The participants held the positions of president/college head (*n*=3); deans/heads of the school of education (*n*=5); department heads of training in learning technologies (*n*=2); heads of units (*n*=5) working to promote innovation in teaching (e.g., head of the innovation center, head of the simulation center); and coordinators or leaders within teacher education departments (*n*=10). From each college, we interviewed 1-3 academic staff. The interviewees included 21 women and 4 men, which is consistent with the greater involvement of women than men in teaching at all levels in Israel. Most of the participants were aged 50-60 years (*n*=16), with the remainder aged 33-40 years (*n*=9). Two interviewees were professors, 18 held a Ph.D., and five had a Master's degree.

Research Tool

Each senior academic staff member participated in a semi-structured in-depth interview lasting approximately one hour (see Appendix). The interviews attempted to clarify challenges facing the colleges regarding the integration of digital games in teacher training, within the broader context of integrating technology into teaching. Particular attention was paid to how the integration of digital games was achieved in the context of innovation in response to the COVID-19 pandemic.

Research Procedure

The websites of the various colleges were examined to identify senior academic staff as potential interviewees who were then contacted via an email with an attached informed consent form asking them to participate in the study. If the response were positive, an interview time was set up. At the end of the interview, the interviewee was asked to recommend another academic staff member, thus enlarging the number of study participants using the snowballing method (Noy, 2008). Academic staff who did not respond received a second email, and if they responded positively, then an interview time was set up. All interviews took place between August and October 2020 via Zoom and were recorded and transcribed in Hebrew. For ethical reasons, the recordings were erased after the completion of the transcription.

Data Analysis

The interview transcriptions were thematically analyzed (Shkedi, 2004), which involved extracting recurring motifs from the interviews; interpreting and conceptualizing the emerging themes; tracing and examining repeated themes; and coding them into categories of relevance to the research questions (Stuckey, 2015). Results for the first research question were analyzed at the level of individual senior staff members (*n*=25) whereas for the second research question the results were analyzed per college (*n*=13) in terms of the phases developed by Fullan et al. (2020). This study is part of a broader study examining online teacher education of preservice teachers during the COVID-19 pandemic.

FINDINGS

The findings are organized by research questions.

The Attitudes of Senior Academic Staff Toward the Integration of Digital Games into Instruction in Teacher Education Colleges During the COVID-19 Pandemic

The findings pertaining to the first research question revealed that senior academic staff presented three main attitudes toward the integration of digital games into instruction, namely: doubts, aspirations, and 'games as a way of life.'

Doubts concerning the integration of digital games into instruction

Senior academic staff with a doubtful attitude toward digital games expressed uncertainty about the contribution of the integration of digital games into teacher education (9/25). One interviewee (College 3) noted: 'The implications [of integrating digital games in teaching] are still being studied. We have to understand that to use digital games we must understand technological tools ...'. He also mentioned the technological difficulties with the integration of digital games, i.e., the Wifi connection and computers that are not always working. Moreover, some interviewees expressed doubts about the contribution of digital games to instruction and how they might impact different students. For example, one participant said, 'the use of digitization, of digital games ... I don't know how good this is for all types of students' (College 1). A participant from College 9 emphasized the importance of taking a critical stance, of adopting selective doubtfulness. She spoke in detail on the subject, saying:

> Although the games serve me for critical thinking, we, as policymakers, need to be critical toward the innovations, the new things that arise, this game that's between old and new, between attractive and meaningful; to what extent does this attractiveness also contribute to meaning, or is it just deceptive? We are also supposed to look at everything in a critical manner and to know that when a trolley goes past, which trolley or train do I immediately board and which one do I decide to forego, letting it continue traveling while I skip it, that is, to be very critical in this area.

Digital games are desirable and important

Senior academic staff believing that digital games are desirable noted their contribution to learner motivation and engagement (11/25), mentioning that the games are close to the students' world. However, they also noted that the integration of digital games into teacher education remains uncommon. For example, a participant from College 4 said:

> The world of concepts among the younger generation – ICT, digitalism and gamification, games – all these are highly attractive ... I have doubts as to whether it is prevalent among our lecturers ... it is a way to advance the ability to analyze and synthesize, to break down and reassemble.

