THE CASE FOR A BLENDED, TECHNOLOGICALLY ENHANCED LEARNING ECOSYSTEM IN EUROPE

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Abstract

This research identifies the key trends in education for Europe in the coming years including threats to funding, the challenge of incorporating new technology, the effect of remote and blended learning models on student achievement, the preparation of students for industry positions that are not yet defined, and the challenge to educators of adapting to new technology.

Keywords:

Learning ecosystem. Europe. Trends. Themes. Future. Technology. Artificial intelligence. Innovation. Remote learning. Blended learning. Funding threats. Hybrid learning. Influences. Design. State funding. Further education. Digital learning. Educators. Online teaching. Third level education. Post-pandemic. Challenges. Technological adaptation. Student performance.

Introduction

The University sector in Europe is at the centre of change. Pre Covid 19, already positioning itself for the future, tasked with equipping itself for the digital age and meeting societal needs. It has seen that process fast forwarded by the Covid 19 pandemic. Other factors that were driving gradual change, have accelerated, and added an urgency to the process. These are the increasingly obvious and destructive results of climate change, large movements of people into Europe and a rapidly changing work environment with educational and skills demands.

Europe is and has been active in preparing and planning for changes in how education is delivered at third level, with numerous reports and plans already published including:

- Developing a High-Performance Ecosystem
- Digital Education Action Plan
- Universities without Walls: A vision for 2030

These reports and plans align with European goals to address climate change, promote sustainability, embrace digitisation, and build an equal and inclusive society.

The transition to a blended teaching and learning environment needs to be developed to meet all these requirements while providing an impactful experience for third level students and staff.

In an ideal world, blended learning should increase student access to education, deliver high engagement rates, benefit the environment, and allow content cooperative partnerships across universities. As the rush to online learning during the pandemic has shown us, there are many challenges to consider.

Future Trends

The future trend is for jobs to protect ecosystems and environments. This especially impacts engineering, technology, science, operations management, and monitoring disciplines. This will extend beyond these areas into all disciplines as the issues of climate change impact not only on what students learn but how they learn. This trend aligns with the EU vision for universities that incorporate concerns around environment and sustainability.

The digital transformation in the workplace must be matched by a digitally enhanced third level education system that embraces the latest technologies in its teaching and learning methods, while progressing the digital literacy of both staff and students. In both cases there is a clearly recognisable need for ongoing training and development to meet these needs.

Delivery

The sudden impact of the Covid 19 pandemic forced higher level institutions to rush the delivery of their programmes online. For the most part lectures were delivered on Zoom with notes made available through the institution's traditional platforms. The results were patchy, and the level of student engagement varied. Lecturers are not content creators and found themselves making videos and trying to package their content in engaging ways. Many stared at blank screens as students opted to keep camera's off during lectures, with no etiquette in online behaviour established. The reality is that online teaching and the creation of content is a separate discipline. Most university lecturers do not have instructional design skills, and many are not familiar with the web-based tools that are needed to effectively deliver the content.

This has highlighted a need for training academic staff in the use of new technologies. This may not always be possible or desirable for all and universities may find themselves employing the skills of instructional designers to meet the needs of the students. An academic team may now include these instruction designers and content creators who are specialised in this area.

The use of robust Learning Management Systems (LMS) will be key not only to the management of student data but to the delivery of content. Innovation in the LMS market has grown and most will offer microlearning capabilities, gamification and collaborative coaching for staff and students. While these methods won't suit delivery of all elements of learning, they offer institutions time and cost savings.

Impact of digital learning on student outcomes

Student experiences of online learning has been mixed. The UPP Foundation in the UK found that 53% of students see a return to face-to-face classes as a priority, with 63% believing themselves to be below their expected academic level as a result of learning being online.

The impact on the Covid 19 Pandemic on minority and underprivileged students has highlighted the need to make online learning fully accessible to all. Some of the difficulties included lack of access to a private space for learning, lack of equipment and internet and lack of familiarity with using online platforms. This resulted is frustration, anxiety, and boredom. With well-being interconnected with academic success these difficulties will reflect negatively on student outcomes. In the move to an overall blended learning environment, these issues should be addressed.

These findings present an opportunity to ensure that disadvantaged groups are fully supported in the new blended learning environment and meet the EU's vision of an inclusive third level environment.

Student Perception of online learning

In another UK survey, 57% of students also expressed a preference for a majority of in-person classes. However, they also valued online content that was offered in a variety of formats and delivery options. This theme is echoed in other surveys that found 66% of students supported blended learning programmes, 45% wanted their in-person learning supported by regular online interaction. 22% expressed a preference for a majority online offering with occasional in-person activities.

Other advantages of having a fully developed online model will obviously be beneficial should the world find itself facing future crises that restricts physical access to learning. This has already been demonstrated in areas where people cannot move freely or safely to access education. In Lesotho, which has an extremely high rate of rape, girls are accessing learning through their phones and 3 devices to avoid making the physical journey to classes. This advantage can apply to zones experiencing conflict or war. Currently in Kherson in Ukraine, learning is continuing online, despite the physical university building being compromised. A spokesperson for Kherson State University has said that online learning had been key and only 4% of students were unable to take their end of year exams.

