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Message from the Publisher

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This issue of Trends in Higher Education focuses on the critical role of technology in shaping the new realities in the higher education sector, especially since the global pandemic in 2020. New academic technologies have been on the rise since the COVID-19 pandemic and, these have shaped critical transformation in the teaching and learning portfolio in the higher education sector. The volume explores the rise of a number of these path-breaking technologies such as: Artificial Intelligence, Cloud Computing, Digital Twins, Podcast, Metaverse among others. These technologies have changed the way in which teaching, and learning is delivered and bring value to students in the education sector. They have also changed the way persons work, thus impacting employee productivity. Despite these developments, there are some inherent risks in implementing these technologies. This volume explores strategies and offer solutions on how to minimize these risks.

The information presented in this volume is rich and very informative. Please enjoy reading the volume.

Trends in Higher Education - The influence of technologies and tools on higher educational institutions

Introduction

At the start of this academic year, higher education institutions (HEIs) returned to a semblance of normalcy since the start of the Global COVID-19 pandemic in 2020. During the pandemic, universities and colleges underwent an accelerated pace in the implementation and use and reliance on technology. Generally, there is consensus among technology experts that HEIs will need to build or enhance a technology ecosystem that positively impact learners, educators, and administrators. According to Fourtané (2022), 86% of educators believe that technology should play a dominant role in how they teach future generations within the higher education sector. Grajek (2022) notes that the top IT issues will be institution-wide, flexible, reusable models for running the institution and achieving its mission and IT issues will be framed around leadership, data, work, and learning. Table 1 below lists these top 10 issues.

Further, Figure 1 identifies the leading technologies that are expected to become dominant in the higher education and support the expansion of digital transformation within the sector. These are critical items that will be looked at in this issue of the publication.

Inside This Issue:

- Broadening the reach of IT
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- Improving employee digital proficiencies
- Reducing data breaches

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BOX 1: TOP TEN IT ISSUES FOR HIGHER EDUCATION

- i. Ensuring IT leadership is a full partner in institutional strategic planning.
- ii. Embedding privacy and cybersecurity education and awareness in the curriculum and in the workplace.
- iii. Creating a workplace that allows for and supports movement up down and sideways to accommodate shifts in personal and professional goals and to foster healthier work/life balance.
- iv. Using technology, data insight, and agility to create a frictionless student experience.
- v. Leading with humility and candour to engage, empower, and retain the IT workforce.
- vi. Focusing data and analytics initiatives on identifying academic programmes with high potential for recruitment.
- vii. Converting data analytics into action plans to power institutional performance, enhance operational efficiency, and improve student success.
- viii. Updating IT services to support remote/hybrid work.
- ix. Developing a learning-first, technology-enabled learning strategy.
- x. Managing cost, risk, and value of investments in new ERP solutions.

Source: Grajek, 2022.

Broadening the reach of IT

The pandemic impacted HEIs' use and implementation of technology as well as engagement on the use of academic technology in the enterprise. The findings from a 2021 survey by *The Chronicle of Higher Education* of more than 650 higher education leaders showed that:

- 86% of higher education administrators agreed that the pandemic has increased collaboration among campus leaders in their strategic approach to technology adoption, and 75% said they expect this to continue post-pandemic.
- 61% of respondents said faculty members are more involved in deliberations, and more than half (54%) said more administrators are involved. Additionally, 50% of those surveyed said the pandemic had led decision-making to be more campuswide and 23% said the pandemic had caused the decision-making process to have fewer steps.

The *Chronicle* survey asked respondents to state what academic technologies they planned to invest in. The area of most interest was open-education resources (45%) followed by predictive analytics (37%) and "AI and chatbots" (25%).¹ However, technology adoption remains constrained by the following factors: budget

¹ Chatbots and virtual assistants have been used by campuses to reach students in the areas of admissions and enrolment, student services, course information, career services and for mental health support. For more information, see Susan Fourtané. "[Future of](#)

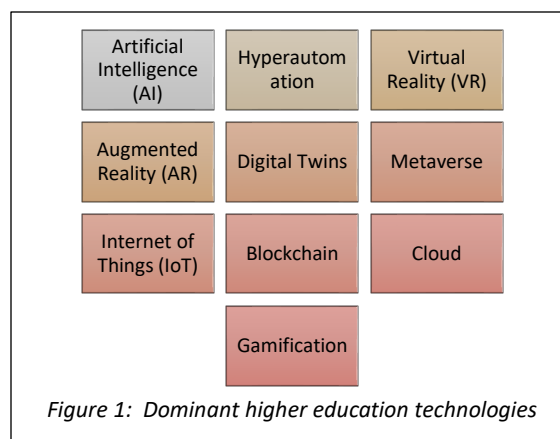


Figure 1: Dominant higher education technologies

(75%), faculty reluctance (56%), training the community (49%), IT infrastructure (42%) and evaluating outcomes (35%) (*The Chronicle of Higher Education*, 2021).

Migrating to the cloud is another area of expansion in the IT space. Findings from the *Chronicle* survey show that:

- 96% of senior leaders said cloud-computing services have been valuable in responding to institutional needs.
- The top areas where cloud services will most benefit college's operations: online instruction (76%), student services (56%), and enrolment and admissions management (52%).

[Higher Education: Chatbots for Improved Student Retention.](#) *FIERCE Education*, March 24, 2022, and Laura Pappano. "[College Chatbots, With Names Like Iggy and Pounce, Are Here to Help.](#)" *The New York Times*, May 8, 2020.

