

Student Experiences of Using Online Material to Support Success in A-Level Economics

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Abstract—Current research has demonstrated that the leap from GCSEs to A-Levels is the greatest transition learners will go through in their educational journey. This paper looks into student attitudes towards utilising online resources to succeed in A-Level exams. Students are now expected to retain information across the two-year course, so this research looks into how educators can support such learning. Data tracking, questionnaires and interviews were conducted with Year One Economics students in a 16-19 educational institution in South-East England. The research identified that students require online resources to support them in their knowledge construction and retention; however, educators need to be wary of making certain assumptions. Learners' digital capabilities are still developing, so educators need to promote online resources that will support learner needs, as well as ensure that the material is both accessible and easy to use.

Keywords—Consolidation; independent; resources; linear; technology-enhanced learning; digital; inclusive learning

1 Introduction

It has been widely reported that the leap from GCSEs to A-Levels is the greatest transition learners will go through in their educational journey. The course content is far more in depth, and the level of analysis required is much more intense, but one of the major concerns is the level of independence expected in 16-19 education [75]. The recent reform, resulting in a new linear A-Level has put even more pressure on learners to manage their time and find ways to retain information across their two years of study, something which diverges from the legacy modular exams.

This research aims to look at whether educators are offering a diverse enough range of techniques to support learners in the new linear A-Level climate. The research focuses specifically on 16-19 education due to the current gap in research for this learner age range. As [37] noted, students do not always know how to learn and so instructors need to teach or modify relevant study techniques.

A reform in A-Levels means educators must redesign delivery to maintain engagement with materials over a two-year study period, rather than in the context of modular assessments. It is therefore necessary to explore the potential of technology in the new climate and whether learners feel it is being utilised to its full capacity [51]. Most educational institutions will have some form of online learning environment, whether it be a VLE (virtual learning environment), or an online portal, but are these resources sufficient to support learners' educational journey? Educators have been accustomed to taking the lead in the classroom, but perhaps it is now time to switch the roles and learn from the students. It is with this in mind that we pose the following research questions:

- With what frequency did students engage with the online material provided over a three-week period?
- Which day did the online material receive the highest traffic?
- In a new, linear world, what are learners' attitudes towards using online resources to succeed?

2 Rationale

These questions are of particular interest as further education institutions are facing harsh financial conditions and so must learn to adapt to growing demand in cost-effective ways [94]. If we can begin to understand what works in supporting learners, then we can streamline our design processes, as well as maximise student engagement. It is also necessary to explore how online materials can support learners by developing more inclusive learning environments [50]. Utilising technology in and outside of the classroom helps to address some of the key expectations set by [73]. According to Ofsted, colleges (16-19 education) must offer flexibility within learning programmes, whilst also enabling learners to meet their individual aspirations of achieving success [82]. Ofsted encourages colleges to offer a variety of opportunities to connect with a wide range of learners [49].

The purpose of this study is to identify the extent to which the online Economics Study Directory (ESD) of a 16-19 educational institution meets the needs of the current cohort and what elements could be improved to better support success in the new linear climate [88]. As [93] noted, there is gap in existing research regarding student preferences around digital platforms in education, and whether current usage meets those preferences. As [50] has identified, most learners have access to at least one digital device, so it is important for educators to understand if the time invested in creating online material is actually targeting learning needs, or whether it is more efficient to focus efforts in a new direction. This netnography is also an investigation as to whether learners have the ability pick and choose which resources are suitable for them in their journey to develop independent learning skills [17].

The drive behind this research is to shift the responsibility and ownership of learning from the teacher to the student [49, 50], through empowering the latter to make use of available materials [67]. The age of compulsory education in the UK has recently changed from 16 to 18, meaning that students who might have finished school

to enter the workforce at 16 are now expected to continue with their studies for an additional two years. This increases the likelihood of disengaged learners, so it is now more vital than ever to provide more flexible and differentiated learning experiences [45].

Ensuring students receive a quality learning experience should be at the core of every institution. To ensure this is the case, we must look to students' opinions and attitudes: these opinions must be collected, noted and responses must be provided [51]. Delivering a successful formula for a technology-enhanced product is impossible without knowing how the stakeholders feel about the current mix [94]. Devising successful frameworks of virtual and physical education landscapes needs to be driven by the end user, in that learners become part of building more successful learning environments [15].

The research is not designed to give conclusive evidence that can easily apply across subject areas or further education institutions, but it is designed as a starting point for understanding how learners prefer to engage and interact with support materials [27]. The research also acts as a reminder for educators that they too have capacity to learn, and sometimes the students can be the best teachers [3]. Educational research is an extremely powerful tool because it can help to address issues happening 'right now'. Rather than making assumptions based on historical data, this research actively interacts with the envisaged end users to design effective solutions [78].

3 Critical Literature Review

Barriers to success in technology-enhanced learning have been identified, alongside suggestions regarding how educators can overcome these [51]. Technology-enhanced learning is vital in further education because the transition from GCSEs to A-Levels can already spark elements of anxiety and stress [82]. It is essential for educators to understand how to reduce such pressure by designing inclusive and flexible learning environments [28].

While using technology may at times hinder *real* conversations [95], it can nevertheless make space for more dynamic classroom conversations [79]. Although there has been a vast range of research looking into the changing landscape of education [49], due to insufficient funding, a consistent gap remains in the UK 16-19 sector, particularly in researching learners' readiness for life beyond college. As a result, most UK-based research is out of date and not evidence-based [52], with most relevant research taking place abroad. This review focuses on peer-reviewed research published in 2000 onwards, as this is the period in which education has seen the most significant increase in the use of technology, with the exception of [90], although the findings of that paper hold true even today. Common themes have emerged from the research that circle back to the following issue: students want to use technology to support their understanding of topics, but educators are unsure or lacking confidence in how to implement such strategies within and outside of the classroom [82].

Our first focus, and the purpose of the literature review, is to gain insight and contextualise to the value of our research topic. Next, the history of technology-enhanced

learning is explored to show the benefits such delivery for learners [50]. Some barriers to success are also considered within the literature review, mainly to note that a lack of confidence is a key concern. Finally, the review looks at the importance of the authentic learner voice [80].

Technology-enhanced learning is synonymous with flexible pedagogies [34], and therefore educational institutions must adapt to learners via new approaches to teaching [93]. Learners' spend the majority of their leisure time using social platforms supporting that we are transitioning from the industrial age to the information age [26]. Technology-enhanced learning is not just the use of devices in the classroom [56]; it also includes improving learners' capacity to decide 'when, where and how' to learn [43, 34]. The implementation of technology into education has meant learners can work at their own pace and in some cases [3], almost duplicate the experience of learning in a traditional classroom [64].

