

Barriers to Teaching and Research Provision in the UK Higher Education Sector During the Covid-19 Pandemic

Abstract

The outbreak of the Covid-19 pandemic necessitated a rapid transition to remote teaching in Higher Education (HE) institutions worldwide. While there is existing research on the advantages and disadvantages of online teaching from transactional and adult learning theory perspectives, there is a lack of investigation into the specific challenges faced by academics in the UK HE sector concerning their teaching and research during the pandemic. This paper aims to fill this research gap by examining the experiences of nearly 300 academics in the UK HE sector through a qualitative online questionnaire. The findings of this study reveal several challenges associated with the sudden shift to online teaching. These challenges include time constraints, a lack of digital skills, technology issues, and an increased teaching workload. Academics also encountered difficulties engaging and connecting with students, as remote teaching created a sense of detachment between them. This finding aligns with the theoretical propositions of the self-determination theory, particularly regarding the sense of relatedness. Remote teaching presented obstacles in gauging students' reactions and understanding, as it lacked interactivity, personalisation, and the ability to keep students motivated and engaged. Additionally, academics faced issues assessing online assignments and monitoring students' progress and development. The isolation from remote work further contributed to a lack of concentration in teaching and research. The study also highlights the significant increase in teaching loads experienced by academics, as they had to adapt their teaching materials to suit the new mode of delivery. Academic research was impeded by limited access to labs, equipment, research time, and support due to the demands of teaching. Field-based research was put on hold, and many academics found collaborating with colleagues without physical proximity challenging. Considering these challenges, the study proposes ideas for overcoming barriers in future crisis events. The findings have implications for research and policy, further discussed in the paper.

Keywords: Academic staff; Covid-19; Higher Education; Teaching; Research; Crisis management

1. Introduction

The COVID-19 outbreak significantly impacted the Higher Education (HE) sector, forcing academics worldwide to abruptly transition to working from home, often against their preferences (Badr & Elmaghraby, 2021). This sudden shift in working methods presented unprecedented challenges that academic staff had to adapt quickly. However, our understanding of the specific barriers academics face in providing research and teaching during the pandemic, particularly in the under-studied context of the UK, remains limited. This study aims to address this knowledge gap by examining the experiences of nearly 300 academic staff in UK Higher Education through a qualitative online questionnaire, which explores the barriers faced by academic staff in their teaching and research due to the pandemic.

The survey findings reveal a mixed picture regarding the impact of the COVID-19 pandemic and the barriers encountered by academic staff, with a predominantly negative effect on teaching and research following the urgent shift to online teaching. This demonstrates the complex and multifaceted reality experienced by academics in UK HE institutions. The study

identifies critical issues that HE institutions, management teams, and policymakers must consider to inform their future actions in response to similar crisis events.

This paper makes an original contribution by providing empirical evidence in an under-researched geographical and academic context, namely the barriers academics face in teaching and research during the pandemic, particularly within the UK HE sector. While two existing studies have a similar focus (Watermeyer et al., 2020; Zhao et al., 2021), they primarily examine the impact of digital learning on academic teaching and do not explore the effects of the pandemic on academic research. Our study also responds to the UK government's call for research on the barriers faced by academic staff in the UK HE sector during the pandemic and how these barriers can be mitigated (Covid-19 Areas of Research Interest - POST ([parliament.uk](https://www.parliament.uk))). Furthermore, this study provides recommendations that can inform HE policymakers and leaders. The findings offer insights to guide the development of suitable interventions to alleviate the pressures experienced by academics during similar crises, thereby enhancing the resilience of the HE sector in the UK. Additionally, the paper summarizes findings from prior research studies on the barriers faced by academic staff during the pandemic in different countries (see Table 2), which can assist HE policymakers and leaders in designing effective responses to similar future crisis events.

The remainder of the paper is structured into five sections. Section 2 presents a systematic and critical literature review, highlighting relevant research gaps and identifying barriers to academic teaching and research during the pandemic, as reported by previous studies. Section 3 discusses the methods employed for data collection and analysis. In Section 4, we present the findings of our study and discuss the critical implications. Finally, in Section 5, we conclude by acknowledging the limitations of our study and suggesting directions for future research.

2. Literature review

A narrative literature review of studies exploring the pandemic's impact on academic staff's teaching and research in HE was conducted between 2019 and 2022 (i.e., covering the Covid-19 pandemic period). We have performed a broad overview of the topic under examination rather than collating empirical evidence from fewer studies through inclusion and exclusion criteria. Our review reveals that only two studies were conducted in the UK on this topic (i.e., Watermeyer et al., 2020; Zhao et al., 2021), leaving us with little knowledge about the pandemic's impact on academic staff's teaching and no evidence of the pandemic's impact on academic research, a critical gap that this study comes to fill. The significance of this topic is further asserted by the UK Parliament, given its inclusion among other critical areas of research interests for policymakers (see [Covid-19 Areas of Research Interest - POST \(parliament.uk\)](https://www.parliament.uk)).