The rise of ed tech

In a report by College Innovation Network², which examined how students are feeling about ed tech, the findings demonstrate that:

- 76% of students overall felt prepared for the next steps in their educational journey after the academic year, compared to only 53% who said the same in 2021.
- over one-third of students indicated that most of the edtech they used in 2021-22 was new to them.
- 88% of students report feeling confident in their ability to adapt to new edtech, up five percentage points from 2021.
- 40% of students reported learning primarily online in 2022. Yet, more than two-thirds of students' indicated feeling positively about higher education adopting more hybrid and online courses, and fully online programmes.
- the majority respondents wanted a mix of online and in-person options for services such as career (56%), student support (61%), academic (51%), and social and peer connection (49%).

Along with ed-tech tools, 95% of students surveyed in the UK believe that digital copies of their course books should be available when needed and without waiting lists based on the findings from a UCAS survey (Jack 2022). Moreover, three-quarters would strongly like to see digital copies of their course texts available without waiting lists, compared with just a third for physical copies. About half of respondents said they worry about being able to access course books through the library when needed, and 60% of those said wider availability of digital resources would improve their mental health.

These findings show a positive shift to a hybrid or an online learning format however, it will require institutions to continue to invest in tech support and also monitor changes in ed-tech adoption and access to digital textbooks.

² The second annual CIN EdTech Student Survey collected data from 1,402 students across six diverse colleges and universities to understand the year-over-year changes in their technology-

The use of podcasts in the educational space

Given that podcasts are available on-demand, it provides educators with the opportunity to record their lectures and for the students to listen at their convenience. In other words, it can improve the efficiencies in learning activities. Audio is being used to fit into the content plans of websites and blogs. It has led to the expansion of the podcast industry with many new channels being available on various entities (apps) like Apple, Google, and Spotify. There are also many active podcast educational channels such as [Hardcore History](#), [Philosphize This!](#). In addition, podcast education can expand access to visually impaired students.

According to data from a January 2022 survey by Edison Research, among weekly podcast listeners (26% of those surveyed), 75% listened most often on their smart phones. Moreover, 50% of those aged 12-34 are monthly podcast listeners. This suggests that institutions not only have the potential to incorporate podcasts into instruction (SCUP Fall 2022) but also, to create their own channel, which can act as a brand-building tool as well as an educational tool.

Improving employee digital proficiencies

Within the higher education sector, staff feel they are getting less support to teach online than they were a year ago, despite universities' commitment to providing more digital and hybrid education according to Williams (2022). The findings from a survey administered by Jisc, a UK technology company, reveal that:

- 48% rated the support offered by their university to help them effectively teach remotely as above average down from 54% last year.
- 14% said they have had an assessment of their digital skills to judge what further training they may need and 6% agree that they are rewarded or recognised for their digital competency.

enabled learning experiences and learn what students want their college experiences to look like in the years ahead. See CIN, 2022.

- 89% of respondents said they are conducting some of their teaching from home, but half say they have experienced technical issues doing so, with poor wi-fi connections the most common grievance.
- 53% said they prefer a mix of on-site and online teaching with 39% saying they want mostly on-site and 8% calling for mostly online.
- 37% of those surveyed investment should focus on upgrading platforms and systems with 32% calling for better IT support and 16% wanting more computers or devices.
- 73% of staff per cent said they sought support from fellow teachers, compared with 48% who went to IT.

The challenges to digital competencies have led SCUP (Fall 2022) to suggest that organisations may need to assess employees’ digital proficiency to determine in which areas they may need additional training, offer additional support services to faculty and staff to navigate technology tools, and engage in robust stakeholder evaluation of potential technology tools before implementing them.

Reducing data breaches

The increased flow of data as a result of digital transformation has increased data breaches. Verizon (2022) pinpoints that the largest contributor to data breaches is the human element, which accounted for 82%. In addition, the report highlighted that there are four paths to breaches: credentials, phishing, exploiting vulnerabilities, and botnets. Ransomware saw an increase of 13% between 2017 and 2021 and error (i.e., anything done (or left undone) incorrectly or inadvertently) was responsible for 14% of breaches. External actors were responsible for 80% of breaches to the organisation.

The Report highlights that educational services is similar to the majority of the other industries in that it is experiencing a dramatic increase in ransomware attacks (over 30% of breaches). The following table provides a summary of the data

breaches identified by Verizon (2022) for the education sector.

Table 1: Summary of data breaches - education services

Field	Comment
Frequency	1,241 incidents, 282 with confirmed data disclosure
Top patterns	System Intrusion, Basic Web Application Attacks and Miscellaneous Errors represent 80% of breaches
Threat actors	External (75%), Internal (25%) (breaches)
Actor motives	Financial (95%), Espionage (5%) (breaches)
Data compromised	Personal (63%), Credentials (41%), Other (23%), Internal (10%) (breaches)
What is the same?	This industry continues to be impacted by attacks targeting their external infrastructure and are largely targeted by External actors with financial motives. However, Educational Services also faces errors as one of the top causes of breaches.

Source: Verizon, 2022.

As noted by Verizon (2022), the sector needs to protect itself against stolen credentials and phishing attacks potentially exposing the personal information of its employees and students. To that end, they recommend that institutions introduce or scale-up security awareness and skills training, access control management, and secure configuration of enterprise assets and software. SCUP (Fall 2022) suggests that institutions’ review their IT security plans and policies to ensure it address the four pathways for data breaches.

Conclusion

The pandemic has accelerated the pace of adoption of online technologies for teaching and remote work. Importantly, the adoption of academic technologies has improved the opportunity for collaboration across the university setting. Nevertheless, HEIs will have to take stock of their IT policies and improve their IT security infrastructure to address various data risks. These developments will impact on business practices and other aspects of institutional operations.

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