

Innovations in Immersive Technology and Artificial Intelligence to enhance the golden skillsets of effective communication and collaboration

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Abstract: This longitudinal appraisal provides empirical evidence that higher education needs to concentrate even more on developing graduates with strengths in communications and collaborations, alongside the focus on subject capability. Immersive technology and artificial intelligence provide innovative means of catalysing such growth, examples including the emergence of soft-skills development through platforms such as Bodyswaps (2024) and others.

Using primary baseline data from ten years ago, a Journal of Education and Work paper (O'Leary, 2017) confirmed a series of disciplinary variations in employability-related support across higher education institutions. A complementary Studies in Higher Education publication (O'Leary, 2021) highlighted that gendered inconsistencies in such provision were of an indirect nature, as they reflected variable provision across disciplinary subject areas while persistent gendered choices of degree subject matter exist. The third study (O'Leary et al., 2024) assesses progress and establishes future priorities for course developments.

The first study outlined that variations exist in how students and graduates prefer to see employability-related support delivered in their courses. Nine in ten want it included, but differences exist as to whether it is best provided as an optional feature (the desire within Humanities and Sciences), or it is fully integrated into the course (the preference in Engineering and Social Sciences). However, the second study highlighted that actual student and graduate experiences of employability-related support vary and, as a result, more female students and graduates appear to miss out because of the variations across disciplinary areas and the fact that females are predominant in those subject fields where the visibility of employability-related support is relatively lower.

To complement the earlier studies and establish a longitudinal perspective over the last decade, the third study (O'Leary et al., 2024) was recently completed by over one hundred students and graduates. A preliminary assessment of the data has been made for this proposal, and the full analysis continues to progress. The initial appraisal indicates that the gaps previously exposed are closing and the focus for future course developments should be on developing graduates with strengths in communication and collaboration, as well as on capability. Opportunities to enhance such golden skills exist using immersive technologies and artificial intelligence (AI), especially using Generative AI (GenAI) and Virtual Reality (VR).

Keywords: Graduate Skills; Virtual Reality; Artificial Intelligence; Communication; Collaboration.

Word count: 1,721.

Introduction

There has been a focus on graduate attributes, skills, and employability for some years now and it remains a priority issue at the Office for Students (2024) for each Higher Education Institution (HEI). As technology and working patterns evolve, it is essential that graduates reflect those changes and have the skills needed to tackle new ventures and/or meet the needs of potential employers. The challenge for the research outlined in this paper is how to enhance such opportunities and provision at Canterbury Christ Church University (CCCU), a HEI that is already ranked Number 1 on one of the recognised employment measures (Canterbury Christ Church University, 2023) but wishes to develop innovatively upon that through the adoption and use of new technologies such as Artificial Intelligence (AI) and Immersive Technology (ImmT), building upon the emerging Generative AI (GenAI) and Virtual Reality (VR) platforms. This was first presented at the 2024 Global Entrepreneurship and Innovation Conference hosted at CCCU (GEIC, 2024).

Literature

Graduate employability-related issues

Graduate employability often highlights the development of soft- and hard-skills (O'Leary, 2017 and 2021); the former covering reliability, professionalism, working under pressure, coping with uncertainty, planning, strategic thinking, interpersonal interactions, communications, teamwork, networking, creativity, self-confidence, self-management, time-management, willingness to learn and acceptance of responsibility; while the latter includes qualifications and expertise, abilities to present arguments, analytical and problem solving skills, coping with complexity, working alone and teamwork. In a similar vein, emotional intelligence (EI) is often raised as an alternative to IQ (intelligence quotient). Many contributors specify attributes such as critical thinking, behavioural capabilities, cultural awareness, and others such as communication, commerciality, achievement-driven, flexibility, customer focus, developing others, teamwork, problem solving, leadership, analytical thinking, organisation and relationship building.

There is in essence no single recipe but a whole portfolio of potential ingredients that make up the most suitable amalgamation for an individual. Nevertheless, attributes once considered 'relatively soft' are key to ensuring that those attributes considered in comparison to be 'relatively hard' have the chance to flourish. Therefore, when considering skills here, the word 'soft' has been replaced with 'golden' to better reflect their importance in complementing and catalysing what may be deemed more discipline-orientated capabilities (O'Leary et.al., 2024). The findings from the earlier foundational studies are outlined in Figures 1 and 2.