A participant from College 10 noted the importance of digital games and the contribution they can make in specific areas. Note that digital games can serve as an excellent platform for developing problem-solving skills as part of meaningful teaching:

> All this topic of online learning and digital games is very important. It's part of the curriculum, it changes it, there's no doubt that it changes [it], because it changes our preparation, it changes the lecturer-student relationship, because actually it changes the place of the lecturer … All this topic of games is certainly something that I attribute importance to because I know that it's an excellent way to cope with tasks involving problem-solving, classification, asking questions, analysis, synthesis, etc. through games. It's much more interesting, more alluring, more attractive and it strongly advances learning and educational objectives through play.

However, despite their own positive attitudes and considerable knowledge, senior academic staff in this group experienced difficulties influencing their colleagues to adopt digital games for instruction, for reasons that extend beyond the concept of using games per se. As explained by a participant from College 4:

> Those who want to succeed in finding a way can find help. It's stuck with respect to changing teaching methods and it doesn't matter if it's technological or not technological. A person who is stuck when it comes to changing teaching methods and still thinks that they are the source of knowledge and that their role is to lecture for one and a half hours, you will not be able to change them.

Games as a way of life

Senior academic staff with the attitude that digital games are a way of life noted that they believe in the contribution of digital games to teacher education and that it will be an integral part of their teaching (5/25). Thus, for example, according to a participant from College 12:

> Gamification and digital games in general are a part, in other words, not just as a niche within the training, but an ongoing process. In other words, it is there before the training, after the training, it is there all the time. It is not just when it is hard to teach that you have this session, it is present in all areas of your activity as a teacher.

A participant from College 11 also mentioned that playing games is a valuable way to achieve meaningful learning:

> Playing games is a way to learn about the world and get to know it. Babies learn about the world from playing; they explore, try things out and discover things. As long as we maintain the same authenticity even among adults and give them the opportunity to play and learn from it, their learning and teaching experience will be much more meaningful and the memory of the content will be retained for a longer period of time.

Teacher Education Colleges' Phase with Respect to the Integration of Digital Games into Instruction

We present our findings regarding the phase in which teacher education colleges felt they were in vis-à-vis the integration of digital games into instruction in terms of the three phases described by Fullan et al. (2020): disruption, transition, and growth. Table 1 shows the phase of each college according to the number of senior academic staff members interviewed.

Table 1. The phase of each college according to the senior academic staff

PHASE	NUMBER OF INTERVIEWEES	COLLEGE CHARACTERISTICS
Disruption	2	College 1
Disruption	1	College 2
Disruption	2	College 3
Transition	2	College 4
Transition	2	College 5
Transition	3	College 6
Transition	1	College 7
Transition	1	College 8
Transition	3	College 9
Transition	2	College 10
Reimagining	2	College 11
Reimagining	2	College 12
Reimagining	2	College 13

Below is a description of the phase in each college with supporting quotes from senior academic staff members

Disruption phase

Colleges in the disruption phase (3/13) were engaged in exploring and understanding digital games, their added value, and their potential importance for preservice teacher education. These colleges shared a number of demographic and attitudinal characteristics. Demographically, all three colleges self-defined as religious. Attitudinally, they shared four characteristics. The first was that they had unanswered questions, indicative of disruption, regarding the integration of digital games, especially in light of the pandemic. For example, as stated by a participant from College 6:

> The question is how do we get organized with the use of technologies, including digital games, when we have all kinds of lecturers in the department? There are lecturers who, as I said, are in favor and there are lecturers who don't have Internet at home and won't install it. We have a very wide range.

The second characteristic was that the colleges had not developed a clear vision or policy regarding the integration of digital games into teacher training because, as a participant from College 2 stated: 'I can tell you about games in general ... I would like to see a teacher integrating games into teaching. There is no vision among us [the senior academic staff].'

Consistent with the absence of vision and policy, the third characteristic was the inadequate direct allocation of resources to integrate digital games into their curricula. Senior academic staff from these colleges mentioned that where they had actually decided to invest resources into the integration of digital games, the budget ran out. For example, a new department created with a mandate to provide training and accompany lecturers as they included games and other techno-pedagogical tools closed down, as a participant from College 3 noted: 'but that department [for advancing teaching and learning] closed down because it cost a lot of money.'

Finally, senior academic staff from these colleges noted that their teacher educator staff were not committed to including digital games into their teaching-learning processes: 'there is a claim that, as lecturers in academia, we don't play here, we come here to teach' (Participant from College 2).

