

Employees Digital Experience and Mental Health During Covid-19 in Higher Education in the UK: Understanding the Aftermath

Sarwar Khawaja

Chairman Business Development
Oxford Business College (OBC)
Oxford, UK

Sarwar.Khawaja@oxfordbusinesscollege.ac.uk

Dr Ruqaiya Javed

Research Associate
Oxford Business College (OBC)
Oxford, UK

Ruqaiya.javed@oxfordbusinesscollege.ac.uk

Dr Fayyaz Hussain Qureshi

Head of Research
Oxford Business College (OBC)
Oxford, UK
Fayyaz.qureshi@oxfordbusinesscollege.ac.uk
Postgraduate Research (Doctoral) Supervisor
University of Wales Trinity Saint David (UWTSD)
London, UK

orcid.org/0000-0003-1305-9493

Abstract— This theoretical study concentrated on comprehending the issues faced by UK employees in higher education becoming accustomed to and familiar with the digital world during the COVID-19 pandemic, along with its repercussions. Additionally, we aimed to explore the difficulties encountered throughout the pandemic and post-pandemic eras, emphasising on distant working, technology readiness and digital competency, and mental health of UK academic and non-academic personnel. The review's objectives are to identify knowledge gaps and provide viable tactics for improving academic technology preparedness. We came to the conclusion that organisations could monitor employee activity more readily and more effectively with the use of digital technology. Additionally, when implemented properly, collaboration and communication tools at workplace can dramatically boost productivity. Furthermore, understanding the barriers to digital inclusion will also make it easier to create equal educational experiences for everyone. The most efficient ways to integrate technology into education and other organisations can be determined by looking into how effectively these improvements' function. By assessing the impact of digital online experiences on employee well-being, institutions would be guided in implementing ways to counteract burnout and anxiety.

Keywords- Employees Digital Experience, Mental Health, COVID-19, Higher Education

I. INTRODUCTION

The COVID-19 pandemic's advent and unparalleled global spread have posed substantial problems to daily life routines [65, 46] and have profoundly affected various sectors of society worldwide, and higher education institutions have not been an exception [68]. It has undoubtedly created a complex and challenging environment for human resource management (HRM) professionals, educators and other employees who needed to come up with creative solutions to keep their work/business running and assist their staff in coping with the difficulties of the alarming situation [38]. The transition from traditional working to online working was a big challenge but

the only option during the situation's gravity because of the COVID-19 outbreak followed by lockdowns in many countries [44]. There was evidence in COVID-19 studies that the sudden shift to online working triggered many challenges, such as disruptions to work, socio-economic difficulties (job loss), mental health (stress, anxiety, and feelings of isolation), and well-being during the pandemic [68, 91, 46, 44]. Many employees witnessed a significant variation in their digital work environment and overall digital experience during the COVID-19 pandemic [14, 43].

Many businesses quickly shifted to remote work arrangements, relying mainly on digital tools and technology to continue corporate operations and collaboration in the face

of widespread lockdowns and limitations on physical meetings [7]. Employees had to get used to various digital platforms for communication and virtual meetings. Due to this unexpected change, they had to pick up new digital skills and figure out how to overcome obstacles in technology, connectivity, and work-life balance [37].

Within higher education, remote working was the online solution to keep the flow of learning and teaching [75]. However, the challenges were typical, such as technological challenges (institutional ICT resources and capacity), individual challenges (know-how of technology), and learning and teaching challenges (student engagement and collaborative work [44].

During and after the pandemic, a few significant aspects of the digital experience were observed, such as remote employees encountering difficulties setting up an appropriate home workplace, controlling potential distractions, and maintaining the separation of work and personal life [33]. Apart from that, digital communication channels, such as email, instant messaging, and video conferencing tools like Zoom and Microsoft Teams, have become the primary means of communication with coworkers, managers, and supervisors, as well as virtual collaboration [68]. In order to coordinate tasks and projects remotely, employees had to familiarize themselves with collaboration technologies like Google Workspace (formerly G Suite), Microsoft Office 365, and project management platforms like Trello or Asana etc.

The closing of educational institutions as a result of COVID-19 has reportedly had an impact on almost 1.6 billion pupils worldwide [81]. Additionally, 80-85% of the student population in high-income countries has reportedly switched to online learning, compared to fewer than 50% in low-income nations [26]. The prevalence of online learning in higher education has heightened the need to talk about the difficulties that come with it for both students and teachers, as well as the corresponding capabilities. Comparatively to their counterparts in face-to-face settings, it has been suggested that students who take online courses are less likely to engage in collaborative learning activities, group discussions, and contact with instructors [30]. A growing collection of information examines the benefits and drawbacks of online learning [25, 30, 62].

The ongoing and rapid expansion of Information and Communication Technology (ICT) has significantly impacted the academic discourse and routine research, scholarship, and teaching practices. As a result, using modern online tools and their ongoing evaluation has also become crucial to meeting evolving student needs, especially in their online educational environments [55].

While many crucial digital resources used by the educational community are managed by higher education, the presence and effort of other non-teaching professionals are required to guarantee that the online educational community can advance their work without obstacles. These include, among others, the Support Technicians (ST), the Class Support Technicians (CST), and the Teaching Organisation Technicians (TOT). They all ensure that the educational community can grow in a

typical setting. To ensure flawless performance, these individuals work at designated work locations, offices with set schedules, and shifts that cover a broader period. However, teachers and other staff were prohibited from attending these centres in situations like COVID-19. They were required to conduct their telework from home. When it comes to pedagogy, teachers must be equipped with the technical tools that provide remote access to their regular work, with the deployment of systems that are required in a specific amount of time [60]. According to past research, the pandemic's particular environment affected teaching and learning processes more than usual [48]. Changes are typically voluntary and planned, according to prior research [35,40,48] on online teaching and learning; however, emergency changes, like the one caused by the COVID-19 outbreak, have relatively less literature. Many educators repent the pandemic's missed years and its regrettable impacts on young people's social development [50].