The most reported negative pandemic aftermath on teaching relates to the technological issues that impacted teaching delivery, the lack of academic staff's technological capabilities, and a relevant lack of training on remote teaching and online delivery tools (see Table 2). For instance, Zhao et al. (2021) highlighted academic staff's unfamiliarity with the learning management system and technological issues in the UK. Watermeyer et al. (2020) suggest that online migration engendered significant dysfunctionality and disturbance to their pedagogical roles and personal lives. Zamora-Antuñano et al. (2022) concluded that internet connectivity

was a primary challenge in Mexico. Badr and Elmaghraby (2021) observed that the enforced remote teaching prevented academic staff's gradual exposure, training, or testing phase in Egypt. Oliveira et al. (2021) found a lack of training and resilience to adapt and adopt the new technologies in Portugal and Brazil. In Lebanon, Mouchantaf (2020) and El-Abiad (2021) reported that teachers complained about technical complications and lacked institutional help and training on online teaching. Lastly, Hashemi (2021) uncovered that academic staff found it challenging to teach online due to technical difficulties and the lack of digital capabilities/experience for some academics in Afghanistan. Similar obstacles were reported by Algerian, Iraqi, Egyptian, and Palestinian professors and students (Lassoued et al., 2020). The authors further argued that the lack of direct communication and interaction between the teaching staff and the students made both feel unconnected, and that led to their demotivation in supporting online learning (ibid).

Cameron-Standerford et al. (2020) indicated that the pandemic negatively impacted teaching quality as maintaining rigour was no longer a priority in the US HE sector. Asher (2021) conducted a comparative study between the USA and Pakistan and discovered that the pandemic gave rise to confusion, chaos, and uncertainty among students and faculty. While these issues were present in the American context, they were more prevalent in Pakistan due to a lack of teacher preparation, professionalism, access to technology, stable electricity, and poor internet connectivity. In North America, Romero-Hall and Jaramillo Cherez (2022) also reported several challenges faced by academics during the pandemic, including difficulties in implementing active learning strategies, using technology tools effectively, accessing quality internet access, and availability of pedagogical support. Zhang et al. (2022) also conducted a bibliometric analysis of relevant studies focusing on the strategies and technologies utilised to cope with online learning, the need to redesign curriculums, and the psychological impact of the pandemic on students and HE staff's perceptions of the pandemic-imposed online provision. The author identified several studies primarily conducted in the US, China, Australia, Pakistan, India, and France. This reinforces the need for further studies, especially in understudied geographical contexts such as the UK HE sector.

Other studies uncovered further issues from remote learning impacting various teaching activities, including teaching preparation time, assessment, student attendance, student engagement, and academic integrity (Adedoyin & Soykan, 2020; Sari & Nayir, 2020). Honnurvali et al. (2022) reported challenges associated with technological skills, teaching styles, time management, virtual lab infrastructure availability, and assessment skills in Oman. Guangul et al. (2020) further identified academic dishonesty, infrastructure, learning outcomes coverage, and students' commitment to submit assessments. Similarly, Affouneh et al. (2021) indicated that evaluating and assessing students was the main challenge for faculty members in Palestine during the pandemic. Zamora-Antuñano et al. (2022) highlighted student attendance as a primary teaching issue during the pandemic in Mexico, while Dominguez-Vergara and Dominguez-Perez (2021) raised concerns about copyright and cybersecurity of module content owing to the excessive use of technology and remote teaching. In the UK, Zhao et al. (2021) reported challenges such as privacy concerns, student engagement issues, and teaching preparation time. In other countries (i.e., Portugal & and Brazil), Oliveira et al. (2021) reported difficulties in controlling evaluation fraud and constraints in attaining the desired learning outcomes from practical or laboratory classes. Several disadvantages of online learning during the pandemic were also reported in other countries, like the absence of social interaction, logistic problems, pressure on instructors, and difficulty of know-how transfer from

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instructors to students in Lebanon (El-Abiad, 2021). Equally, Kulikowski et al. (2022) argued that pandemic-forced e-learning decreased the social dimensions of work in Poland.

Using interviews and survey questionnaires with academics from the US, Australia, Canada, Belgium, Netherlands, and the Philippines, Guppy et al. (2021) found little evidence of a digital divide but some evidence of a digital disconnect among faculty instructors. They viewed the digital disconnect as "focusing on the gap between presence and use, while the divide highlights how adoption levels are distributed among users" (p. 489). Overall, they implied that the effects of the public health edicts were so sudden and disruptive that digital experience and proficiency had little impact on instructors' success in rapidly refashioning their courses. However, most believed their courses transitioned well during the pandemic. Bartolic et al. (2021) concluded that speed mattered during the pandemic and that most academics complained of doing most of the transition work "on their own", often because they had to do this quickly. Besides, academics felt overwhelmed and almost unanimously argued that it took more teaching effort after the pivot in the US, Australia, Canada, Belgium, Netherlands, and the Philippines based on an online questionnaire. Lastly, informed by a literature review, Calonge et al. (2022) suggested that the *contactless* teaching experience brought about weaknesses related to (i) increased workload, (ii) unfamiliarity with technology, (iii) loss of academic networks and direct interaction with students, and (iv) a steep learning curve of how to engage students in their learning best to avoid the "cameras off" phenomenon.

Besides teaching provision, research activities were also adversely impacted by the pandemic. Garraio et al. (2022) highlighted a significant burden on academics' workload, impacting their research ability in Portugal. Likewise, Obianuju and Gamede (2021) discussed how the increased workload reduced research productivity for female academics in South Africa. Another study by Van Schalkwyk (2021) has also reported the adverse impact of the pandemic on research activities in South Africa, especially for those researchers using laboratory work, conducting clinical trials, or undertaking fieldwork, mainly resulting in delays in delivering clinical results. Therefore, such delays further resulted in additional complications since funded research projects could not spend their budgets on certain activities (e.g., fieldwork). Besides, highly bureaucratic national research funding agencies remain inflexible in budget spending and future allocations (Sohrabi et al., 2020).