Student wellbeing

University is more than an academic experience and students have an expectation of a social dimension in their third level journey. Stress and anxiety are known elements of college life and have come under more scrutiny as a result of university teaching moving online. There is evidence of decreased wellbeing among students as a result of the move to online learning during the pandemic. A UK study has looked at key measures of student wellbeing during the pandemic, and found that the levels of life satisfaction, happiness, low anxiety, and the sense of life being worthwhile, all decreased because of reduced social interaction. As we explore the methods and means of incorporating new technologies into a blended learning environment, we are now more aware than ever how crucial the social and human element is to the success and satisfaction of both students and university staff. These findings can act as a guide to university planners when incorporating the well-being of students into their blended learning programmes.

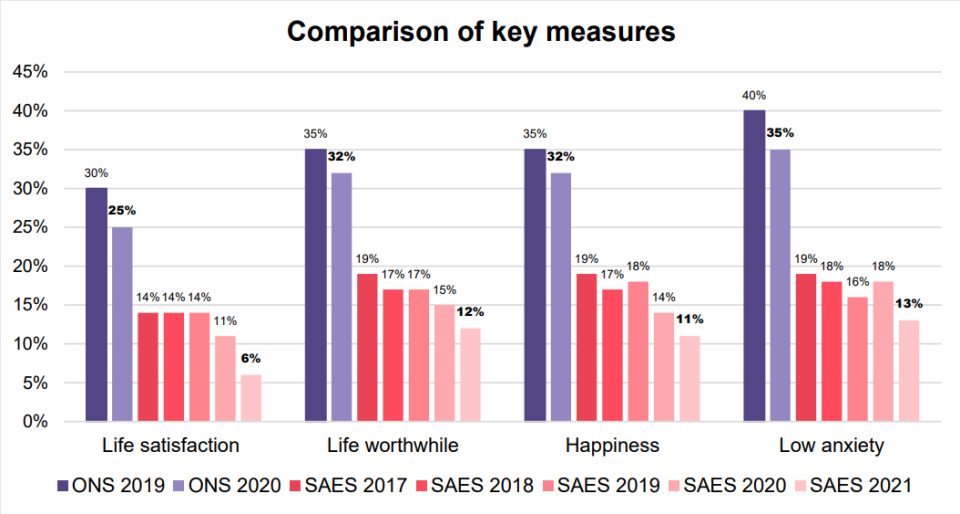

Figure 1: ONS: Office of National Statistics - SAES: Student Academic Experience Survey

Emerging Technologies

Access to information has never been more effortless, thanks to the fast development of the internet and communication technologies. In the traditional classroom, educators provide students with various sources of information that are known to be reliable. Nowadays, especially in the post-pandemic era, students rely on a host of resources available on the internet.

Emerging technologies are becoming a new trend in higher education. Extended Reality, Mixed Reality and Virtual Reality are examples of emerging technologies that are currently on trend, in the context of education.

Internet2, a nonprofit consortium, provides a national academic network to about 350 university members. According to its "2018 VR/AR in Research and Education Survey," 28% of higher education institutions have engaged in some

level of Virtual Reality deployment, 18% have fully deployed it and roughly half are testing VR or have not yet deployed it at all.

Virtual Reality has been reported to be highly beneficial for students in terms of engagement and retention. It has been established that with Virtual Reality techniques, students can have a knowledge retention rate of 75%, compared to 10% with reading and 5% from lectures.

The future of these emerging technologies looks bright, as a 2019 PricewaterhouseCoopers report estimated that twenty-three million jobs will use Augmented Reality and Virtual Reality by the year 2030.

Use of AI

The use of AI in tertiary education is an appealing prospect. Its use of big data to select students based on their likelihood of successfully completion and further engagement offers to positively impact on institutions. The benefits of more effective workflows and the insightful analytics that it can provide would be of great assistance to the administration of universities.

For students, AI powered Learning Management Systems (LMS) can provide individualised learning solutions. The latest systems on the market, can monitor and evaluate learning styles and identify skills gaps. All of this should empower student learning and lead to better outcomes.

However, the use of AI raises concerns around privacy, GDPR and bias. The gathering and holding of vast amounts of data needs to be considered and institutions will need to be sure they are compliant with legislation. The design of algorithms will be crucial to ensure that the selection process is inclusive and promotes equality. The use of AI in the selection process cannot be simply based on previous high performance, leading to the exclusion of minorities.

Short Courses and Micro Credentials

As the world of work becomes more skills based, the role of short courses that provide Micro Credentials becomes more relevant to learners and a source of income to institutions. These courses have previously appealed to older learners and those interested in continuous professional development. These learners have always been open to online and blended solutions that meet their specific needs. While some universities offer recognition for these courses, there is a need to give them more credibility and status. Large multinationals are moving into this space and will compete with universities for this group of students. Google is about to offer a full degree that can be completed in six months at a fraction of the cost of a traditional degree. The company will give this course the same recognition as a traditional degree when screening job applicants. Google is targeting the areas of Project Management, Data Analyst and UX Designer. The use of the role, as the course title, affirms the growing need for education to be industry relevant to appeal to learners. If universities want to compete in this skills based, CPD marketplace, they will need to increase the credibility and status of their short courses and possibly allocate credits to them to broaden their appeal. They will need to trade on their reputation.

