According to the Northern Ireland (NI) Skills Barometer 2021 (4), the total number of professional scientific jobs in NI is set to rise by 2030, increasing by 11% (8.8K), making science-based professions including Biomedical Scientists the second highest employer sector.

The changing needs of the National Health Service (NHS) and educators must be carefully considered in relation to the ongoing health service challenges:

- Increase in acute/chronic pathology
- Emerging roles for Biomedical Scientists
- Institute of Biomedical Science (IBMS)/Health Care Professions Council (HCPC) regulatory requirements
- Imbalance of higher education Level 6
- Employment expectations of graduates

Furthermore, it is possible that employer attitudes and perceptions have not adjusted at the same pace as those in the education system. It is therefore important when delivering teaching and learning in higher education to ensure that students are ‘workplace ready.’ One strategy to address this issue is to strengthen partnerships between education and health providers.

In a rapidly changing world personal and transferrable skills are key to accessing employment, career progression and becoming resilient to the unknown. A skills-based approach to education is vital, in addition to scientific practical skills, communication, digital knowledge, leadership qualities and problem solving were the most desired skills identified by NI graduate employers (4).

With the alignment of the Graduate Attributes strategic objectives Nurturing success for every student’ employability skills for Biomedical Scientists must be carefully considered.

Methods

Hypothesis: Focusing on the UU Curriculum Design Principles of Employability, it was proposed that the inclusion of employer engagement would strengthen the learning outcomes in student experience, and future-proof them for employment.

Biomedical Scientists from the NI Health and Social Care Trust (HSCT) laboratories were involved with teaching delivery, skills workshops, interview preparation and career fairs as part of the undergraduate UU Biomedical Science degree programmes between 2020-21 and 2022-23.

The cohorts included:
- 3946 BSc Honours Biomedical Science n=40
- 3871 BSc Honors Biomedical Science with Diploma in Professional Practice (Industrial placement) n=24
- 8165 BSc Honours Applied Biomedical Science with Diploma in Professional Practice (Pathology placement) n=20

Evaluation of project design, implementation and effectiveness of the integrated approach was undertaken through UU module surveys, National Student Surveys (NSS), and graduate outcome classifications.

Conclusion

Students widely expressed the opinion that they were provided with a clearer understanding of required transferrable skills and employer expectations within the Biomedical Science profession during teaching and learning.

Employers in the Biomedical Science field have provided a holistic, student centered approach to employability for UU graduates, with 93% of UU graduates either in work or undertaking further study since graduation from UU BSc Honours Biomedical Science programmes (7).

Success of the innovative approach has led to employer engagement becoming embedded as part of the Ulster University Biomedical Science undergraduate degree curriculum.

It is proposed to adopt the approach for further UU BSc Honours Biomedical Science distance learning programmes, and indeed wider University courses. Furthermore, the teaching practices are aligned with UU’s recently launched Graduate Attributes framework.

This innovative approach will increase the flow of quality graduates to meet increasing sectoral demands, align with employers’ criteria for new entrants, and enhance opportunities for UU Biomedical Science students to succeed in their field and thrive in their career.

“A successful Biomedical Scientist is a happy Biomedical Scientist,” BMS, NI

Key points

- Partnership: employer engagement in the design and delivery of the university curriculum, enhancing sectoral communication and student employability.
- Skills: employability strategy enhancing the student experience and increasing skills through quality coordinated engagement with employers.
- Quality: Ulster University encompasses the three dimensions of higher education curriculum design ‘Knowing, Doing and Being’ ensuring transferrable skills for future effective healthcare (1, 2).

References

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Figure 1: Employer engagement (Cellular Pathology module)

- The cohort included: 3871 BSc Honours Biomedical Science with Diploma in Professional Practice (Industrial placement) n=24
- The guest lecturers were well respected and engaged the students well
- The visits from hospital lab employers were interesting and engaging

Figure 2: UU Module Satisfaction (Blackboard Learn): Whilst continuously monitoring the University launches in 2019-20 (a) and 2020-21 (b), there was a significant increase of 25% validation rate on module delivery in 2022-23 (c). Survey results; agree in blue (d).

Figure 3: Biomedical Science Career Fairs (n=8) and Mock Interviews (n=4): 100% of students felt visiting employers were enthusiastic, educational, and inspirational (a) resulting in 85% being more aware of how to improve their employability personal skills (b). Students felt more confident (90%) with application and interview process (c). The career fairs attracted all students, with the majority (52.22%) engaging with various employers (d), many finding placement and employment opportunities, 46.67% and 35.90%, respectively, (e) with 93.33% agreeing to attend a similar event in the future (f)

Figure 4: Graduate outcomes: The NSS feedback resulted in students expressing they felt their final year studies and graduate outcomes had been strongly influenced by employer engagement during their studies. Results demonstrated a 33.82% 1st degree classification achieved by students in 2019-2020 (a). Furthermore, the data revealed an increase of 2.1 and 2.2 classifications, respectively. Whilst the placement programmes resulted in higher classifications, the NSS cohort has remained in progress with 28% increase 1st degree classification since 2018-19. NSS rates resulted in 100% (2021) and 80% (2023).