A critical evaluation of the impact online education platforms can have on disadvantaged students at a Post 16 Secondary Academy: A Case Analysis

Ben Eley
Head of Sixth Form

Ben Eley is Head of Sixth Form at a Secondary Academy in the UK and is a lead a team of examiners for the AQA's GCSE English Language Exam Paper. He has extensive knowledge of utilising technology in the classroom having successfully improved disadvantaged students grades through online education platforms.

E-mail: ben.eley24@gmail.com

Dr Jonathan Lord
Senior Lecturer, University of Salford, UK

Dr Jonathan Lord is a Senior Lecturer in HRM at Salford Business School. He has previously been a HR Director, Manager and Consultant, working across all three sectors. Jonathan is a Chartered Fellow of the Chartered Institute of Personnel and Development (CIPD), a Fellow of the Higher Education Academy, Member of the British Academy of Management and Industrial Law Society.

His specialist research area focuses on the improving workplace lives, concentrating on how this is governed as well as how the protection of workers has developed over many centuries. He has research extensively around employment tribunals and their importance within the employment relationship.

University of Salford, Room 334, Maxwell Building, Salford, M5 4WT, UK

E-mail: j.d..lord@salford.ac.uk

Abstract

Disadvantaged students have, historically, underperformed in comparison to non-disadvantaged students (DofE[1]) with the COVID-19 pandemic further widening it (EPI[2]). The case study in this project (the Multi Academy Trust) wanted to bridge the attainment gap between these sets of students through evaluating practical methods of raising achievement in the school's Post 16 Disadvantaged students, who were on average, almost half a grade behind their counterparts in every subject.

The authors initially investigated the use of online education platforms to supplement the learning of disadvantage learners in their cohorts, with staff and students trialling each programme before a decision was made to purchase a package. Considering the recommendations of staff and students, funding was used from the UK government's 16-19 Tuition Fund, bursary and the Uniconnect programme to purchase four platforms: (1) Massolit, (2) Future Learn, (3) Uplearn and (4) SnapRevise that students would access to improve their grades. By the end of the study, the disadvantaged cohort at Post 16 outperformed the non-disadvantaged by a third of a grade.

The results were significant enough to suggest that it is worth pursuing further; the average grade achieved by the disadvantaged cohort was a C+ compared to the non-disadvantaged students' average overall grade of a C.

The findings from this case study indicate that having a clear understanding of digital poverty, how it affects the student population and what measures can be put in place to provide an equal online learning environment for all, is key to providing disadvantaged students with the opportunity to achieve in line with their peers. Forging successful relationships with all the stakeholders, through training, effective monitoring and interventions can also maximise disadvantaged student achievement.

KEYWORDS: Digital Poverty, Attainment Gap, Disadvantaged Students, Online Education Platforms

1

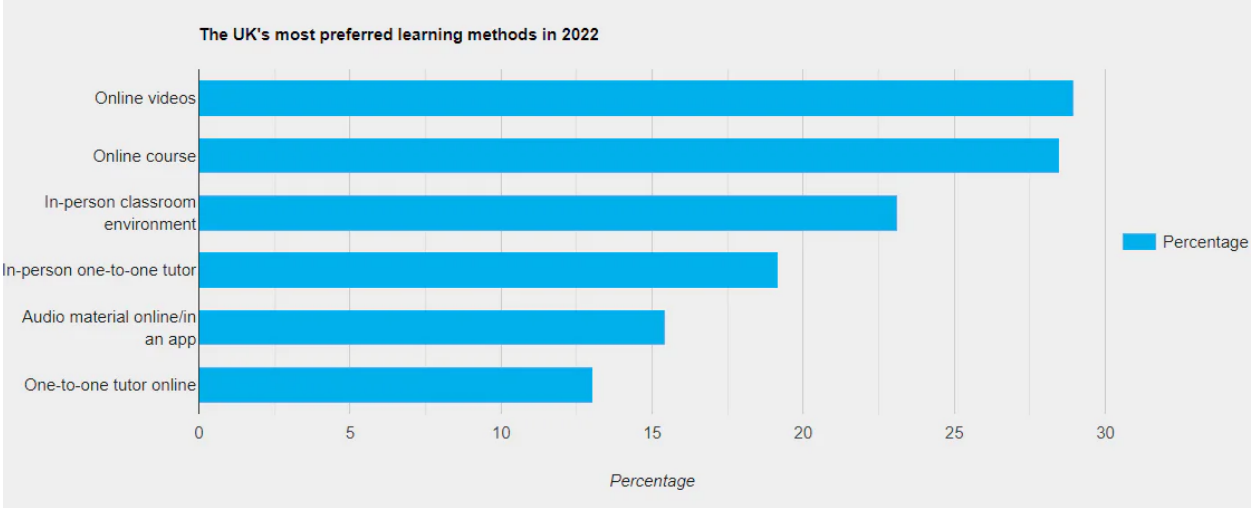
2

Introduction and rationale for the investigation

The COVID-19 pandemic significantly altered the landscape for both the e-learning market and the achievement of disadvantaged students with the Education Policy Institute[3] publishing a summary of findings that stated that disadvantaged students experienced greater learning losses than their peers because of the pandemic. The same report highlighted the disadvantaged grades gap widened in 2022, with disadvantaged students behind their non-disadvantaged peers by an average of 3.1 grades over their best three qualifications.

As lockdowns were enforced during the pandemic remote learning became the prominent way to deliver education which facilitated a necessity for education institutions, globally, to evolve and innovate especially in light of the exponential increase in demand for online learning (see fig.1).

Fig. 1 More Learners are accessing online learning[4]



It is also important to note that representatives of Generation Z are more adept at using technology, which makes them more receptive to a blended approach to education that uses e-learning platforms[5] which has also contributed to a rise in demand for e-learning platforms.

3

4

5

Therefore, with the E-learning market forecasted to grow by 21% between 2021 and 2027[6], educational institutions need to adapt to the demand for online learning and incorporate its practices in order to harness better outcomes for their students.

