

Evaluating the Impact of Online Teaching Approaches on Student Engagement in UK Higher
Education during the COVID-19 Pandemic



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Chapter 1: Research Background

1.1 Introduction/Rationale

The closure of learning institutions as a preventive measure against the spread of Coronavirus (COVID-19) has significantly impacted the learning process, well-being and functionality of education system (Code, Ralph and Forde 2020). According to Hill and Fitzgerald (2020), the instantaneous impact of COVID-19 has been lockdown and enforced closure of learning centres such as schools, colleges and universities. Even though physical closure of these institutions has not led to complete cessation of learning, teaching and assessment (LTA), most of the traditionally used methods have been suspended. In order to abide by the National Health Service (NHS) directives on social distancing (as an approach for managing COVID-19 spread), most of the UK-based universities and colleges have transitioned their learning activities into online domains (Choi et al. 2020). Nevertheless, the experience of rapid transition to online LTA within these institutions have exposed the existence of many deficiencies within the higher education sector as well as the important changes which need to be made on the college and university LTA domain.

Adoption of online LTA during COVID-19 was a forced intervention, with limited or no assessment of student perception about the approach prior to its implementation (Hill and Fitzgerald 2020). For that matter, the proposed study is focused on understanding perception of higher education students on online LTA as well as the possible impacts these approaches on their engagement and participation in learning process. COVID-19 being a contemporary global pandemic, limited research has been performed to understand its effects on quality of education. Therefore, this is an important gap that the proposed study is focused on filling. The proposed study will use a primary quantitative approach, with data for analysis to be collected from college and university students from the UK. Outcomes from this study will be used by the Department of Education and other stakeholders within the UK education sector to develop strategies for improving student engagement during online LTA.

1.2 Research Aim

The purpose of this research project is to evaluate the impacts of online teaching approaches adopted by the UK institutions of higher learning during the COVID19 pandemic on student engagement.

1.3 Research Objectives

- To evaluate student engagement in the UK higher education sector during COVID19.

- To compare and contrast the different methods traditional and online learning in the UK higher education sector.
- To assess the perception of students towards online teaching approach, especially those adopted during the COVID19 pandemic.



Chapter 2: Preliminary Literature Review

2.1 Learning and Learning Styles

Kirschner (2017) defined learning as a process of new knowledge, behaviour, skills, values, attitudes and preferences acquisition. Furthermore, learning style refers to the preferential approach in which an individual absorbs, processes, comprehends and retains information (Willingham, Hughes and Dobolyi 2015). Even though some learning can be immediate and induced by single event, acquisition of most skills and knowledge often occur from repeated experiences (Truong 2016). There are four types of learning styles; visual, auditory, reading/writing and kinaesthetic, with an acronym of VARK. As stated by Swailes and Senior (1999), visual learners are those who best synthesise and internalise information when presented in a graphic depiction of meaningful symbols while auditory learners are most successful when provided with opportunity of hearing information presented to them vocally. Even though Kirschner (2017) argued that auditory learners are often less engaged during learning process as they may not take notes in class in order to maintain unbroken auditory attention, Truong (2016) and Swailes and Senior (1999) mention that these learners often consider note-taking as a distraction and value their unbroken attention for effective learning process.

While kinaesthetic learners are hands-on who need to take physically active role in the learning process so as to realise best educational outcomes, reading/writing learners work best in reading and writing situations and show strong learning preference for written words (Kirschner 2017). Compared to other learning styles, kinaesthetic learners are often faced with a lot of difficulties in succeeding in a conventional classroom setting. Traditional learning styles involve directing students to learn through memorisation and recitation techniques hence the learners have limited opportunities of developing critical thinking and decision-making skills. On the other hand, modern learning styles involve the use of assisted technologies such as internet (Willingham, Hughes and Dobolyi 2015).

2.1.1 Honey and Mumford 1992 model

Honey and Mumford learning styles were developed based on the theoretical perspectives of Kolb's learning style models (Honey and Mumford 1989). Contrary to Kolb's learning style which asks people how they learn, Honey and Mumford learning model involves provision of questionnaires to people which assess their overall behavioural tendencies (Baharudin et al. 2017). A rationale for this approach is that most of the people do not often consciously consider how they really learn. According to Honey and Mumford (1989), activist

learners often involve themselves fully and without any form of bias in novel experiences. Baharudin et al. (2017) clarified the definition of activist learners by noting that they are people who learn by doing as they are open-minded individuals, a characteristic that tends to enable them enthusiastic about anything new. Furthermore, reflector learners in the Honey and Mumford learning model are people who learn through observations and thinking about what transpired (Honey and Mumford 1989). Furthermore, Baharudin et al. (2017) noted that this type of learners often like to consider all the possible angles and implications prior to making an informed decision about their action.

