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The Impact of Digital Learning Technology on Higher Education Students' Mental Health

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Introduction to chapter

Digital Learning Technology has transformed the landscape of higher education from myriad perspectives, students and practitioners to the institutions and management in which they all claim a stake. From the early days of computers being used for administrative purposes to the current era of virtual classrooms and online learning, digital technology has revolutionised the way students access and engage with education. However, the impact of digital technology on Higher Education (HE) student mental health and well-being has received relatively less attention, compared to engagement levels amongst learners (Bond et al. 2020). The aims of this chapter are to examine the origins of digital technology in higher education, its present state, and the impact of the COVID-19 pandemic on the use of digital technology in higher education with a focus on its impact on student mental health and wellbeing. Ultimately, it aims to provide recommendations on how higher educational institutions could utilise digital technology to mitigate the negative impacts on students' mental health and wellbeing.

Conceptualising Mental Health

The term "mental health" has been widely debated. According to Cattan and Tilford (2006) mental health has been utilised as a euphemism for 'mental illness'. Dogra and Leighton (2009) argued that the two terms are inextricably interrelated as one will inevitably affect the other. Generally, other researchers linked mental health with Maslow's self-realisation, culture, and common sense (Jahoda, 1958; Murphy, 1978; Vaillant, 2012). The World Health Organisation (WHO) (2004) highlighted that mental, physical and social functioning are symbiotic. However, Rowling et al. (2002) indicated that mental health is when people and groups are able to interconnect with one another and the environment in ways that encourage individual wellbeing, optimum development and use of cognitive, emotional, and interpersonal abilities. Whilst Manwell et al. (2015) described it as "the absence of mental disease or a state of being that also includes the biological, psychological or social factors which contribute to an individual's mental state and ability to function within the environment". The World Health Organisation (2022) defined mental health as a "state of mental well-being that enables people to cope with the

stresses of life, realise their abilities, learn well and work well, and contribute to their community". Other researchers however argued that the definition provided by WHO is debatable as mental well-being is challenging to conciliate with various difficult life settings in which well-being may even be unhealthy (Galderisi et al., 2015). To thoroughly explore the impact of digital technology on higher education students' mental health, this chapter adopts WHO (2022)'s definition of mental health. However, to further explore the concept this chapter acknowledges that mental health is a "dynamic state of internal equilibrium which enables individuals to use their abilities in harmony with universal values of society" as emphasised by Galderisi et al. (2015). Hence, it is important to note that mental health should not only be conceptualised by positive influences as this may exclude other age groups, other ethnic groups and people who are in different life situations.

Digital Learning Technology

The development of digital technology within higher education can be traced back to the 1960s, when universities began to experiment with computer-based education. One of the first examples of this was the PLATO system developed at the University of Illinois, which provided students with interactive computer-based lessons (Selwyn, 2016). The development of the internet and the World Wide Web in the 1990s led to the widespread adoption of digital technology in higher education, with universities using web-based platforms to deliver online courses and to facilitate communication between students and teachers (Bates, 2019).

With the rapid growth of digital technology in higher education over the past decade, the number of students enrolled in online courses has increased significantly. According to a report by the Babson Survey Research Group (Allen & Seaman, 2017), the number of students enrolled in at least one online course has increased by over 5 million since 2012. This number is significant and therefore is apparent that a multitude of factors can be considered as to how this has become the case:

·   **Accessibility**: Online courses have made higher education more accessible to people who may not have been able to attend traditional, on-campus courses due to geographical location, work commitments, or family responsibilities. This has allowed more people to pursue higher education and improve their career prospects.

·   **Flexibility:** Online courses offer greater flexibility in terms of scheduling and pacing, which allows students to balance their studies with other commitments. This can be

particularly important for non-traditional students, such as working adults or those with family responsibilities.

- **Cost:** Online courses are often less expensive than traditional, on-campus courses, which can make higher education more affordable for students. This is especially important as the cost of higher education has risen significantly in recent years.

- **Innovation:** The growth of digital technology in higher education has led to new and innovative ways of teaching and learning. Online courses often incorporate multimedia elements such as videos, interactive simulations, and online discussions, which can enhance the learning experience for students.

Overall, the significant increase in the number of students enrolled in online courses represents a major shift in the way that higher education is delivered and accessed, with significant implications for accessibility, flexibility, cost, and innovation. (Allen & Seaman, 2017; Hodges et al., 2020; Seaman et al., 2018).