Conversely, other studies reported that the pandemic's impact on academics in HE in other countries was not entirely negative. In Germany, Arnold et al. (2021) concluded that working and learning from home was enriching and overwhelming. Many academics appreciated the flexibility associated with digital teaching, even though having this also imposed excessive demands. Van Maaren et al. (2022) indicated that remote tutoring quality was comparable to in-person tutoring in the US. Bento et al. (2021) argued that different feedback loops were identified, which could facilitate, but mostly restrain, the possibilities for new practices. However, different findings are reported by Badr and Elmaghraby (2021), who uncovered that online teaching delivery enabled faculty to develop new teaching repertoires and curricula in Egypt. A similar result was reported in Slovenian HE institutions in which online distance teaching has helped many academics to get out of their comfort zone and try new pedagogical approaches (Dolenc et al., 2022). Sobaih et al. (2020) confirmed such findings by reporting that faculty members in Egypt adopted social media as an official platform for scholarly communication and formal learning. Lastly, El-Abiad (2021) argued for the implemented

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online system in Lebanon by outlining its advantages, such as better time management and flexibility for instructors and students.

From a methodological standpoint, Table 2 summarizes the studies conducted across different world regions, indicating their diverse methodologies. Upon further analysis of those studies, we discovered that a significant portion (38%) relied on quantitative online questionnaires, which failed to provide in-depth insights into the impact of the pandemic on academic staff's teaching and research. Additionally, we identified only two studies carried out in the UK (Watermeyer et al., 2020; Zhao et al., 2021). However, neither of these studies explored the pandemic's effects on academic staff's research; instead, they primarily focused on the impact of digital learning on academic teaching. Consequently, there is a dearth of evidence regarding the challenges faced by academics in the UK HE sector during the pandemic, both in teaching and research. Our study aims to fill this gap in the literature by shedding light on the barriers encountered in teaching and research provision within the UK HE sector during the Covid-19 pandemic. We aim to inform policymakers and encourage proactive measures to address similar crises by doing so. Specifically, our research seeks to answer the following question:

What barriers have academics in the UK HE sector encountered regarding teaching and research provision during the Covid-19 pandemic?

Research design (Data and Methods)

This study explores the barriers academics have faced with teaching and research activities during the Covid-19 pandemic. A qualitative online survey questionnaire, including open-ended questions, was used as our primary research instrument to address the research question above. To ensure a timely and reliable number of research participants, a reputable research company has recruited a random sample, including only academic staff working in the UK HE sector. The questionnaire was pilot-tested by a small sample of academics in HE (n=15) selected randomly via LinkedIn, a professional network. To select the pilot sample, a message with the survey link was posted on the lead researcher's LinkedIn account owing to her extensive network (n=4000). The purpose of this pilot study was to ensure the clarity of the questions and the accessibility of the survey link. The feedback was positive, requiring no changes but to add a definition for the known disabilities. That eventually helped us increase our questionnaire's validity and reliability alongside the research company's recommendations, mainly on the survey design. Of course, before conducting the research, ethical approval was obtained from our Universities' Research Ethics Committees.

An online participant information sheet was provided to all participants to inform them about the research scope, why they were selected, the nature of their participation, and their rights as participants. Participants had to sign an online consent form informing them they could withdraw their responses within two days of completing the survey. Participants were not allowed to progress without having the consent form signed.

The survey was hosted on Qualtrics and disseminated online from early May 2022 to late June 2022. It consisted of twelve questions, including open-ended and demographic questions. The questionnaire captured participants' perceptions of the pandemic's impact on their teaching and research activities and the barriers they have faced owing to the urgent shift to online teaching,

resulting in a rich amount of qualitative data to support critical findings and recommendations later made. We first asked whether the pandemic impacted participants' teaching and research (Q1 and Q2) using a nominal scale (i.e., Closed-ended questions with Yes or No options). Those who answered yes to questions one and two were further asked to explain how the pandemic impacted their teaching and research (Q3 & Q4) by adding their comments. Finally, we asked some demographic questions for data analysis using closed-ended questions. The demographic questions further captured data regarding the participants' age, gender, employment type, position, place of employment, parental responsibility, caring responsibility, and disability (Q5 -Q12). All data were cross-tabulated to identify key patterns amongst the demographic variables.

In total, the survey generated 400 responses. Yet, the final sample (after data cleaning) ended up with 290 total recorded responses (that gives us a response rate of 72.5%), including participants from various UK HE institutions. Most participants were from England (83%); however, some work in Universities in Scotland (9.7%), Wales (6.2%), and Northern Ireland (1%). Most (73.4%) were full-time, 22.8% worked part-time, and 3.8% worked on hourly (HP) contracts. Moreover, 56.6% of the respondents identified as female, 41% as male, 0.7% as non-binary, and 1.7% preferred not to say. Around one-third of the respondents (31.4%) had caring responsibilities, and 55.2% had children. Only 8.6% identified as having a disability. Our sample is representative of various age groups, with 23.8% aged between 50-59 years old, 22% between 40-49 years old, 20% between 30-39 years old, 15% between 60-69 years old, 15% between 20-29 years old, and 7% being 70 and above years old. Regarding their academic status, 45% were professors, 30% were senior lecturers, 23% were lecturers, and 2% were associate lecturers (HPLs).

We used thematic analysis to interpret our qualitative data set. Thematic analysis is one of the most popular qualitative analysis techniques and an appropriate method for understanding experiences, thoughts, views, or behaviours across a data set (Kiger & Varpio, 2020). Thematic analysis features two approaches, namely the inductive and deductive. The former involves deriving meaning and creating themes from data without preconceptions, thus allowing themes to emerge from the data (Varpio et al., 2019). The latter involves using pre-existing coding informed by prior research (ibid). Given the lack of pre-existing coding in this research area, we followed the inductive approach and derived various themes from our data set.