The Honey and Mumford learning model further identifies theorist as another important type of learners. According to Honey and Mumford (1989), theorist learners have the capabilities of adapting and integrating observations into complex but logically sound theories. However, theorists have some key weaknesses that may limit their ability to learn effectively; they include being restricted in lateral thinking, having relatively low tolerance for ambiguity, disorder and uncertainty during decision making process as well as being intolerant for anything intuitive or subjective (Baharudin et al. 2017; Sangvigitt et al. 2016). The fourth type of learners within the Honey and Mumford learning model are the pragmatists. Consistent with Honey and Mumford (1989), the pragmatist learners have the ability of perceiving on how to applying the knowledge gained from the learning process into practice within their present reality. Therefore, they are keen to try out whether theories and techniques can work in practice based on the knowledge they gained from the learning process.

2.1.2 Kolb 1984 learning framework

The Kolb's learning cycle is developed using the Jean Piaget's focus on the assumption that learners often create knowledge through interactions with their environment (Kolb 1984). Specifically, the Kolb's learning framework is made of four stages; concrete experience, reflective observation, abstract conceptualisation and active experimentation (McRae and Johnston 2016). In the abstract conceptualisation phase, learners make sense of the events that took place, by drawing conclusions regarding the experience through reflection of their prior knowledge as well as discussing possible theories about the experience with their peers (Stirling et al. 2017). Transformation from reflective observation to abstract conceptualisation is achieved classifying concepts and develop conclusions about the events that took place (De La Sienna-Servin et al. 2017). Therefore, abstract conceptualisation often involves interpretation of experiences as well as performing a comparative analysis to their current understanding on the concept. In the last phase, active experimentation, learners engage in task participation where

they apply their conclusions to the new experiences (Morris 2020). At this stage, learners would have the ability of making predictions, perform analysis of the tasks as well as develop a comprehensive plan for applying the newly acquired knowledge in the future.

Four learning styles can be derived from the Kolb 1984 learning framework; they include accommodating, diverging, converging and assimilating learning styles (Kolb 1984). The diverging learning style is established from the activities taking place at the concrete experience and reflective observation stages of learning (Morris 2020). In the Kolb 1984 Learning Framework, diverging learners have the ability of looking at things from varying perspectives and with a lot of sensitivity (De La Sienna-Servin et al. 2017). Furthermore, these learners prefer collecting relevant information on their own and use imagination as a technique for solving problems. Specifically, Kolb (1984) referred to these learners as diverging owing to the fact that they often perform better in situations which require generation of ideas, such as brainstorming. Assimilating learning preference often involves a concise and logical approach, with the generated ideas and concepts being more important than people (McRae and Johnston 2016). The assimilating learning technique is developed from the activities in the abstract conceptualisation and reflective observation stages of the Kolb 1984 learning framework.

2.2 Role of Online Learning in COVID-19 Pandemic

Rapid technological developments have made distance learning to be easy (Evans et al. 2020). Khalili (2020) and Bryson and Andres (2020) described online learning as an important tool that helps in developing LTA process a more innovative, student-centred and even more flexible. Outbreak of COVID-19 forced most of the institutions of higher learning to adopt online learning as an approach of ensuring social distance among the students and educational practitioners to prevent the spread of this viral infection (Adedoyin and Soykan 2020). Teachers have been using online learning platforms to impart education to students. During this type of learning process, the educators often share study materials and lecture notes through their respective university webpages, emails (Evans et al. 2020). With reference to the arguments by Bryson and Andres (2020), some of the teachers are also using other online social networks such as WhatsApp and WeChat to share audio-visual educational documents. Companies such as Google, Microsoft, Zoom and Slack have added different features to their previously existing products to increase their relevancy during online learning (Khalili 2020; Adedoyin and Soykan 2020). For example, Google updated its Zoom platform to accommodate many parties as well as to support audio-visual recording of the conversations.

Despite the increase use of these online platforms during lockdown, inadequate student engagement prior to such decisions have been reported in many studies (Evans et al. 2020; Khalili 2020; Adedoyin and Soykan 2020). Specifically, Adedoyin and Soykan (2020) claimed that the university senates often make decisions regarding the types of online platforms they would like to use with little integration of the student views, despite them being primary receipts of such services. Most of the institutions did not prepare themselves for complete e-learning process prior to the COVI-19 related lockdown (Evans et al. 2020). Therefore, the efficiency of LTA in e-learning programmes is relatively low compared to the traditional approach. In line with outcomes from Khalili (2020) and Bryson and Andres (2020), some of the challenges associated with online learning include in adequacy of online teaching and assessment skills among educators, inadequate support from the technical teams, preparation of online lesson plans is relatively time consuming compared to the traditional approach as well as traffic overloads within the e-learning platforms. Unfortunately, from the sources I have looked into, none of those studies have developed recommendations for improving efficacy of e-learning process. Therefore, this is an important gap that the proposed study will focus on addressing.