The recent A-Level reform means that courses are no longer divided into modules; instead, learners sit all exams at the end of their two years of study [72]. The mindset behind the change was to allow teachers to focus on contextualising the subject, rather than gearing delivery to meet the demands of an external assessment [1]. The purpose of the reform seems ideal, however, as *The Independent* identified through a survey of over 5,000 learners aged 16 to 19, the new exams have led to a significant increase in mental health concerns, anxiety and self-harm [76]. The overwhelming response was that learners felt underprepared for their exams, with 84% struggling to cope with the increased academic demands [76]. The biggest factor for this outcome was the lack of practice papers, and more worryingly, especially in the context of the modern era of instant news access, textbooks being out of date [76].

The research delves into learners' mind-sets [79] about how technology can lead to success [46], so it can be of interest to those hoping to comprehend student perceptions about the current use of technology within education. Like most innovations, the process alone does not promote deep learning, but embedding technology alongside strategies such as 'interleaving' (the mixing and practising of multiple skills together) [74], can help foster deeper understanding [98, 103]. When curricula are designed to meet the needs of the notional 'average learner' [14], educators often end up designing inadequate instruction [102]. In such cases, very rarely is the reality of learner variability [14] taken into consideration [49]. Technology allows for more flexible and supportive learning environments [40]; in addition, the 'Universal Design for Learning' (UDL) framework provides educators with insight around how to 'select and transform/augment' materials to better create inclusive learning environments [70]. Institutions have the power to lead the economy down a certain path [20], which shows the strong connection between economic change and educational change [68]. Education must be less worried about rote learning and focus more on creative thinking [65]; by consistently engaging and motivating learners through technology, practitioners can change what it means to learn by showing the relevance of technology in the real world [39].

3.1 Technology-enhanced learning

Technology should be integrated not for its own sake, but to meet the emerging needs of digital learners, so that they leave education and enter the developing digital culture informed, self-aware and with the skills to stay safe [39]. Educators regularly teach using technology within the classroom, but don't tend to consider its potential to transform the traditional classroom [2]. As previously mentioned by [65], learners' critical thinking skills must be enhanced so that they are able to construct meaning and produce knowledge [9], rather than passively digest information [98]. Teaching learners how to use technology effectively and thus learn *how* to learn [30], evolves their abilities and empowers them to further engage with topics by 'providing choices, reducing anxiety and rewarding effort' [70].

Attitudes towards using technology to succeed are heavily influenced by practitioners, a consideration that can impact students' experience of learning [58]. If students are able to see the ways in which their emerging needs are being met [94], they become more motivated and engaged in the learning process [96] and are more likely to become lifelong learners [66]. [98] believes digital technologies can serve as a catalyst for cultivating more engaging learning situations, however, more research around understanding how technology can play a complementary role in learning is required [88], as well as an evaluation of its appropriate place and contribution to the development of student understanding [33]. Finding ways to bridge the gap between traditional teaching and more informal methods [56] can support students in being better educated, seeing society through a more critical eye and becoming change agents [25].

Failing to consistently upgrade skills is likely to create huge barriers to entering the workplace: [16] and [90] understood this shift in economic dynamics. Helping people grow is not about teaching one specific skill set, but instead teaching them to solve problems [42] and unlock their potential [16]. Workplaces are no longer confined to the four walls of an office, instead a more flexible way of working has prevailed [90] with more focus on supporting an entrepreneurial culture. The UK in particular has seen a growth in the tertiary and quaternary sectors. Nevertheless, increased labour mobility means job security has fallen [4], so there is a duty of care by educators to ensure learners leave education with the necessary competences to secure work.

3.2 Diversity and teacher efficacy

[57] believed education policy's new role is to ensure promoting, encouraging, archiving and sharing diversity within the classroom and that changes need to take place across all the 'layers of influence'. Classroom practice occurs across multiple layers and these include; the innovation itself, micro (the innovator themselves), meso (local influences of school and communities), and macro (government policies). Currently, the most prevalent issue is taking place on the macro level, where funding for 16-19 education is facing cuts; the 2016-2020 period is experiencing a freeze in education funding, which, in real terms, amounts to an 8% reduction in funding [69], mean-

ing class sizes are increasing and at the same time resources are diminishing. As a result, education and the economy are not functionally integrated [41].

Education needs to therefore commit to a diverse ecology [57] as a way to cope with the increasing levels of internal and external pressure placed on classroom practice [77]. The cloud allows for a seamless exchange of learning resources between practitioners and learners [56]; failure to adapt could result in stasis, potentially creating a negative impact on future trajectories of knowledge, creativity and communication [30]. Whilst the cloud has created a more streamlined system, one common platform whereby knowledge can be shared is still lacking. Educators and students must therefore know where to look should they wish to engage with the material [57].

Teacher efficacy is therefore an important element in helping learners succeed [23]: JISC's 2015 research supports the notion that students' digital literacy and experience is strongly dependent on the confidence and capabilities of their teachers [82]. Teachers who are highly effective are more likely to inspire success in learning [23]; such teachers should strengthen learners' skills to be able to make more empowered choices when using technology [83]. The concern with the introduction of technology-enhanced learning is that not all educators are ready to adopt new methodologies. The shift in instruction also creates a shift in existing pedagogies and strategies. Educators are no longer the sole source of knowledge, instead taking on the role of facilitating students in gaining knowledge through less traditional means [100].

Learners in the 16-19 age range already have a strong overview of their hobbies and potential career paths, and this is reflected in their digital footprints. Thousands of hours of Internet traceability can be streamlined to provide direct insight into their range of interests [36]. Learners' digital landscape is already becoming highly personalised, so why is this mind-set not yet replicated in formal education [36]? On the contrary, learners are still expected to follow a singular classroom format, whether it plays to their strengths or not. Shifting education to a more dynamic and student-centred process [2] could engage more individuals to build and personalise their learning landscapes. Research informed by student input around attitudes towards technology remains absent, and allows for traditional approaches to persist [62].

3.3 Learner voice

For online learning environments to support success, [85] recognised the value of having an 'authentic voice', but also the need to be constructive, with manageable levels of frustration. Utilising learner voice [35] to help understand student diversity and the extent of required personalisation [36] can enhance the learning experience, including improved inclusion, aspiration and achievements [80]. Personalised learning experiences takes knowledge creation beyond passive learning [62], an element that seems to be lacking within the British A-Level system. UK universities expect individuals to enter tertiary institutions as 'ready-to-go' independent learners [18], all the while not having put in the effort to develop these skills during college. The skills gap is not being bridged, putting learners at a potentially severe academic disadvantage [62]. Nowadays, online aspects of education are a necessary part of the learning experience, but educators need to understand that learners need to access this kind of edu-

cation in a meaningful way [88], whereby the content of the subject is connected to real situations and students are encouraged to understand their education in a more holistic way [33, 63].

