The impact of modern technology on student learning experiences in higher education.

Modern technology has brought significant changes in various fields, including higher education. The integration of technology has revolutionized the way students learn and their overall learning experiences. With the advent of modern technology, higher education institutions have witnessed a shift towards more interactive and engaging teaching methods, which have improved student engagement and academic success rates. This literature review aims to examine the impact of modern technology on student learning experiences in higher education by exploring the various technological tools and their effectiveness in enhancing student learning outcomes. It will also explore the challenges and barriers that institutions face in integrating technology and the measures that can be taken to overcome them. Ultimately, this review seeks to provide a comprehensive understanding of the impact of modern technology on student learning experiences in higher education and the implications for future research and practice.

Development of Technology in the education sector.

“It is important to note that what is often referred to as “educational technology” is not a single entity, but a diverse array of technological devices and technology-based activities and practices” (Selwyn, 2013, p. 6). This concept suggests that singular modern technologies cannot work to support education alone, they require several modern technologies working in conjunction to provide the platform and tools to support students and lecturers within the education setting.

Recently, technology within the education sector has faced an unexpected surge of progress and application. Moluayonge (2020) suggests that the education institutes, predominantly higher education, have been pressured to quickly expand the use of existing educational technologies for remote learning in response to the pandemic. Moluayonge continues to explore the types of technology accessed throughout and the accessibility or availability of the tools. Googles provisions of tools are predominantly investigated within Moluayonge’s (2020) work, google docs and classroom are stated as being easy to access and free creating a safe learning environment for students throughout the pandemic. However this is one of the many scenarios in which modern technology has been implemented within higher education. While exploring the literature surrounding the topic of this review the modern technologies studied are varied however the majority surrounds the use of the internet and social media as a platform for learning.

The positives of technology developing within education.

Using technology within education, such as learning platforms and video conferencing allows students who originally would not be able to study to have the capability to access educational services.

Technology is capable of bridging gaps within education and the workplace however for this review education is the area being investigated. Seale (2020) states that “ICT has a role to play in reducing the disadvantage that students with disabilities experience within HE.” This is featured through the use of software such as text to speech screen readers and magnification software. Many of these software packages have recently moved to an online setting such as Audio notetaker moving to Glean an online platform version of the desktop application. By moving to an online platform instead of desktop it is allowing students with a lower specification machine or those that switch between in university and remote working, access much needed technology for their education. Svetsky (2020) conveys a change in students’ ability when applying accessibility tools in the form of visual impairment software of language translation services. By applying these tools, the accessibility an of the lessons were expanded and students’ grades affected. By applying supporting modern technologies, the infrastructure of education can be improved. Unfortunately, the current literature in this area is sparse and could be seen as an important area to improve and expand research, specifically the changes accessibility technology has on students’ development and skills in higher education.

The negatives of technology developing within education.

“The continued use of technology and distance learning is detrimental to students’ skills development and range of psychological outcomes” (Lacka et al, 2021). Lacka et al, continued research into the outcomes of distance learning using learning portals while compiling results based on previous work by Henderson, Selwyn, and Aston (2017) for studies on the outcomes and consequences of digital technologies’ use in HE. The use of modern technology in higher education throughout covid could be seen as creating a reliance on technology for communication, which in turn has resulted in more screen time for students to cultivate their social needs and has the potential for physical health deterioration. This can be paired with positive mental health decline due to prolonged social media exposure creating and mental health epidemic within the education sector. However it should be determined that this cannot be held to the educational environment alone and modern technology can not be held accountable by itself for such a decline. Leontyeva et al (2018, p.3) states that within their research into modern distance learning technologies, specifically in higher education that when interviewing 541 students that around 44% stated they had concerns or issues communicating between fellow students or lecturers. This indicates that almost half of the students contacted felt that they could not receive adequate support by relying on online based communication. Furthermore Lischer, et al (2022) conveys that compared to prior terms, students within platform or remote based learning through covid, specifically winter 2020, were more sedentary, depressed and anxious. Lischer continues to explore the subject of increased smart phone usage, lower physical activity and less travelling compared to covid reports in public news. This paired with higher education lessons continuing to be supplied remotely has caused digital fatigue. Its suggested within their findings that students commented on the lack of digital competence from lecturers who themselves had

suddenly met a change in working habits due to the circumstances. In relation the auditing of modern technology usage in remote learning is varied and still after 3 years not to par with standard teaching practices.