We followed the most widely accepted framework for conducting thematic analysis, that of Braun and Clarke (2006) suggesting that researchers should (i) familiarise themselves with the research data, (ii) generate initial codes, identify and review emerging themes, (iii) define and name with those concluded and finally to produce their reports.

To present our study results, we adopt a pragmatic approach where themes originating from our data set are linked to respective survey questions. At the same time, similar responses are counted, quotes are used to support a better understanding of specific points, and eventually, demonstrate the themes' prevalence. The anonymity of our participants is secured by using code names, including the letter P (i.e., Participant), followed by a number (i.e., P1 – participant 1, etc.) to associate them with those presented in Table 1. As many points were identical, we used the most informative quotes regardless of our participants' characteristics.

(Insert Table 1 here)

Empirical findings

The survey revealed mixed evidence on the impact of the COVID-19 pandemic and the barriers academic staff faced, mainly on research provision, yet a mostly negative impact on teaching, following an urgent shift to online provision. Most participants (90%) reported the negative aftermath of the pandemic, leaving a tiny percentage of participants having talked about a positive impact (10%). Therefore, two broad themes are identified concerning the pandemic's impact on academic staff's teaching and research: (i) the pandemic's negative impact and (ii) the pandemic's positive impact.

(i) The pandemic's negative impact on academic staff teaching and research

A significant increase in teaching workload.

Most academics (96%) reported a significant increase in their teaching, mainly due to preparing new material to support a different teaching delivery. Some participants (5%) added that more students than usual were granted assessment submission extensions. Many more needed pastoral care or had extenuating circumstances, resulting in a noticeable increase in their workloads, further reducing their research activities.

Many more students than normal had extenuating circumstances, which put additional pressures on staff due to the time added for activities such as marking outside the normal timelines, greater administration, etc. (P6)

The teaching workload increased due to additional student support needs (e.g. lots of students with mental health issues), massive problems with administration (denied by senior managers despite obvious issues to the contrary and the huge number of student complaints), staff departure (ironically, my university 'encouraged' a lot of experienced, older colleagues to take 'voluntary' severance just before the pandemic, which left us in a difficult position), and a level of senior managers who simply used the lockdown to make themselves even more invisible and inaccessible than usual. Research: all internal staff development halted; administrative systems to support research and PGRs were in meltdown due to staffing absences (P286).

Academic research was stalled.

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Many highlighted the adverse pandemic's impact on academic research, including the inability to publish due to the excessive teaching load, lack of labs/equipment access, lack of research support, and networking challenges (80%).

On top of their increased teaching and administration responsibilities, academic research was mainly stalled, especially for those academics conducting field-based research or laboratory-based research due to a lack of access to labs and equipment or a lack of research time and support due to high teaching loads (75%). Some of their comments were:

I had to completely rewrite all my course materials. I had to quickly learn to work with a wide range of new digital tools. I had to learn new pedagogical approaches to teaching and learning - I had only been lecturing for about two months before the pandemic and felt there was quite a learning curve. Preparation for and delivery of teaching materials/activities took significantly longer than had previously. My research activities were also greatly disrupted by the additional time teaching was taking up. Lack of access to specialist lab space hampered my research activities. I was trying to set up a new lab from scratch in lockdown (P58)

The pandemic impacted teaching and research significantly. The time required to put all teaching online (from face to face) was immense. My role is management-focused and entailed working out how the school could do this effectively; as a consequence, I spent much of my time in virtual meetings working with colleagues to bring about and support the change to online teaching. Additionally, the university was concerned about the impact on student numbers (these fears were unfounded in the event), and I spent considerable time on this aspect, too. I was unable to carry out research due to the severe time constraints caused by my role (P78).

Three-quarters of our participants (75%) highlighted the lack of research support from their line managers and departmental research coordinators, which eventually halted their research progress, stating that:

I did embark on a research study as Covid hit, but I have felt very unsupported by my line manager and departmental research coordinator. The view is taken that undertaking research is a negative thing because it pulls away from teaching - that we should prioritise. My teaching load has more than doubled. As such, I have decided to go part-time to undertake freelance research in my own time and reduce my teaching workload (P46).

There was far more work to produce teaching resources and support for students instead of support for academic staff to produce research outputs. We had to learn many more skills in a short space of time with very little training. Also, we were expected to produce high-quality online resources for those who specialise in these without backup. We had more work; also, the work was in formats we were not used to, but being up to speed with all the latest resources for online teaching was taken as a given. Eventually, there was no time for research. Indeed, with all the extra required of us related to teaching, we may as well have had research allowances taken away from us (P107).

Some noted that research collaboration and networking were particularly challenging due to social isolation (24.6%):

It was challenging to do research, especially if it was laboratory-based, as we could not be physically present for a long time. That made even more difficult our research collaborations, especially with colleagues from other HE institutions (P36 & P286).

For my research discipline, everything continued as if nothing had happened. The only challenge was the interaction with research participants when it was important to read their body language, and you could not because of turned off cameras. I believe it was more challenging for our laboratory research colleagues who could not do their experiments at home (P78).

Research suffered from the lack of interaction with fellow academics and research participants, which I normally find energising. It was harder to stay motivated while working entirely from home (P39).

The lack of student engagement.

Over two-thirds of our participants (68%) revealed significant difficulties in engaging and connecting with students and a sense of detachment between them and students due to online teaching. It was also difficult for academics to support students online owing to the lack of face-to-face interaction. The survey further outlined participants' concerns in gauging their students' reactions and understanding through online teaching. They reported that it was less interactive, less personal, and more challenging to motivate and engage students without seeing them face to face:

All the teaching, workshops, and training moved online, which was more ineffective than in-person teaching. In addition, online teaching is not as interactive as in-person teaching. I often felt like I was talking to the computer screen, not to students on the other end (P271).