2.3 Online Teaching as a Necessity and Not an Option

Contrary to pre-COVID-19 pandemic, e-learning has become a necessity in the education sector and not an option. Large percentage of the world's population is on lockdown as a result of the serious outbreak of COVID-19; hence many cities have been transformed into phantom cities, with similar effects being experienced among the schools, colleges and universities (Hunter 2020). Even though many colleges and universities had started adopting online teaching, the COVID-19 outbreak fastened the process of switching from offline mode to e-learning mode of pedagogy (Rainbow and Dorji 2020; Mulenga and Marbán 2020). Regardless of the importance of online LTA during this pandemic period, challenges such as social trust and social order have been reported (Besser, Flett and Zeigler-Hill 2020; Chatterjee and Chakraborty 2020). Confidence in e-learning process and its interaction with the society can either support or undermine it success. Institutions of higher learning must put in place different forms of online pedagogical approaches and use the technology more aptly in order to ensure continued LTA even during the lockdown and quarantine periods. Therefore, this health crisis has forced those institutions previously reluctant in adopting online LTA to accept the modern technology.

In a study by Hunter (2020) focused on assessing the rate of digital migration among the colleges and unities in the United Kingdom, it was reported that about 72% of such institutions

have completed transferred their LTA programmes to online platforms as an approach of abiding by the NHS recommendations for COVID-19 prevention and management. Despite the possible impacts of COVID-19 on the educational sector in relation to school closure, the crisis has helped in increasing the use of online platforms hence influencing improved digitisation of the education sector (Sandars et al. 2020). Critics of complete online learning implementation have raised concerns about the possible influence of this approach on widening attainment gaps between students from wealthy and poor backgrounds, in addition to most and least deprived areas (Besser, Flett and Zeigler-Hill 2020; Rainbow and Dorji 2020). Evidence on strategies for enhancing student engagement, involvement and participating during e-learning process has not been extensively reported by the available studies.

During the COVID-19 pandemic, concerns are not about the ability of online LTA, but how the learning institutions can improve their adoption rates of e-learning approach (Hunter 2020; Chatterjee and Chakraborty 2020). Therefore, quality of education can be negatively impacted by this novel approach if not properly regulated. In order to comprehensively understand the impacts of COVID-19 on learning process, different aspects need to be taken into consideration: the effects of COVID-19 on the process of education among schools, universities and colleges, major challenges experienced by educational education stakeholders during this pandemic as well as the most appropriate strategies that can be used to ensure successful realisation of educational goals in the presence of COVID-19 pandemic (Besser, Flett and Zeigler-Hill 2020; Rainbow and Dorji 2020; Mulenga and Marbán 2020). The traditional campus learning has been substituted with e-learning and teaching activities, which are completely new to some institutions. Even though Sandars et al. (2020) noted that the adoption of online learning has enabled most institutions to fulfil their course and credit requirements for graduation, Mulenga and Marbán (2020) on the contrary argued that the e-learning platforms do not have tools for supporting development of social, leadership and problem-solving skills as in the case of campus-based education. Therefore, the available online LTA programmes need advancements in order to enable students register positive soft-skills development.

2.4 Regulations for Learning Continuity During COVID-19 Pandemic

Transition to a blended learning approach has been rapid and effective owing to the impacts of COVID-19 pandemic on the UK education system. The UK Department of Education has developed a strategic and operational plan for ensuring smooth transition in the 2019/20 and 2020/21 academic years regardless of the impacts of COVID-19 pandemic on the education sector (Reich et al. 2020). Specifically, charting a path through the COVID-19 crisis

has involved two main phases. The first phase involved incorporation of emergency actions to be executed immediately before and during the early stages of lockdown in order to implement educational continuity plan, perform risk analysis, close campuses in order to ensure safety of students and educational staffs as well as to develop most effective strategies that may be used for promoting continued teaching and assessment processes for the remainder of the 2019-20 academic year (Gamage et al. 2020). Consistent with the explanations by Gamage et al. (2020) and Hussain et al. (2020), involvement of students' unions and student representatives within the COVID-19 planning team and committees was important for inclusivity purpose and ensuring that the students' grievances are accounted for during the policy formulation and implementation process. Prior to the pandemic, most of the institutions of higher learning in the UK reported a good working relationship between the university and the students' unions, hence the need to strengthen such relationships during- and post-lockdown periods.



Chapter 3: Methodology

3.1 Research Methodology

The study is quantitative in nature hence positivism philosophy and deductive approach will be adopted. According to Barnham (2015), the primary purpose of quantitative research is to generate knowledge and create understanding of the social world. The selection of quantitative design was influenced by the need to collect data from a large sample size and ensure generalisability of the study outcomes to whole of the UK higher education sector. Through deductive reasoning, the proposed study will begin with hypothesis development, which will then be tested using generated knowledge.