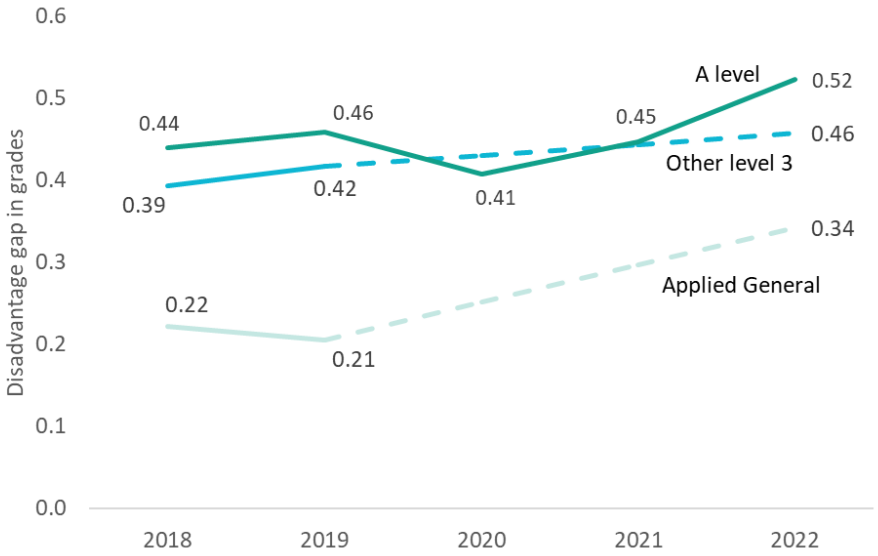
This study focused on a UK Secondary Academy from a Multi Academy Trust which is based in the second most deprived Lower layer Super Output Areas (LSOA) as per the English indices of deprivation[7]. There are more than 190 staff members with over 1,100 students in the Academy and is currently rated as a 'Good' school by Ofsted as a result of the last inspection in 2019.

For the purpose of this study, disadvantaged students were defined as those who were identified as being eligible for Free School Meals in any of the four years prior to completing their GCSEs at the end of Key Stage 4[8]. In 2022, 24% of students included in the yearly analysis of 16-19 study programmes were classed as disadvantaged[9]. Area-based deprivation, which provides additional funding from the Uniconnect programme has also been considered when selecting the students for the project.

The gap in educational attainment between disadvantaged students and their peers is substantial during the 16-19 phase of education. The Education Policy Institutes[10] findings suggest that disadvantaged students on average drop almost half a grade per subject compared to their peers (See Fig 2). Although slight, this gap has been increasing in recent years – with no national data during the COVID pandemic, it will be interesting to see whether this gap has widened even further.

6
7
8
9
10

Fig 2. Disadvantage attainment gap per qualification by type, 2017 to 2022[11]



The widening gap is a concern at a national level; additional government funding to support Covid-19 catch up learning, known as the 16-19 Tuition Fund, was introduced to try and redress the imbalance (ESFA 2022). Engagement in online learning has been discussed as a way to address this, with researchers finding a connection between online learning engagement and academic performance[12]. This contributed to Wilder et al's[13] earlier study that found students whose independent time includes constructive learning activities achieve better than those that do not engage in out of school learning. The DfE's[14] own report into the learners' experience of COVID documented that many participants wanted to have sessions recorded and resources available online to be accessed freely.

Ensuring disadvantaged students achieve in line with their peers is of paramount importance to the success of the Academy at Post 16 level. The Covid-19 pandemic and the closure of schools through the lockdowns had a greater impact on disadvantaged pupils than non-disadvantaged, thus widening the disadvantage gap[15].

11
12
13
14
15

In recognition of this, the Education and Skills Funding Agency created the 16 to 19 Tuition fund, which allocated additional funds for students with low prior attainment and / or economic disadvantage. With such a high number of students who qualified for this, the academy was awarded over £10,000 in additional funding to be spent on small groups or one to one tuition. This is additional funding, in combination with that already given to the academy through the bursary (£12,000) and Uniconnect programmes (£2,000), enabled the authors to research and invest in online educational platforms such as Uplearn, SnapRevise, Massolit and Future Learn with the intention of raising the achievement of the disadvantaged cohort. These platforms were selected through student and teacher trials – SnapRevise and Uplearn were chosen by Science and Maths students / teachers predominantly with Massolit and Future Learn being favoured more by the Social Science students / teachers. Financial constraints would usually limit choice, however funding given in light of the pandemic brought with it a broader scope and an opportunity to investigate the use of these platforms further with the specific intention to critically evaluate the impact of online education platforms on disadvantaged students in the academy.

Historically, disadvantaged students (pupil premium/Free School Meals) had underperformed in comparison to non-pupil premium students[16]. The Academy in this case study wanted to bridge the attainment gap between these sets of students as when the target cohort (Year 13) sat their GCSE's they achieved just under half a grade worse per subject than non-pupil premium students as outlined in table 1 below:

16

Table 1. The Academy's Average Total Progress 8 Data

All	-0.21
Non PP (DC: Other - Not Disadvantaged)	-0.08
PP (DC: Disadvantaged)	-0.52
GAP	0.44

The growth of online Learning

Literature on digital approaches to education has been growing exponentially since COVID-19 forced education to move onto a digital platform due to the lockdown policies implemented by governments across the globe[17]. However, literature on the subject began in earnest in the 2000s, with seminal texts such as *The study of wired schools*[18] and *Teaching and Learning in the Digital Age*[19]. These texts focussed more on how computers could be used to support pedagogy within the school environment and how computer use in school has changed over time, but even Brown[20] highlighted a fourth wave in his metaphor stating that students would begin to learn directly from the information available on the internet.

As technology has improved and proliferated, research has moved towards blended learning approaches that enable students to study independently and in remote settings. This is evidenced in recent publications such as *Advancing Learning within and Beyond the Classroom*[21] and *Blended learning: the new normal and emerging technologies*[22], who espouse the integration of face-to-face teaching and online instruction and suggest that that results demonstrate that this approach improves success

17
18
19
20
21
22

rate for all students. With regards to Dziuban's research, it was important to consider that it was conducted prior to COVID and the education platforms that have evolved from it.

The speed of technological change contributes to the ambiguity when trying to define online learning and this is perhaps best demonstrated by Singh and Thurman[23], who produced a literature review on the definitions of online learning made between the years of 1988 and 2018. Within this timeframe alone, they found 46 separate definitions, thus demonstrating the inconsistencies of approach regarding defining the concept and makes pinning down a universally agreed definition a challenge for academics.

The UK's regulatory body for school's view of online learning have incorporated it into a more holistic term: Ofsted[24] expanding that it is "often known as online learning, this is remote learning delivered through digital technologies." In addition to this, Ofsted's remote education research document tries to break down the concept of online learning further by drawing clear distinctions between synchronous and asynchronous remote education. Synchronous remote education being defined as learning conducted live, such as real time lessons delivered by Microsoft Teams, however, it also incorporates other live online mediums such as chat groups, one to one discussions and live tutorials. The antithesis of this is Asynchronous remote education, where material is prepared that can be accessed by a student at any time. Pre-recorded videos, pdfs, online quizzes, textbooks and tutorials are examples of digital, asynchronous education resources.