Influences of mental health in higher education students

Factors impacting mental health.

The understanding and interest of mental health has improved with policies supporting mental health being developed and implemented by various countries and territories. However, WHO (2022) contended that progress has been slow, and counties are still reluctant to tackle issues of mental health. The same report indicated that mental health systems and services remain ill-equipped to meet people's mental health needs. Therefore, it is imperative to recognise the factors that impact on one's mental health as this provides an opportunity to have a better understanding of the concept. This will also prompt effective support to be provided to individuals. Numerous factors can impact mental health and these factors vary from individual to individual. These factors can also adapt during one's lifetime for example childhood, teenage years, young or older adults.

The factors impacting on mental health can be categorised as psychological factors such as poor self-esteem; biological factors such as genetics; social factors such as poverty and unemployment; and childhood events such as emotional neglect (WHO, 2022). Some of the triggers include abuse, discrimination, and grief which can all lead to feelings of isolation, worthlessness, and hopelessness. The environment, experiences, family, and upbringing affect

mental health. Social and financial circumstances, negative childhood experiences, and underlying medical conditions can all shape a person's mental health (Behzadifar et al., 2015; National Institute of Mental Health, 2020). This indicates that mental health is a complex subject with numerous contributing risk factors.

Risks of experiencing mental health conditions can be evident at any stage of one's life, however, risks at childhood development stage are more damaging. These include abuse and bullying. Factors such as neglect and conflict have a negative impact on future social behaviour, educational results, and employment status (Marmot et al., 2012). Therefore, children who are subjected to neglect, direct physical and psychological abuse are more likely affected. Furthermore, changes between childhood and adolescence can be stressful due to the changes in the social environment. This has an impact on adolescence's mental health. Adolescence can be dependent on their peers' opinions to make decisions and have a heightened need to belong. Social isolation and loneliness can intensify mental health problems that can lead to a lack of motivation and engagement in academic activities. This aversion to social exclusion might lead students to make harmful decisions to avoid social rejection (Blakemore, 2018). The increased sensitivity to the threat of social rejection might lead to some mental health problems such as depression. This will eventually impact a student's ability to maintain social relationships, which is essential for emotional support and academic achievement. The age at which many mental disorders are evident is between 18 and 24, which directly overlaps with the average age of students in higher education (Kessler et al., 2005).

The number of students in higher education being treated with psychological disorders such as depression and anxiety is increasing in severity (Kruisselbrink Flatt, 2013). Stress and anxiety are regarded as part of student life because of various personal, family, and circumstantial expectations that affect students. Depression and anxiety can also affect students' ability to concentrate, retain information, and complete assignments. Consequently, this can result in lower grades, and academic probation. As much as stress is unavoidable among all students due to their academic workloads, adolescents are more susceptible to academic stress because of personal and social changes (Reddy et al., 2018). This makes it imperative to provide emotional support to students struggling with mental health issues.

Although the subject of mental health of university students has been well documented, the number of students withdrawing from university due to mental health issues has more than tripled (Bolton and Hubble, 2020; Universities UK, 2018). Factors such as lack of social support,

financial troubles, and learning environment influenced mental health problems among higher education students (Mutalib et al., 2021). However, Pereira (2020) established that anxiety and depression were generally the most diagnosed conditions in university. Some studies concluded that financial concerns in students from a poor background have contributed to mental health problems (Benson-Egglenton, 2019; Jessop et al., 2005). Fear of academic failure, education system and long lectures are some of the factors that have contributed to the increase in student stress levels. Consequently, these can impact on students' academic performance (Britton and Tesser, 1991). Grasping the factors that influence students' mental health provides higher education institutions with the potential to identify strategies that promote the students' abilities to cope with the challenges of higher education.

The COVID-19 pandemic is another factor which had a significant impact on mental health across society, with higher education students being extremely affected. The number of students who dropped out of university considerably increased across the world, and this had a negative impact on their education, in particular, their academic achievement. Although, prior to COVID 19 pandemic, the levels of mental health issues in students were on the upward trend, the pandemic intensified the stress, constructing an ideal environment for a mental health crisis. Mental health of more than half of UK students became worse than before the pandemic (National Union of Students (NUS), 2020).