3.2 Target Population and Sampling Approach

The study targets United Kingdom-based university students aged 18 years and above. The study targets to recruit between 50 and 100 students as participants. A simple random sampling approach will be used for participant recruitment. In a simple random sampling, each person is selected entirely by chance and has equal chance of being included in the study (Creswell and Creswell 2017). Therefore, selection of this sampling approach was influenced by its ability to limit possibility of selection bias.

3.3 Data Collection Methods

Data collection process will be executed using structured questionnaire approach, supported by Google Forms. An important strength of questionnaire is based on its ability to enhance collection of large volumes of data from target population within a short time compared to interview approach (Creswell and Creswell 2017). Therefore, this approach is appropriated as data from university students located in different parts of the UK is targeted for collection. As an approach of abiding by the NHS recommendations on COVID-19 prevention, both the participant recruitment and data collection will be conducted through online platform. The researcher will send direct messages to UK university studies through their social media accounts, such as Facebook, Twitter, WeChat. Additionally, a webpage link to the survey questions will be sent to the recruited students through their emails.

3.4 Data Analysis Methods

Complete form containing the survey responses will be downloaded from the Google Forms database in an Excel support format for further analysis. The initial plan was to analyse data using the Statistical Package for the Social Sciences (SPSS) software. However, this was

not possible because of the time limitations as data analysis using the SPSS software often takes a lot of time and requires high level of competency for most appropriate outcomes to be generated. Therefore, data analysis process will be executed using Microsoft Excel. According to Winston (2016), the Microsoft Excel has built-in pivot tables and formulas which are used for aggregating data so as to create meaningful reports about the research phenomenon being studied. Therefore, Microsoft Excel is an appropriate tool that will be used for analysing data from different participants to produce outputs whose interpretation will lead to generation of new knowledge about the impacts of online teaching on student engagement.

3.5 Ethical Considerations

Ensuring anonymity of participants and confidentiality of data are some of the key responsibilities of every researcher (Connelly 2014). Anonymity of the participants will be promoted in this study. Instead of using their actual names, every participant will be assigned special code such as Part001, Part002 in that order. Furthermore, participants' university names will be kept confidential. Within the questionnaire, there is no where they will be asked to provide specific information that can be used to reveal actual identity of their universities.

3.6 Research Limitations

Key limitation of this study is its inability to assess the personal perception of the university students about the impacts of online teaching of their level of engagement, because of the use of a quantitative approach. Even though generalisability of study outcomes will be improved using a quantitative methodology, the sample is relatively small in relation to the fact that is study targets whole of UK university student population. Time is also another limitation in addition to the fact the everything is also limited due to COVID-19.

3.7 Resources

The following resources will be required for successful completion of this study;

- University library for identification of relevant peer-reviewed studies and secondary data sources.
- Google Form for quantitative data collection.
- Microsoft Office / Microsoft Excel for data analysis.

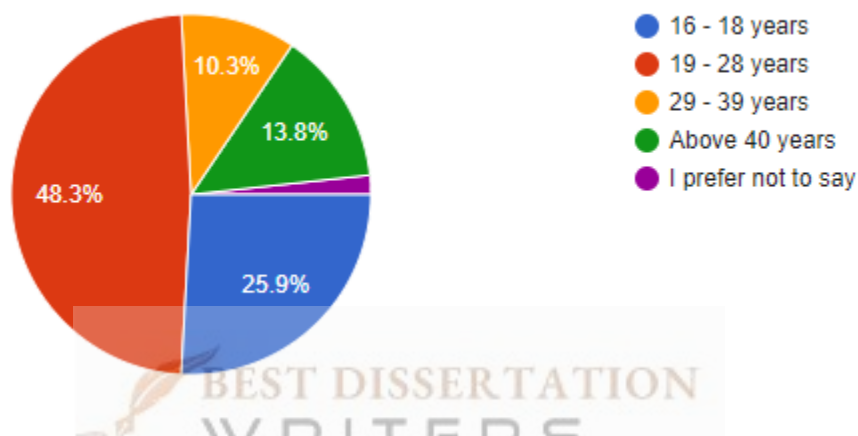
Chapter Four: Findings, Discussion and Analysis