What is next for technology in the education sector?

Arai et al (2020) explores the future of modern technology within the educational sector and how this will be used to develop students learning experiences. One area they explore is Industry 4.0, and its steps to implementing machine learning alongside student studies and ideas. They review ideals such as cognitive computing and using processes that are both machine and human. However it could be argued that this is already in place, particularly within the disability learning sector through the use of assistive technology. Although this is not through a programming perspective it could be suggested that the use of digital software or ai based software within applications such as global tasks would be breaching the human and machine application within education.

Another area within future moder technologies within education is the expanding application of artificial intelligence use. The use of artificial technology within the education setting allows the development of cognitive behaviours and problem-solving skills. According to Zhou, (2022) the application of artificial intelligence within education, specifically online learning platforms, would allow the personification of lessons and education for students. Throughout the literature research a reoccurring theme has emerged of the importance of personification within lesson creation and education. Personification is required to support students different learning needs and requirements. It enables students to feel supported and heard within the education setting while providing knowledge and information about learning needs to the lecturers and institutes. Zhou, (2020) goes on to establish that artificial intelligence can pave the way to personalised learning , data collection and analysing in conjunction with artificial intelligence can provide a higher level of learning and this has been shown in research completed.

However, an area noted that has not been researched into is the use of artificial intelligence and plagiarism. How would the use of artificial intelligence in education be controlled. Programs such as chatgp can be used to create bodies of text utilizing the internet for information teaching the bot. At what point does this become plagiarism? The continued research of this area would be required to understand the limitations and legal issues surrounding the implementation of artificial intelligence within education. Furthermore, when applying modern technology to higher education a limitation would be the cost of implementation this is particularly relevant when looking into virtual reality and the metaverse as a learning tool. Fabris et al (2019) expands on this hurdle suggesting that the systems needed to implement virtual reality cost more than institutes can afford especially when you are looking around needing a minimum of 30 units for a class. Although the use of them has shown good results in students especially in the medical field the affect virtual reality has had could be due to how new it is and the interest it sparks when being brought

into use. Continued applications could see a drop in the actual gradings students see. However, it should be noted that the improvements in manual skills and special awareness due to its use is positive and could show early signs of being a key modern technology to look for when adapting education.

Conclusion and evaluation.

The impact of modern technology on student learning experiences in higher education can be seen as a broad research topic with multiple applications and tools available to investigate. Throughout this review it was determined that the biggest modern technology in use is the internet with applications such as online learning platforms being implemented quickly after the recent pandemic. It was determined through Selwyn's (2013) work that education technologies cannot be determined as one thing and that the implementation of multiple tools and systems in conjunction is required to educate. Also, it was assessed that many educational institutes were pressured into quickly developing and implementing such learning tools and platforms due to a demand throughout the pandemic (Moluayonge, 2020).
The continued exploration of the positive and negative applications of different modern technologies in education is important in the understanding of why they are important increasingly so when disability is factored into the assessment. The implementation of assistive technologies in conjunction with remote learning has applied an accessible education system and those who previously would not be able to access higher education can now easily do so. Furthering education accessibility could be the future of modern technologies within the education sector. Tools such as artificial intelligence to personalise lessons and platforms for students could be crucial in bridging the gap between education and disability.

Throughout this literature review, the understanding impact of modern technology on student learning experiences in higher education has been based off several texts from various fields of the subject matter. It is from these that certain voids have been found in which research could be furthered. Two particular areas are, disability and how modern accessibility technologies have impacted students learning experiences. The other area is artificial intelligence and the rising use of bots in conjunction with plagiarism.

In conclusion, the impact of modern technology on student learning experiences in higher education is a complicated topic which without set auditing within the educational setting, experiences can vary based on which technologies have been accessed and how much social interaction and communication is done throughout the lessons. Many students throughout texts explored have suggested the return of in class lessons although many if not all have also praised the use of modern technologies within the classroom. Further research within the field would be required to understand the complete impact of modern technologies but overall mental health aside, the use of certain technologies has a positive impact especially when implemented to bridge the gap between disability and education.

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