The senior academic staff noted that the pandemic period accelerated change and the integration of innovative technologies, including digital games, into teacher education. However, at the same time, the crisis also profoundly unsettled the institutions in a way that gave rise to the need to survive the crisis. As a participant from College 2 noted: 'The college's current policy is that we are all going to keep our heads above water and adapt ourselves to the facts.'

In conclusion, the colleges in the disruption group were engaged in consolidating their attitudes toward digital games and their contribution to teaching and learning. This was expressed in comments such as: 'the impact [of digital games on learning] is being studied' and 'we still don't know yet how good [the integration of digital games] is.' Such statements recurred in one form or another in all the interviews with the senior academic staff at these three colleges. Consistent with this lack of a consolidated view, there was no clear vision and/or policy regarding the integration of digital games into teacher education and budgeting was either inadequate or non-existent.

Transition phase

Most colleges (7/13) were described consistently as being in the transition phase, in that the senior academic staff considered it important to integrate digital games into preservice teacher education but emphasized the difficulty of putting this into practice. There was a gap between the desire and the vision, on the one hand, and the college's ability to invest the human and financial resources to fully achieve integration at the college, on the other. Demographically, this group included both religious and general colleges. These colleges shared three attitudinal characteristics.

First, senior academic staff from these colleges expressed a clear desire to integrate techno-pedagogical tools, including digital games, into teacher education. The senior academic staff mentioned the need to introduce the lecturers and their preservice teaching students to new technologies and to

allow them to experience and master their use to promote optimal learning. They described the integration of new initiatives to include digital games and examine their integration into teaching-learning at the college, for example: 'Of course, we also have [a course on] robotics and computational thinking, so they kind of touch upon the topic of gamification and of digitization for those topics' (Participant from College 9).

The second characteristic of these colleges was that they had a defined policy for the integration of ICT in teaching, although this policy did not necessarily relate specifically to digital games. As one interviewee stated, 'the issue of teaching in the digital era – not necessarily games – is on our agenda, special budgets have been allocated for training' (Participant from College 10).

The previous quote alludes to the third characteristic of these colleges, namely, that they allocated funds in an ongoing manner to implement their policy, for example: '... we created a competition among lecturers for computerized courses, creative courses with innovative technology initiatives. For some years now, there's real competition; there's a committee that chooses the outstanding lecturer in ICT use, who gets a prize' (Participant from College 10).

In practice, despite the ongoing allocation of resources, there remained a gap in the level of policy implementation. The participants said that the teacher educators feel neither a need nor an obligation to include digital games in their teaching: 'How far is it implemented? That really depends. Some lecturers are thirsty for whatever we give them; others won't come to a symposium or ask for help, and certainly won't use games. They'll stay as they are for years' (Participant from College 6).

Senior academic staff from these colleges viewed the pandemic as a catalyst for conceptual change regarding the integration of new technologies, including the use of digital games, in the education of future teachers:

> The big change is, of course, the pandemic. It pushed everyone deep into the digital world. We had tried in the past to give lecturers training on remote learning, how to do it ... hardly anyone came. As soon as the pandemic forced us to get into remote learning, suddenly they jumped in the deep end and learned lots of new tools ... I think that the pandemic issue gave a great push (Participant from College 9).

In conclusion, senior academic staff from colleges in the transition phase presented a clear and well-founded perception of the contribution of technology to teaching and learning, including digital games. They considered it beneficial, with the potential to increase learner motivation and engagement, and suited to the digital era. Consistent with that attitude, they invested effort in delineating a policy for integrating ICT (not necessarily games) into teaching. However, despite the ongoing allocation of resources, there was still a large gap between policy intention and actual implementation. For example:

> As for the techno-pedagogical setup, first I have to introduce it to the lecturers and the students, also to physically give them tools ... what the coronavirus did is [create] the understanding that this is needed ... a clearer understanding, they feel in their bones. They understand that we can't continue only face-to-face. So now there is this understanding I believe that it is what will lead in the first semester to a change in the extent of application of this thing [integration of digital games in teaching]' (Participant from College 5).

Reimagining phase

At colleges in the reimagining phase (3/13), the senior academic staff considered integrating digital games into teacher training to be important and they also implemented this policy in practice through the investment of significant technological, pedagogical, and financial resources. Demographically, this group consisted solely of general colleges. Attitudinally, these colleges shared three characteristics.