The effects of the swift switch to digital and online learning during the COVID-19 phase, which had significant repercussions for academic personnel in the UK, may have several reasons. For instance, the pandemic forced teachers to adopt various digital platforms and technologies for instruction, such as online learning environments, video conferencing, and assessment systems (as mentioned previously). Secondly, concerns about digital access and diversity arose due to the change to online learning since students and staff had trouble accessing dependable internet and the right technology. Plausibly, the abrupt transition to online learning and remote employment has increased academic staff members' workload and stress levels. An organisation may assist management in using information systems and offer specialised coaching to users with various levels of technological proficiency [57]. One of the primary tools that workers utilize to get out of difficult situations and boost new learning is from their coworkers. In everyday chores, cooperation and communication with colleagues are crucial. This cooperation and communication become crucial regarding training provided in corporate situations [59,89]. Past research found that employees' perceptions of their coworkers' support may help them adjust to new situations and reduce stress when faced with challenging tasks [41].

The major challenge was creating an online learning environment that would produce the same beneficial results as a traditional classroom setting [72,68]. It is, therefore, crucial to comprehend how COVID-19 has affected academic and non-academic staff members and their use of digital technology online in order to evaluate the potential problems posed by this transition. This study looks into how the pandemic affected academic staff's experience with digital technology in the UK, highlighting both its advantages and disadvantages. It also identifies ways to improve the digital education standard and support staff's wellbeing in the post-pandemic era.

Research Questions

1. How has employees' digital experience in higher education institutions in the UK been impacted during the COVID-19 pandemic?

2. What were the key factors influencing digital experience?
3. What challenges and opportunities did employees in higher education face in adapting to remote work and digital tools during the COVID-19 lockdowns, and how did these factors affect their overall wellbeing and mental health?
4. What lessons can be drawn from the experiences of employees in higher education during the COVID-19 pandemic to inform future policies and practices aimed at enhancing digital experiences and wellbeing?

II. LITERATURE REVIEW

Remote Working/Work From Home (WFH)

During the recent pandemic, employees in the UK's higher education sector noticed a dramatic change in their digital work environment. Institutions quickly shifted to remote and online teaching, administrative operations, and student support services when physical campuses were closed, and social distance regulations had to be met [68]. One big challenge for scholars is that the literature on distant working is often somewhat dispersed, particularly in the digital economy [29].

New workplace models have emerged as a result of technology and digital transformation. However, the physical office will never totally disappear because of the benefits of coworkers being together in one location [27]. Numerous studies have examined the benefits of remote work (such as increased productivity, knowledge sharing, creativity, employee retention, employee well-being, flexibility, and job satisfaction) for both individuals and organisations as well as the factors that contribute to its successful implementation [6,8,29,32,56].

Ref. [18] suggested that people working from home must develop new computerised office skills and virtual workplace communication abilities. Additionally, unforeseen virtual work sessions might occur. Besides, keeping office information secure while working from home is important to avoid data leaks. This highlights the necessity of adjusting to the new work environment and enhancing and strengthening employees' abilities to work remotely. Apart from this, since there is no face-to-face interaction when working from home, resolving issues swiftly through online virtual contact at work might be challenging. The use of online networks for problem solving increases psychological stress and anxiety. The effects on people's mental health are likewise very detrimental [18].

Another significant contribution was made in the area of employees' digitalization during COVID-19 pandemic. The researchers used a mixed-method sequential exploratory design on focused groups [14]. They found that 50% of employees experience negative and significant economic-financial effects as a result of additional costs related to digital technologies and platforms (such as a personal computer, internet connection, and licenses for instant messaging platforms and cloud storage space), utilities, non-payment of overtime, and meal vouchers that are greater than their savings in commuting costs and out-of-pocket expenses. Additionally, the results highlighted the importance of psychological-

behavioural factors like job satisfaction and technological stress in helping people decide whether to work remotely once the COVID-19 limitations have been lifted [14].

According to several studies, working remotely increases job satisfaction because it allows for more scheduling flexibility, fosters cooperation, and promotes knowledge sharing [17,22,84]. However, people with anxiety may feel overwhelmed, distressed and/or anxious as a result of application multitasking, constant connectivity, information overload, frequent system upgrades, etc.; constant relearning and the uncertainties caused in their jobs; and technical issues related to organisational use of digital technologies and platforms is very distressing for employees and is called as 'technostress' [58,78]. A similar theoretical framework called TAM (Technology Acceptance Model) assumes that new technologies' perceived utility and simplicity of use increase work productivity and efficiency, raising job satisfaction [14,24]. Employees are likely to utilise information technologies ICT (such as digital platforms, technical services, software, etc.) more frequently if they believe they are simple to comprehend and beneficial to use [14].

According to another past research, working alone and not having enough social support can cause feelings of loneliness as well as stress. Some people experience more stress during a pandemic because they cannot express their worries to others (18,49,70). Also, employees with WFH frequently struggled to balance caring for their families and their careers. One of the leading causes of the imbalance between work and family is that telecommuters put in longer hours than those who work in traditional workplaces. They have unrestricted access to Internet workplaces since their working style is flexible [76].

Several demographic characteristics influence the utilisation of digital skills and remote work. It has been shown that although males are more willing to pay for positions with better salary growth, female employees are more willing to pay for jobs with greater job flexibility and job security [88]. When it comes to flexible working, which in turn involves using technology for work, age also plays a significant role. Research has shown that young people are prepared to shift occupations as they gain from having a direct link to their life and family members. Younger generations enjoy using technology to collaborate in teams due to their digital attitude and background [13]. On the other hand, older workers prefer to stress the downsides of remote working, such as lack of connections with colleagues and managers, problematic work-life balance, and insufficient technological competence [34].

