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DIGITAL TECHNOLOGIES IN ACTIVE AND SELF-DIRECTED LEARNING

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Abstract

Digital technologies are increasingly recognized for their potential to significantly enhance both active and self-directed learning. However, the extent and manner in which educators in higher education harness these technologies to achieve such educational objectives is still in its nascent stages. This study investigates the techno-pedagogical of college educators, specifically focusing on their ability to facilitate active and self-directed learning through digital technologies. Additionally, it scrutinizes their insights into the role of digital technologies in fostering self-directed learning processes. The study encompasses a sample of 156 educators from a wide range of academic fields across five Israeli teaching colleges. Employing a hybrid research design that combines both quantitative and qualitative methodologies. An online questionnaire enabled educators to thoroughly evaluate their acquaintance with and application of digital technologies. The semi-structured interviews were conducted to gain deeper insights into the educators' perceptions of digital and self-directed learning. Findings from the study reveal that educators predominantly utilize digital technologies to augment their teaching practices and promote active learning and student collaboration. Notably, only a select group of educators demonstrated advanced techno-pedagogical skills necessary for actively endorsing self-directed learning through student engagement in the selection and adaptation of digital resources. Interviews highlighted a generally superficial understanding of self-directed learning among educators, who often failed to offer students meaningful choices in their learning journeys. Despite this, there was a consensus on the importance of group and collaborative learning within digital contexts. The study concludes that the integration of digital technologies into educational practices, aimed at fostering active and self-directed learning, is still in its infancy. There is a pressing need for educators to not only refine their technological proficiency but also to cultivate a pedagogical appreciation for actively involving learners in the selection and utilization of digital tools tailored to their educational pursuits. Embracing this dual-faceted approach is essential for advancing active and self-directed learning strategies in the realm of digital education.

Keywords: *Digital learning and teaching, active learning, self-directed learning, techno-pedagogical competencies.*

1. Introduction

Active learning and self-directed learning (SDL) embody intertwined, complementary pedagogical frameworks that cultivate autonomous, engaged learners. Active learning, a learner-centered approach, engages individuals deeply in their educational journeys, employing strategic methods to enhance learning (Morris, 2019). SDL relies on a learner's ability to autonomously initiate and manage learning activities, which includes planning, needs assessment, and evaluation (Gureckis & Markant, 2012). Both methodologies aim to deepen learning and critical thinking by transitioning learners from passive recipients to active participants. The integration of active learning strategies bolsters SDL, offering learners varied, engaging interactions with educational content, thereby enhancing their application of SDL skills across diverse contexts (Morris & Rohs, 2021; Wang & Wegerif, 2019; Hua, Wang, & Li, 2024).

Post-pandemic, there has been an accelerated adoption of digital technologies in higher education (Lockee, 2021), which hold the potential to promote both active and SDL across varied educational landscapes, thereby enhancing students' learning processes and academic outcomes (Morris & Rohs, 2021). Despite widespread student use, digital technologies remain underutilized by educators, often sidelined for pedagogical integration, highlighting the necessity for robust pedagogical support to facilitate effective digital instruction (Mercader & Gairín, 2020; Amhag et al., 2019; Pinto & Leite, 2020). These technologies afford flexibility and choice, empowering students to tailor their learning experiences, which fosters their SDL abilities (Morris & Rohs, 2021). Research indicates a positive correlation between active use of digital tools and enhanced SDL capabilities (Rashid & Asghar, 2016; Hyland & Kranzow, 2011).

2. Purpose and research questions

This study investigates the impact of digital technologies on active and SDL, specifically examining the techno-pedagogical competencies of college educators in facilitating these learning modes. Further, it explores how educators conceptualize SDL within digital contexts to understand their perceptions and attitudes. The research addresses the following questions:

1. What are the primary purposes for which the educators deploy digital technologies in their teaching, and to what extent can such integration be observed?
2. To what extent do the educators engage learners in the selection and utilization of digital technologies to cultivate active and self-directed learning?
3. How is SDL defined by the educators, and is its realization feasible? If so, how can it be effectively promoted through the integration of digital technologies into the educational environment?

3. Methodology

3.1. The research population

The study encompasses 156 educators across five Israeli teaching colleges with diverse academic disciplines, religious affiliations, and cultural demographics. Most participants possess extensive teaching experience, generally exceeding six years, and typically teach at least five courses annually.

3.2. The research tools

A. **Questionnaire:** An 18-item questionnaire, crafted specifically for this study and grounded in the SELFIE framework (Kampylis, Punie, & Devine, 2015), was administered online to gauge educators' familiarity and usage of digital technologies across various professional scenarios.

B. Semi-structured Interviews*:* Ten educators, noted for their consistent technology integration, were selected for semi-structured interviews conducted either face-to-face or via Zoom, focusing on digital learning dynamics, SDL definitions, and facilitative teaching strategies.