Teaching was frustrating due to poor student engagement and the university's slow response to insisting that students have cameras on in Zoom rooms. Limited face-to-face teaching made it less personal and difficult to motivate students (P22).

Adverse impact on staff mental health, concentration, and motivation.

Many (76%) argued that working in isolation affected their concentration, motivation, and mental health, as it was emotionally exhausting working as such. Indicatively, two participants shared their feelings on teaching and conducting research remotely during the pandemic:

I found it quite difficult working over Zoom calls. I much prefer being face-to-face for meetings and didn't feel that the online calls led to a satisfactory outcome in most situations. Collating notes and making plans in isolation without concurrent input from colleagues led to disjointed plans and a lack of coordination for the schedules.

Consequently, work schedules were difficult to arrange and facilitate when groups of relevant people were not in the same place at the same time. I found it to be rather lonely working in that way, and I felt my motivation dropped because of it (P129)

Teaching-wise, it was just awful! At first, I had to learn a new set of skills quickly to teach and facilitate discussions online, but it was emotionally exhausting because I was speaking to bubbles, and to this day, this cohort is blank to me. I don't remember any of them. They struggled so much as well; they had no peer support. It was the most horrendous experience, and I never wanted to teach online again. Research-wise, it was just as bad. The company I worked with on one of the funded research projects was destroyed temporarily due to COVID-19. And I lost my access to the company. Publication and writing were very hard due to the increased workload in teaching (P284).

Difficulty in adjusting to online teaching.

Some (12%) reported that adopting and adjusting to online teaching proved challenging due to time constraints, lack of digital skills on behalf of many academics, and technology-related issues such as old-fashioned equipment and faulty machinery. Some issues were reported related to marking online assessments and monitoring students' progress and development, as well as several technological challenges:

I had to develop technical skills to provide online sessions. Technology did not always work, which impacted my teaching quality. (P233).

(ii) The pandemic's positive impact on academic staff teaching and research

A handful of participants reported some positive impact of the pandemic on their teaching and research. Working from home reduced travel time, leaving more time for teaching preparation and research. They have also argued that moving to teach online improved their digital literacy/skills (10%). Their comments were:

Teaching has been switched online. It was an exciting experience that also improved our digital literacy. Research has been intensified given the staying-home style of life (P10, P276)

In terms of my teaching, I had to re-write and redesign many of my materials to provide hybrid working. This was a very good exercise, as it allowed me to revisit much of the material I had not worked on for a few years. So, all in all, it was quite positive. In terms of my research, there was a brief hiatus at the beginning of the first lockdown. However, my lamp was back up and running by the early summer, and it made very little impact on me. In fact, it provided some opportunities for additional research ventures, which have been very fruitful (P233).

A few (5%) stated that research collaborations continued as usual, with just greater online communication for the research teams:

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Nothing has really changed in our research collaborations. We continued working on our ongoing projects, the only difference being our communication process. Rather than meeting face-to-face, we were meeting online. But that was always the case while working with colleagues outside your organisation and your country (P26).

Overall, the survey provides mixed evidence on the impact of the COVID-19 pandemic and the barriers academic staff faced, mainly on research provision, yet a mostly negative impact on teaching, following an urgent shift to online provision. The study outlines various critical challenges for HE institutions and their management teams to consider and for policymakers to inform their future actions on similar crisis events.

Discussion and Implications

The study explored the barriers academics in the UK HE sector faced regarding their teaching and research provision during the Covid-19 pandemic. The pandemic shocked everyone, resulting in a social, economic, and employment-related crisis. Eventually, individuals and organisations had to reconsider their employment relationships and redesign their working patterns. We conducted our research during a challenging period; thus, our findings could inform policymakers and HE institutions about their post-COVID decisions. Indeed, the UK HE sector underwent a transition phase with notable aftermaths related to the labour market, the workloads and the mental health of individuals, and the pedagogical approach of HE institutions.

The data revealed several barriers impeding academic staff's smooth teaching and research provision, with most participants suggesting a negative impact of the COVID-19 pandemic. However, a few academics reported a positive impact as well. Our research findings on the barriers faced by UK academics during the pandemic align with those reported by Zhao et al. (2021), mainly relating to technological issues, low student engagement, and tremendous teaching preparation to meet the demands of the new era. However, our research extends the work of Zhao et al. (2021) by capturing the views and experiences of more UK academics and extending the list of the barriers related to teaching and research provision in UK HE institutions.

Several existing studies examined HEIs faculty and students' experiences of the impact of the pandemic on teaching and learning through a transactional or adult learning theoretical perspective (Cameron-Standerford et al., 2020; Romero-Hall and Jaramillo Cherez, 2022; Honnurvali et al., 2022; Affouneh et al., 2021). One of the most reported issues identified in our study was the lack of student engagement and a sense of detachment between the teaching teams and their students due to the "camera off" phenomenon due to online delivery. This finding confirms Calonge et al. (2022) work that reported the loss of direct interaction with their students and the creation of a steep learning curve of how to engage students in their learning best. However, unlike Calonge et al. (2022), our paper is based on empirical findings from the UK HE and not just a literature review. Regarding the social element of teaching, our study reported significant challenges associated with gauging students' reactions and

understanding through online teaching due to limited interaction and difficulty motivating and engaging students. A similar conclusion regarding the missed social dimension between academics and their students owing to intense online teaching was also reported by Kulikowski et al. (2022) in Poland, indicating a similarity between UK and Polish academics in their teaching experience during the pandemic. Still, our findings contradict existing research studies conducted in Germany and Brazil, arguing that student engagement was exemplary (Arnold et al., 2021). Appropriately, our research findings align with the studies above and their transactional teaching and learning focus, calling for establishing a deep personal and social connection between the instructor and the learner to enhance the learning interaction. Alongside the other challenges we identified (e.g., internet connectivity, students' low attendance, staff and students' unfamiliarity with new systems, and lack of social interaction), we also report a sense of detachment between academics and students and issues related to the design, delivery and overall quality of the online learning initiatives.