A statistic from UNISON [82] survey revealed that those who had not relished working from home cited isolation as the cause (31%), a quarter (26%) the effect on their work/life balance, 18% technological difficulties, and 11% a lack of support. Besides this, 15% of respondents said they did not enjoy working from home at all and would prefer not to do so in the future, 12% said they managed okay but were looking forward to returning to the office, and 25% said they struggled with homeworking and would prefer a mix of home and office work moving forward.

Amid the COVID-19 upsurge, workplaces unexpectedly shifted to become the hub of economic activity. As a result, technology advancements have made it feasible for individuals

to WFH, impacting how people, particularly employees, think and act. The flexibility provided by the WFH model meets the needs of many employees [18]. Productivity can be increased because there are fewer breaks, fewer distractions, and no interactions with coworkers when working from home [36]. However, some individuals overlook their home's role as a place to live and utilize it as a cheap emergency workspace (COVID-19, for example).

Consequently, employees thus have related difficulties and issues such as the need for WFH that causes an alarming rate of digitalization of human employment [71]. Employees must be able to work and interact online, which calls for specialized skills like modern office practises and effective online communication. However, some industries, including low-skilled services, cannot adopt this paradigm. The model's viability can also be impacted by network connectivity and the appropriateness of online tasks [18].

It has been reported that only 33% of employees who had been working from home reported extra training or learning during lockdown to improve their skills, which is less than the national figure of 43%, according to the Institute for Employment Studies report "Working from Home under COVID-19 lockdown: Transitions and Tensions - January 2021."

Technological Readiness and Digital Skills

Early in 2020, educational institutions worldwide, including those in the UK, rapidly switched to remote teaching and learning. The emphasis on technology preparedness and digital abilities among academic staff resulted from this change [16]. Online learning has emerged as a significant alternative to closing educational institutions during this time, attracting the attention of governments and research scholars. Because of the online learning environment created by the COVID-19 phase, the researchers have referred to it as Emergency Remote Teaching (ERT), a temporary change in how education is delivered due to emergency situations. It entails using remote teaching solutions for instruction or education that would typically be offered in person, through blended learning, or as hybrid courses, and that will switch back to that format once the crisis or emergency has passed [39]. In a global survey by the International Association of Universities (IAU), participants claimed that COVID-19 has impacted teaching and learning, and almost two-thirds of institutions have switched to ERT [51].

Employee technology readiness is defined as their propensity to accept and adopt new technologies to further their personal and professional goals [63]. Employees' propensity to adjust to new work situations varies depending on the underlying mechanism, such as personalities. Proactive employees are highly engaged and driven to learn new material, improve their knowledge and abilities, develop new work procedures, and establish productive work environments. They can, therefore, adjust to the new employment structure since they take the initiative to create a more acceptable atmosphere to suit the new requirements [1,45]. According to earlier research, people who have a favourable attitude towards using technology are better able to pick up new technical abilities.

Because of this, technological readiness can motivate employees to accept new technology and influence their behaviour to do so, which will improve their work performance [3,42,50]. Another factor pointed out for digital readiness is adaptability. Research has shown that employees with adaptation skills can withstand pressure and handle crises. They can also solve problems imaginatively, manage volatile situations, learn rapidly, and display an adaptable culture. Therefore, it is vital to comprehend how to improve employees' adaptable performance, mainly through methods like learning new technologies related to their job structure with digitalization [64].

UNESCO defines *digital skills* as accessing and managing information using digital tools, communication programmes, and networks. They allow us to interact instantly and worldwide, communicate, and create content. Although they can be data and IT-focused, it is crucial to remember that these talents span a wide range and include fundamental abilities like problem-solving and communication [2].

According to the UK Employer Skills Survey (2017), the lack of digital skills among workers was reported to account for slightly over a third of all skill gaps (35%) overall. This comprises both fundamental computer literacy and IT proficiency (25%) as well as more specialised or advanced IT proficiency (19%); also, in organisations in the Public Administration (50%) and Education (42%) sectors, a very high percentage of skill gaps can be at least partially attributable to a lack of digital skill competency [87].

A variety of initiatives have been put in place recently to boost digital literacy in the UK. A new computing course for the national curriculum was introduced in September 2014. The UK Digital Strategy 2017, released by the government in March 2017, stated that 90 percent of all employment "will require some element of digital skills" during the next 20 years. The Strategy comprised actions to lessen digital exclusion and enhance fundamental digital abilities ([86]. 'Go ON UK' developed the Basic Digital Skills Framework (2015) and identified five key areas of digital competence explaining the implications of the categories for both people and enterprises, as well as for online safety. This included managing information, communicating, transacting, problem solving and creating [86].

According to the European Digital Abilities Survey, 15% of organizations have a workforce with digital skill gaps, meaning that some of their employees are incapable of doing jobs that need digital abilities. Higher-skilled (managers, technicians) and medium-skilled (clerical workers, sales workers) occupations are found to have more significant digital skills gaps. Besides people in primary jobs, there are digital skills gaps identified in lower-skilled occupations as well. According to the survey's analysis of the industrial sectors, businesses in the manufacturing or construction industries are more likely to report digital skill gaps [23]. It is equally important to evaluate academicians' and lecturers' digital literacy as well. Again, it is vital to avoid generalizations, but there is evidence that their abilities fall short of what is needed for a digitalized offering [90].