4. Findings

Our research highlighted that a significant majority of educators (76.1%) utilized communication tools such as email, online forums, and WhatsApp to enhance learner interactions. A notable 66.1% of educators employed digital platforms for creating educational materials like presentations and videos. Additionally, about 65% of participants engaged with distance learning technologies, predominantly using platforms like Zoom. However, only a smaller percentage of educators utilized digital resources to address learner diversity (25.0%). Notably, a considerable portion of the educators were minimally familiar or unfamiliar with advanced technological tools.

A select group of educators demonstrated high techno-pedagogical skills and effectively promoted SDL. These educators not only utilized a broad range of digital tools but also actively involved learners in selecting and using these tools. This participatory approach significantly enhanced SDL and fostered higher levels of cooperation and active engagement among students. Yet, such practices were relatively rare, marking a clear disparity compared to those educators who did not involve learners directly.

Interview analysis revealed educators' complex views on the critical technological, pedagogical, and personal elements essential for effective learning with digital technologies. Technological proficiency was universally regarded as crucial for effective learning, highlighting a consensus on the necessity for strong digital skills. When asked to define SDL, 90% of educators described it as the ability to study independently, navigate and critically assess information, and effectively organize and synthesize data. Furthermore, 80% emphasized the importance of cooperative learning, suggesting that collaborative tasks significantly contribute to the successful implementation of SDL strategies.

5. Discussion

This study evaluated the techno-pedagogical capabilities of faculty members within teaching colleges, with a specific focus on promoting active learning and self-directed learning (SDL). While the primary goal of utilizing digital tools was to enhance instructional practices and foster an environment conducive to active and collaborative learning, the integration of students in the selection and use of these tools remained limited. Such limited involvement underscores the need for a deeper engagement in student-driven SDL, suggesting significant room for improvement in facilitating meaningful student participation in educational decision-making processes.

Challenges identified in this study include the instructors' relatively narrow perception of SDL, predominantly seen as the ability to independently engage with educational materials. This perspective often overlooks essential skills such as the identification and selection of appropriate learning strategies, which are crucial for fostering comprehensive SDL capabilities. This gap may contribute to the observed deficiency in incorporating students' input in selecting digital tools, which is a critical aspect of fostering an inclusive and adaptive learning environment.

The findings further indicate that the development of enhanced techno-pedagogical skills among educators correlates with more effective promotion of active and self-directed digital learning. Educators highlighted the essential role of mastering technological tools, which are integral to modern educational strategies. Therefore, ongoing support, guidance, and specialized training are crucial to develop these competencies. Moreover, to truly empower educators to advocate and implement SDL, it is vital to offer targeted training programs that not only focus on flexible teaching methods but also emphasize the importance of involving students in the decision-making process concerning their learning pathways.

This comprehensive approach would not only address the current limitations but also enhance the overall educational experience by aligning technological proficiency with pedagogical needs, thereby supporting a more dynamic and participative learning environment.

References

Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators' use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203-220.

Gureckis, T., & Markant, D. (2012). A cognitive and computational perspective on self-directed learning. *Perspectives in Psychological Science, 7*, 464-481.

Hua, M., Wang, L., & Li, J. (2024). The impact of self-directed learning experience and course experience on learning satisfaction of university students in blended learning environments: the mediating role of deep and surface learning approach. *Frontiers in Psychology*, *14*, 1278827

Hyland, N., & Kranzow, J. (2011). Faculty and student views of using digital tools to enhance self-directed learning and critical thinking. *International Journal of Self-Directed Learning, 8*(2), 11-27.

Kampylis, P., Punie, Y., & Devine, J. (2015). Promoting effective digital-age learning-A European framework for digitally-competent educational organizations (No. JRC98209). *Joint Research Centre (Seville Site)*.

Lockee, B. B. (2021). Online education in the post-COVID era. *Nature Electronics, 4*(1), 5-6.

Mercader, C., & Gairín, J. (2020). University teachers' perception of barriers to the use of digital technologies: the importance of the academic discipline. *International Journal of Educational Technology in Higher Education, 17*(1), 4.

Morris, T. H. (2019). Self-directed learning: A fundamental competence in a rapidly changing world. *International Review of Education, 65*(4), 633-653.

Morris, T. H., & Rohs, M. (2021). Digitization bolstering self-directed learning for information literate adults–A systematic review. *Computers and Education Open, 2*, 100048.

Pinto, M., & Leite, C. (2020). Digital technologies in support of students learning in Higher Education: literature review. *Digital Education Review, 37*, 343-360.

Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior, 63*, 604-612.

Wang, M., & Wegerif, R. (2019). From active-in-behaviour to active-in-thinking in learning with technology. *British Journal of Educational Technology, 50*(5), 2178-2180.