Closer Collaboration with Industry

The world of work is changing, and Universities must prepare students for the new world of work. A report of World Economic Forum (WEF) in 2016 predicted that 65% of children entering primary school will ultimately be employed in jobs that didn't exist at that time. Third level institutions need to expand their collaboration with industry to ensure the relevancy of their offerings to the current and future job market. The appeal of the Google style courses and the short skills-based training courses is evidence of the awareness of students that skills matter in the competitive new workplace.

A Gallop survey from 2017 found that 96% of academic officers of colleges and universities felt that they were quite effective at preparing students for future jobs. Only 11% of business leaders fully agreed with this. This suggests that there is a persistent gap in the skills and abilities of university graduates when they join the workforce.

Insights into Future Trends

There are a number of key themes which emerged from this research and which provide insights into future trends in third-level education.

Industry Competition for Micro credentials

Universities will face strong competition from the likes of Google who will train people faster, outside of traditional academic norms, and award micro credentials which industry will recognise. Government funding will be diverted into this skills-based training which fulfils industry needs. It will create a financial challenge for the 3, 5 & 7-year degree programmes which are currently funded from the public purse.

Micro-credentials from a reputable 3rd level institution carry a certain cachet and come with an established reputation. There is a great opportunity for universities to award a number of credits to these courses and claim them as their own.

Inclusion of digital skills training in 'traditional' professions

Digital will be an integral part of practice for most professionals. 90% of future jobs in Engineering, Medicine, Art and Architecture will need digital skills. Curricula will need to adapt quickly to this societal and industry requirement.

Changing role of teachers

In the future, teaching is will not about imparting knowledge. Instead, it will be about how that knowledge is imparted and how engaging the presentation was to the audience. Future tutors will need content creation skills, instructional design skills and powerful presentation skills which translate in the lecture theatres and online. Education is becoming infotainment.

Curriculum Development

Media literacy will be another crucial component of all courses at 3rd level in the future. The rise of fake news, populism and xenophobia makes this skill fundamental, irrespective of the discipline being studied.

Artificial Intelligence & New Technology

The future of education will be about the clever use of AI. But the AI needs to be both clever and mindful. There are very valid concerns about bias which is built-into AI processes, and there are concerns around data and privacy protection. Both of these issues need to be addressed.

The use of AI can already be seen in analysing past grades and patterns of study to help select the best students to recruit. It is also currently being used to evaluate the best learning style for each student and to create better workflows.

Academic Research

The speed and depth of data accessed by AI will make academic research faster and more comprehensive. Less time will be spent citing previous studies, leaving more time to present new research. Research will be published faster and will become obsolete quicker.

AI will drive soft skills training for lecturers

AI will make it easier for students to access information. Their learning styles are already evolving. Video content, gaming, audio podcasts and short-form information are the new learning styles of choice. There will be no need, in the future, for someone to deliver a traditional lecture. The new soft skills needed by university tutors will be those skills which cannot be replicated by AI like problem solving, critical thinking, cross-cultural communications, adaptability and emotional intelligence. These will be key to successful teaching in the future.

Emerging Technology

Greater use of Extended Reality (XR) incorporating sound, sight, smell, touch and hearing will become commonplace. This will lead to less real travel and more virtual fieldwork and seminars.

Student Wellbeing

Existing research already points to a problem in this regard. Currently 20% of students have poor mental health; 38% have difficulty focusing and 74% are challenged to maintain a routine. Digital distancing can lead to lower levels of satisfaction, less happiness and higher anxiety. New structures will need to be introduced to deal comprehensively with the issues of student wellbeing, and student mental health in particular. Inclusion and Exclusion are major themes of the future.

Conclusion

The overall picture emerging for the future of university education shows the areas that need development to successfully transition to a blended learning model. The clear need of training for staff and students in digital literacy, not only for teaching and learning but to succeed in the new work environment. The importance of well-designed online learning that connects and engages students, utilising the newest technologies. A renewed focus on industry relevant, skills-based education that incorporates higher levels of collaboration with industry. Institutions should embrace the power of AI while remaining mindful of the issues of privacy, data protection and bias. Institutions should take the learnings from the Covid 19 pandemic in relation to the needs of minority and underprivileged students to ensure that their needs are fully supported in the transition to a blended learning solution.

This equally applies to what has been learned about the effects of Covid 19 on students' mental health which shows a clear need for social interaction and a learning experience that includes human contact and support. All of these developments must align with the EUs environmental, sustainability and inclusion objectives. While these are challenges, European universities have shown a remarkable resilience during the Covid 19 pandemic and an ability to pivot to new models of learning and teaching. This experience will be invaluable in the development of a long-term blended learning solution.

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