Participants also found it challenging to support students online and keep them motivated by confirming key theoretical propositions of the adult learning theory, arguing for adult learners' preference to work under a cooperative climate with their fellow students and the teaching team, as well as to be given the chance of self-directed learning, thus making their own decisions about the content, resources, methods, and evaluation of learning. Yet, all challenges identified above did not offer this option, making it challenging for academics to monitor their student's academic progress and development and offering various learning options to encourage and support students with their learning journey.

Additionally, participants reported a significant increase in their teaching loads due to the preparation of new teaching materials and the limited support provided by management. This finding extends Zhao et al. (2021) list of barriers identified in UK HE. It also shows that the UK HE case was not different from HE institutions in North America, where scholars uncovered limited pedagogical support provided to implement quality learning strategies (see Romero-Hall & Jaramillo Cherrez, 2022).

Over two-thirds of our participants argued that working in isolation resulted in a lack of staff concentration in teaching and research, a similar conclusion to what was reported by other studies in Portugal (Garraio et al., 2022) and South Africa (Van Schalkwyk, 2021). Our study aligns with the theoretical propositions of the self-determination theory (SDT) by arguing that the barriers to teaching and research provision the UK HEIs academics faced have significantly limited their sense of relatedness (i.e., feel connected – a sense of belonging with others – Ryan and Deci, 2017). Online teaching and working from home both restricted academics from physically socialising with their colleagues, students, and other academics for their research collaborations through a sense of detachment amongst them. This finding is also consistent with Lassoued et al.'s (2020) and Watermeyer et al.'s (2020) studies, both suggesting that the lack of direct communication and interaction between professors and students reinforced their negative experiences and feelings towards distance learning due to the lack of the sense of connectedness.

Moreover, our study highlights significant difficulties for academics adapting and adjusting to online teaching due to time constraints, the lack of digital skills, technology-related issues, and the increased teaching load. According to SDT, for individuals to achieve psychological growth, they need to feel that they possess the skills required (i.e., need for competence - Ryan and Deci, 2017) to perform their work successfully and achieve their goals, yet with the challenges identified above (e.g., lack of digital skills, technology-related issues) restricting

their ability to do so. It also shows that UK academics reported constraints in attaining the desired learning outcomes, especially for practical or laboratory-based modules. That confirms Bento et al. (2021) study suggesting that academics came across different feedback loops, which mostly restrained the possibilities for emerging new practices. Therefore, the impact of the pandemic on UK academics is similar to what was reported in other countries, including the US, Australia, Canada, Portugal, Brazil, and the Netherlands (Oliveira et al., 2021; Guppy et al., 2021). Conversely, our findings contradict Arnold et al.'s (2021) study conducted in Germany, arguing that the teaching quality, regardless of the delivery mode, was enriched mainly because of the new methods introduced.

Our results shed light on research issues during the pandemic, including academic staff's inability to conduct research due to the increased teaching workloads. Academic research was stalled in some cases due to a lack of research resources, equipment, and lab access. Research collaborations were also paused and proved challenging without physically interacting with colleagues. Similar findings were reported across the globe (e.g., Portugal, South Africa, Brazil, Australia, and the US), with academics in those countries reporting limited research activities mainly due to increased teaching loads, as well as owing to access issues to conduct their laboratory experiments (Bartolic et al., 2021; Garraio et al., 2022; Van Schalkwyk, 2021).

Our findings have important implications for future research, policymakers, and leaders in UK higher education (HE). Future research should explore innovative approaches to engage students effectively in online teaching. Additionally, it is crucial to investigate effective training methods for academics in online teaching and strategies to help them adapt to rapid changes during times of crisis. HE leaders should facilitate productive discussions between academics and learning designers to identify and implement the most compelling interactive online tools for enhancing student engagement. The results of this study indicate the need for intervention by UK HE policymakers and leaders to develop effective measures to alleviate the pressures faced by academics during the pandemic and to ensure resilience and preparedness for future crisis events. Teaching loads should be re-evaluated and adjusted based on individual academic' capabilities and circumstances.

Furthermore, research time and support should receive equal attention to prevent disruptions to research activities during similar crises. Training on new pedagogical approaches should be provided to all academics to enhance their digital literacy and prepare them for future disruptions. Recognising the diverse learning needs of students and the varied teaching styles of academics, policymakers should avoid a one-size-fits-all approach to teaching. Additionally, policymakers should consider providing academics access to teaching and research resources, equipment, and laboratories during unprecedented times such as those brought about by the COVID-19 pandemic and subsequent lockdowns.

To assist policymakers and HE leaders in the UK and globally in understanding the barriers academics face during the pandemic, we have summarised our research findings and relevant findings from previous studies in Table 2 below.