According to the CIPD (Chartered Institute of Personnel and Development) report, employers, vocational service providers,

and higher education (HE) institutions had already begun investing in their online learning development and delivery even before the pandemic's impetus [19]. The following factors have contributed to this growth: changes in technology (such as more accessible access to high-speed broadband, the emergence of applications based on artificial intelligence and virtual reality, and increased learner comfort with technology that can support learning); learner expectations for flexible study schedules the growing need for work re- and up-skilling among many businesses as a result of organisational and technical changes [54]. On the other hand, numerous obstacles to the efficient usage and continued development of digital and online learning have been effectively highlighted by research studies. These include technological impediments such as unequal access to Wi-Fi or dependable equipment, a lack of tech support, or cyber security threats; learner hurdles including feelings of loneliness and a lack of time for learning, as well as instructional barriers like the level of digital competency of the instructors and the lack of training and assistance offered [4].

While most public discussions on the demand for digital skills in the UK centre on skill shortages, several sources show that skill shortages are diminishing. For instance, a study noted that outside of employer surveys, there is no obvious evidence of significant skills shortages in the UK and the US. However, they also concede that it is challenging to evaluate skills shortages [12]. Researchers did not discover any substantial digital skills shortages of computer skills or other critical-thinking or problem-solving skills in another study on manufacturing enterprises in the US. However, they discovered a lack of advanced reading and math abilities [85].

Mental Health

The drawbacks of spending so much time online are very apparent lately. Extended screen time, the emergence of an "always-on" mentality, and video call exhaustion, which is now known as "zoom fatigue," are just a few instances of how prolonged tech use can hurt our mental health [15].

Following the COVID-19 pandemic, a comprehensive assessment of the literature on mental health found that the general public in eight nations experienced relatively high rates of stress, anxiety, sadness, and post-traumatic stress disorder (PTSD) [31]. As a result, there is an urgent need to advance mental health, particularly for individuals who are most vulnerable to long-term effects during the COVID-19 pandemic. This includes those who are younger, female, and who have a history of stress and health issues [53]. After the COVID-19 health crisis, there has been a significant rise in reliance on virtual communication. Common mental health issues have increased by 25% globally since COVID-19 and have not decreased as pandemic precautions have loosened. Employees are connected around the clock, including on weekends and holidays, since we increasingly have mobile phones, tablets, and computers. 47% of UK employees say that problems with technology at work harm their mental health [11].

Economics' personal preference principle says that not everyone wants to work from home [66] as employees experience much stress as a result of the work-family conflict that WFH causes, which is bad for their mental health [73].

Psychologists have reported that a home-friendly workplace might lessen employee stress and depression symptoms [74]. Organisational objectives, such as enhanced organisational performance, can be influenced by better work-family interactions [80].

An investigation of mental health in Italy during the lockdown led to the conclusion that the pandemic is linked to extremely high levels of psychological discomfort that may be clinically relevant. These problems have the potential to have lasting consequences. Effects of psychological distress in particular are critical in the emergence of more severe PTSD symptomatology [28,69]. The COVID-19 spread was seen to have a substantial impact on the public's mental health in addition to its effects on education.

Another study showed that mild to moderate mental conditions such as anxiety and sadness among adults have seen significant rises in the UAE. [79]. Furthermore, younger age, gender, mental health history, COVID-19 positivity in oneself or loved ones, high levels of COVID-related anxiety, and economic threat were some of the factors that were found to be strongly correlated with both sadness and anxiety ([79].

According to another recent research, employees who had previously gone through a depressive or anxious episode were much more likely than those who hadn't to request further support at work. Additionally, compared to pre pandemic era, workers were much more likely to seek mental health care and interestingly, digital health solutions had the biggest rise in intentions to seek treatment [10].

A UNISON survey [82] compared how much stress the participants had undergone over the previous years to that they had undergone prior to the outbreak, as we know the pandemic has been quite traumatic for many. According to the survey report, 82% of respondents said their stress levels had increased, with 44% saying it had increased significantly. Only 6% of those surveyed said their stress levels had decreased. Furthermore, 27% of those surveyed claimed that the previous year had a more significant detrimental effect on their mental health, leading them to need medical attention. Concerns about contracting or spreading the virus topped the list of causes given by the participants (43%), but many also mentioned isolation (15%), an increase in workload (14%) and a loss of control over their workload (10%) [82].

III. CONCLUSION

The environment of higher education has been drastically changed by the spread of COVID-19, forcing a swift transition to digital and online learning methods. Academic professionals in the UK, including teachers, researchers, and support staff, have been forced into an unheard-of period of remote work and online learning. The pandemic has sped up technology deployment in higher education, requiring academics to acclimate to digital platforms for research and instruction quickly. Moreover, many organisations have been forced to alter their conventional working practices to stop the disease from spreading further. The introduction of WFH has offered some convenience, but as the pandemic's impact has grown, it has also had some repercussions on businesses, workers, and HR professionals that will last into the post-pandemic future [18].

The digital transformation of the pandemic could impact how organisations, including higher education, develop in the future. Understanding how this transformation will affect society in the long term will help decision-makers decide how to best integrate technology into post-pandemic educational environments for employees and students. Besides UK personnel, students were also significantly affected by the sudden digital transformation. Various areas, including the development of information literacy, digital production, digital research, and digital identity management, were insufficient in students' self-assessed digital capabilities. Therefore, research suggests that teachers and educational technologists must pay attention to the social and affective components of online learning and the technical and pedagogical ones to adequately support students in these environments [48].