Whilst both synchronous and asynchronous remote education rely on digital technology, there is an additional element of asynchronous remote education that does not – the use of workbooks and paper packs that are taken/sent to the students' home. Which is used may be determined by practical limitations around technology, and teachers often use a mixture of the two[25]. These observations that practical limitations around technology could be expanded to incorporate access to technology in the first instance and this brings into consideration the damaging effects of digital poverty on raising achievement in disadvantaged students.

23
24
25

The challenge when defining online learning seems to be that it is constantly evolving. In 2002, Curtain reached a broad definition: that online learning could be defined as the use of the internet in some way to enhance the interaction between the teacher and the student[26]. As synchronous remote education blossomed through the use of Microsoft Teams or Zoom, it is necessary to refine this definition. For the purpose of this study, online learning will be defined as "education being delivered in an online environment through the use of the internet for teaching and learning"[27]. Online learning is not dependent on a student's location, either virtually or physically and the teaching content is delivered online through platforms that supplement and enhance a student's learning and interactivity in either a synchronously or asynchronously.

What is an Online education platform and Digital Poverty?

An online educational platform is a webspace or portal designed for learning that contains educational content and resources. It is a platform that provides integrated support for creation, organisation, delivery, communication, collaboration and assessment within an educational context[28]. Such platforms can be free for use or restricted by membership. Restricted platforms require either registration, payment or membership of an institution to gain access. Although not widely considered as an online education platform, social media can also provide educational benefits and there are academics espousing the benefits of incorporating online social tools into learning platforms as a means of raising motivation and engagement[29]. Conversely, there are studies that have looked at the limitations of using social media in education. For instance, doubts have been raised about the effectiveness of the platforms for deeper learning – students share content and read messages, but seldom engage in debate and questions[30].

It is important to note that although academic research on the online learning environment is in its relative infancy, academics have already highlighted conflicting views

26
27
28
29
30

regarding the benefits and disadvantages for student learning. For example, whilst Terras and Ramsay[31] extolled the benefits of repeatedly watching online video lectures to increase learning opportunities for students, Lin and Chen[32] mentioned that students watching online video lectures might ignore important content or be too distracted to process it. Although both studies make points that are still relevant, the fact that both occurred before COVID, means that they will not be as effective in terms of commenting about what is happening now as both circumstances and technology has changed.

Another key benefit of online learning is the inherent flexibility of the platforms – anytime access to these programmes and the ability to choose the content to digest means that they are less rigid and more accessible for students.[33].

Viehland and Leong[34] surmised that an online learning platform's perceived ease of use directly affects both a student's motivation to use it and the continued use of the platform itself. This was an important factor for consideration when setting up the project as students needed to be comfortable operating these platforms to engage fully.

Digital poverty is defined by the Digital Poverty Alliance[35] as the inability to engage and interact with the online world fully, whenever, wherever and however an individual chooses to[36]. Their evidence review pointed towards 5 determinants of digital poverty – (1) devices and connectivity, (2) access, (3) capability, (4) motivation, and finally, (5) support and participation. It was important to ensure that these determinants were factored into the intervention strategies used to raise achievement in the disadvantaged students within the cohort.

The first determinant of digital poverty, Device and Connectivity, is concerned with access to an appropriate internet connection, access to an appropriate device (smartphone, laptop, tablet, desktop computer) and the availability for using it. This is the first gateway to online learning and one that would need to be tackled for online learning

31
32
33
34
35
36

interventions to have a positive impact on the disadvantaged cohort within the academy. Lucas et al's[37] study of 1,233 school leaders and 1,821 teachers found that the proportion of students who had restricted or no access to IT at home was 23%. More concerningly, there were over twice as many students with no IT access in the most deprived schools (39%) compared to schools not in areas of deprivation 19%.

These findings were further supported by Ofcom's Online Nation report of 2021 where they found that 1 in 5 students do not have access to an appropriate device[38]. Finally, Nominet's Digital Youth Index[39] reports that as much as 42% of young people are not adequately connected – meaning that they are lacking in either a home broadband connection or a computer. Further research by Parkin et al[40] supported the consensus by stating that 28% of secondary school parents lacked a stable internet connection; 32% stated that devices were shared across the family and 26% highlighted a lack of printing equipment.

The next two determinants – access and capability have been included together here. Although access can relate to the availability of devices and connections mentioned in the paragraphs above, it also relates to how a user access information on the internet. This goes hand in hand with a person's capability to engage in a digital world for if they do not have the fundamental digital skills, they will continue to be in digital poverty. A study conducted by Lloyds Bank in 2021 found that 2.7 million people in the UK lack the ability to use the internet even though they have access for it. Furthermore, 11.7 million were found to lack the essential digital skills for everyday life[41]. One must consider that Lloyds Bank runs a digital champion programme and may use this data and their work here as part of a branding/marketing campaign so there may be an element of bias in there. However, taking these figures on technological literacy into account means that when considering digital poverty in remote education, it was important to analyse the extent to which the students in the project were being digitally excluded due to the fact that their parents do not have the digital skills, time or capacity to support their online

37
38
39
40
41

learning[42]. Parental encouragement and support in using home computers/internet for educational purposes plays an important role in a student's engagement in online learning[43]. For the purpose of this live project, this meant ensuring that both the students and the parents had the necessary skills to access the online platforms.

The final two determinants of digital poverty can also be linked: motivation and support. Lacking the motivation to acquire digital skills and/or access online learning can often be linked to other forms of disadvantage [44]. The costs associated with getting online (equipment, broadband etc) might be the root cause of student apathy towards online learning for example. Another issue linked to motivation to engage with online learning was a fear of failure. The OECD reported that in every school system outside of Italy and the Netherlands, socio-economically advantaged students reported more self-confidence than their disadvantaged peers[45]. Support and participation are seen by many as the best way to tackle a lack of motivation and the other elements of digital poverty. 66% of people preferred to learn from people that they trusted, i.e. friends, family, or work colleagues[46]. The project had to involve all stakeholders in order to garner the 'buy in' required to maximise the effects of these interventions.