This research is not disputing the importance of classroom delivery, which will remain the dominant format of knowledge transfer in the foreseeable future [43]; however, we are currently at a crossroads where we must learn from the new generation of students to enhance traditional methods [46]. More support needs to be put in place for educators [87] so that their efficacy is improved and they can begin to spot learning opportunities that might be more technologically rich and dynamic [54]. It is necessary to gather insight about how to motivate learners organically, so that they engage with online resources [85] and develop their independent digital and learning skills for life beyond college.

4 Methodology

The aim of the data collection is to learn how participants choose to study and whether their subject areas are offering enough support to facilitate their ability to learn independently. The research uses the modern paradigm of ‘netnography’. Netnography is an extension of ethnography [81], which focuses on understanding technologically driven communications and activities [59]. Participants are asked for their opinions on whether current online resources provided by the subject department adequately support knowledge creation and reinforcement, or whether these could be more effective [44].

The data for this study was compiled from an educational institution in the South of England. More specifically, the research investigates a Year One A-Level Economics class. Quantitative data followed by qualitative techniques were used to validate and further develop the results. Using methodological triangulation, we enriched the data to better understand the participant insights. An interpretivist approach was adopted, as the research was led by participant discussion through a process of ‘*verstehen*’; the act of understanding, perceiving, knowing and comprehending the intentions of human action [21, 29].

4.1 Sampling & participants

Netnographic studies being part of a constructivist paradigm, a non-probability sample has been used across the research methods. The core characteristics of the participants were representative of the collective Economics Year One cohort [60]. Three different sampling methods were used in the data collection: although each round of participants was representative of the cohort, the number of participants involved varied based on the collection technique.

The participants used in the interviews were the class representatives in Year One Economics aged 16 to 18. These individuals had been selected by their peers to act as liaisons between staff and learners. Via email, these individuals, along with their parents/guardians, were invited to go through the requirements of participation. As the

law considers the learners to be ‘children’, it was essential to secure parental agreement. Consent forms were sent home with the individuals, and those wishing to participate returned with a signed copy; as a result, we had a purposive sample. All individuals retained the right to withdraw.

The participants used in the quantitative data collection came from across the Economics cohort (Year One and Year Two), i.e. the target population. The age range varied from 16 to 19 year olds. The resources were amalgamated to suit the linear style of delivery. This meant that approximately 275 learners could have been active on the ESD at any one time. Rather than gaining individual consent to track this data, a disclaimer had been placed on the ESD alerting active users of the data collection.

The sample of participants used in the questionnaire reached the required quota as it was representative of the 161 Year One Economics cohort; a total of 21 learners (aged 16-18) in a class with an average GCSE score of 6.28. From this class, 10 were female, with an average GCSE score of 6.42, and 11 were male, with an average GCSE score of 6.15. The GCSE scores had been acquired from the new 2017 suite of examinations. A disclaimer was placed at the beginning of the questionnaire informing the participants that they had the right to withdraw at any point and that their participation was entirely voluntary.

4.2 Qualitative perspective

To complete the triangulation method and stimulate new discussion, the study rounded off the data collection with a semi-structured interview lasting no longer than 20 minutes per participant. Using semi-structured interviews meant some responses allowed for easier comparison but were also open to free-flowing discussions and elaboration on responses. The interviews followed a similar line of questioning as the questionnaire, in order to add substance to the responses. This form of validation offered transformative value to help develop resources to benefit future cohorts. The interviews were recorded and later transcribed allowing for analysis through the open-coding method.

Gathering enriched data was essential for this study, as quantitative methods alone could not explain the ‘why’ behind the traffic to resources. Understanding which content encourages and sustains engagement is vital to ensure future resources meet learners’ needs. Given the nature of netnographic studies, it is necessary to adopt multiple collection techniques to understand which content is engaging but also why learners deem these beneficial. This will of course be an ever-changing requirement, yet holds true at least for the short-term. While interviews always run the risk of yielding false results as participants veer towards socially acceptable responses, we tried to counteract this phenomenon by asking fellow researchers to review the lines of enquiry, so as to ensure we avoided asking leading questions or touching upon sensitive topics.

4.3 Quantitative perspective

Data was collected on the ESD, an internal web page managed by the Economics department. The quantitative data gathered mainly tracked the traffic on the ESD page (from approximately 275 learners) looking at which resources attracted and sustained the most attention, and which were rarely, if ever, used. To ensure clarity in the data collection period, a disclaimer was visible on the ESD page. The collection extended over a 24/7 period of three weeks.

The reason behind using quantitative data collection is that it allows for a generalised outcome. Understanding what drives learners to certain resources over others means facilitators can make better decisions about which resources / style of resources to use in the future. It also helps fuel interview discussions during the qualitative stage of data collection.

A concern with tracking the data is that it is not always possible to know if the learners are using the resources in an effective way. Whilst there may be traffic towards a particular resource, learners may not be using it to its full potential or the results may show a prolonged period on a resource that is nevertheless not in active use; this has the potential to make the results unreliable. These issues are challenging to tackle, however, integrating qualitative techniques allows at least for more rich data collection.

4.4 Mixed methods perspective

In order to further examine the learner mindset, a questionnaire was released to a Year One Economics class. The questionnaire is made up of 14 questions; not all needed to be answered, as some are follow-ups. There is a range of open and closed questions meaning some responses can be easily compared, whereas the open responses go through a coding system to identify commonalities. The benefit of combining the qualitative and quantitative techniques within a singular form of data collection is that it helps validate responses and strengthen the confidence in results.

As mentioned, questionnaire-based responses always carry the risk of inaccuracy, as answers may not be fully truthful or as students favour giving socially acceptable responses. As the questionnaire was and will remain anonymous, students were hopefully more inclined to give honest answers. Another consideration is that, although participation is voluntary, learners may have felt pressure to respond, as the majority have chosen to do so. This may have led to responses that are not fully reflective of the learners' opinions.

5 Findings, Analysis and Evaluation

The data collection aimed to gather the range of attitudes towards existing online resources used to support success in the new, linear Economics A-Level climate. A triangulation method was used to validate the results, as well as to expand on the mind-sets identified within the quantitative approaches. A traffic-tracking system on

the ESD was used over a three-week period. This was kept entirely anonymous and is thus purely based on data. A questionnaire that was delivered to a Year One Economics class yielded results shedding light on learner views: the questions are discussed individually in a more in-depth manner below. Finally, a semi-structured interviews took place with the responses then put through a dual-coding system to identify themes; next, these were converted into quantifiable data.