We have access to an entirely new form of communication (through social media platforms) due to digital technology. For instance, technology enables employees to interact with others when necessary and guarantees that they can still be social even while working alone during situations like the UK lockdown, which is a big benefit for people working in isolation. Also, with digital technology, organisations can see more of what their staff are up to and manage project progress and delays much more easily. Furthermore, collaboration and communication tools in the organisations can significantly increase productivity when used appropriately. On the other hand, utilising communication tools excessively can result in total sensory overload. For example, employees who work remotely no longer have a physical divide between home and the office during a lockdown ordered by the government [15]. Additionally, it was discovered that prior experiences within the digital world of everyday life were related to students' digital skills. Students were more likely to have high levels of self-perceived digital competence in other digital areas relating to their education if their self-perceptions of their ability to handle digital activities in daily life were greater [52]. Because of the digital revolution, employees must also develop digital skills and critical thinking abilities while performing their tasks in order to adapt to the changes in the new working environment [61,77]. If the organisation doesn't reform, production may suffer and its survival may be in jeopardy [9]. After COVID-19, the workplace will never be the same. Of course, there may be good reasons why any organisation is hesitant to provide its employees the option of working from home in specific situations. To ensure fairness in the treatment of employees, the employer must continue to be clear about expectations about physical attendance in the workplace [83]. Moreover, designing equitable educational experiences for everyone will be made easier with an understanding of the obstacles to digital inclusion. Investigating how well these modifications work can shed light on the most effective ways to incorporate technology into education and other workplaces. Institutions/organisations would be guided in putting into action strategies to combat burnout by evaluating the influence of digital online experiences on employee well-being. Besides this, staff and other professionals ought to be heavily involved in creating a positive and stress-free workplace by creating family-friendly work programmes, engage with employees and their families, and demonstrate

care for employees during the COVID-19 issue even while employees WFH [80]. As digital technologies permeate more and more of our daily lives, it is important to regularly assess attitudes and concerns about them using practical tools [67]. Similar to how it may for students [21], synchronous and asynchronous learning can also be used to promote engagement and improve learning for employees in various workplace.

IV. LIMITATIONS OF THE STUDY

The methodology was considered to have certain flaws. The integrated review approach significantly depends on the quality and accessibility of the body of literature, and publication bias cannot be entirely disregarded. Additionally, despite efforts to include a varied range of sources, the inherent bias in the chosen literature may have had an impact on how thorough the synthesis was.

A thorough grasp of the research issue was fostered by the integrated review strategy used in this theoretical research work, which allowed for the synthesis of a variety of sources. This strategy allows the creation of a coherent narrative that advances our understanding of the subject by integrating multiple theoretical frameworks, empirical investigations, and conceptual models.

a. Sample of a Table footnote. (Table footnote)

REFERENCES

- [1] Abdul Hamid, R. (2022). The Role of Employees' Technology Readiness, Job Meaningfulness and Proactive Personality in Adaptive Performance. *Sustainability*, 14(23), 15696. <https://www.mdpi.com/2071-1050/14/23/15696>
- [2] Adams, T. (2022). What is the Importance of Digital Skills in the Workplace? *High Speed Training*. <https://www.highspeedtraining.co.uk/hub/digital-skills-for-the-workplace/>
- [3] Aldunate, R., & Nussbaum, M. (2013). Teacher adoption of technology. *Computers in human behavior*, 29(3), 519-524.
- [4] Ali, S., Uppal, M. A., & Gulliver, S. R. (2018). A conceptual framework highlighting e-learning implementation barriers. *Information Technology & People*, 31(1), 156-180. <https://doi.org/10.1108/ITP-10-2016-0246>
- [5] Allen, J., Mahamed, F., & Williams, K. (2022). Disparities in education: E-learning and COVID-19, who matters? In *The Implications of COVID-19 for Children and Youth* (pp. 4-6). Routledge.
- [6] Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological science in the public interest*, 16(2), 40-68.
- [7] Ancillo, A. d. L., del Val Núñez, M. T., & Gavrilá, S. G. (2021). Workplace change within the COVID-19 context: a grounded theory approach. *Economic Research-Ekonomska Istraživanja*, 34(1), 2297-2316.
- [8] Anderson, A. J., Kaplan, S. A., & Vega, R. P. (2015). The impact of telework on emotional experience: When, and for whom, does telework improve daily affective well-being? *European Journal of Work and Organizational Psychology*, 24(6), 882-897.
- [9] Attaran, S., Attaran, M., & Kirkland, D. (2019). Savoring the product: A look at the impact of AI on pre and post purchase satisfaction. *Global Alliance of Marketing & Management Associations*.