4.1 Findings

4.1.1 Demographic characteristics of the participants

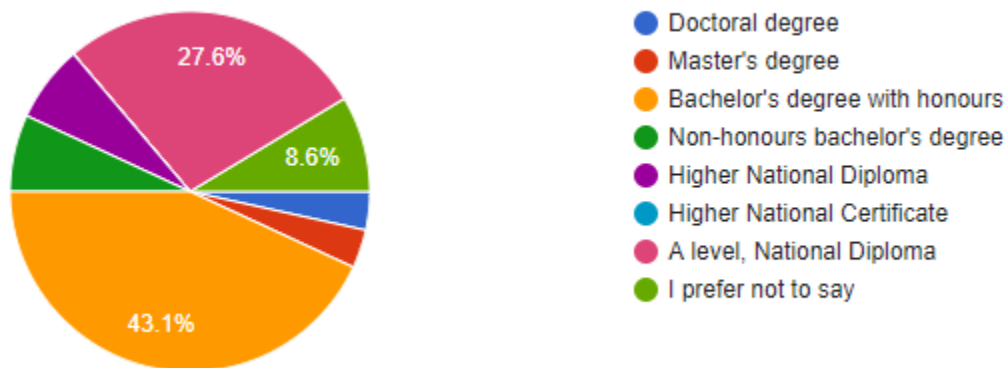
A total of 58 participants were included in the present study 41 (70.7%) of them being males and 16 (27.6%) were females, with only 1 (1.7%) participant preferring not to specify their gender. Figure 1 below shows the age distribution of the participants (see Appendix 2, Part A for tabular presentation of the results).

Figure 1: Age of the Participants



In terms of their current level of education, 25 (43.1%) were pursuing bachelor's degree with honours, 16 (27.6%) of the participants were at A level, national diploma, 4 (6.9%) were pursuing higher national diploma and non-honours bachelor's degree respectively, with the other 2(3.4%) participants being doctoral degree and master's degree students, respectively. However, 5(8.6%) of the participants preferred not to specify their level of education. Figure 2 below shows level of education for the participants (see Appendix 2, Part A for tabular presentation of the results).

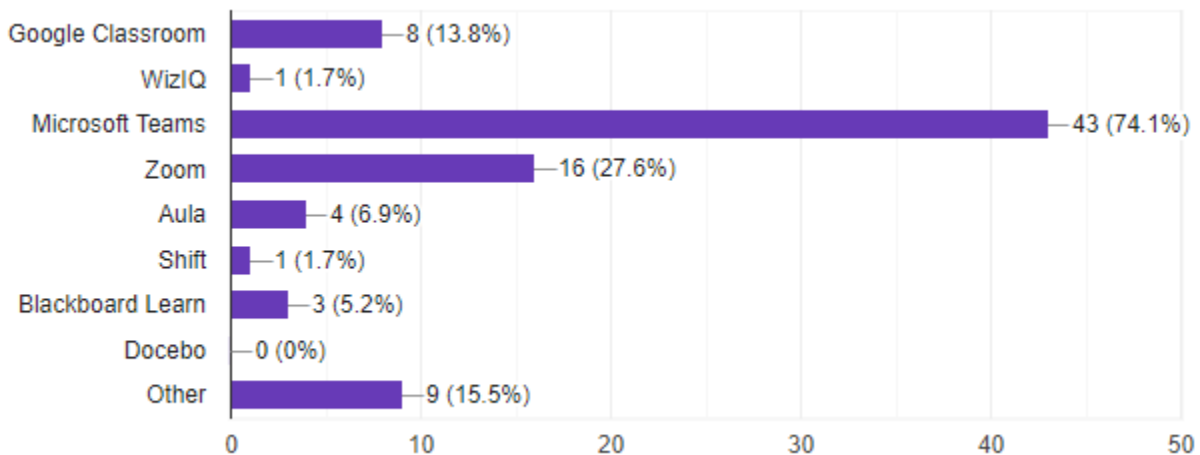
Figure 2: Participants' Level of Education



4.1.2 Types of online learning tools

Out of the 58 participants, 43(74.1%) of them selected Microsoft Teams as their most preferred tool for online learning, 16 (27.6%) selected Zoom and 8 (13.8%) selected Google Classroom. The other types of online learning tools identified in this study include Blackboard Learn, Aula and Shift which were selected by 3 (5.2%), 4(6.9%) and 1 (1.7%) participants, respectively. The remaining 9 (15.5%) participants selected other online learning tools such as Canvas, Canvas virtual, GoToWebinar, Meet and Moodle. Figure 1 below shows the distribution of online learning tools as selected by the participants (see Appendix 2, Part B for tabular presentation of the results).