The ESD traffic was tracked over a three-week period (19/02/2018 - 11/03/2018). These dates were chosen specifically as the host institution had altered the timetable to accommodate a period of revising for mock exams. As a result, the ESD was likely to receive the most traffic during this time, which was the easiest way to see which pages generated the most traffic. The number of page views compared to unique page views were tracked, as well as which days had the most activity. Time spent on the pages was also tracked, however, most links are external, where the user clicks away from the ESD and into Google Drive folders instead, meaning the data is not a true representation of the time spent using online resources to help them study.

The year one home page had the most interaction with 45 page views, 38 of these being unique; coming in at a close second (with a higher proportion of unique views) was the second year home page with 30 views, 29 of which were unique. The homepage was the only page that had entirely unique views (10:10). Most activity took place on the 20th February 2018 when 20 users engaged with the resources. Lower peaks were again reached on the 23rd February and 2nd March, with 10 active users.

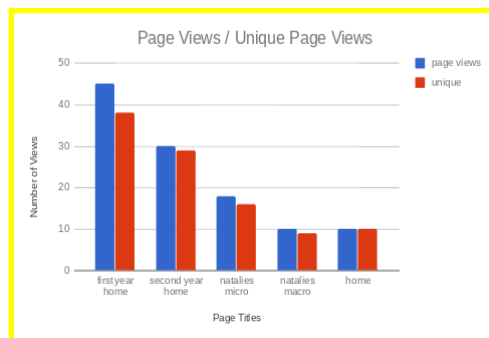


Fig. 1. Traffic on the ESD over the period 19/02/2018 – 11/03/2018

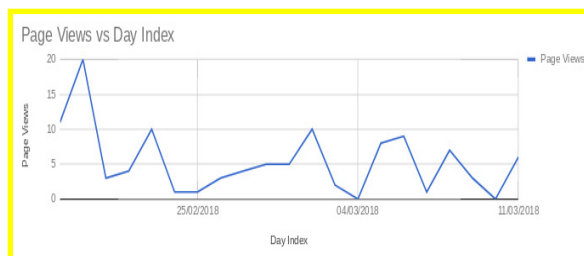


Fig. 2. Daily traffic on the ESD

These results give an indication of which pages received the most attention by learners. That said, 102 unique page views in total only equates to 29.6% of the entire Economics cohort. This limited interaction with the ESD shows that the site is not reaching every Economics student. It does not, however, explain the reasons behind such poor engagement. Monitoring the traffic is ideal to compile a large data source but it does not provide sufficient validation to make informed judgements about whether the page is supporting success. While certain assumptions can be made by merely looking at the percentage of engaged users, further data had to be collected to offer more qualitative feedback on the usability of the ESD.

5.1 Questionnaire findings

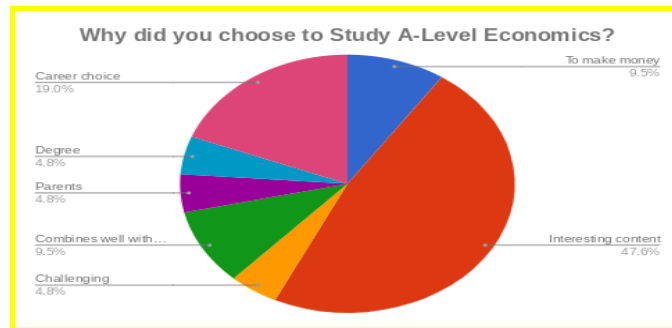


Fig. 3. Student responses for choosing Economics as an A-Level subject

It was important initially to understand why the learners had chosen to study Economics at A-Level. Few secondary education institutions in the Southeast offer Economics as a GCSE subject, which means that, for most learners, it is an entirely new course. Based on the findings, a large proportion of learners were drawn in by the content of the specification; 47% put it as their main reason to have selected the course, followed with 19% saying it was to help their future career prospects. It is vital to know the motive behind course selection as this can help educators understand whether the drive behind success is due to intrinsic or extrinsic factors.

This latter consideration set up question 2. Post-college plans can act as motivation, as the learners themselves have set a personal target. Within this class of learners, all had some idea of what they wanted to do after leaving college, although some were still deciding between university and an apprenticeship. Either way, all learners stated that they wanted to continue their educational journey.

It was encouraging to see that the majority of learners within the class (85.7%), had begun their consolidation / revision for Economics. While we could not ascertain their equivalent behaviour for other subjects, there was a generally good ethos of study habits amongst the cohort.



Fig. 4. Student plans post-college

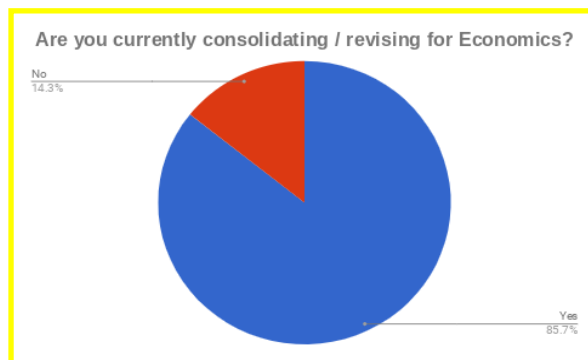


Fig. 5. Study habits for Economics

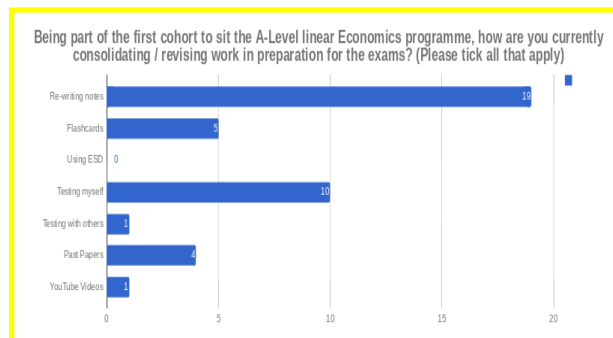


Fig. 6. Student consolidation/revision methods

Question 4 yielded some interesting results that could be utilised independently from this study. When asked how learners were choosing to consolidate / revise, the majority of responses revealed a traditional approach. Only one learner noted YouTube videos as being part of their consolidation / revision plan, while 19 students reported the technique of rewriting notes. This means that the research question

around attitudes towards online resources in supporting success received an overwhelmingly negative response from the class. None of the learners indicated using the ESD to support their revision process, which meant we had to explore why this was the case.