- [10] Bailey, K., Scheutzow, J., Cooke, E., Taylor, K., Silvestrin, F., Naumenko, A., Hadley, R., Huxley, A., & Ponzio, S. (2023). Employees' support strategies for mental wellbeing during and beyond the COVID-19 pandemic: Recommendations for employers in the UK workforce. *PLoS One*, 18(5), e0285275. <https://doi.org/10.1371/journal.pone.0285275>
- [11] Baker, L. (2023). Technostress in the UK Workplace: The Negative Impact on Employee Mental Wellbeing. <https://employernews.co.uk/news/technostress-in-the-uk-workplace-the-negative-impact-on-employee-mental-wellbeing/>
- [12] Bakhshi, H., Downing, J. M., Osborne, M. A., & Schneider, P. (2017). The future of skills employment in 2030. https://media.nesta.org.uk/documents/the_future_of_skills_employment_in_2030_0.pdf
- [13] Bannon, S., Ford, K., & Meltzer, L. (2011). Understanding millennials in the workplace. *The CPA Journal*, 81(11), 61.
- [14] Battisti, E., Alfiero, S., & Leonidou, E. (2022). Remote working and digital transformation during the COVID-19 pandemic: Economic-financial impacts and psychological drivers for employees. *J Bus Res*, 150, 38-50. <https://doi.org/10.1016/j.jbusres.2022.06.010>
- [15] Bishop, A. (2020). How does the increased use of digital technology at work impact our mental health? <https://blog.redcrossfirstaidtraining.co.uk/how-does-the-increased-use-of-digital-technology-at-work-impact-our-mental-health>
- [16] Brooks, D. C., & McCormack, M. (2020). Driving Digital Transformation in Higher Education. *EDUCAUSE*.
- [17] Charalampous, M., Grant, C. A., Tramontano, C., & Michailidis, E. (2019). Systematically reviewing remote e-workers' well-being at work: A multidimensional approach. *European Journal of Work and Organizational Psychology*, 28(1), 51-73.
- [18] Chen, Z. (2021). Influence of Working From Home During the COVID-19 Crisis and HR Practitioner Response. *Front Psychol*, 12, 710517. <https://doi.org/10.3389/fpsyg.2021.710517>
- [19] CIPD. (2021). *Digital learning in a post-COVID-19 economy: a literature review*. (London: Chartered
- [20] Institute of Personnel and Development., Issue. https://www.cipd.org/globalassets/media/knowledge/knowledge-hub/reports/digital-learning-literature-review-report-2_tcm18-89290.pdf
- [21] Cleveland-Innes, M., & Wilton, D. (2018). Guide to blended learning. *Commonwealth of Learning*.
- [22] Coenen, M., & Kok, R. A. (2014). Workplace flexibility and new product development performance: The role of telework and flexible work schedules. *European management journal*, 32(4), 564-576.
- [23] Curtarelli, M. (2017). ICT for work: digital skills in the workplace.
- [24] Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: three experiments. *International journal of human-computer studies*, 45(1), 19-45.
- [25] Davis, N. L., Gough, M., & Taylor, L. L. (2019). Online teaching: Advantages, obstacles and tools for getting it right. *Journal of Teaching in Travel & Tourism*, 19(3), 256-263.
- [26] De Giusti, A. (2020). Book review: Policy brief: Education during COVID-19 and beyond. *Revista Iberoamericana de Tecnología En Educación y Educación En Tecnología*(26), 110-111.
- [27] de Lucas Ancillo, A., Gavrila Gavrila, S., & Del Val Núñez, M. T. (2023). Workplace change within the COVID-19 context: The new (next) normal. *Technol Forecast Soc Change*, 194, 122673. <https://doi.org/10.1016/j.techfore.2023.122673>
- [28] Di Crosta, A., Palumbo, R., Marchetti, D., Ceccato, I., La Malva, P., Maiella, R., Cipi, M., Roma, P., Mammarella, N., & Verrocchio, M. C. (2020). Individual differences, economic stability, and fear of contagion as risk factors for PTSD symptoms in the COVID-19 emergency. *Frontiers in psychology*, 11, 567367.
- [29] Donnelly, R., & Johns, J. (2021). Recontextualising remote working and its HRM in the digital economy: An integrated framework for theory and practice. *The International Journal of Human Resource Management*, 32(1), 84-105.
- [30] Dumford, A. D., & Miller, A. L. (2018). Online learning in higher education: exploring advantages and disadvantages for engagement. *Journal of computing in higher education*, 30, 452-465.
- [31] El-Sakran, A., Salman, R., & Alzaatreh, A. (2022). Impacts of Emergency Remote Teaching on College Students Amid COVID-19 in the UAE. *International Journal of Environmental Research and Public Health*, 19(5), 2979. <https://www.mdpi.com/1660-4601/19/5/2979>
- [32] Fenner, G. H., & Renn, R. W. (2010). Technology-assisted supplemental work and work-to-family conflict: The role of instrumentality beliefs, organizational expectations and time management. *Human relations*, 63(1), 63-82.
- [33] Forbes, S., Birkett, H., Evans, L., Chung, H., & Whiteman, J. (2020). MANAGING EMPLOYEES DURING THE COVID-19 PANDEMIC: Flexible working and the future of work. *University of Birmingham*. <https://www.birmingham.ac.uk/Documents/college-social-sciences/business/research/responsible-business/managerial-experiences-during-covid19-2020-accessible.pdf>
- [34] Gallacher, G., & Hossain, I. (2020). Remote work and employment dynamics under COVID-19: Evidence from Canada. *Canadian public policy*, 46(S1), S44-S54.
- [35] García-Peñalvo, F. J., Corell, A., Rivero-Ortega, R., Rodríguez-Conde, M. J., & Rodríguez-García, N. (2021). Impact of the COVID-19 on higher education: an experience-based approach. In *Information technology Trends for a global and Interdisciplinary research community* (pp. 1-18). IGI Global.
- [36] Garg, A. K., & van der Rijst, J. (2015). The benefits and pitfalls of employees working from home: Study of a private company in South Africa. *Corporate Board: role, duties and composition*, 11(2), 36-49.
- [37] Gavrila, S. G., & de Lucas Ancillo, A. (2021). Spanish SMEs' digitalization enablers: E-Receipt applications to the offline retail market. *Technological Forecasting and Social Change*, 162, 120381.
- [38] Hamouche, S. (2021). Human resource management and the COVID-19 crisis: Implications, challenges, opportunities, and future organizational directions. *Journal of Management & Organization*, 1-16.
- [39] Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The Difference Between Emergency Remote Teaching and Online Learning. *Educause Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- [40] Iglesias-Pradas, S., Hernández-García, Á., Chaparro-Peláez, J., & Prieto, J. L. (2021). Emergency remote teaching and students' academic performance in higher education during the COVID-19 pandemic: A case study. *Computers in human behavior*, 119, 106713.
- [41] Jungert, T., Van den Broeck, A., Schreurs, B., & Osterman, U. (2018). How colleagues can support each other's needs and motivation: An intervention on employee work motivation. *Applied Psychology: An International Review*, 67(1), 3-29. <https://doi.org/10.1111/apps.12110>

