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HEFCW-funded QAA Cymru
Collaborative Enhancement Projects 2023-24

What are the key attributes of a graduate in Wales and how can we foster the development of these attributes?

Final Report
August 2024

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Executive Summary

This report presents the findings of a comprehensive project aimed at enhancing graduate employability in Wales by identifying and developing the graduate attributes most valued by employers. The project was conducted in response to growing concerns over the alignment between the skills and attributes acquired by students during their university education and the demands of the modern workplace.

Project Background and Objectives

The study was designed as a collaborative enhancement project involving multiple institutions: Aberystwyth University, Bangor University, Pembrokeshire College, University of Wales Trinity Saint David, and Wrexham University. The primary focus was to determine the key attributes that distinguish graduates in both national and global markets. The project aimed to produce a set of recommendations for academic activities that could cultivate these attributes, ensuring that graduates are well-prepared for the workforce.

Methodology

The project was structured into three key stages:

1. **Employer and Student Questionnaires:** Surveys were conducted with employers (67 respondents) and students (434 respondents) to assess the perceived importance of various graduate attributes and skills, and the extent to which these are developed through university courses.
2. **Focus Groups:** Discussions with academic staff (four groups), professional services staff (three groups), and students (two groups) explored the methods used to teach graduate attributes and identified potential improvements.
3. **Dissemination Event:** The findings were shared with stakeholders from participating institutions to discuss next steps and ensure the impact of the project.

Key Findings

The study revealed significant discrepancies between the skills that employers value and those that students believe they are acquiring. Employers prioritized practical attributes such as application, collaboration, and independence, whereas students placed greater emphasis on personal expression and inclusivity. This misalignment suggests a gap between academic preparation and workplace expectations.

Furthermore, employers consistently rated skills like problem-solving, adaptability, and willingness to learn as critical, yet found these skills underdeveloped in graduates. Conversely, students believed that their courses were adequately preparing them in these areas, indicating a potential overestimation of their preparedness. In general, students rated skills more highly than employers in terms of both importance and how much they are trained on their courses.

Focus groups highlighted the challenges faced by academic staff in embedding these attributes into curricula, particularly due to resource constraints and varying levels of student engagement. The importance of practical experience, such as internships and placements, was emphasized across all stakeholder groups as vital for developing key employability skills.

Recommendations

To address these challenges and better align educational outcomes with employer expectations, the report recommends the following actions:

- **Integrate Practical Experiences:** Embed internships, placements, and project-based learning into all academic programmes to ensure students can apply theoretical knowledge in real-world settings.
- **Enhance Collaboration:** Strengthen partnerships between academic departments and professional services to consistently reinforce employability skills throughout the student journey.
- **Focus on Resilience, Adaptability, and Growth Mindset:** Universities should incorporate resilience training into curricula and provide opportunities for students to reflect on and learn from setbacks.
- **Improve Access to Support Services:** Invest in accessible and effective support systems to help students overcome barriers related to mental health, financial constraints, and social anxiety. Ensure that this is balanced against providing safe space and opportunity for students to experience challenges, setbacks, failure, thus enhancing resilience.
- **Align Academic and Industry Terminology:** Ensure that the language and skills emphasized in academic settings align with those required in the workplace. Train students to use sector-appropriate language when describing their own skills and attributes.

Conclusion

This project underscores the need for higher education institutions to refine their approaches to developing graduate attributes. By implementing the recommended strategies, universities can ensure that their graduates are better equipped to meet the demands of the workplace, thereby enhancing their employability and contributing positively to the economy.

Research Background and Aims

Graduate attributes refer to the skills, knowledge, and abilities that university graduates are expected to possess, extending beyond their disciplinary knowledge to encompass broader competencies relevant across various professional contexts (Wald & Harland, 2019). These attributes are often linked to employability, reflecting the expectations that graduates will be well-equipped to meet the demands of modern workplaces (Barrie, 2004).