After asking if they had specifically utilised the ESD (even if it was not their main source of supporting revision) only 9.5% of the class responded positively. This meant that 90.5% of learners had not accessed any of the available resources. A follow up question was then asked that differed according to the learner's response to the previous question.

The learners that had answered positively were asked what resources they had used, with the response being that each had used a different resource. One had re-printed booklets when they had missed or misplaced theirs, whilst the others used the digital textbook (supplied by Dynamic Learning). There was a fairly limited use of the central page, so it was necessary to find out why the ESD was not being used. A range of responses was recorded but through a dual-coding analysis, six reasons (as identified in Figure 9) emerged as to why.

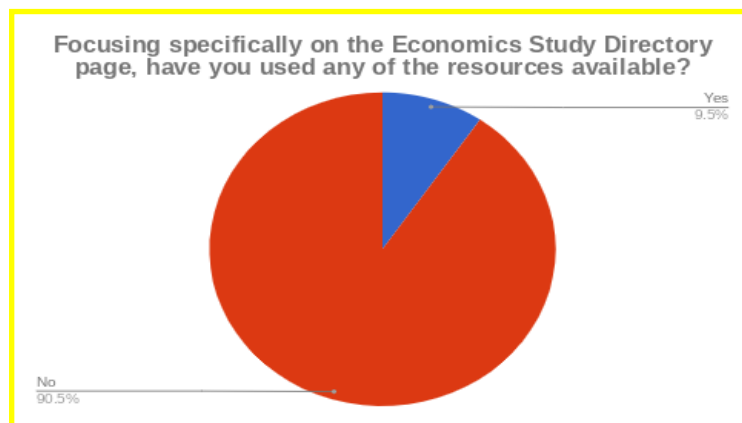


Fig. 7. Use of available resources by participants

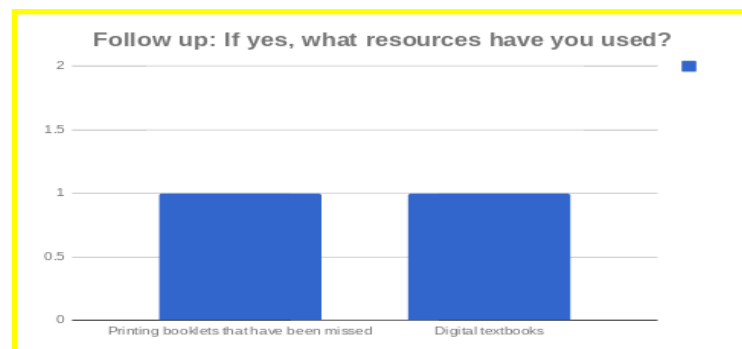


Fig. 8. Resources used by the participants

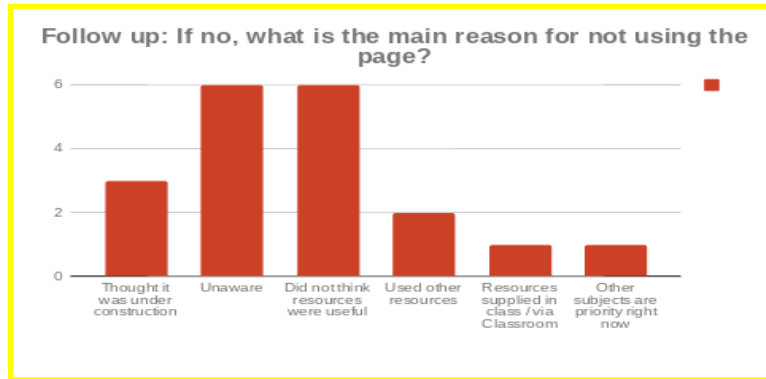


Fig. 9. Reasons to not use available resources

Three learners believed the ESD was ‘*still under construction*’ as this had been the case at the beginning of the year and they had not been back to check for updates. Six learners were ‘*unaware of the ESD’s existence*’. Six learners ‘*did not find the resources to be useful*’. Two learners ‘*used other resources*’. One learner stated that resources were shared via ‘*other Google platforms such as Classroom*’ and the last learner said ‘*Economics is not currently the priority for revision*’. We can see a mix of responses from the class, but the majority gravitate towards being unaware of the available resources. This was supported by the outcome of Question 8 whereby only 38.2% were aware of the resources currently found on the ESD page.



Fig. 10. Awareness of the resources available on ESD

The learners were asked whether they found the front page of the ESD to be inviting. The majority of the class (61.9%) agreed that it was, which a positive first engagement is. Learners were then prompted to give advice on what resources they would like to see available on this ESD that would make it a more integral part of their revision / consolidation plan.

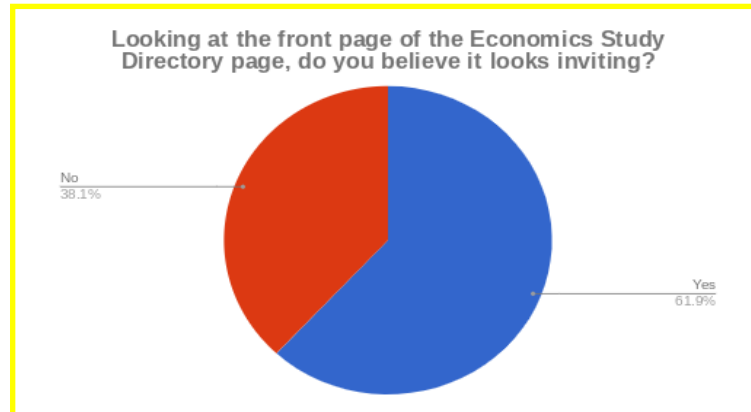


Fig. 11. Attractiveness of the ESD frontpage

As a response, the learners provided an excellent range of tools and resources that they believed would help them in supporting success in the new linear A-Level climate. Again, a dual-coding system was used to identify common themes, and the open nature of the question allowed for a more detailed response. Learners were able to offer multiple recommendations, which resulted in more than 21 responses. 11 out of the 21 learners want to see past papers and marking schemes, while another wanted to see sample essays. 3 learners wanted to see lessons given by other teachers and 10 wanted to see topic notes / videos.