Figure 3: Online learning platforms used by the participating students' school

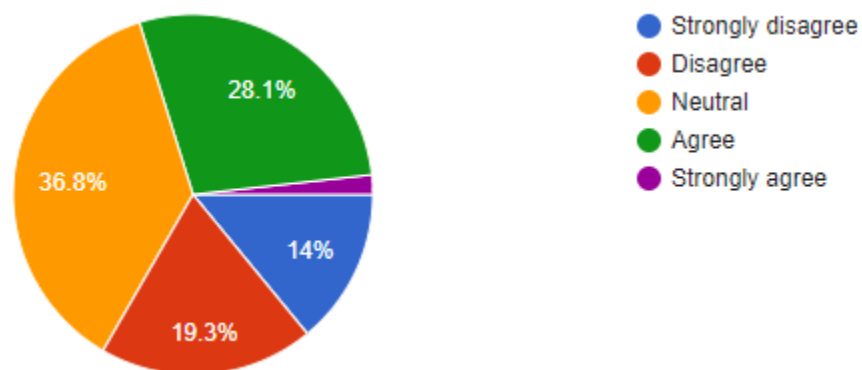


Further analysis showed that not all of the students were provided with all the resources they needed for online learning. Specifically, 43 (74.1%) and 15 (25.9%) participants agreed and disagreed with the statement, respectively. Moreover, 32 (55.2%) of the participants noted that they were consulted by their respective schools or faculties before implementing online learning approaches, compared to 26 (44.8%) who stated that their views and perceptions about the online learning tools were not incorporated during decision making process by their schools when developing new pedagogical approach.

4.1.3 Perceptions of students about efficiency of online learning tools

Perceptions of the participating students in this study regarding efficiency of online learning tools were assessed using 8 questions. The participants responded to the questions using a 5-Point Likert Scale where number 1,2,3, 4 and 5 represented strongly disagree, disagree, neutral, agree and strongly agree. The first question assessed whether the online teaching and learning approaches used in the participants' schools were more effective than the traditional approaches in terms of student engagement; where 24 (42.1%), 17 (29.8%), 9 (15.8%) and 7 (12.3%) disagreed, strongly agreed, were neutral and agreed with the statement, respectively. The second question assessed the ability of current educational approaches used the participating students' schools to enable them conversations, about academic and social life, with other students and academic staff, where 21 (36.8%), 16 (28.1%), 11 (19.3%), 8 (14.0%) and 1 (1.8%) of the participants were neutral, agreed, disagreed, strongly disagreed and strongly agreed respectively. Figure 4 shows the responses provided by the participants about the efficiency of online learning on student engagement (see Appendix 2, Part C for tabular presentation of the results).

Figure 4: Participants' Perceptions About Efficiency of Online Learning in Promoting Engagement



4.2 Discussion and Analysis

The obtained results show that the use of online learning tools has grown in the recent years owing to the impacts of COVID-19 pandemic that have led to the closure of on-campus learning approaches. As shown in the Figure 3 (section 4.1.2), it has been established Microsoft Teams is the most popular online learning tool, with 74.1% representation. Efficiency of Microsoft Teams among other online learning tools such as Zoom and Google Classroom has been extensively reported in the previous literature. For example, Besser et al. (2020) and Sandars et al. (2020) noted that the increased adoption of Microsoft Teams has been witnessed during the COVID-19 pandemic period because of its ability to improve the quality of collaboration among teams as well as making all the conversations, chats, shared files and proceedings from the online meetings to be available within a single application and interface for easy retrieval.

Even though the present study did not assess any possible limitations associated with the online learning tools, evidence from the previous studies by Khalili (2020) and Bryson and Andres (2020) show that security of information shared within the online learning tools, such as Zoom and Google Classroom is not guaranteed as they are many cases where they are accessed by unauthorised personnel. Therefore, these security threats should be addressed, specifically by advising all of the team members and all the students not to share login credentials for the online classrooms through public platforms such as social media. Compared to other online learning tools which mainly support audio-visual communication, Sandars et al. (2020) noted that the Microsoft Teams integrate all the Office 365 applications, which allows the students and instructors to view same Microsoft Word, PowerPoint and Excel files and edit them in real-time and making the online learning process more productive. Therefore, these benefits of Microsoft Teams can be used to understand its increased adoption and implementation by most of the institutions of higher learning in the United Kingdom.

Although online learning has been considered to be appropriate during the pandemic period as a strategy for abiding by the National Health Service's recommendations for limiting community transmission of COVID-19 virus, through implementation of restriction policies such as lockdown and social distancing, its efficiency has been widely criticised by many scholars, such as Bryson and Andres (2020) and Rainbow and Dorji (2020), on the basis that it has widened the attainment gaps between the students from the least and most deprived areas. In order to successfully use the online learning tools, students must have key resources such as stable internet connection, highly effective computer and computer knowledge competency

(Besser et al. 2020). Therefore, individual institutions have the responsibility of ensuring that all the learners have access to such resources before rolling out the online learning programme, as an approach to ensuring inclusivity in higher education.

The present study revealed that not all the institutions of higher education in the UK provide their students with all of the required resources for online learning, a trend that has significantly reduced the quality levels of educational services offered to the students through such platforms. As shown in the section 4.1.2 and Appendix 2, Part B, 74.1% of the participants agreed that they were supported compared to 25.9% of the participants who stated lack of resource-wise support from their universities and colleges. Another key concern reported in this study is poor level of student involvement and consultation regarding the most appropriate online learning tools to be adopted, with 55.2% of the participants reporting that they were consulted compared to 44.8% of them noted that such decisions are made by the school administrations and faculty members with limited or no inclusion of student views. Therefore, the outcomes from this study are inconsistent with those reported in the studies by Evans et al. (2020), Khalili (2020) and Adedoyin and Soykan (2020) which noted that inclusion or involving students during the formulation of learning, teaching and assessment (LTA) tools helps in the development of lifelong skills among learners as the tools are tailored according to their needs and learning abilities.