- [42] Kassim, N. H., Noor, N. M., Kasuma, J., Saleh, J., Dealwis, C., & Nurhisham, M. A. (2020). Sustaining job performance through technology acceptance with usage of whatsapp mobile application. *International Journal of Service Management and Sustainability*, 5(1), 123-148.
- [43] Kazakovtsev, B. A., Krasnov, V. N., Levina, N. B., & Nemtsov, A. V. (2005). [WHO European Ministerial Conference on Mental Health, "facing the challenges, building solutions" (Helsinki, Finland, 12-15 January 2005)]. *Zh Nevrol Psikhiatr Im S S Korsakova*, 105(9), 78-80.
- [44] Khawaja, S., Anjos, E., and Qureshi, F. (2023). The Impact of the Pandemic (COVID-19) on Higher Education Students: Challenges, Adaptations, and Future Perspectives, *Scientific Research, Creative Education*, Vol.14 No.11.
- [45] Kim, T.-Y., Hon, A. H., & Crant, J. M. (2009). Proactive personality, employee creativity, and newcomer outcomes: A longitudinal study. *Journal of Business and Psychology*, 24, 93-103.
- [46] Kindred R, Bates GW (2023). The Influence of the COVID-19 Pandemic on Social Anxiety: A Systematic Review. *Int J Environ Res Public Health*.29;20(3):2362. doi: 10.3390/ijerph20032362. PMID: 36767728; PMCID: PMC9915904
- [47] Kumar, P., Kumar, N., Aggarwal, P., & Yeap, J. A. (2021). Working in lockdown: the relationship between COVID-19 induced work stressors, job performance, distress, and life satisfaction. *Current Psychology*, 1-16.
- [48] Lemay, D. J., Bazalais, P., & Doleck, T. (2021). Transition to online learning during the COVID-19 pandemic. *Computers in Human Behavior Reports*, 4, 100130. <https://doi.org/https://doi.org/10.1016/j.chbr.2021.100130>
- [49] Liu, L.-J., & Guo, Q. (2007). Loneliness and health-related quality of life for the empty nest elderly in the rural area of a mountainous county in China. *Quality of Life Research*, 16, 1275-1280.
- [50] Lokuge, S., Sedera, D., Grover, V., & Dongming, X. (2019). Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Information & management*, 56(3), 445-461.
- [51] Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU global survey report*, 23, 1-17.
- [52] Martzoukou, K., Fulton, C., Kostagiolas, P., & Lavranos, C. (2020). A study of higher education students' self-perceived digital competences for learning and everyday life online participation. *Journal of Documentation*, 76(6), 1413-1458. <https://doi.org/10.1108/JD-03-2020-0041>
- [53] Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, 17(9), 3165.
- [54] McKinsey, & Company. (2020). Beyond hiring: how companies are reskilling to address talent gaps. *McKinsey & Company*. <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/beyond-hiring-how-companies-are-reskilling-to-address-talent-gaps>
- [55] Meyer, J. D., & Barefield, A. C. (2010). Infrastructure and Administrative Support for Online Programs. *Online Journal of Distance Learning Administration*, 13.
- [56] Moen, P., Kelly, E. L., Tranby, E., & Huang, Q. (2011). Changing work, changing health: can real work-time flexibility promote health behaviors and well-being? *Journal of health and social behavior*, 52(4), 404-429.
- [57] Mohamad, N., Ismail, A., & Mohamad Nor, A. (2020). Effect of managers support in technology based training on training transfer. *International Journal on Emerging Technologies*, 11, 985-990.
- [58] Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V., Zito, M., & Cortese, C. G. (2020). Wellbeing costs of technology use during Covid-19 remote working: An investigation using the Italian translation of the technostress creators scale. *Sustainability*, 12(15), 5911.
- [59] Nasongkhla, J., & Shieh, C.-J. (2023). Using technology acceptance model to discuss factors in university employees' behavior intention to apply social media. *Online Journal of Communication and Media Technologies*, 13(2). <https://doi.org/https://doi.org/10.30935/ojcm/13019>
- [60] Nuere, S., & de Miguel, L. (2021). The Digital/Technological Connection with COVID-19: An Unprecedented Challenge in University Teaching. *Technology, Knowledge and Learning*, 26(4), 931-943. <https://doi.org/10.1007/s10758-020-09454-6>
- [61] Okkonen, J., Vuori, V., & Palvalin, M. (2019). Digitalization Changing Work: Employees' view on the benefits and hindrances. *Information Technology and Systems: Proceedings of ICITS 2019*.
- [62] Palvia, S., Aeron, P., Gupta, P., Mahapatra, D., Parida, R., Rosner, R., & Sindhi, S. (2018). Online education: Worldwide status, challenges, trends, and implications. In (Vol. 21, pp. 233-241): Taylor & Francis.
- [63] Parasuraman, A. (2000). Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of service research*, 2(4), 307-320.
- [64] Park, S., & Park, S. (2019). Employee Adaptive Performance and Its Antecedents: Review and Synthesis. *Human Resource Development Review*, 18(3), 294-324. <https://doi.org/10.1177/1534484319836315>
- [65] Peimani, N., & Kamalipour, H. (2021). Online Education and the COVID-19 Outbreak: A Case Study of Online Teaching during Lockdown. *Education Sciences*, 11(2), 72. <https://www.mdpi.com/2227-7102/11/2/72>
- [66] Perrigino, M. B., & Raveendran, R. (2020). Managing remote workers during quarantine: Insights from organizational research on boundary management. *Behavioral Science & Policy*, 6(2), 87-94.
- [67] Pfaffinger, K., Reif, J., Huber, A., Eger, V., Dengler, M., Czakert, J., Spiess, E., & Berger, R. (2021). Digitalisation anxiety: development and validation of a new scale. *Discover Mental Health*, 1. <https://doi.org/10.1007/s44192-021-00003-w>
- [68] Qureshi, F., Khawaja, S., & Zia, T. (2020). Mature Undergraduate Students' Satisfaction with Online Teaching during the COVID-19. *European Journal of Education Studies*, 7, 456-475. <https://doi.org/10.46827/ejes.v7i12.3440>
- [69] Roma, P., Monaro, M., Colasanti, M., Ricci, E., Biondi, S., Di Domenico, A., Verrocchio, M. C., Napoli, C., Ferracuti, S., & Mazza, C. (2020). A 2-month follow-up study of psychological distress among Italian people during the COVID-19 lockdown. *International Journal of Environmental Research and Public Health*, 17(21), 8180.
- [70] Rook, K. S. (1985). The functions of social bonds: Perspectives from research on social support, loneliness and social isolation. In *Social support: Theory, research and applications* (pp. 243-267). Springer.
- [71] Savić, D. (2020). COVID-19 and work from home: Digital transformation of the workforce. *Grey Journal (TGJ)*, 16(2), 101-104.
- [72] Schaber, P., Wilcox, K. J., Whiteside, A. L., Marsh, L., & Brooks, D. C. (2010). Designing learning environments to foster