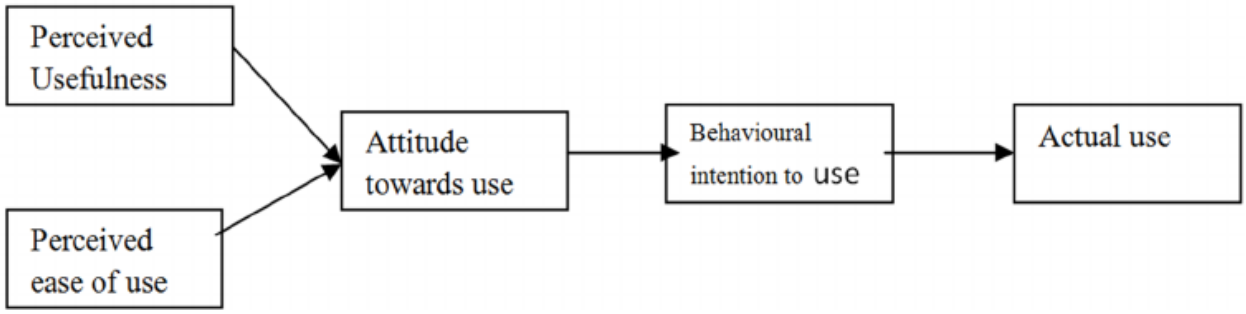
Application of the Technology Acceptance Model

To aid in the required 'buy in' of stakeholders mentioned in the previous section, it was important to consider the technology acceptance model[47] and how it could be applied to the project. The technology acceptance model asserts that the acceptance of technology is determined by the perceived usefulness and the perceived ease of use of the technology in question. These two belief constructs help to predict a user's behavioural intention and as a consequence, the likelihood that the technology will be accepted[48].

42
43
44
45
46
47
48

Davis intended for TAM to be a framework that would enable developers and practitioners to consider how best to implement a new system. Fig. 3 demonstrates the original TAM model; its popularity has been attributed to its simplicity[49]. This simplicity, however, has led to further developments of the model as criticisms centred around the subjective nature of evaluating behavioural intentions.

Fig 3. The original technology acceptance model TAM[50]



For the purpose of this study, a derivation of TAM, known as TAM 3 was used as this provided a list of defined determinants to perceived ease of use[51] that helped to shape the approach to the introduction and management of the e-learning platforms for the students in the study. Initial questionnaires centring around each student's computer self-efficacy demonstrated that the project was on fertile ground, with all respondents confident in their ability to use a computer. It is worth noting here that other demographics within the UK as well as people in developing nations may not be so computer literate and as a consequence, self-efficacy would become a more significant consideration at the planning stage of a project like this.

Nevertheless, with a degree of confidence in the student participants with regards to self-efficacy, the focus fell upon the perception of external control and objective usability determinants. By implementing initial training sessions for the students and their parents, alongside timetabled lessons, the intention was to enable students to feel

49
50
51

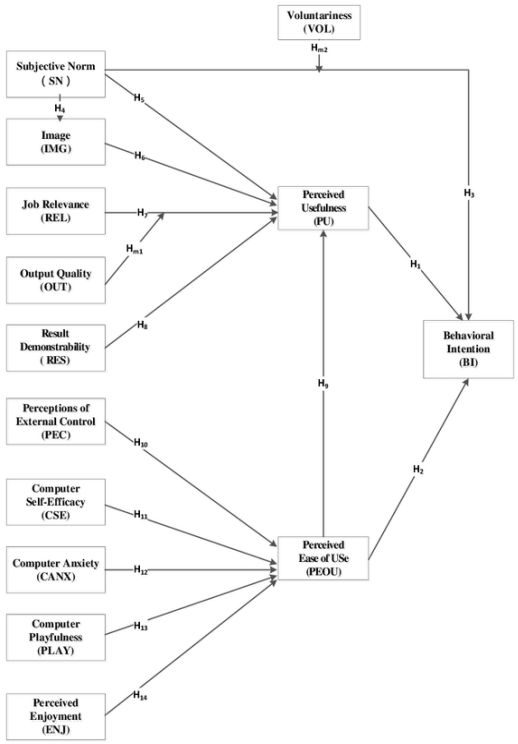
comfortable using the platforms swiftly, something that evidently worked, with 86% of students questioned later in the study expressing their comfort with the platforms themselves.

Ensuring that all participants had a laptop and reliable broadband connection, alongside expert staff trained on each platform, resulted in a high level of confidence that students would perceive the platforms to be easy to use. Bearing all this in mind, one is inclined to agree with Maruping et al's[52] proposal that behavioural expectations should be used to predict the acceptance of new technology, rather than behavioural intention. Having and communicating high expectations for student use of the platforms is likely to be more impactful when compared to students' own intentions for platform use.

Finally, results demonstrability had a significant impact on the perceived usefulness of the platforms. Interestingly, the Uplearn platform has an A/A* guarantee if a student completed the course and maintains 90% engagement. This was intentionally highlighted to both students and parents when the project began. At the end of the project, Uplearn was the platform with the highest number of engagement hours (three hours more per student, per week compared to the second placed platform.

52

Fig 4. A modified technology acceptance model developed TAM 3 by Venkatesh and Bala (2008[53])



CASE STUDY METHODOLOGICAL APPROACH

For the purpose of this study, a mixed methods approach was deemed the most appropriate with a Triangulation design being adopted. This framework was used to make direct comparisons between the quantitative data produced by exam results, data on time spent engaged in online learning and internal progress data, with the qualitative findings from the student interviews and observations. Utilising this method served to legitimise the data by fusing the differing strengths and non-overlapping weaknesses apparent in quantitative and qualitative methods[54]. A standard model for analysing the data was adopted where the quantitative and qualitative data on the topic of online learning was collected and analysed at the same time.

53

54

The overall sampling strategy adopted was non-probability as there was a target group in mind although purposive sampling, the selection of students with particular characteristics (in this case that they were all disadvantaged students), was also applied to ensure that the research questions were answered appropriately. As a result, the exclusion criteria for this project were any student who was not classified as a disadvantaged student.

For the purpose of the study, the data collected derived from questionnaires, interviews and focus groups.

For the individual interviews within this study, it was decided to utilise semi-structured interviews. Focus group interviews were also used within this study and these were semi-structured too. The secondary data used in this project was published data from government publications, the SISRA analytics package and private companies, such as Uplearn.

Quantitative data received through questionnaires was analysed through the built-in analytics package provided by the Microsoft Forms platform, using Excel. Qualitative data received through the various interviews were analysed through Nvivo.

Experience of Online Learning: Student Questionnaire

The target group of 30 students were interviewed just as they were finishing their summer exams with 100% of respondents participating.

One hundred percent of the focus group had access to both the internet and a personal device to access it on. This ensured that all of the disadvantaged students in the study had comparable and equitable treatment during the project as academy funding was spent on ensuring that all had access that was appropriate to ensure that they could participate fully[55].