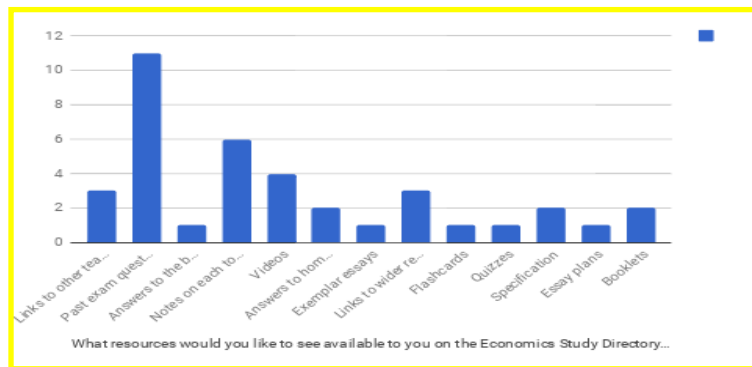


Fig. 12. Resources which are considered useful for consolidation / revision

This question yielded the most workable results and feedback that can be easily integrated by the Economics department; however this question is a cause for some concern. The requested resources are actually all available on the ESD, so the question remains why the latter is not being utilised fully.

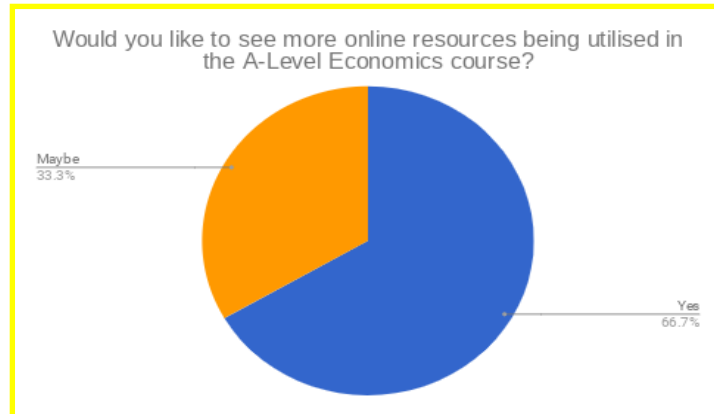


Fig. 13.Participants' preference for more online resources

None of the learners said they want fewer online resources on their course, which means that maybe more focus should be placed on whether the teacher is actively encouraging the use of the ESD. 90.5% of the class have used online resources to support their learning in the past, so this skill needs to ideally continue being developed, based on the fact that the entire class wishes to continue on with their studies.

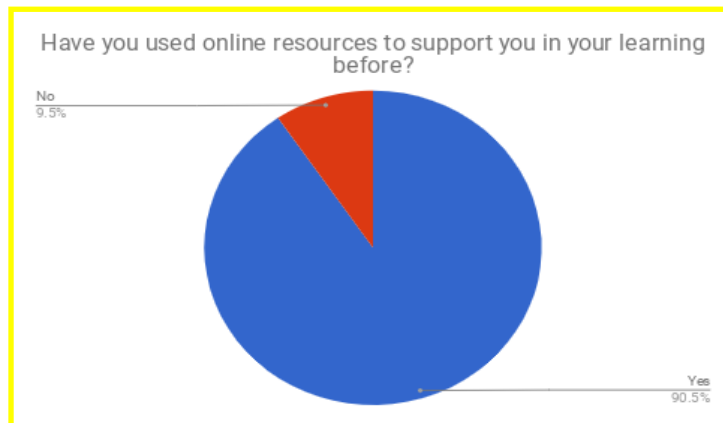


Fig. 14.Previous experience with online resources

This questionnaire certainly offers more insight into how learners want their online platforms to be designed as well as identifying the flaws on the existing ESD. It also validates the outcomes from the traffic monitoring as the majority have not used / are unaware of the ESD. Learners responded saying they have used technology to support success in the past and that they would like to see more resources in the current course but did not provide details. The learners should ideally shape the learning environment, so we found it necessary to delve deeper into the mind-sets of these young

adults to understand the barriers that exist in the current system, and how we might begin to remove them.

5.2 Interview findings

The interview participants were students who had been nominated by their class to act as their representatives. These Year One Economics students acted as liaisons between the learners and their teachers. Six interviews took place, each lasting between three to seven minutes. The interviews were recorded and later transcribed. The questions were similar to those asked in the questionnaire so as to validate the outcomes as well as extend understanding about the results.

Why did you choose to study A-Level Economics?: Participants all responded with similar reasons. Two of the participants had studied GCSE Business so wanted a subject that would utilise similar skills but expand their understanding of how businesses operate in the broader economy. All of the participants said they thought the subject looked “interesting”. This supports the questionnaire results, whereby the majority of the learners revealed this to be their main reason for choosing the subject.

What are your other subjects?: Due to changes in government funding, learners are now encouraged to complete a programme of three A-Levels across the two years; however, if learners have produced excellent results in their GCSEs, then they are allowed to select four subjects. Five of the six candidates have been allowed to follow a four-subject programme, whilst only one is taking three courses. All six candidates were studying Maths, with three also studying Further Maths. Only those students that had shown a strong commitment to their studies and were likely to progress onto prestigious and demanding universities are allowed to take the Maths A-Level course. Specifically, learners needed to have achieved a strong 7 (equivalent of an A grade) in their GCSE Maths as well as a grade 6 (grade B) in their combined GCSE Sciences.

The remaining subject choices were made up of Computer Science, Physics, Politics and History. These subject choices all have high entry requirements, thus indicating strong pre-existing learning techniques.

These results represent the majority of the Economics cohort, however it does present a concern as to whether the students that are less engaged with their studies would yield the same results. Students that perhaps feel more excluded from the learning environment may respond differently to these questions.

What are your plans for when you have finished studying at college: [97] Conducted a study looking into the transition of learners from Further Education to Higher Education, with a particular focus on those studying Maths at A-Level. They found that 93% of participants were interested in attending university after college and 92% of these felt they knew what was expected of them at university. Students felt it was essential to learn autonomously and be responsible for self-management. If learners have concrete future plans, then they have a reason to work towards their achievement and fulfil their self-actualisation.

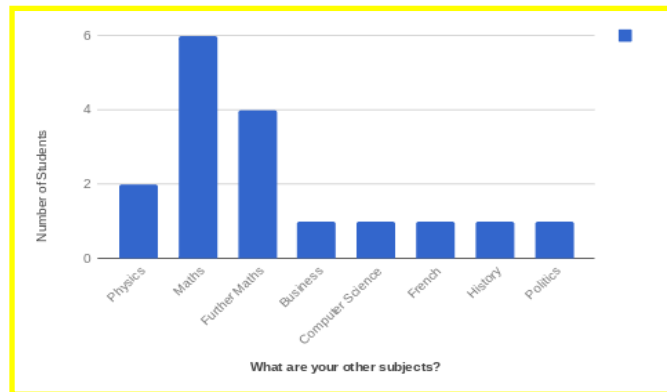


Fig. 15. Subject combinations

As expected, almost all participants (20 out of the 21 respondents of the questionnaire) are hoping to go to university after college with most already having an idea of which university they would like to attend. Three of the six participants are hoping to study Economics and two said they would like to eventually end up in a career in finance.