First, these colleges had a clearly defined policy regarding the use of digital games in teacher training, based on a clear, in-depth conception of the advantages of its use: 'The integration of digital games appears in all curricula ... the mathematics curriculum ... for secondary school they have a course using games as well as other digital tools, of course' (Participant from College 13).

The second characteristic of these colleges was that they believe that plenty of resources are invested in the integration of digital games specifically in the teacher education process:

> There are always games. Because we also have the immersion room [an escape room using digital technologies], so in mathematics, too, in order to learn about geometric shapes and also in sciences ... we have so many platforms to play on ... so gamification and digital games really appear in all variations (Participant from College 12).

The third characteristic of these colleges was that, although a gap between the college's vision and policy and what actually occurs remained, it was relatively minor. As one participant explained, 'but systemically, not all the lecturers agree with this policy of mine. Some think that a university or a college should teach traditionally and that we don't necessarily need this [integration of digital games]' (Participant from College 11).

Fourthly, these colleges saw the pandemic period as an opportunity to accelerate the use of new technologies, which was already widespread before the sudden need to move online. They leveraged the pandemic for the further promotion of new teaching methods: 'The pandemic made us all take a huge step forward. It happened in a very short space of time. All the lecturers took it up a notch in terms of how they used the model [integrating technology in general and digital games in particular]' (Participant from College 13).

In conclusion, the senior academic staff at the colleges in the reimagining phase led a well-defined policy concerning the integration of digital games in preservice teacher education, based on a clear, in-depth conception of the advantages of its use for teaching and learning. For example, 'Because we had created such a good strong platform [prior to the pandemic], we then had no difficulty to get straight into it and leverage it' (Participant from College 13). The policy of integrating digital games into teaching and learning at these colleges was part of the general integration of innovative technologies in teacher education. As a result, colleges in this group invested many resources in including digital games specifically in their teacher education programs. These colleges had up-to-date spaces, such as virtual reality and augmented reality rooms, simulation centers, and innovation centers, in which digital games constituted an integral part of the learning. The colleges also allocated resources to hiring technical and pedagogical professionals to operate these spaces.

DISCUSSION

In this study involving senior academic staff from most of the academic teachers' colleges teaching in Hebrew in Israel, we explored participants' attitudes toward digital games and the digital game-related attitudinal characteristics of the colleges in which they worked. Half the sample, being the largest single group of senior academic staff, desired the integration of digital games and considered it important, but acknowledged that in practice this was uncommon. Another group not only considered digital games desirable but also successfully integrated them into their colleges such that, overall, most of the sample expressed a positive attitude toward digital games. Nevertheless, other colleges expressed doubts as to the implications of integrating digital games into teaching and skepticism regarding the goodness of fit between digital games and all the different types of students.

Consistent with these findings, we found that most colleges had defined a vision and created policies to encourage the integration of technology into teaching in general, which were, in turn, supported by ongoing funding. In most cases, such colleges were in the transition phase, as defined by Fullan et al. (2020). Yet they struggled to implement their policies, despite the presence of funding. However, a minority of colleges, namely those in the reimagining phase, had achieved considerable integration of

ICT, including digital games, into instruction. Nevertheless, a similarly sized minority of colleges were in the disruption phase, with open questions and lacking any vision, policy, or consistent budgeting for integrating digital games into instruction.

Unsurprisingly, there was considerable overlap between the attitudes of the senior academic staff and the phase their college was in. This overlap may have arisen from cause and effect, in that the participants were also intimately involved in policy development in their institutions, so confidence or doubt among senior academic staff was likely to strengthen or weaken vision and policy development, respectively.

Another possibility is that both sets of findings reflect the spectrum of challenges faced by the different populations the colleges employ and serve and the outcomes of the colleges' ongoing attempts to negotiate and reconcile different concerns (Liu et al., 2020). It should be noted that the study was conducted during the pandemic when different populations were obliged to cope with the challenges of relying on the use of technology in the move to remote learning. Thus, the integration of digital games required additional effort as part of this coping.