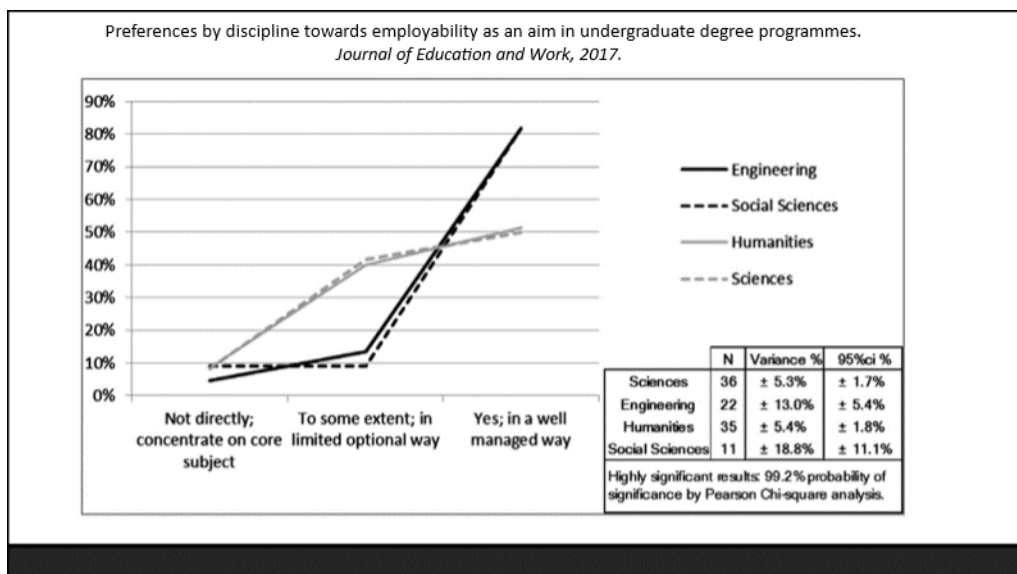


Figure 1: Illustration of variances in preferences for how employability-related support is offered across subject disciplines (O’Leary, 2017).

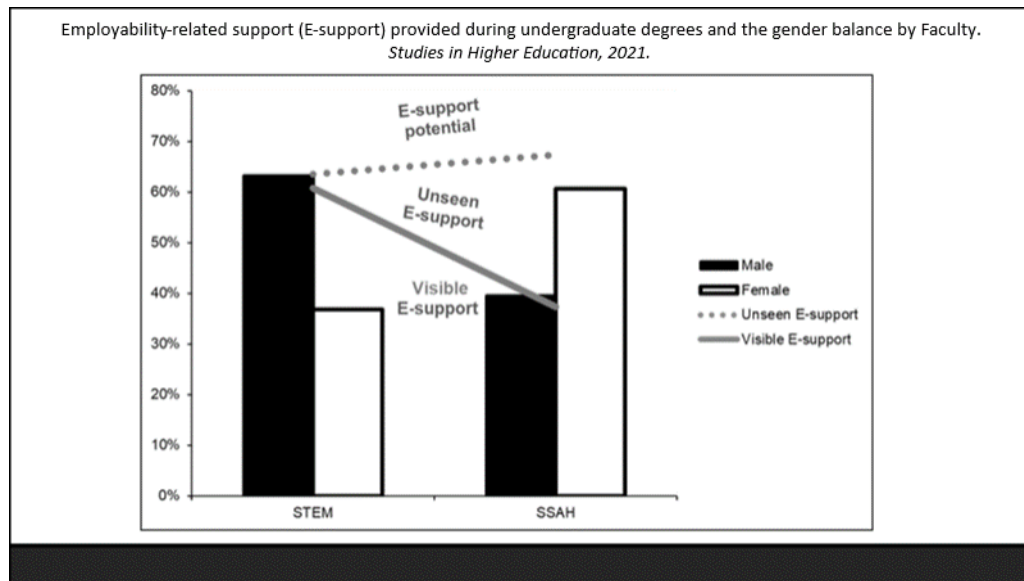


Figure 2: Illustration of how experiences of the delivery and visibility of employability-related support vary across disciplines and the greater impact this has on females (O’Leary, 2021).

Technology platforms for personal development

During the last decade experiential learning theory has widely been adopted as the dominant paradigm in Higher Education (Kolb, 2014). In many cases, traditional lectures are still used to educate learners, however the research clearly demonstrates that a practical approach to learning yields significantly greater outcomes over time when compared with traditional approaches (Kwon, 2019; Specht and Sandlin, 1991).

Immersive technologies, such as virtual reality (VR) head mounted displays (HMDs), provide digital experiences to their users and therefore go hand in hand with the use of experiential learning activities and techniques. Immersive technologies have the capabilities to enhance the learning experience and maximise knowledge retention alongside developing golden skills. This is primarily of benefit where engaging in a real-world activity is unobtainable, whether due to health and safety, costs, magnitudes of scale or other logistical challenges.

It is paramount that accessibility and equality, diversity and inclusion (EDI) principles are embedded to enable the technologies to benefit all learners and no-one is excluded from a learning activity, not just ethically but also legally.

A number of VR applications are already available that focus on the development of golden skills and are seeing adoption across HE Institutions. One example, Bodyswaps (2024), that provides a catalogue of experiences, including simulated job interviews, conflict management, gender inclusion and more besides. The consensus is that these applications are effective, but research is needed to understand how best to embed their use in HE, and how to measure their impact.

Research Methodology

To complement those earlier studies, the most recent survey with students and graduates from multiple disciplines addressed the issue of what the priority skillsets should be.

An internal CCCU Learning & Teaching Grant allowed for the provision of small-value vouchers for participating students and graduates. Over one hundred surveys were completed and further details on these is available in the extended version of this study (O’Leary et.al., 2024).