Are you currently consolidating / revising for Economics? / What techniques, if any, are you using to consolidate your Economics topics? This question essentially had two parts. Consolidation is the act of bringing together a number of elements to create a unified whole [24], whereas revision is the reviewing of resources in preparation for an examination [24]. With that in mind, it was interesting to gauge some of the responses from the participants. Four out of the six participants were doing a combination of both revision and consolidation through the use of project books, mind maps, flashcards and mini tests. There was also a heavy use of the recommended textbook (Anderton, 6th Edition) as well as Economics videos, mainly from EconplusDal. These revision and consolidation techniques support the questionnaire feedback and the responses by those consolidating / revising also seems to match.

A minority had not yet begun their revision; one participant had been completing the homework but not extending beyond this, whilst another, who had not yet started, had made a choice to make his other A-Levels a priority for the time being.

The interesting aspect of this question is that videos are the sole technological element supporting these learners, whereas the other resources and support aids are relatively traditional. It was necessary to understand why this was the case; was it because the learners were unsure of how to utilise technology in their revision and consolidation or was it because they had reverted to techniques they had used in the past? A follow up question was therefore required.

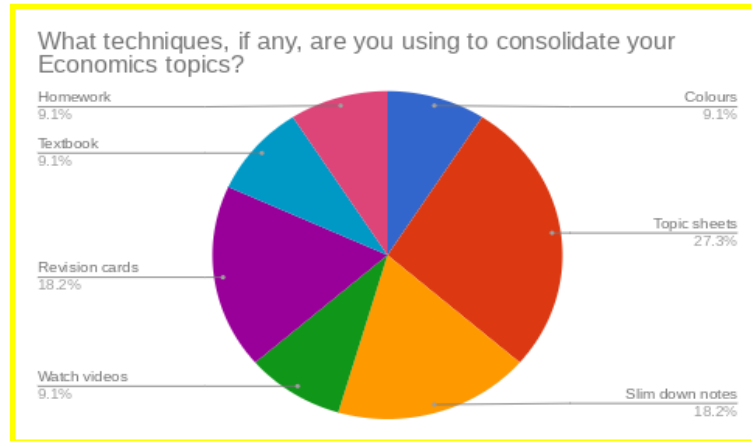


Fig. 16.Consolidation techniques

(probe question if Yes to Q5) Did you use these techniques to revise for your GCSEs?: The wording of this question prompted mixed responses. Four participants responded positively and said they found the techniques worked for them at GCSE; they may have made slight improvements, for example, by using more colour or keeping a single project book per topic, but ultimately they had chosen to use techniques that had shown to work in the past. Two of the participants responded to this question in a different way. Rather than looking at the revision techniques, they realised that the way they had to learn for A-Levels was different from GCSE and so their approach had to be completely different. Both respondents said that they used the ‘rote recall’ approach and memorisation method at GCSE, whereas A-Levels required developing their analytical skills and understanding the context in which the question is embedded.

The value of this response is more significant than at first glance. The type of learning that takes place in Further Education is far more analytical than at GCSE and so there is a shift on how learners digest information. Simply learning the content of the course carries little merit in the overall assessment; instead, learners are expected to actually understand the theory being taught and apply it to a vast array of scenarios in which they can identify the benefits and potential risks [13]. Based on this increased level of intensity, a wider range of materials must be made accessible so that learners are able to test their understanding in various contexts.

Have you visited the Economics Study Directory page? : This question was the interview focal point, as it opened up the conversation to discuss the value of the ESD: was it adequate or did it need improvement to make it suitable for student learning? Based on the tracking and questionnaire responses, we expected the latter; nevertheless, some intriguing responses came to light.

Ultimately, the page has not been used extensively: four out the six participants said they’d had a quick look at what was available, but felt they didn’t need to explore further. One said that they found the folder with past papers and marking schemes but had saved these in their personal Google Drive folders for later use. Only one partici-

pant was expounded on their usage of the ESD and said that it had become their ‘go-to’ resource for definitions and diagrams in particular. This participant ‘favourited’ the ESD link and used the ‘Ctrl+F’ function to quickly search for terms requiring clarification. Utilising technology in such a smart fashion to aid revision is how learners should be developing their study skills.

These responses also identified a large barrier: While ‘past papers, mark schemes, notes of topics etc.’ are readily available on the ESD, only some learners had found them, while others remained unaware. This leads us to believe there must be some issue with how this information is being disseminated to the learners.

(Probe question if No to Q10) Please explain your reasons for not using the Economics Study Directory page: One participant said the front page was not very engaging. The front page still displays an ‘under construction’ message, discouraging learners from looking further, and the links to Twitter and AQA are either broken or out of date. These constitute an oversight from the teaching team and require attention. Another said that they had never been made aware of the page so when they found resources such as past papers, their response was ‘oh cool - that’s there!’

There was a theme emanating from these participants that the ESD had not been granted the time or effort to become a useful resource and because of that, staff were choosing not to draw attention to it.

Do your teachers encourage the use of the Economics Study Directory page?: No from all six participants. This was the biggest concern, because if the educators themselves are not promoting the site then it means they place little value on it, allowing learners to reflect such feelings. Whether it is down to the current practitioners feeling overwhelmed or simply not understanding how to develop the ESD is a consideration for further research.

What resources would you like to see on the Economics Study Directory page to support your success in the A-Level Economics exam? Please elaborate: The A-Level Economics teaching team need to allow learners to guide them to make the resources more tailored to their learning needs; to this end, each participant was asked what they would like to see available on the ESD. A recurring point was that some very good resources already existed on the page, but the site itself needed to be tidier. Splitting the resources into set topics or booklets would make it easier to navigate. The participants said they would also like to see presentations from teachers other than their own, within the department. Seeing how another teacher delivers a topic can sometimes help to reinforce knowledge.

In terms of practical resources, learners would like to see links to videos (educational & documentary style) as well as worksheets whereby they can test themselves on knowledge acquired in class (as notes can sometimes become untidy and inefficient).

Reasoned responses such as these must be acted upon. Keeping resources centralised and getting multiple experts to add useful tools and aids can surely only lead to a beneficial end result for the learners. It is a time-consuming notion, but, once uploaded, the tool is available and useful to students for a good period of time.