(Insert Table 2 here)

Conclusion and Limitations

This study examines the barriers encountered by academics in the UK higher education system regarding their teaching and research activities during the pandemic. This particular topic has received limited attention within the geographical context of the UK. The findings highlight the difficulties associated with the abrupt transition to online teaching, primarily due to time constraints, lack of digital skills, technology issues, and increased teaching workload. These findings align with existing studies that adopt a transactional theoretical perspective. Additionally, the study identifies challenges in engaging and connecting with students and providing support, as remote teaching creates a sense of detachment between academics and students. Remote teaching also presents obstacles in assessing students' reactions and comprehension, as it lacks interactivity and personalisation and struggles to maintain student motivation and engagement. Marking online assessments and monitoring student progress and development are also reported as problematic, aggravated by the absence of direct communication and interaction. These findings support the self-determination theory's propositions, particularly about the sense of relatedness. The isolation experienced by academics further hampers their concentration on research. Increased teaching loads, caused by the need to adapt teaching materials to new delivery methods, impede academic research. Limited access to laboratories, equipment, research time, and support due to high teaching commitments further hinder research activities. Field-based research has been put on hold, and research collaborations face challenges without physical proximity to colleagues. These findings also align with the self-determination theory's perspective on the sense of connectedness with others.

Like any study, this research has limitations, primarily focusing on academics and excluding other staff in higher education, such as professional staff and PhD candidates. Despite this limitation, the study addresses an understudied topic—the barriers faced by academics during the COVID-19 pandemic—in the specific context of the UK higher education sector. Future research should investigate the pandemic's impact on other staff in higher education. Conducting cross-national studies would be beneficial for a comprehensive understanding of teaching and research provisions during and beyond the COVID-19 pandemic across different countries.

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Table 1 – Participants' Demographics Related to Quotes

Participant code	Age	Gender	Parent	Caring responsibility	Disability	Job
P6	50-59	Female	Yes	Yes	No	Full-time; academic
P10	30-39	Male	Yes	Yes	No	Full-time, professional staff
P22	50-59	Female	No	Yes	No	Full-time, academic
P36	50-59	Female	Yes	No	No	Full-time, academic
P39	50-59	Female	No	No	No	Full-time, academic
P46	30-39	Female	Yes	Yes	No	Full-time, academic
P58	30-39	Male	Yes	No	No	Full-time, academic
P78	60-69	Male	Yes	No	No	Full-time, academic

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P107	50-59	Female	Yes	Yes	Yes	Part-time, academic
P233	40-49	Female	Yes	No	No	Part-time, academic
P286	50-59	Male	No	Yes	Yes	Full-time, academic
P284	30-39	Female	No	No	No	Full-time, academic
P276	40-49	Male	No	No	No	Full-time, academic
P271	30-39	Male	Yes	Yes	No	Full-time, academic
P129	70 and above	Female	Yes	No	No	HPL academic

Table 2: Summary of the current study and previous studies' findings

Country	Barriers/Challenges to Teaching & Research	Source	Approach / Method(s) / Sample
United Kingdom	<ul style="list-style-type: none"> • Adapting to online teaching was challenging due to the time constraints, the lack of digital skills, technology issues, and the increased teaching load. • Difficulties engaging students. • Difficulties connecting with students and a sense of detachment between academics and students. • Difficulties in supporting students. • Difficulties in gauging students' reactions and understanding through remote teaching as it is less interactive, less personal, and makes it challenging to motivate and engage students. • The increase in teaching load due to the preparation of new materials for a different way of teaching delivery • A lack of access to labs and equipment or a lack of research time and support due to high teaching loads mainly stalled academic research. • Field-based research has stopped. • Difficulties in research collaboration with colleagues without being physically together. • Technical difficulties and an inferior internet connection affect teaching quality and productivity. • Difficulty in marking online assessments. • Difficulty in monitoring students' progress and development • Lack of concentration in teaching and research 	The current study's findings	Mixed-method online survey 290 total recorded responses (72.5% response rate from 400 responses)
United Kingdom	<ul style="list-style-type: none"> • Academic staff's unfamiliarity with a new learning system • Technological & student engagement issues • Privacy concerns • Teaching preparation 	Zhao et al. (2021)	Qualitative - Online Focus Group (n=9)

United Kingdom	<ul style="list-style-type: none"> • Increased workload • Online teaching provision engenders dysfunctionalities that disturb staff's pedagogical roles and personal lives. • Significant challenges to recruiting students due to online migration 	Watermeyer et al. (2021)	Quantitative - Online survey (n=1148 academics)
United States	<ul style="list-style-type: none"> • The pandemic impacted teaching quality, and maintaining rigour was no longer a priority. 	Cameron-Standerford et al. (2020)	Quantitative Online survey (n=83 faculty staff)
United States	<ul style="list-style-type: none"> • The pandemic gave rise to confusion, chaos, and uncertainty among faculty 	Zhang et al., 2022	Qualitative (Multiple case studies)
United States	<ul style="list-style-type: none"> • Increased uncertainty amongst university staff and students – limited apprehension of new systems. 	Asher (2021)	Online Interviews (2 students / 2 administrators / 3 faculty staff US)
US, Australia, Canada, Belgium, Netherlands, and the Philippines	<ul style="list-style-type: none"> • Faculty instructors confronted serious challenges in fostering both knowledge growth and reasoning skills among students. 	Guppy et al. (2021)	Mixed methods Online survey & Interviews 3806 students and 283 faculty instructors from 9 HEIs across all countries
US, Australia, Canada, Belgium, Netherlands, and the Philippines	<ul style="list-style-type: none"> • Speed mattered during the pandemic; academic staff reported feeling overwhelmed and took more teaching effort after the pivot. 	Bartolic et al. (2021)	Mixed methods Online survey & Interviews (n=309 instructors)
Mexico	<ul style="list-style-type: none"> • Internet connectivity • Student Attendance 	Zamora-Antuñano et al. (2022)	Quantitative Online Survey (133 academics from 93 HEIs)