Furthermore, Hunter (2020) noted that the students should be involved in the LTA formulation and implementation process so that they share their understandings and enable them feel like they have control over their learning and become motivated. Therefore, adoption of specific online learning tools should not be primarily based on the directives by the university and college administration but also students' perceptions. The present study further revealed that the traditional learning approaches were more effective in promoting student engagement than the online strategies, with 17 (29.8%) and 7 (12.3%) of the students strongly agreeing and agreeing with the statement, respectively.

The obtained results can be interpreted using the arguments by Bryson and Andres (2020) that the online learning approach does not provide the students with sustainable structural support as in the case of on-campus or in-person learning process, as the students are required to be more independent and responsible for their own learning with limited opportunities to seek clarifications about the concepts they have not understood. Even though not consistent among all the participants, this study established that the online LTA programmes have limited the ability of the learners to have conversations about academics and social life with their peers and faculty members. Chatterjee and Chakraborty (2020) compared to the

quality of social life among students between the on-campus learning and online learning approaches and revealed that online learning has created boredom and isolation among learners. Through online LTA, students are able to receive prompt feedback from instructors about their academic performance and progress, compared to the on-campus and in-person learning approach.



Chapter Five: Conclusion and Recommendations

5.1 Conclusion

The primary purpose of this research project was to evaluate impacts of online teaching approaches adopted by the UK institutions of higher learning during the COVID-19 pandemic on student engagement. Furthermore, there were three objectives that this study focused on achieving (1) to evaluate student engagement in the UK higher education sector during COVID-19, (2) to compare and contrast the different methods traditional and online learning in the UK higher education sector, and (3) to assess the perception of students towards online teaching approach, especially those adopted during the COVID-19 pandemic. All the three objectives were successfully achieved based on the nature of outcomes reported in this study. In the context of the first research objective, this study revealed that the level of student engagement in the UK is relatively low owing to the use of online learning strategies, compared to when the traditional on-campus or in-person approaches were used in the pre-COVID-19 period.

Even though not common among all the students who participated in this study, it has been established that online LTA strategies such as Zoom, Microsoft Teams and Google Classrooms have moderate impacted on the quality of student interaction and conversations about their academic performance and social life. Specific to the second research objective, this study identified online LTA platforms such as Microsoft Teams, Google Classroom, Zoom and Aula as the widely used within the UK higher education sector during the COVID-19 pandemic. The other LTA tools reported in this study include WizIQ, Shift, Blackboard Learn, Canvas and Canvas virtual, Meet, Moodle and GoToWebinar. Nonetheless, this study failed to report the specific factors that influenced individual universities and colleges to adopt a specific online LTA platform. In the context of the third objective, this study established that students have mixed perceptions about the efficiency of online LTA approaches in terms of enhanced student engagement, improved quality of education, customisation of learning experience and incorporation of non-academic or curriculum activities into the learning process.

5.2 Recommendations for Future Research

The present study adopted a quantitative research approach which limited the collection of comprehensive information about the participants' perceptions towards the LTA approaches in the context of COVID-19 pandemic. Therefore, future research in this area should consider using either pure qualitative or mixed-methods approach in order to collected detailed data relating to the perceptions, feelings and thoughts of different stakeholders in the UK higher education sector, such as students, instructors and representatives from the Department of

Education. Evidence from such studies would be more comprehensive compared to the results reported in the present study. Furthermore, focusing on the efficiency of the online LTA platforms in general led to the creation of knowledge with low generalisability levels as there was no detailed information about a specific type of online learning tool. Therefore, future research should specify the types of online LTA who efficiency is to be assessed. Evidence generated from such studies may be used by the universities and colleges seeking to incorporate online LTA during- and post-COVID-19 pandemic to make information decision based on the strengths and weaknesses of individual tools.



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Appendices

Appendix 1: Sample Questionnaire

Part A: Personal Information

This section contains 3 questions. Please select the most appropriate answer from the multiple choices

1. How old are you? Please select the most appropriate age bracket from the list below.

- 16 - 18 years
- 19 - 28 years
- 29 - 39 years
- Above 40 years
- I prefer not to say

2. What is your gender?

- Male
- Female
- Non-binary
- I prefer not to say

3. What is your current level of education?

- Doctoral degree
- Master's degree
- Bachelor's degree with honours
- Non-honours bachelor's degree
- Higher National Diploma
- Higher National Certificate
- A level, National Diploma
- I prefer not to say

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Part B: Types of Online Learning Tools

This section contains 4 questions. For Question 1, you are expected to select one or more online learning platforms you are using, or you have used. Question 2 is only relevant if the online learning platforms you have used are not presented in the list (Question 1). The Question 3 and 4 are in “Yes” or “No” format.