Question 3 was concerned with access to a private space for study at home with 93% of respondents confirming that they did, with the remaining 7% of students lacking

55

such a space. With such a high proportion of students having such a space, there could be said to be some universality in the resources available to them in the project. In hindsight, data accuracy may have been improved by ensuring that all had access to some form of private space at home.

Question 4 required students to respond to the statement: “I felt comfortable using the educational platforms to study” with 86% of the students agreeing or strongly agreeing that they were comfortable using these online platforms. This also demonstrated a certain universality of experience for the students involved in the project. It could also suggest that the initial training on the programmes and the use of specifically allocated lesson/small group intervention time to allow teachers to support these students was successful in allowing students to access the platforms freely.

Question 5 asked students to confirm how many hours they spent on average per week accessing their online education programmes. This data would be cross-checked alongside the published user engagement hours on Uplearn and the weekly progress tracker as well as the student progress and achievement data to get a clearer picture.

Question 6 focussed on how students would prefer to use their directed study time with 55% of students believing their directed study time was best served using online platforms; with 41% preferring to do this from home. This could relate to their growing maturity as students – it would be interesting to see whether there is a noticeable difference between the answers of a Year 13 student and that of a Year 12.

Conversely, question 7 seemed to counter the previous question by suggesting that the best way to receive feedback in order to improve outcome is face to face with 67% preferring the more traditional feedback style (to be able to interact with the person giving feedback) compared to 3% of the group who suggested that they preferred feedback via an online platform. This personal interactivity with a teacher is still the biggest hurdle for online education platforms to overcome and is something that students were asked to elaborate on in the interviews/focus groups.

Question 8 asked students to confirm whether they felt that their use of online education platforms, through this study, had improved their knowledge of subjects with 93% stating that they had improved because of these platforms.

Question 9 discussed the ways in which the online education platforms helped to improve a student's academic achievement. The most commonly used words in student responses were 'knowledge gap' (90% of respondents mentioned this term), flexibility (90% again) and 'consolidation' (the word itself or words to that effect were in 73% of all responses). For the vast majority of respondents, it was clear that online learning was seen as a way to address gaps in their knowledge and consolidate their learning in a particular subject at a time that best suited them. One student's response seemed to sum up the experiences of many when they wrote that online learning: "*helped to fill in gaps that may have been skimmed over in class and sometimes explain concepts in a different way. It is like having two teachers that can explain it and sometimes I understand one more than the other.*" The simile used here is an excellent way of demonstrating the effectiveness and potential impact in raising disadvantaged students' achievement. Providing an alternate mode and a differing perspective/delivery of a topic aids a student's understanding.

Furthermore, a separate response mentioned: "*being able to access these platforms to solve any potential issue with learning without having to ask my teachers for assistance is a large benefit that encourages people to find out a solution for themselves".* The ability for students to access information at a time that best suits the student was mentioned frequently as an added benefit as the author saw students who logged similar numbers of hours on these platforms take completely different approaches to when they accessed them – some did it wholly at home whilst others used these platforms in their directed time. Key words in the responses to this question were also used in the creation of the codes used to interpret the interview data through the deductive coding method.

The final question (Question 10) concerned itself with how students felt online platforms could be best used to raise their achievement. Popular answers focused on 'directed study' (83% of respondents mentioned this), 'teacher absence' (67%) and 'revision' (77%). Student responses highlighted the need for direction when it came to

raising achievement through the use of these platforms. Although 83% of students mentioned that online study needed to be directed, this figure increased to 93% when combined with mentions of working “in tandem”, “conjunction” and “alongside” taught lessons. An important success criterion therefore in raising achievement in this group of students is to ensure that teachers of these subjects factor the online platforms into their teaching to ensure that their learning is relevant and coherent with the scheme of lessons. This is something that conforms to stakeholder theory as students needed to see the benefits of these platforms. Teachers, therefore, play an important part in fostering a student’s motivation for this type of learning.

One would expect students to suggest that these platforms were good for revision purposes, especially as the students in question would have been on exam leave prior to answering this final questionnaire. The use of online learning to cover for teacher absence was an insightful point from students and could certainly save academies money in terms of cover and supply staff. It was interesting that this was mentioned by students in the same week that there was national press coverage about school absences hitting a six month high due to Covid-19[56]. Eight per cent of teachers and school leaders were absent on 7th July[57]; staff and student absence in the two years that this focus group of students went through Sixth form was significant due to Covid-19. Clearly the experience that these students had may have led to them proposing the use of online learning to counter the loss of learning due to absence.

Experience of Online Learning: Student interviews and focus groups

The transcripts were analysed using a deductive coding method based on the results of the student questionnaire. 6.5% of the coverage related to students discussing the motivations behind their use of online learning platforms. One student in the focus group described succinctly why they were motivated to use online platforms: *“So when it comes to learning, I find online platforms useful as you can’t exactly pause a lesson to complete your notes or consolidate your knowledge if you were unsure about it. Online you can pause, re-watch and search for information to aid your learning instantly.”* The

56

57

ability of online education platforms to offer flexibility in terms of how students digest the content is something that 90% of all respondents to the online questionnaire mentioned too. These statistics seem to reinforce Houlden's[58] view, stated in the Literature Review earlier, that Flexibility is a key selling point for these platforms.

6.5% of coverage in these responses discussed the benefits of having online educational platforms such as Uplearn and SnapRevise deliver content specifically linked to the syllabus that the students were studying. Two areas for development were next in terms of which themes had the most coverage. The first linked to student observations that the platforms weren't as intuitive (or words to that effect) as they would have liked. This took up 4.8% of the conversations and was summed up by one student who said: *"When I'm online and want a specific answer to a question quickly, I would just google it; these platforms make you learn content in chunks and often I would have to go through sections or videos I didn't want just to get the answer I was looking for. That wastes my time."*. The second area for development identified was the need for more live interactions on these online platforms (4.7% coverage). Students cited the need for body language in their interactions and feedback: "I want to see the person who is delivering a session or feeding back – non-verbal cues help my understanding", "body language is really important, especially when getting feedback". These two areas certainly present opportunities for improvement in this group of students' eyes.

Returning to more of the positive aspects of online learning platforms, students felt that they were distracted less (4.1%) which was commonly linked with mentions of accessibility (3.9%) and flexibility (1.2%). 3% of the coverage focussed on discussing an increase in engagement with online learning since COVID and 3% of the discussion centred on how these platforms consolidate learning. Finally, in terms of what students found most beneficial in terms of learning content on these platforms, students identified the gamification of learning through activities and the awarding of xp (experience points) alongside videos (1.7% of coverage). As one student noted: *"I like the idea of being*

58

awarded xp – it reminds me of earning achievement points on my xbox – it adds a little bit of competition for me and my friends."