Covid-19 and Higher Education

The impact of Covid-19 on higher education has been discussed extensively by media and other outlets globally, with universities forced to move their courses online in response to the pandemic, and with many institutions having to quickly transition from in-person to online learning. This has highlighted the importance of digital technology in higher education and has accelerated the adoption of online learning platforms (Croucher & Mather, 2020). According to a report by the Babson Survey Group, the proportion of US higher education institutions that offer online programs has increased from 52% in 2018 to 56% in 2020 (Allen & Seaman, 2020). Whilst a survey by Inside Higher Ed found that 91% of college and university students in the US were taking at least one online course during the pandemic. (Inside Higher Ed, 2020). This transition has highlighted the importance of digital technology in higher education and has led to increased investment in digital infrastructure and training for faculty and staff.

One major facilitator in the move to online has been the increased use of video conferencing platforms like Zoom and Microsoft Teams for remote teaching and learning. A survey of higher education institutions by Educause found that the use of video conferencing platforms increased from 46% in 2019 to 96% in 2020 (Educause, 2021). These platforms have allowed for synchronous online learning experiences and have enabled instructors to maintain a sense of community and connection with their students (Hewitt & Brett, 2020). Naturally, this has led to increased use of Learning Management Systems (LMS) and other digital tools for online course delivery, such as virtual labs and simulations, which have helped to create more engaging and interactive online learning experiences (Lieberman et al., 2021).

However, the rapid transition to remote learning has also highlighted issues of equity and access. Not all students have equal access to digital technology, and some may struggle with the technological demands of remote learning. The pandemic has highlighted the need for institutions to address these issues and provide support for students who may be experiencing digital inequalities (Jaschik, 2020). It is also worth noting that they may not fully capture the scope of the impact, as the situation is still evolving, and data collection may not be comprehensive. The pandemic has also highlighted the importance of supporting students' mental health and wellbeing in the context of online learning (Poulter, 2020).

How digital technology impacts on mental health of students in higher education

Millions of people across the world had different viewpoints and experiences on how they were impacted by the COVID-19 pandemic. These experiences varied from positive aspects with reference to spending time with the families to serious negative manifestations of isolation, sickness, and boredom, resulting in mental health issues. As such digital technology has been considered to come for the rescue of the students to somehow continue their engagement, retention, progression, and achievement during the pandemic and post-pandemic times through online and blended modes. There have been mixed reactions to this mode of content access and sharing through a digital device and its impacts upon mental health. Boden et al. (2021) are of the opinion that severe distress was caused by the difficulties of adjusting to remote education in a very short span of time, followed by anxiety and depression by the overinflated use of digital media and difficulties with online learning/working during the pandemic (Aboujaoude & Gega, 2020). Further, as the pandemic had shifted much of life online, some negative effects on mental health including suicidality are likely to have been mediated by technology-specific factors even though it is further to be explored as to how heavy online

coverage of pandemic-related suicides may have spurred further suicidal behaviour amongst the students. Also, the digital divide seems to have contributed to negative mental health issues because many of the high-risk digitally disadvantaged groups were less likely to benefit from the technology via remote work, recreation, social connection, and access to health services (Khilnani, Schulz, & Robinson, 2020)

With reference to the positive impact of digital technology upon mental health during the pandemic has been about getting an opportunity to engage in enjoyable, purposeful, and rewarding activities, and increasing social connectedness. Further, digital media has offered a sustainable solution to the chronic problem of limited access to mental health care, by helping services overcome geographical barriers and make the most out of the available workforce through remote consultations and supported self-management. But the disruption brought by the pandemic meant that many students and universities would have not considered using technology otherwise had an opportunity to try it, often with encouraging results, even if the benefit was not evenly distributed across social and socioeconomic groups due to differences in digital access and skills. One of the encouraging facts is that the trend continues even after the pandemic is over in the form of blended teaching and learning which is becoming an integral part of various HEIs across the sector to enhance student's overall experience.

A Supportive Tool for Learners

The disruption to in-person learning and social interaction has led to feelings of isolation and disconnection for many students, which can have negative impacts on mental health and wellbeing such as contributing to feelings of isolation, distraction, and technological overload (Kshetri & Voas, 2020) . However, Digital technology has played a role in mitigating some of these negative effects by providing opportunities for online social interaction and mental health support services (Lebiedowska & Olszewska-Guizzo, 2020).

