

# An assessment on the growth and effectiveness of distance learning in higher education

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## 1 INTRODUCTION

Any educational setting or activity that uses the Internet as its primary means of communication and presentation is considered to be online learning. Online learning is now a practical choice for education. This platform is becoming more widely accepted in universities, colleges, and even primary schools, especially during and after the Covid-19 pandemic. Learners can access educational opportunities through online instruction without physically attending the lectures, and many universities throughout the world offer online education to promote and enhance learning. This is one of the advantages that numerous research have previously pointed out, alongside some disadvantages. In this paper, we present several statistics that depict the growth of distance learning, go through some advantages and disadvantages, and some of the measures that are being researched and tested to combat these drawbacks.

## 2 WHAT IS DISTANCE LEARNING

In distance learning, there is a physical separation of teachers and students during instruction, and various technologies are used to promote communication between these two parties as well as between students themselves [1]. For a long time, the topic of distance learning has been thoroughly investigated in the domains of pedagogy and psychology [2], however this issue, paired with remote working, has gained popularity after the COVID-19 pandemic. The many advantages that have been identified through research, and that we later dive into, have led to an increased focus on e-learning in educational institutions during the past few years. These benefits include the lack of spatial and temporal constraints, ease of material

availability, flexibility in scheduling, and cost-effectiveness of the solution. Other studies have shown that the benefits of e-learning extend to both student gains and student performance. However, for e-learning to produce the best outcomes, students must be actively engaged in the learning process throughout the entire process, a concept known as active learning [3, 4].

### 3 MOTIVATION FOR DISTANCE LEARNING

One of the main advantages of distance learning is enabling the enrollment of people that otherwise could not attend university. We highlight two relevant cases that would dramatically benefit from online learning.

Online learning has long been the sensible choice for students who are unable to physically attend classes, especially those with full-time jobs, family responsibilities, or who live far from campus. Students are now preferring remote learning over in-person education since their circumstances are what motivate them to pursue their degrees online. According to research conducted [5] by the National Student Clearinghouse Research Center, enrollment has decreased since 2020 in almost all types of institutions in the United States. On the other hand, enrollment in both undergraduate and graduate programs has increased at online universities.

A high school senior's decision to attend college or not will depend largely on their geographic region. The costs of transferring across locations are considerable and frequently go much beyond direct travel or start-up adjustment costs for those who live distant from a higher education institution [6].

Regarding the United Kingdom (UK), survey data from 1000 students collected by Education Phase on behalf of BBC TV Licensing [7] shows that those studying at university have moved an average of 91 miles from home. Just under 30% of students traveled at least 100 miles to study, excluding the 11% that came from outside the UK. There were also some people who said they had traveled extreme distances for their academic pursuit: 1% of students moved somewhere between 500 and 700 miles from home.

One in six high school graduates in America does not have easy access to a nearby two- or four-year college. A study [8] on the enrollment consequences of expansions to California's public university systems drastically demonstrated the importance of college geography. Four new universities were added to the California systems (both California State and the University of California) between 1995 and 2005. The study discovered that the majority of students enrolling in these new colleges are freshmen from high schools located within 25 miles of the campus, whilst other high schools' system enrollment remained largely unchanged. This implies that for certain students, having a nearby college is essential to their attendance. After accounting for other individual and household variables, the association between college proximity and attendance remains. Similar findings had been reached in other research[6].

Besides people who suffer from distance constraints, we call attention to the case of adult learners. Over the past years, there has been a noticeable rise in the number of adult students enrolling in college programs all throughout the USA. Everything began with the severe economic crisis of 2008, which was accompanied by a large-scale loss of jobs. Many people at that time understood that they needed more education to increase their chances of finding

employment. Adult enrollment has increased year over year since 2014 despite the fact that the economy has improved since then [9]. Many of the organizations that keep track of student enrollment figures refer to adult students as nontraditional students. Traditional students are normally between the ages of 18 and 22, and they enter as soon as they graduate from high school. They do not have any significant work or family commitments and attend schools, universities, and other educational institutions full-time. Nontraditional students typically have ages greater than 25, keep down jobs, pursue part-time education, and have families to support. The majority of people have the incorrect impression that the typical undergraduate student is between the ages of 18 and 25, who started college not long after completing high school. The most recent data presents a quite different picture. The following North American national statistics are provided by the Lumina Foundation [10]:

- Students over 25 make up 38% of undergraduate students.
- 58% of college students hold a job in addition to their studies.
- 26% are parents.