Online education platform engagement hours

When looking at the student engagement hours with regards to the different learning platforms, it is worth adding the caveat that only two of the platforms kept track of the engagement data (Snaprevise and Uplearn), all other data came from the student's own logs. This data cannot also measure student productivity on these platforms. Future studies may want to consider analysing the xp points earned alongside the hours spent engaging in the platforms to work out an average xp score per hour that would suggest productivity. With that being said, what can be gleaned from this data set was that Uplearn logged the most engagement hours, with each student, per week averaging 13.2 hours on the platform. The next highest was SnapRevise, where students averaged 11.4 hours.

Students engaged with Massolit for 6.2 hours per week, whilst other platforms (Seneca, Future Learn etc) accounted for 5 hours on average per week. Massolit and the other platforms catered for the social sciences and students spent less time on them compared to those students using Uplearn and SnapRevise. The latter two platforms focus mainly on the Science subjects and Maths; there seems to be an opportunity here for further research as to why these subjects tend to see more platforms and more student engagement online than the social science subjects.

Student engagement hours per subject emphasises the point that the Science, Maths and IT students tend to engage with online learning more that students of the social sciences. Chemistry (16.1 hours on average), Physics (15.8), Biology (14.2) and IT (12.2 hours) are the subjects with the most online learning hours whilst English Literature and Geography are the least with 5.8 and 5.1 hours respectively.

Student Progress data and exam results

The initial set of progress data when this study commenced (see Table.2) demonstrated that there was no discernible gap between disadvantaged and non-disadvantaged students in progress, average points and average grade. It is important to note that the disadvantaged cohort had already bridged the -0.44 gap in progress that

was apparent in their GCSEs (data for this was in the introduction) therefore the impact seen later needs to consider that the disadvantaged cohort was already improving.

Table 2. *Final Mock Exam Results for the academy's Year 13 cohort in January 2022*, prior to the project beginning

	Non PP	PP (Disadvantaged students)
Average points per entry	30.54	30.52
Overall VA (Value Added)	-0.25	-0.23
Average Grade	C=	C=

The summer exam results (Table 3 below) show an improvement in the grades of the disadvantaged student focus group. These students have, on average, exceeded their target grades in all subjects as evidenced by the overall value-added score of 0.16. The disadvantaged students gained close to half a grade from January and June. Their average grade in this time went from a C to a C+ whilst the non-disadvantaged students made a much slighter gain in Value added and remained on a C grade average from their January data. In terms of Value Added, the disadvantaged students achieved a third of a grade higher on average compared to their non disadvantaged counterparts.

Table 3. *Summer Exam Headline figures for the academy's Year 13 cohort, August 2022*

	Non PP	PP (Disadvantaged students)
Average points per entry	31.16	34.11
Overall VA (Value Added)	-0.15	0.16

Average Grade	C=	C+

Subject Specific Data

When looking at student performance data by subject, Value Added was seen as the best data set to analyse. This is because the measurement is fairer – rather than measuring on a student's final grade[59], Value Added measures how well they did in comparison to the grade that, students of their ability achieve nationally. Therefore, impact can be measured on the student's performance in comparison with their ability. It must be noted however, that this data measures each student's performance over the two-year course rather than the 6-month project, so there will be several other factors that could contribute. As a result of this, no definitive answers could be gleaned – again, this could be explored further in future studies.

The disadvantaged group of students who were the focus of the project outperformed their non-disadvantaged counterparts in IT (0.6 of a grade better in terms of Value Added), Chemistry (0.93), Biology (0.18), Physics (0.95), Maths (0.13), History (0.2) and English Literature (0.72). When comparing this data alongside the online engagement data by subject in 4.2.1, there seems to be a correlation between those subjects that had high student engagement in terms of hours spent online and the higher performing subjects with regards to Value Added in the exam data. Disadvantaged students in the Science subjects, Maths, and IT outperformed their non-disadvantaged peers and had the highest engagement levels with online learning platforms. It is important to note that disadvantaged students from both the History and English Literature A levels also outperformed their peers even though their engagement with these online platforms was less.

Contrary to the data presented, Psychology was the sixth highest subject in terms of online platform engagement, yet the disadvantaged students performed, on average, half a grade worse in terms of value added compared to their peers. Geography, PE and

59

Sociology students also achieved less; this suggests that further study with regards to the subjects that lend themselves to online learning platforms better would be beneficial.

Table 4. *Summer Exam Headline figures for the academy's Year 13 cohort, August 2022*

Subject	Value Added Non PP	Value Added PP
IT	-0.54	1.14
Geography	0.01	-0.12
PE	0.66	-0.25
Chemistry	-1.12	-0.19
Biology	-0.19	-0.01
Physics	-0.65	0.3
Maths	-0.03	0.10
Psychology	-0.2	-0.7
Sociology	0.2	-0.4
History	0.52	0.72
English Lit	-0.28	0.44

At an individual level, there were some significant improvements in overall grades (See Table 5. below). Four of the five biggest improvements came in Science and Maths, which seems to correlate with the subject engagement and subject performance data.

Student A improved their grade significantly in the five months between January and the exams. Their online learning platform engagement for this subject was 286, which averaged out to 13 hours per week. Student E's improvement came with 85 hours of engagement with their online platform. This came at an average of just over 2 hours a week.

Table 5*. Most significant student grade improvements compared to their engagement hours with online learning*

	Subject	Overall Online Engagement Hours in the subject	Grade in January	Final Grade
Student A	Biology	286	U	C
Student B	Maths	223	D	B
Student C	Physics	247	D	B
Student D	Physics	212	E	C
Student E	History	85	C	A

Why is stakeholder theory so important to the success of online educational platforms within a secondary academy?

The qualitative and quantitative data suggests that students, one of the key stakeholders in the success of online learning platforms within the academy, engaged with the project, thus creating more value for themselves and the academy[60]. The academy's approach to use bursary funding to ensure that students in the focus group

60

owned a personal device and had access to the internet at home was a success as 100%. Digital poverty was also combated through the academy's training sessions for students to ensure that they could access the platforms for the project. 86% of students agreed that they felt comfortable accessing these platforms and the remaining 14% responded in a neutral fashion.