As explicated by Fullan et al. (2020), the pandemic focused attention on defining the kind of learning required in the future. To reimagine learning, they suggested several key questions for stakeholders, of which the last was technology-oriented: "How can technology be best leveraged for learning in the future" (Fullan et al., 2020, p. 15). Colleges in the reimagining phase were typically focused on the refinement of an existing paradigm that utilized technology, including digital games, to achieve learning objectives. Thus, their emphasis was on the *best* way to leverage digital games technology. In contrast, for colleges in the disruption phase, the emphasis was merely on *how* to leverage technology, in that most of their staff and students came from populations that oppose using Internet-enabled technologies, particularly where children may be exposed to them (Rosenberg & Blondheim, 2021). The sudden requirement that teachers deliver online learning from their homes, thus potentially exposing their own children to Internet-enabled devices, could have heightened such religion-based opposition. Such an understanding is supported by the comments made by some of the participants about staff's unwillingness to connect their homes to the Internet. On the other hand, religious innovation and adaptation to previously forbidden or restricted technologies have already occurred in the short time since the current research was conducted. Thus, the religion-based opposition described by some participants may have diminished as the pandemic continued. If so, previous research (Bix, 2020) suggests that affected religious colleges will develop their own solutions rather than adopting those preferred by general colleges. Indeed, our findings suggest that individualization of the adoption process characterizes not only individual academics (Liu et al., 2020) but also individual colleges. Several colleges serving more-conservative populations were found to be in the transition phase, which may suggest a way to resolve open questions that remain among colleges in the disruption phase. These findings are likely to have implications wherever colleges serve other socially and culturally conservative populations that are interested in or compelled to adopt techno-pedagogies (Habiballah et al., 2021; Jogezai et al., 2021).

Practical Implications and Further Research

The current research has practical implications for the scope of discussions around technology (formulation of vision and policies and their translation into practice), suggesting that such discussions should relate to the specific cultural needs and academic preparedness of the population served by the college. Another practical implication that might emerge from the findings is also connected to the phase the college is in, with regard to the integration of digital games, in terms of Fullan's model. Colleges that knew how to recognize the phase they were in could more easily define which phase they were aspiring to reach and plan accordingly. We recommend using the theoretical framework of Fullan et al. (2020) which was expanded in this study as a basis for college diagnosis and recognition of necessary steps to be taken.

We call for further research into whether continued pandemic-related restrictions have increased the practical integration of techno-pedagogical tools such as digital games, into the curricula of teacher education colleges. As a follow-up study, it would be worthwhile determining whether colleges that were in the disruption and transition phases at the time of the current study have moved closer to the reimagining phase. Similarly, further study might explore the individualization of colleges' approaches to integrating digital games into their curricula while maintaining their unique character. It might also be interesting to examine the perceptions of the teacher educators who are integrating digital game into their teacher training process. In addition, it might be interesting to examine the breakdown of religious vs. general in the colleges regarding the colleges' phases. It could also be interesting to see if there has been movement in the period of rapid change. At the same time, it would be interesting to draw comparisons with the Arabic-speaking or English-speaking colleges of education in Israel and elsewhere.

Research Limitations

Although the study included most Hebrew-language teacher education colleges in Israel, we were unable to reach all of them and consequently, the population is not fully representative. Representation is further impaired by the absence of colleges whose language of instruction is not Hebrew (primarily colleges that instruct in Arabic or English). The current research did not inquire into the student selection criteria of participating colleges or measure the quality of the digital games and of other technology-based pedagogies they used. Consequently, it cannot elucidate whether colleges in the reimagining phase encountered (and perhaps overcame) differential outcomes from techno-pedagogies, such as digital games, among students with different levels of academic preparedness, nor could it explore whether the fears expressed by some participants of what has been termed the "proliferation of technology without good pedagogy" (Fullan, 2020, p. 26) are well-founded.

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Data Availability

The datasets are not publicly available due to participant privacy but are available from the corresponding author upon reasonable request.

Disclosure Statement

The authors report there are no competing interests to declare.

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APPENDIX

INTERVIEW OUTLINE

(1) What is your opinion regarding the integration of technology in teacher training?

(2) How did the Covid-19 pandemic and the shift to online learning and to technologies for online learning affect the college? Give details and examples.

(3) What is your attitude regarding the integration of digital games into instruction in teacher education colleges during the COVID-19 pandemic? Relate to your perceptions, difficulties, and opportunities.

(4) Is there any policy relating to the integration of digital games in teacher training? Explain and give examples.

(5) In your view, have changes occurred in college policy pertaining to the integration of digital games in teacher training as a result of the shift to online learning? Explain in which areas.

(6) How did the pandemic and the shift to online learning and to technologies for online learning affect the college? Give details and examples.

(7) Do you have anything you would like to add?

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