Students of color are particularly likely to be juggling schoolwork with parental or employment obligations.

These figures make it abundantly evident that a sizeable portion of the student population in the USA consists of adult learners. You should take heart from the fact that nearly 60% of students successfully juggle their obligations to job and school, and 26% do so while having children.

Non-traditional student enrolment in degree-granting institutions was expected to increase at a higher rate than traditional student enrollment, according to the American National Center for Educational Statistics (NCES) [11]. By 2025, the NCES predicts that there will be 9,670,000 adult students in the United States of America or about 42% of all students. The Education Commission of the States has strongly encouraged educational institutions to adopt several activities in light of these predictions, one of which includes distance learning.

## 4 PERCEPTIONS OF DISTANCE LEARNING

Despite the enormous strides made in digital literacy, pedagogy, and technology, there is still a stigma associated with online degrees that they are of low quality, simple to obtain, or even fake. Employers and hiring managers generally had a negative opinion of online degrees, according to a 2009 study [12], citing a perceived lack of rigor and a higher risk of academic dishonesty as common concerns.

The Center for the Future of Higher Education and Talent Strategy (CFHETS) at Northeastern University found in a 2019 report [13] that many hiring managers no longer consider online degrees or credentials to be inferior to those obtained on campus.

- 61% of HR leaders are adamant that online learning is as good as or better than more conventional techniques.

- In the past 12 months of the report, 71% of businesses have recruited a candidate with an online degree.

- 52% of respondents think that most advanced degrees will eventually be earned online.
- 33% think that in the long run, technology-enabled online education will be superior to conventional face-to-face training.

We now work in a very different approach. Prior to 2021, remote working has grown by 44%[14], and that doesn't take into consideration the dramatic increase brought on by the Covid-19 pandemic. Employers are shifting their stance on remote learning and beginning to recognize the advantages online learners can bring to the workplace as businesses continue to adopt remote working arrangements.

According to some studies, there are differences in students' attitudes regarding distance learning. While it is mentioned in certain research [15, 16] that attitudes are generally positive among students, other studies [17, 18] make it abundantly evident that this is not the case.

According to survey findings, most online courses were well received by students, and 80% of them expressed a desire to continue taking certain online courses after the pandemic [19].

Furthermore, according to other studies, distant learning is not successful [20, 17], not sufficiently motivating [4, 17], and does not add to students' knowledge [21]. Face-to-face instruction must always be utilized in conjunction with distance learning [3, 4].

## 5 ADVANTAGES AND DISADVANTAGES

According to the majority of studies, referenced [22, 23, 3, 24], remote learning has a favorable impact on learning and achievement. Additionally, students who are enrolled in distant learning have access to additional resources and can reuse resources by watching videos again [25, 26, 27].

For the purpose of learning at any time and from anywhere, distance learning is used [28, 26, 29]. Transportation costs to and from the institution are unnecessary [26, 30]. Additionally, [26] argue that staying at home is safer during pandemics and less stressful for pupils.

A study that uses a randomized experiment in a public Swiss university finds that live-streaming lectures lowers achievement for low-ability students and raises achievement for high-ability ones. Students use the live streaming technology only occasionally, apparently when unforeseen circumstances make attending in class too expensive, and offering live streaming only slightly reduces in-class attendance [31].

Despite these positive stances, according to [4, 32] distance learning cannot ensure successful learning, learning persistence, or effectiveness. COVID-19 Students claim that the remote learning method involves additional effort, tasks, and study burdens [15, 33, 34, 30]. We also bring awareness to people with neurologic problems such as ADHD or learning disabilities. When put under these circumstances, the students would very likely have more difficulty in studying and getting work done. It would be harder to give the proper guidance to these students. Moreover, students state trouble socializing and working in groups [28, 17, 26] and lack of communication and in-person interaction is viewed as a drawback [34, 30]. While this might not be a mitigating issue for adult learners, given the differences in motivation and life contexts, it is still relevant for a complete switch to remote learning in higher education. Personally, we prefer to study alone, as other students also report, mainly when is to study reference material. Although, when working on a project, we think a small group may be

beneficial to brainstorm and discuss new ideas. It is important that the group is of modest size since large groups are less interactive and hard to manage as there is more disruption.

Another point in favor of distance learning is the average cost of the degree being significantly less, and are much more environmental friendly due to less usage of electricity and fuel [35].