1. Which online learning platform do you use in your school? You may select more than one option if appropriate.

- Google Classroom
- WizIQ
- Microsoft Teams
- Zoom
- Aula
- Shift
- Blackboard Learn
- Docebo
- Other

2. If you selected “Other” in the question 1 above, please specify.

3. Does your school provide you with all resources needed for online learning?

- Yes
- No

4. You were consulted by your school/faculty before their decision to adopt specific online learning tool.

- Yes
- No

Part C: Perception of Using Online Learning Tools

This section contains 8 questions. Please indicate how much do you agree with the following statements. Your perceptions will be assessed using 5-point Linkert scale where; 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, and 5 – strongly agree. For each statement, please select an option that best describes your perception.

1. Online teaching and learning approaches are more effective compared to the traditional approaches in terms of student engagement.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

2. The current educational approaches used in our school allow me to have conversations, about academic and social life, with other students and academic staff.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree



3. My school's online educational platforms incorporate student learning support services to help me with personal and non-academic problems.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

4. I always receive prompt feedback from teachers/tutors on my academic performance and progress following complete adoption of online teaching approaches during COVID-19 pandemic.

- Strongly disagree
- Disagree
- Neutral

- Agree
- Strongly agree

5. I have been able to participate in the community-based projects, such as volunteering, as part of my online coursework.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

6. Online learning approaches allow me to discuss ideas from coursework, readings or classes with others outside class, such as students, family members, co-workers.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

7. Online learning offers a wide selection of programmes.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

8. Online learning allows for a customised learning experience.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Appendix 2, Part A: Demographic Characteristics of the Participants

Question	Responses
Age	
How old are you? Please select the most appropriate age bracket from the list below	16-18 years – 15 (25.9%) 19-28 years – 28 (48.3%) 29-39 years – 6 (10.3%) Above 40 years – 8(13.8%) I prefer not to say – 1 (1.7%)
Gender	
What is your gender?	Male – 41 (70.7%) Female – 16 (27.6%) I prefer not to say – 1 (1.7%)
Level of Education	
What is your current level of education?	Doctoral degree - 2(3.4%) Master's degree - 2(3.4%) Bachelor's degree with honours - 25 (43.1%) Non-honours bachelor's degree - 4 (6.9%) Higher National Diploma - 4 (6.9%) Higher National Certificate – 0 (0.0%) A level, National Diploma - 16 (27.6%) I prefer not to say - 5(8.6%)

Appendix 2, Part B: Types of Online Learning Tools

Question	Responses
Which online learning platform do you use in your school? You may select more than one option if appropriate.	Google Classroom - 8 (13.8%) WizIQ - 1 (1.7%) Microsoft Teams - 43 (74.1%) Zoom - 16 (27.6%) Aula - 4(6.9%) Shift - 1 (1.7%) Blackboard Learn - 3 (5.2%) Docebo – 0 (0.0%) Other - 9 (15.5%); including Canvas, Canvas virtual, GoToWebinar, Meet and Moodle
Does your school provide you with all resources needed for online learning?	Yes - 43 (74.1%) No - 15 (25.9%)
You were consulted by your school/faculty before their decision to adopt specific online learning tool.	Yes - 32 (55.2%) No - 26 (44.8%)

Appendix 2, Part C: Survey Outcomes for the Perception of Participants about Online Learning

Question	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
Online teaching and learning approaches are more effective compared to the traditional approaches in terms of student engagement.	17	29.8	24	42.1	9	15.8	7	12.3		
The current educational approaches used in our school allow me to have conversations, about academic and social life, with other students and academic staff.	8	14	11	19.3	21	36.8	16	28.1	1	1.8
My school's online educational platforms incorporate student learning support services to help me with personal and non-academic problems.	4	7	10	17.5	18	31.6	23	40.4	2	3.5
I always receive prompt feedback from teachers/tutors on my academic performance and progress following complete adoption of online teaching approaches during COVID-19 pandemic.	3	5.3	15	26.3	9	15.8	28	49.1	2	3.5
I have been able to participate in the community-based projects, such as volunteering, as part of my online coursework.	11	19.6	24	42.9	15	26.8	4	7.1	2	3.6
Online learning approaches allow me to discuss ideas from coursework, readings or classes with others outside class, such as students, family members, co-workers.	5	8.8	13	22.8	17	29.8	18	31.6	4	7

Online learning offers a wide selection of programmes.	7	12.3	7	12.3	14	24.6	23	40.4	6	10.5
Online learning allows for a customised learning experience.	7	13	16	29.6	13	24.1	11	20.4	7	13