A systematic review by the Journal of Medical Internet Research found that digital mental health interventions can be effective in improving mental health outcomes in college students. However, the authors note that more research is needed to determine the most effective types of interventions and how to best implement them (Fleming et al., 2019). A survey of college students by the National Alliance on Mental Illness found that 72% of respondents reported experiencing mental health symptoms that impacted their academic performance, and 80% felt that COVID-19 had negatively impacted their mental health. The survey also found that

technology-based resources, such as online counselling and mental health apps, were among the most helpful resources for students(National Alliance on Mental Illness, 2020). Additionally, the Journal of Medical Internet Research found that the use of a mindfulness meditation app was associated with reduced symptoms of anxiety and depression in college students. The authors suggest that digital technology can be a useful tool for promoting mental health and well-being in this population (Perez-Edgar et al., 2020).

There is clear data showing the efficacy of digital technology used by learners in promoting mental health and wellbeing among students in higher education (Kshetri & Voas, 2020). Access to mental health resources and support, an increased flexibility in scheduling and studying, and opportunities for social connection online and collaboration are part of this. The potential to support student wellbeing by providing access to resources, increasing communication and social support, and improving engagement and motivation should therefore be at the heart of all endeavours in this field. One example of how this can be achieved is to provide access to online mental health services. These services can provide students with access to mental health support and resources regardless of their location, which can be particularly important for students who may not have easy access to traditional mental health services (Poulter, 2020). Another example is online mindfulness and relaxation resources, which have been found to be effective in reducing stress and promoting wellbeing among students while studying online (Elliott & Drummond, 2017).

However, there is a fine balance to strike, and it is worth considering the negative effects of over exposure, or prolonged use and dependency of being online only, such as in the case of excessive use of social media or other digital platforms than can lead to feelings of anxiety, depression, and social isolation (O'Brien & Gierdowski, 2018). While there is still much to be learned about the impact of digital technology on student mental health in higher education, these studies suggest that the use of it can be both helpful and harmful, and that careful consideration is needed to ensure that it is used in a way that promotes positive outcomes. The effectiveness of such technologies depends upon the specific use and how it is implemented in such a setting.

Support provided by higher education institutions with regards mental health

As discussed earlier in the chapter, there are many contributing factors affecting student's mental health in higher education institutions which have multiple implications over their learning

retention, progression, and achievements. However, unfortunately this area has not been much explored and remains poorly understood especially given the evidence of a high and increasing prevalence of mental health problems among youth which could be further supported by World Health Organisation statistics (2020) that globally, about 20% of adolescents suffer from mental health problems. Furthermore, the students in the higher education institutions have been identified as a high-risk population due to the stress associated with their educational transitions and HE studies (Barden et al., 2019). The existing documented research clearly outlines the adverse impacts of mental health problems on students' capability and motivation to learn (Bowman et al., 2020).

It goes without saying that a comprehensive policy framework that enables successful intervention through early identification and remediation of mental health problems among young people can go a long way to help ease out the situation if not totally eliminate it. Even though there is always a scope for further improvement, the higher educational institutions in the UK have clearly identified mental health as a serious issue and taken steps to resolve it. Some of them include campaigns aimed at raising awareness among the students, parents, and educators, and increasing the availability of on-demand mental health screening services for students moving to the university environment. As part of the comprehensive policy framework that enables successful intervention, the universities allow the students to take time off until they feel "ready, mental health wise" to successfully complete their qualification with a positive learning experience. Further, the students experiencing mental health issues are offered enhanced HE support in terms of free mental health counselling or dedicated tutoring sessions and provided viable alternatives to access extended periods of mental health leave or giving mental health problems greater consideration as extenuating circumstances for academic participation and performance. Moreover, the focus of various equity and diversity programmes in the sectors is to ensure student access and success (Bennett et al, 2015). Some of the professional groups supporting mental health and wellbeing in the UK HEIs are:

• British Association of Counselling and Psychotherapy

• Equality Challenge Unit

• Heads of University Counselling Services

• Higher Education Academy

• Mental Wellbeing in Higher Education Working Group

• National Association of Disability Practitioners

• National Union of Students

• Student Health Association

• University Mental Health Advisers Network

Source: https://www.m25lib.ac.uk/wp-content/uploads/2021/02/student-mental-wellbeing-in-he

Some student's led initiatives at UK HEI's are.

Nightline- which offers peer support and information for students out of hours at many institutions across the UK.

Students Against Depression- a web-based resource with student-contributed case studies, blogs, and clinically validated self-help information

Student Minds- an organisation that carries out research and advocacy for students nationally and supports a network of student–led societies at universities across the UK.