## 6 ADDRESSING THE PROBLEM OF CHEATING

Several studies address the problem of academic dishonesty in online assessments. [36, 37, 38, 39]. For starters, [36] presents an analysis of 58 articles about online cheating that were published between January 2010 and February 2021. It shows how the research has been categorized and highlights current trends in online exam cheating.

Despite E-learning having a lot of advantages, academic dishonesty in the form of cheating, which students attempt to do via a variety of means, challenges this, due to making the process of evaluation questionable, meaning that it can't be guaranteed the person who got the degree met the goals of the education.

To address this problem, [37] recommends that institutions turn off the copy-and-paste functionality to stop cheating. Furthermore, each student should receive a customized quiz, and teachers should utilize alternate ways of assessment, plan questions that will prompt essays, use alternative methods of assessment, and raise awareness of the issue. Ethically speaking, the customization of quizzes might raise some equality issues if questions are different for every student, and are not guaranteed to be of the same difficulty level. Some other forms of evaluation can be performed instead of the classic examinations with questions and exercises, such as oral examinations, that can deeply assess a student's understanding and perception of a topic. This type of appraisal, however, is unsuitable for large classes, due to the amount of time required to individually perform oral examinations for each student. One may argue that more than one professor may be responsible for said task, hence parallelizing the work required, yet this may raise more ethical issues regarding inequality, due to some professors being harsher than others.

Other studies employ more sophisticated methods such as detecting with facial movement recognition [38]. Tiong et. al. [40] trained an agent, which incorporates IP detector and behavior detector protocols, with four deep learning algorithms (DNN, DenseLSTM, LSTM, and RNN), on two exam datasets (mid-term and final-term exams), reaching the highest overall accuracy of 95.32%, which is sufficient to alert the examiners to do a manual review of the exam in case of suspicious behavior.

In [41], Brooks discusses common eye movements and what they typically signify. Looking up is associated with subconscious referral to the prefrontal cortex. Generally, when people are asked something, they tend to look up or to the left to trigger their visual memory, which would immediately set off a facial movement detector system, and draw unfair suspicions. Moreover, privacy issues may also be raised with regard to these detection methods, since they need to analyze facial footage of students, in the case of the first example, or scan through their network data, regarding the latter.

Three research questions are posed in [39]: The question is whether or not unattended online formative assessments encourage cheating; Whether cheating is profitable for those

who engage in it when unattended online assessments are utilized for formative evaluation; The question whether plagiarism in online formative assessments has a negative knock-on effect on other courses. Firstly, results from this study imply that proctored tests are less likely to be cheated on than unproctored online exams. With regards to the second question, the authors conclude that students who cheat on online formative assessments forfeit the chance to improve their learning and risk being penalized on following assessments. Regarding the last question, in contrast to courses employing proctored exams, grades for courses using unproctored exams are negatively correlated with other course grades. This result shows that cheating percolates negatively on other courses' grades.

## 7 CONCLUSIONS

Even though COVID-19 was a tragedy for society, it fomented the increase of distance learning popularity, as these measures were forcibly implemented to prevent the infectious spread of the virus.

One big motivating factor for universities offering online degrees post-pandemic is the reduction of commuting time, which not only has a big environmental impact, but it removes the travel distance that several students need to traverse, most of which live very far from their universities. Regarding this point, several students cannot proceed to higher level education, due to not being able to afford their stay in other cities or even countries. This advantage is also further emphasized by the fact that adult learners, who, due to having several responsibilities, would not be able to get their degrees, can be presented with new and better career opportunities. However, more experimental fields of study, such as medicine, cannot be taught in an online fashion. While one may argue that it is unfair that some students may be required to be burdened with higher costs associated with their academic lives, while others are not, we firmly believe that this shouldn't be a problem raised when deciding to implement distance learning. As some degrees have higher costs than others, some degrees are better tailored to be thought at distance. Before enrolling in any course, each individual should carefully assess the advantages and drawbacks of studying each topic, and it is his decision whether to enroll or not. Online degrees should not stop existing, because of this reason.

The legitimacy of distance learning is also reinforced by the fact that not only start-ups, but several big tech companies pay for online learning certifications to their employees, or reward staff who successfully complete them.

However, the problem of academic dishonesty arises and several methods can be implemented to try to mitigate this, some of which raise several ethical issues which have already been discussed. We believe that measures should be employed to reduce this risk, however, it should not be a determining factor in recognizing all forms of online learning as legitimate. As previously mentioned in section 6, research has empirically proven that this has a negative impact on those who cheat.

Overall, we believe that it should be perceived as a legitimate way of education.

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