Further support for stakeholder engagement with this project can be seen through the focus groups and online engagement hours. With 3.9% of the focus group discussions covering the accessibility of these platforms and the online engagement data suggesting that student engagement in these programmes was high during the project (an average of 9.1 hours per student, per week). There is certainly room for further research on the correlation between the number of hours spent on these platforms and the academic results as there is some correlation between the number of hours studied in Maths, IT and the Sciences and improved value-added scores in those subjects. For more accurate stakeholder data, it would have been worth measuring the levels of engagement with online learning prior to the project beginning, with specific focus on student engagement with each subject.

Are online educational platforms effective in raising the attainment of disadvantaged students?

Taking both the qualitative and quantitative data into consideration, the results suggest that there is some potential for correlation between the use of online learning platforms and an improvement in the grades of the disadvantaged student focus group. The disadvantaged students within the focus group have reversed the national trend[61] as they have performed better than their non disadvantaged counterparts by a third of a grade on average. The disadvantage group's increase from an overall value-added score of -0.23 to 0.12 equated to an almost half a grade increase in the five months that the project ran. With an average of 9.1 hours of online platform engagement per student per week over the same period and 93% of all students suggesting that their subject

61

knowledge improved using such platforms. Again, this is clearly another avenue for future investigations to pursue.

It is important to note however, that whilst these results suggest a correlation, there are many factors that could also have an influence here. For example, it may have been that students did not prepare adequately for their mock exams in January compared to their final exams. The data collected is not a perfect predictor of subsequent performance, especially when the exam questions and particular aspects of the topics tested were not the same. Future studies might look to test students on the same questions/knowledge to increase the validity of data and over a longer time period to get more of an accurate picture.

The data from this project can be seen to concur with Almahasees et al's[62] view that effectiveness of online educational platforms can, in part, be attributed to the flexibility of such platforms in allowing students to access materials at a time that suits them best. The focus group data highlighted that the inherent flexibility within these platforms was a motivating factor for our students, with 6.5% of the coverage relating to this topic. This evidence is further supported through the questionnaire's evidence that 90% of all respondents cited it as a way that these platforms helped to improve their academic achievement. Finally, the student engagement data seems to corroborate that the flexible approach allows students to control their learning and improve attainment.

Further research into how the students utilise this flexibility in terms of 'where they access the learning', 'what times they access it' and 'how they access these platforms' would be beneficial here.

Conclusions

For institutions looking to use online learning platforms to raise attainment in disadvantage and/or non-disadvantaged students, it is recommended that an audit of student access to devices and the internet and their digital skills is undertaken during the project's infancy. This is to highlight any student who is in digital poverty so that steps can be taken to address this in order to ensure the platforms are accessible to the students.

62

It is often assumed that these students have strong digital skills just because they are young[63] and this isn't always the case.

Engagement of all stakeholders can make in impact on the success of these platforms. Student, teacher and parent involvement in the selection of these platforms and is a way to increase this. Selecting platforms that specifically tie to the syllabus is also beneficial as observed by student focus group feedback on the matter. Training all stakeholders in how to effectively use the platforms is also one way to heighten the impact. Once these are in place, the focus should be on how the engagement is monitored. Ensuring that staff are using the platforms and setting work and that students and parents are engaging in this requires clear lines of responsibility. For this project, student engagement was monitored by their classroom teacher at individual subject level and by their form tutor for all of their subjects. Teacher engagement was monitored by the heads of department, with the Head of Sixth form having oversight on the project.

The client in this project wanted to bridge the attainment gap between disadvantaged and non-disadvantaged students which had been evident in this cohort's GCSE results. The expectation was that the authors would put interventions in place to raise disadvantaged students' achievement and to this end, the project has had some success as disadvantaged students outperformed their peers during the summer exams. Evidence that these online learning platforms have played a part in this success has been noted, but the true extent to its influence would need further research.

63

References

1. DofE. (2022). 16 to 18 accountability measures - update. , (June). [online]. Available from:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1084464/16-18_accountability_guidance_update.pdf.
2. Education Policy Institute (EDI). (2021). Measuring the disadvantage gap in 16-19 education
3. Education Policy Institute. (2022). Covid-19 and Disadvantage gaps in England 2020. *Education Policy Institute*, pp.2013–2015.
4. CIPHR - UK & global virtual learning statistics 2022
5. El Refae, G.A., Kaba, A. and Eletter, S. (2021). Distance learning during COVID-19 pandemic: satisfaction, opportunities and challenges as perceived by faculty members and students. *Interactive Technology and Smart Education*, 18(3), pp.298–318.
6. GMI. (2021). *E Learning Industry Analysis*. [online]. Available from: https://www.gminsights.com/industry-analysis/elearning-market-size.
7. Ministry of Housing Communities and Local Government. (2019). National Statistics English Indices of Deprivation 2019. *Ministry of Housing, Communities & Local Government*, 2019, pp.1–31. [online]. Available from: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019.
8. Department for Education. (2018). Post-16 education: outcomes for disadvantaged students England. , (November).
9. Education Policy Institute 2023
10. Education Policy Institute 2023
11. Education Policy Institute 2023
12. Xhomara, Nazmi & Karabina, Mirela. (2021). The Influence of Online Learning on Academic Performance and Students' Satisfaction. 10.33422/3rd.iaceducation
13. Wilder, T., Allgood, W. and Rothstein, R. (2008). Narrowing the Achievement Gap for Low-Income Children: A 19-Year Life Cycle Approach Prepared for the 2008 Equity Symposium of the Campaign for Educational Equity, "Comprehensive Educational Equity: Overcoming the Socioeconomic Barriers to School Success.

14. DfE. (2022). 16-19 Learners ' Experiences of the Covid-19 pandemic. , (May).
15. Twist, L. et al. (2022). The Impact of Covid-19 on pupil attainment : A summary of research evidence. , p.20.
16. Gorard, S. (2022). What is the evidence on the impact of Pupil Premium funding on school intakes and attainment by age 16 in England? *British Educational Research Journal*, 48, 446– 468.
17. Schleicher, A. (2020). The impact of COVID-19 on education: Insights from education at a glance 2020. *OECD Journal: Economic Studies*, pp.1–31. [online].
18. Brown, M. (2004). *The study of wired schools: a study of Internet Using Teachers*.
19. Starkey, L. (2012). Teaching and Learning in the Digital Age. , (2012), pp.126–127.
20. Brown, M. (2004). *The study of wired schools: a study of Internet Using Teachers*.
21. Lightbody, B. (2021). *Advancing Learning Within and Beyond the Classroom*.
22. Dziuban, C. et al. (2018). Blended learning: the new normal and emerging technologies. *International Journal of Educational Technology in Higher Education*, 15(1), pp.1–16.
23. Singh, V. and Thurman, A. (2019). How Many Ways Can We Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018). *American Journal of Distance Education*, 33(4), pp.289–306.
24. Ofsted. (2021). Remote education research. *Education, universities and childcare during coronavirus*, pp.1–33. [online]. Available from: https://www.gov.uk/government/publications/remote-education-research/remote-education-research.
25. Coleman, V. (2021). Digital Divide in Education during COVID-19 Pandemic. *Cambridge Assessment Report*, 55(3), pp.103–112.
26. Curtain, R. (2002). Online delivery in the vocational education and training sector. [online]. Available from: http://www.flexiblelearning.net.au.
27. Singh, V. and Thurman, A. (2019). How Many Ways Can We Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018). *American Journal of Distance Education*, 33(4), pp.289–306.