Mexico	<ul style="list-style-type: none"> • Copyright and cybersecurity, particularly module content's vulnerability to theft during the pandemic due to the excessive use of technology and remote teaching. 	Dominguez-Vergara and Dominguez-Perez (2021)	Secondary data reporting on two case study HEIs
North & Latin America / Africa / Oceania / Europe / Middle East / Asia	<ul style="list-style-type: none"> • Challenges in implementing active learning strategies, using technology tools effectively, having access to quality internet access, and availability of pedagogical support. 	Romero-Hall and Jaramillo Cherez (2022)	Quantitative Online Survey (239 participants)
Portugal and Brazil	<ul style="list-style-type: none"> • A lack of training and resilience to adapt and adopt the new technologies. • Difficulties in controlling evaluation fraud. • Constraints in attaining the desired learning outcomes from practical or laboratory classes 	Oliveira et al. (2021)	Qualitative Interviews (n=20 students & n=10 HE teachers)
Portugal	<ul style="list-style-type: none"> • A more significant burden in academic staff workload, which impacted their ability to conduct research 	Garraio et al. (2022)	Quantitative Online survey (n=262 / 128 staff members & 134 teachers/researchers)
Poland	<ul style="list-style-type: none"> • The pandemic-forced e-learning decreased the social dimensions of work in Poland. 	Kulikowski et al. (2022)	Conceptual paper
Lebanon	<ul style="list-style-type: none"> • Technical complications • A lack of institutional help and training in online teaching 	Mouchantaf (2020)	Quantitative-Online Survey 300 HE staff from 5 HEIs
Lebanon	<ul style="list-style-type: none"> • The absence of social interaction • Pressure on instructors 	El-Abiad (2021)	Quantitative - Online survey (263 students and 48

	<ul style="list-style-type: none"> Difficulties in know-how transfer from instructors to students 		instructors from 10 universities)
Palestine	<ul style="list-style-type: none"> Evaluating and assessing students was the main challenge for faculty members. 	Affouneh et al. (2021)	<p>Mixed methods</p> <p>Online survey (n=610 academics)</p> <p>Focus group (n=17 faculty members)</p> <p>Social media data (1750 comments from students)</p> <p>Document analysis (University reports)</p>
Algeria, Egypt, Palestine, Iraq	<ul style="list-style-type: none"> Professors and students faced self-imposed obstacles in their learning exchange (e.g., lack of motivation, unwillingness to switch to online provision) Obstacles to achieving quality in distance learning. Unclear communication Lack of training and clarity on distance learning tools 	Lassoued et al., (2020)	<p>Quantitative</p> <p>Online survey</p> <p>Sample (N=400 academics & N=600 students)</p>
Egypt	<ul style="list-style-type: none"> The enforced remote teaching prevented academic staff's gradual exposure, training, or testing phase. 	Badr and Elmaghraby (2021)	<p>Mixed Methods</p> <p>Online survey (N=135)</p> <p>Interviews (n=14)</p>
Afghanistan	<ul style="list-style-type: none"> It is challenging to teach online due to technical difficulties and the lack of digital capabilities/experience. 	Hashemi (2021)	Quantitative - Online survey (628 lecturers)

Afghanistan	<ul style="list-style-type: none"> Demographic characteristics of university lecturers affect their behaviour and, eventually, students' motivation to learn, especially during times of crisis. 	Noori et al. (2020)	Quantitative - Online survey (180 lecturers)
Pakistan	<ul style="list-style-type: none"> A lack of teacher preparation, professionalism, access to technology, stable electricity, and poor internet connectivity 	Asher (2021)	Online Interviews (2 students / 2 administrators / 3 faculty staff)
Pakistan	<ul style="list-style-type: none"> The pandemic gave rise to confusion, chaos, and uncertainty among faculty 	Zhang et al. (2022)	Qualitative (Multiple case studies)
Oman	<ul style="list-style-type: none"> Challenges in remote assessment, particularly academic dishonesty, infrastructure, coverage of learning outcomes, and commitment of students to submit assessments. Technological and assessment skills 	Guangul et al. (2020)	Quantitative Online Survey - 50 faculty staff Students (n=1460)
Oman	<ul style="list-style-type: none"> Teaching styles Time management Virtual labs Infrastructure availability 	Honnurvali et al. (2022)	Qualitative Online Survey Academics (n=525)
South Africa	<ul style="list-style-type: none"> The increased workload due to the pandemic led to reduced research productivity for female academics. 	Obianuju and Gamede (2021)	Quantitative Online survey (n=54 female academics)
South Africa	<ul style="list-style-type: none"> The pandemic has adversely affected researchers using laboratory work, conducting clinical trials, or undertaking fieldwork. Delays have caused additional complications as funded research projects cannot budget for certain activities such as fieldwork. Highly bureaucratic national research funding agencies remain inflexible in budget spending and future allocations. 	Van Schalkwyk (2021)	Discussion paper
	<ul style="list-style-type: none"> Online migration resulted in teachers'/students' isolation. Lack of time to properly prepare material for online teaching. 	Huang et al. (2020)	Literature Review

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China	<ul style="list-style-type: none"> • Need for effective pedagogical approaches to support online learning. 		
N/A	<ul style="list-style-type: none"> • Increased workload • Unfamiliarity with technology • Loss of direct interaction with students • A steep learning curve of how to best engage students and avoid the "cameras off" phenomenon 	Calonge et al. (2022)	Systemic Literature Review