- affective learning: Comparison of classroom to blended learning. *International Journal for the Scholarship of Teaching and Learning*, 4(2), n2.
- [73] Sharma, J., Dhar, R. L., & Tyagi, A. (2016). Stress as a mediator between work–family conflict and psychological health among the nursing staff: Moderating role of emotional intelligence. *Applied Nursing Research*, 30, 268-275.
- [74] Shepherd-Banigan, M., Bell, J. F., Basu, A., Booth-LaForce, C., & Harris, J. R. (2016). Workplace stress and working from home influence depressive symptoms among employed women with young children. *International journal of behavioral medicine*, 23, 102-111.
- [75] Šola, H., Qureshi, F., & Khawaja, S. (2021). Applied Management Post-Covid19: Implications For Academic Managers In Private Higher Education, Beyond Crises, *European Journal of Education Studies*, Volume 8, Issue 10
- [76] Song, Y., & Gao, J. (2020). Does telework stress employees out? A study on working at home and subjective well-being for wage/salary workers. *Journal of Happiness Studies*, 21(7), 2649-2668.
- [77] Sony, M., & Naik, S. (2020). Critical factors for the successful implementation of Industry 4.0: a review and future research direction. *Production Planning & Control*, 31(10), 799-815.
- [78] Tarafdar, M., Tu, Q., & Ragu-Nathan, T. (2010). Impact of technostress on end-user satisfaction and performance. *Journal of management information systems*, 27(3), 303-334.
- [79] Thomas, J., Barbato, M., Verlinden, M., Gaspar, C., Moussa, M., Ghorayeb, J., Menon, A., Figueiras, M. J., Arora, T., & Bentall, R. P. (2020). Psychosocial correlates of depression and anxiety in the United Arab Emirates during the COVID-19 pandemic. *Frontiers in Psychiatry*, 11, 564172.
- [80] Thomas, L. T., & Ganster, D. C. (1995). Impact of family-supportive work variables on work-family conflict and strain: A control perspective. *Journal of applied psychology*, 80(1), 6.
- [81] UNESCO, (2022), Education: From COVID-19 school closures to recovery, retrieved from: <https://www.unesco.org/en/covid-19/education-response>
- [82] UNISON. (2021). *One Year of Covid Survey Report*. <https://www.unison-scotland.org/wp-content/uploads/LG-One-Yr-of-Covid-Survey-Report-April21-1.pdf>
- [83] UNISON. (2022). Working from home and hybrid working: A bargaining guide and model policy. <https://www.unison.org.uk/content/uploads/2022/11/Working-from-home-and-hybrid-working-bargaining-guide-and-model-policy-v9.pdf>
- [84] Vega, R. P., Anderson, A. J., & Kaplan, S. A. (2015). A within-person examination of the effects of telework. *Journal of Business and Psychology*, 30, 313-323.
- [85] Weaver, A., & Osterman, P. (2016). Skill Demands and Mismatch in U.S. Manufacturing. *ILR Review*, 70(2), 275-307. <https://doi.org/10.1177/0019793916660067>
- [86] White, S. (2017). *Digital Skills in the United Kingdom*. <https://researchbriefings.files.parliament.uk/documents/LLN-2017-0051/LLN-2017-0051.pdf>
- [87] Winterbotham, M., Vivian, D., Kik, G., Hewitt, J. H., Tweddle, M., Downing, C., Thomson, D., Morrice, N., & Stroud, S. (2018). Employer skills survey 2017. <https://www.gov.uk/government/publications/employer-skills-survey-2017-uk-report>
- [88] Wiswall, M., & Zafar, B. (2018). Preference for the workplace, investment in human capital, and gender. *The Quarterly Journal of Economics*, 133(1), 457-507.
- [89] Wolgast, A., & Fischer, N. (2017). You are not alone: colleague support and goal-oriented cooperation as resources to reduce teachers' stress. *Social Psychology of Education*, 20(1), 97-114. <https://doi.org/10.1007/s11218-017-9366-1>
- [90] Wolstencroft, P., & Zhou, X. (2020). Digital masters? Reflecting on the readiness of students and staff for digital learning.
- [91] Xiao Y, Becerik-Gerber B, Lucas G, Roll SC (2021). Impacts of Working From Home During COVID-19 Pandemic on Physical and Mental Well-Being of Office Workstation Users. *J Occup Environ Med*. 1:63(3):181-190. doi: 10.1097/JOM.0000000000002097