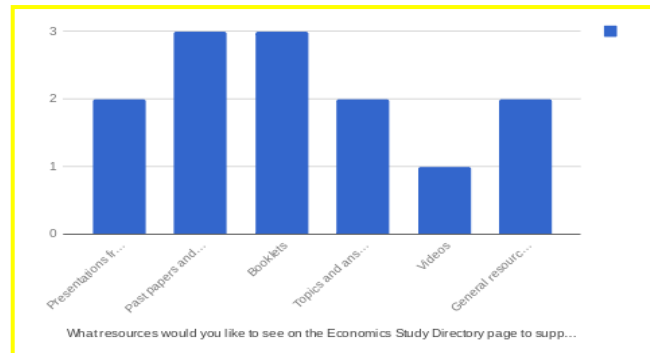


Fig. 17. More resources requested by participants

Would you like to see more use of technology within the A-Level Economics course? Please elaborate. The learners were very content with the extent to which technology was used in class to support the Economics course. They felt the use of technology to support traditional teaching methods, as well as the use of student-led technology (e.g. online research) was also an ideal balance between developing independent skills and collaborative skills with peers. One participant felt that the online resources should receive the same amount of attention as classroom teaching, as home is where the majority of 16-19 year olds study when they leave the classroom.

6 Synthesis of the Findings

Across the triangulation of data, the common theme was that learners do want to use technology to support their success but the resources must be accessible and easy to use. There does not seem to be a particular day in which students are more likely to do their revision and so resources must always be readily available. Students are also balancing their revision with that of their other A-Levels and so need to easily transition between resources.

The majority of learners in the sample seem to already be revising or consolidating, with the interview participants stating they're most inclined to stick to revision techniques that they had used at GCSE, such as rewriting their notes or answering past paper questions. This continuation of past behaviour seems to correlate with the participants' positive response regarding university attendance, a position they are trying to secure through taking A-Levels.

An unexpected consideration that emerged was that of teacher shortcomings. Learners across the cohort were requesting resources that are already available to them, leading us to believe that the teachers had failed in communicating the availability of these resources and/or not spent the required time teaching learners how to find / utilise them.

7 Conclusion and Recommendations

Education is either changing or it is failing and ideally it should be the former as this leads to an improved society [99]. Globalisation has meant that we need to remain internationally competitive, otherwise the nation will crash. Improving the skills of workers to inspire the growth of invention and innovation is paramount to the UK's success and these foundations begin in the classroom [3]. We are now more interconnected, as well as more technologically savvy, than we have ever been. Education, learning, resources; these are things no longer bound by the four walls of a classroom but instead extend beyond these limits and can be with us wherever we are [50]. Technology has supported the development of wider understanding and highly collaborative environments [61] but it has also allowed for more personalisation. Technology accommodates for individual learning styles [7], which gives students access to more inclusive learning environments [3].

Within this inclusive landscape however, teachers are still considered an essential part of the process [70] but it would appear that assumptions are sometimes made by educators regarding their learners' digital capabilities and this can negatively impact the latter in their academic capacity [77]. Educators may feel that learners know how to actively and intuitively use technology reach their goals [28] but what is sometimes neglected is that learners use technology in unforeseen ways. In 2016, [101] wrote an article about computer usage being down, due to 20% of people going 'mobile-only' and whilst there is access to the internet on these devices, 90% of user time is spent navigating on apps rather than web browsing [53]. [86] points out the 20th century assumption that, state-of-the-art technologies being introduced to the education system, education would mean learners would simply become better purely due to the availability of the improved learning tools [27], however without the relevant knowledge, they remained a fairly pointless addition. Users must be taught how to exploit the full capabilities of these tools to reap the benefits technology can provide.

7.1 Research questions

Three questions were posed at the beginning of the research aimed at collecting an overview of student interactions with the online material. The basis of the questions was to document student activity and then explore the rationale behind it. Student engagement with the ESD, which was tracked over a three-week period was fairly low. Less than 10% of the entire Economics cohort engaged with the ESD across this period, which therefore resulted in a low response rate to the second research question. The ESD experienced its highest level of interaction on the 20th of February, a Monday, however there was no real explanation as to why this was the case, and the pattern was not replicated on the following Monday.

The final research question however, was in depth and offered valuable feedback that can easily be acted upon. Students fully support the use of technology within their education however they do not have the time or capacity to hunt for useful resources. Students are expected to split their time equally across their A-Level subjects (usually three, sometimes four) so cannot afford to waste time figuring out if a resource is

suitable or not. Students would rather be offered a range of resources, and from that work out which ones best suit their learning styles, and this ultimately is where the teachers have failed.

Educators are under such pressure to work through a provided specification that is content-rich that they at times forget to encourage more innovative traits. Rather than simply disseminating information, educators can provide the tools to let the students venture on the journey themselves. They know which resources are going to support learners but they need to devise a very clear and accessible platform. Students dislike following several link paths from one page to another but instead prefer a ‘one-click’ route to materials.

Whilst this easy navigation may not necessarily support learners initially to become independent, it is a starting point to embed the ‘process of elimination’ in the students’ skill set. When students move beyond the provided VLE and into a mainstream web browser, they are likely to remember previously used resources or links to websites and make judgements on which resources to keep using. They’re also more likely to understand which resources are suitable to support their understanding.

7.2 Limitations

The obvious limitation of this research is its size. This study was conducted on such a small scale that the results are inconclusive. The interviews offered in depth discussion points, however they were conducted with students that have actively taken on the role of Student Representative and are therefore engaged learners. The interviews could have included the opinions of less academically engaged students. It was also only focused on one subject area in a single 16-19 education institution, so a comparison across departments and other institutions would have offered a more grounded discussion regarding students’ usage of and their views about the available online resources.

A final limitation is the software used for tracking student activity. The ESD is hosted by Google Sites and whilst this offers a basic traffic detector, a fair amount of the resources on the ESD are on Google Drive. When learners click the link through to these folders in Drive, the ESD can no longer track where the learners go or for how long they engage with those resources. To determine which resources receive the highest engagement, the material would need to be fully embedded into the ESD rather than being placed on a different platform.

7.3 Proposals

More research in the 16-19 education sector needs to take place because it is an evolving landscape, but also a crucial bridge between school and higher education. The government tends to focus on where schools need support and where to offer grants in higher education, and so further education can often be a forgotten area. College learners are transitioning into a more adult world where they are making decisions for themselves, and we need a better understanding of how to support them.

As an extension of this research, other departments should open up a forum for discussion with learners about whether they believe there are enough resources available supporting them in their studies. It is also worth encouraging learners to take ownership and suggest improvements to their learning resources. Learners are immersed in their education and they have a better understanding of what suits their learning style, which teachers should embrace. Teachers need to remember that they are still students too, and learners can sometimes be the best teachers.

A final recommendation would be to also work alongside higher education institutions and organisations to identify the digital capabilities that learners are likely to need at university or in the workplace. If further education can begin to harness these skills, then the transition may become easier. It may also support their critical abilities in determining which resources are appropriate.

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