



VALERIE HINCH, DIANE LEES MURDOCK, DONNA CALDWELL, LAUREN CRAWFORD



BIOMEDICAI SCIENCE IN UK FOR RESEARCH IMPACT (4*/3*)

> School of Biomedical Sciences, Ulster University, Coleraine, Northern Ireland, BT52 1SA F *Correspondence email: v.hinch@ulster.ac.uk

Faculty of Life and Health Sciences

Introduction

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



Results

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 Hons Biomedical Science programmes (7).

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 recent survey by Ulster University (UU) highlighted that, in addition to scientific practical skills, communication, digital knowledge, leadership qualities and problem solving were the most desirable skills identified by NI graduate employers (4).

With the alignment of the UU Graduate Attributes strategic objectives 'Nurturing success for every student' employability skills for Biomedical Scientists must be carefully considered. daily working lives was very interesting and grew my excitement for placement even more"

very engaging and gave me a good insight into the professional role of a BMS and our expectations"

"It was great to work on our skill abilities, knowing what is required for the Biomedical Scientist role,...I understand much more re IBMS and HCPC" "Each part of the registration portfolio was explained in depth. I now have a better understanding of what is required in the workplace and feel prepared for work"

Figure 1: Employer engagement (Cellular Pathology n=84):

a) Biomedical Science undergraduate student demographic profiles. The majority of the cohort (74%) were under 25 years and from the UK (90%), with all students demonstrating various needs and capabilities. (b) Mentimeter quantitative and (c) qualitative analysis illustrates that students are strongly in favour of employer engagement, expressing that they felt their student experience and employability skills were greatly enhanced.



Figure 2: UU Module Satisfaction (Blackboard Learn): Whilst continuously meeting the University benchmark for 2019-20 (a) and 2020-21 (b), there was a significant increase of 25% satisfaction rate on module delivery in 2021-22 (c). Survey results; agree in blue (d).

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 Hons 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 desired skill expectations, 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



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 and 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:



Figure 3: Biomedical Science Career Fairs (n=90) and Mock Interviews (n=60): 100% of students felt visiting employers were enthusiastic, educational, and inspirational (a) resulting in 95% 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's fairs attracted all students, with the majority (52.22%) engaging with various employers (d), many finding placement and employment opportunities, 46.67% and 35.56%, respectively, (e) with 93.33% agreeing to attend a similar event in the future (f).



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

- 1. Barnett, R. and Coates, K., 2005. International Studies in Sociology of Education Vol. 15 No. 1 page 107-112.
- 2. Biggs, J. B., and Tang, C., 2011. Teaching for Quality Learning at University: What the Student Does (4th edition).

- ➢ 3864 BSc Hons Biomedical Science n=40
- 3871 BSc Hons Biomedical Science with Diploma in Professional Practice (Industrial placement) n=24
- 8185 BSc Hons Applied Biomedical Science with Diploma in Professional Practice (Pathology placement) n=20

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



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 35.82% 1st degree classification increase as at 2022-23 since 2018-2019. Furthermore, there was an 8% and 19% decrease of 2:1 and 2:2 classifications, respectively. Whilst the placement programmes result in higher classifications, the 3864 cohort has still managed to progress with 28.59% increase 1st degree classification since 2018-19. NSS rates resulted in 100% (2021) and 90+ (2023).

- B. Department for the Economy, 2021.
- 1. Industrial Strategy for Northern Ireland, 2030.
- 5. The Guardian University League Tables, 2023
- 6. Higher Education Statistics Agency (HESA), 2021
- . National Student Survey (NSS), 2023
- 3. Biomedical Science BSc (Hons) at Ulster University 2024/25 entry -Full-time Undergraduate Study in Coleraine; Biomedical Science with placement year BSc (Hons) at Ulster University 2024/25 entry - Fulltime Undergraduate Study in Coleraine; Applied Biomedical Science with DPP (Pathology) BSc (Hons) at Ulster University 2024/25 entry -Full-time Undergraduate Study in Coleraine

Acknowledgements

The authors would like to acknowledge the work undertaken by the Ulster University Career's department and Northern Ireland Health and Social Care (HSCT) Laboratory employers, together with the Institute of Biomedical Science (IBMS) and Health Care Professions Council (HCPC).