Results and Discussion

The results give clear indications that there is a priority six skillsets and these can be further categorised and ranked into skills for Communications and Collaborations respectively, over and above Capabilities in the subject discipline, as illustrated in Figure 3.

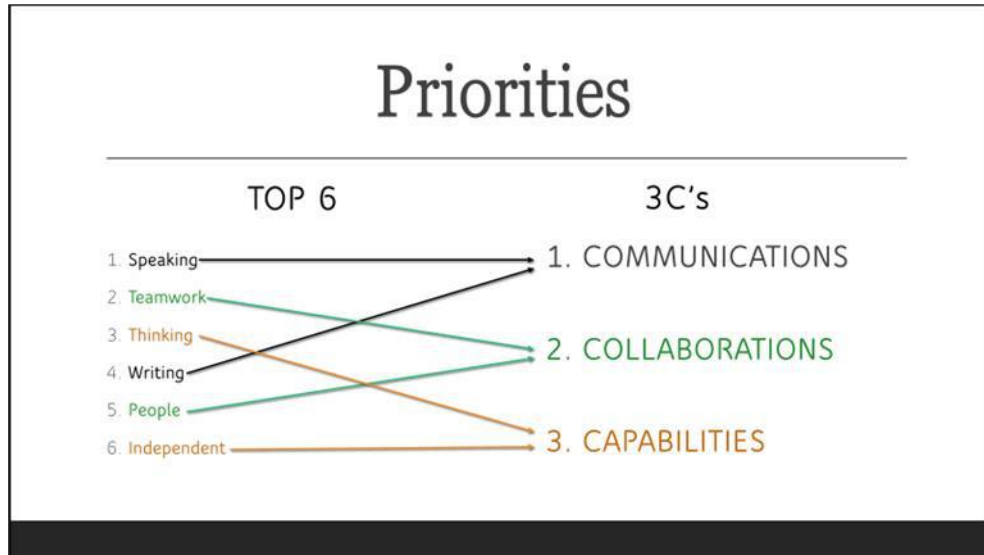


Figure 3: The priority skillsets identified and the identification of the 3C's (O'Leary et.al., 2024).

Conclusions

While capability in a subject disciplinary field can be taken as a fundamental foundation for a HEI student and graduate, the ability to be an effective communicator (oral and written) and collaborator (team player and understander of people) are critical and become increasingly important as time goes by. This raises the importance of integrating such activities into course delivery, as depicted in Figure 4.

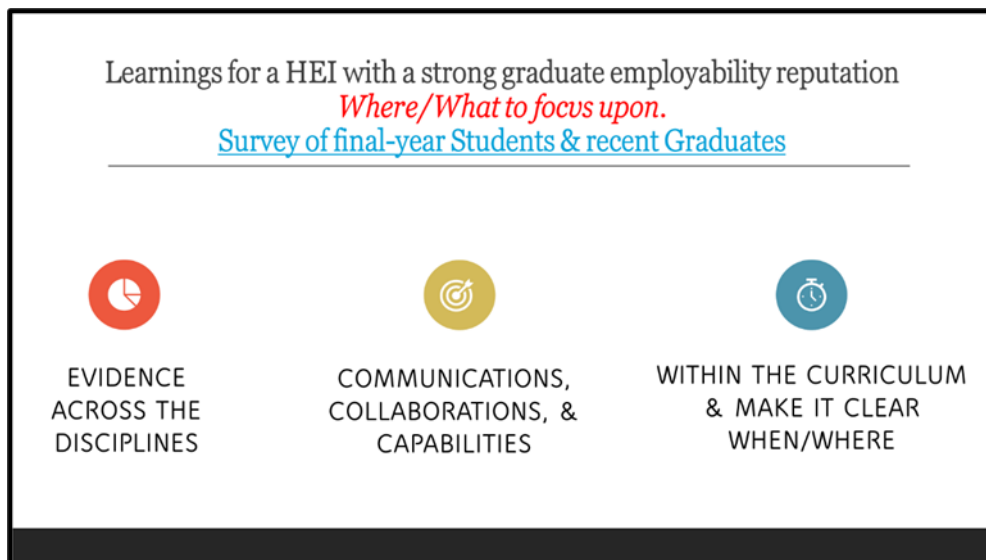


Figure 4: The research undertaken, its findings, and applying it in HEI courses (O'Leary et.al., 2024).

This opens up opportunities for new technologies to play their part in enhancing the development of communication and collaborative skillsets, as an adjunct to the capabilities developed within subject disciplines (see Figure 5).



Figure 5: Outline of potential opportunities for emerging and interactive technologies to play a role in the development of key skillsets in HEI courses.

GenAI could help academics identify where in their course materials (such as module guides, seminar materials, and assessments) that communications and collaborations play a vital role, while VR could be used to practice and hone those skills in safe environment. This provides a clear example of the adoption of innovation as a platform for growth and the development of skillsets linked to entrepreneurship and enterprise more broadly, skillsets in increasing demand by investors and employers.

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