Mental Wealth UK- a non-profit organisation founded by students to promote positive wellbeing on campuses and beyond. It serves as a hub for campus 'mental wealth' initiatives that work in partnership with staff and wider stakeholders. In 2014, Mental Wealth UK merged with Student Minds.

The Alliance for Student-Led Wellbeing- an umbrella group for student-led organisations that aims to raise awareness, reduce the stigma of mental ill health, and provide practical help and emotional support to university and college students

Additionally, the University of Central Lancashire initiatives in the last two decades towards 'healthy settings' has stimulated similar developments and interest in other institutions across the sector in UK. They advocated promoting health and wellbeing through the pioneering research and implementation of various interrelated factors (social, academic, economic and environmental) which can affect mental health and recommended strategies to improve the mental wellbeing of everyone in the universities' environment.

Higher Education's Practical Role and Engagement

Colleges and universities can use digital technologies to increase access to mental health resources for students, such as online counselling services, mental health apps, and virtual support groups. This can help students to receive the care they need while also reducing the stigma associated with seeking help in person (National Institute of Mental Health, 2021).

There are some practicable steps suggested:

- **Encourage healthy social media use:** Social media can have a negative impact on mental health, but it can also be used in positive ways to connect with others and provide social support. Colleges and universities can educate students on healthy social media use and provide resources for positive online interactions (Woods & Scott, 2016).
- **Promote digital mindfulness practices:** Digital mindfulness practices, such as using mindfulness meditation apps, have been found to be effective in reducing symptoms of anxiety and depression in college students. Colleges and universities can promote the use of these practices among students and provide resources for learning and practising mindfulness. (Perez-Edgar et al., 2020)
- **Use technology to increase flexibility:** Digital technologies can provide increased flexibility in scheduling and studying, which can reduce stress and support better mental health outcomes. Colleges and universities can use technologies such as online learning platforms and video conferencing to provide students with greater flexibility in their coursework (Schaffhauser, 2020).

The focal point of any HE establishment is increasing and improving student engagement with the learning content. Learning technologies that strike a chord within learners is where digital technology can improve student engagement by providing interactive and personalised learning experiences that promote active learning and collaboration. Some examples of digital technology that have been found to improve student engagement include:

- **Learning Management Systems (LMS):** LMS platforms like Blackboard, Canvas, and Moodle provide students with access to course materials, discussions, and assignments in one centralised location. LMS platforms also offer tools for online quizzes, tests, and surveys that can provide instant feedback to students and instructors.
- **Gamification:** Gamification involves incorporating game-like elements into learning activities to motivate and engage students. Gamification techniques can include points systems, leaderboards, and badges, and have been found to improve student engagement and motivation (Hamari et al., 2014).
- **Video-based learning:** Video-based learning platforms like YouTube and TED Talks provide students with access to a wide range of educational content. These platforms can be used to supplement traditional lectures and offer a more engaging and interactive learning experience.
- **Increasing interaction:** Digital tools can facilitate communication between students, teachers, and peers, increasing interaction and collaboration. This can include discussion forums, videoconferencing, and collaborative projects.
- **Promoting active learning:** Digital tools can create active learning environments that engage students with interactive content such as simulations, quizzes, and games.
- **Providing personalised learning experiences:** Digital technology can tailor learning to individual students' needs and interests, increasing motivation and engagement. This can include adaptive learning systems and personalised feedback.

(Bower, M., 2017; Dunlosky et al., 2013; Hsu et., 2015)

Conclusion

The topic of mental health has been widely debated with various academics and researchers exploring its impact on higher education students. Nonetheless, the number of students struggling with mental health problems continues to increase. The COVID-19 pandemic further exacerbated the mental health crisis because higher education institutions had to quickly transition from in-person to online learning. More focus was placed on delivering learning than on the issue of mental health. Thus, the number of students withdrawing from university due to mental health issues has more than tripled and more than half of UK students became worse than before the pandemic. The disruption to in-person learning and social interaction led to feelings of disconnection for many students. However, digital technology has played a role in mitigating some of these negative effects by providing opportunities for online social interaction and mental health support services. This chapter therefore provided some suggestions on how higher education institutions can utilise digital technology to improve student engagement through interactive and personalised learning experiences that promote active learning and collaboration. It also concludes that it is fundamental for educators to choose the appropriate technology and use it effectively to enhance the learning experience.

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