28. Kats, Y. (2010). *Learning management system technologies and software solutions for online teaching: Tools and applications*.
29. Faizi, R., El Afia, A. and Chiheb, R. (2013). Exploring the Potential Benefits of Using Social Media in Education. *International Journal of Engineering Pedagogy (iJEP)*, 3(4), p.50.
30. Cheong Li, K. and Wong, B.T.-M. (2020). *Social Media in Higher Education: A Review of Their Uses, Benefits and Limitations*.
31. Terras, M.M. and Ramsay, J. (2015). Massive open online courses (MOOCs): Insights and challenges from a psychological perspective. *British Journal of Educational Technology*, 46(3), pp.472–487.
32. Lin, Y.T. and Chen, C.M. (2019). Improving effectiveness of learners' review of video lectures by using an attention-based video lecture review mechanism based on brainwave signals. *Interactive Learning Environments*, 27(1), pp.86–102. [online]. Available from: https://doi.org/10.1080/10494820.2018.1451899.
33. Houlden, S. (2019). A posthumanist critique of flexible online learning and its "anytime anyplace" claims. *British Journal of Educational Technology*, 50(3), pp.1005–1018.
34. Viehland, D. and Leong, R.S.Y. (2007). Acceptance and use of mobile payments. *ACIS 2007 Proceedings - 18th Australasian Conference on Information Systems*, pp.664–671.
35. Digital Poverty Alliance. National Delivery Plan 2023
36. Faith, B., Hernandez, K. and Beecher, J. (2022). Digital Poverty in the UK. *Institute of Development Studies*, (202).
37. Lucas, P., Robinson, R. and Treacy, L. (2020). What is data poverty? *NFER*, (December), pp.7–16.
38. Ofcom. (2021). Online Nation 2021. , (June), p.16. [online]. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0013/220414/online-nation-2021-report.pdf.
39. Nominet (2023).Digital Youth Index 2023 report
40. Parkin, T., Caunite-bluma, D. and Jenavs, E. (2020). Technology Use in Schools During Covid-19: Findings from the Edurio Covid-19 Impact Review.

41. LLoyds Bank. (2021). Essential Digital Skills Report 2021.
42. Talaee, E. and Noroozi, O. (2019). Re-conceptualization of ‘digital divide’ among primary school children in an era of saturated access to technology. *International Electronic Journal of Elementary Education*, 12(1), pp.27–35.
43. OECD. (2020). Strengthening online learning when schools are closed. *Tackling Coronavirus (COVID-19): Contributing to a global effort*, pp.1–14.
44. Faith, B., Hernandez, K. and Beecher, J. (2022). Digital Poverty in the UK. *Institute of Development Studies*, (202).
45. OECD. (2019). What school life means for students lives - self-efficacy and fear of failure. , III(Volume III), pp.187–199.
46. LLoyds Bank. (2021). Essential Digital Skills Report 2021.
47. Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13 (3), 319.
48. Marikyan, D. & Papagiannidis, S. (2023) Technology Acceptance Model: A review. In S. Papagiannidis (Ed), TheoryHub Book. Available at http://open.ncl.ac.uk / ISBN: 9781739604400
49. Ajibade, Patrick, "Technology Acceptance Model Limitations and Criticisms: Exploring the Practical Applications and Use in Technology-related Studies, Mixed-method, and Qualitative Researches" (2018). Library Philosophy and Practice (e-journal). 1941.
50. Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13 (3), 319.
51. Raeisi, Soheila (2016). Factors Influencing to M-Commerce Adoption in China. The International Journal of Business & Management
52. Maruping, L., Bala, H., Venkatesh, V. and Brown, S (2016). Going beyond intention: Integrating behavioral expectation into the unified theory of acceptance and use of technology VL - 68 DO - 10.1002/asi.23699 Journal of the Association for Information Science and Technology
53. Venkatesh V, Bala H. Technology acceptance model 3 and a research agenda on interventions. Decis Sci 2008 May; 39: 273-315 doi: 10.1111/j.1540-5915.2008.00192.

54. Patton, M. (1990). *Qualitative Evaluation and research methods*. Sage.
55. Camilli, G. (2006). Test Fairness. *Educational Measurement*, (January 2006), pp.221–256.
56. Weale, S. (2022). School absences hit six-month high in Covid 'wake-up call'. *The Guardian*. [online]. Available from: https://www.theguardian.com/education/2022/jul/12/school-absences-highest-since-january-covid-government-data.
57. Statistics, O. of N. (2022). Attendance in education and early years settings during the coronavirus (COVID-19) pandemic. [online]. Available from: https://explore-education-statistics.service.gov.uk/find-statistics/attendance-in-education-and-early-years-settings-during-the-coronavirus-covid-19-outbreak [Accessed August 23, 2022].
58. Houlden, S. (2019). A posthumanist critique of flexible online learning and its "anytime anyplace" claims. *British Journal of Educational Technology*, 50(3), pp.1005–1018.
59. Centre for Evaluation and Monitoring (CEM), 2017- What is value-added and how does it help? [online]. Available from: https://www.cem.org/what-is-value-added
60. Langrafe, T. de F. et al. (2020). A stakeholder theory approach to creating value in higher education institutions. *Bottom Line*, 33(4), pp.297–313.
61. Tuckett, S., Robinson, D. and Bunting, F. (2021). Measuring the disadvantage gap in 16-19 education. *Education Policy Institute*, 8, pp.251–255.
62. Almahasees, Z., Mohsen, K. and Amin, M.O. (2021). Faculties and Students' Perceptions of Online Learning During COVID-19. *Frontiers in Education*, 6(May), pp.1–10.
63. Coleman, V. (2021). Digital Divide in Education during COVID-19 Pandemic. *Cambridge Assessment Report*, 55(3), pp.103–112.