Research on graduate attributes has grown over the past two decades, particularly in response to increasing concerns about the employability of graduates. Early studies highlighted significant gaps between the skills that graduates possessed and those that employers valued, such as communication, teamwork, and problem-solving (Kemp & Seagraves, 1995). These findings prompted the development of graduate attribute frameworks across many universities, particularly in the UK, Australia, and New Zealand (Wong et al., 2021), where the emphasis on employability has become a central theme in higher education policy (Barrie, 2004).

In the UK, graduate attributes frameworks are now widely implemented, with universities articulating specific attributes that their graduates should demonstrate (Wald & Harland, 2019; Wong et al., 2021). However, despite their widespread adoption, these frameworks have been critiqued for their lack of theoretical grounding and the challenges associated with their implementation. Wald and Harland (2019) argue that graduate attribute frameworks are often rooted in neoliberal ideologies, which prioritize economic outcomes over educational values, leading to a narrow focus on employability at the expense of broader educational objectives. This critique highlights the tension between the managerial demands of higher education institutions and the academic freedom necessary for meaningful curriculum development.

Furthermore, recent research suggests that while graduate attribute frameworks provide a useful structure for curriculum design, they often fail to capture the complexities of how these attributes are developed and demonstrated by students. Academic staff report difficulties with finding time, resource, and confidence to embed the training of graduate attributes into their subject-specific curricula (Oliver, 2013). As a result, employers frequently report that graduates lack critical attributes such as resilience, commercial awareness, and leadership, despite universities' efforts to embed these skills in their curricula (AGCAS Cymru Advice and Guidance, 2024). These findings suggest that the current approaches to teaching and assessing graduate attributes may not be adequately preparing students for the realities of the workplace.

Despite extensive research on graduate attributes and their implementation, there are notable gaps in the literature that warrant further exploration. One significant gap is the limited understanding of how different stakeholders – students, employers, academic staff, and professional services – perceive the importance and effectiveness of graduate attributes. Most studies have focused on either employer expectations or student outcomes, with little attention given to the perspectives of academic and professional services staff who play crucial roles in curriculum design and student support.

Moreover, there is a need for more comprehensive research that examines the specific context of the UK, where higher education policies and labour market demands may differ from those in other countries. While some studies have explored graduate attributes in the UK, they often do not account for regional variations or the specific challenges faced by universities in different parts of the UK, such as specific to Wales. Additionally, existing research tends to focus on discrete populations - such as students, career service staff, academics, or employers - thus failing to synthesise findings to develop a cohesive and comprehensive understanding.

The current landscape of research into graduate attributes highlights the importance of these skills for employability and the challenges associated with embedding them in higher education curricula. However, gaps remain in understanding the perceptions of various stakeholders and the specific context of the UK. Addressing these gaps is crucial for developing more effective strategies for teaching and assessing graduate attributes, ultimately ensuring that graduates are better prepared for the demands of the workforce.

This collaborative enhancement project aspires to address the challenges of graduate employability in Wales. The project's primary focus lies in identifying, understanding, and developing graduate attributes valued by employers. Our objective is to determine the key attributes of a graduate in Wales that distinguish them in both national and global markets. Upon identifying these attributes, we will then produce a set of recommendations for academic activities designed to cultivate and enhance these attributes.

Graduate attributes refer to the high-level qualities and skills that students acquire during their university journey. Each participating institution possesses its own sets of graduate attributes or skills; however, there is little shared practice across institutions in mapping these attributes to employer needs, student awareness, and academic activity. We aim to consolidate these diverse attributes and use them as a framework to address three fundamental questions:

1. Which of our attributes do employers value most in graduates?
2. Do students comprehend the importance of these attributes?
3. How can academic activities effectively cultivate those attributes that hold the most professional value?

This project included a comprehensive three-stage process, engaging multiple institutions and stakeholders to ensure a holistic and impactful approach. The first stage involved surveying employers and students to gauge the perceived importance of graduate attributes and skills in their respective career sectors and the extent to which these skills are instilled in graduates. The second stage comprised focus groups with academic staff, professional services staff, and students to explore how graduate attributes are taught and to identify methods for more successfully embedding valuable skills into the curriculum. The third and final stage was a dissemination event bringing together key staff from the participating institutions to share findings from the first two stages and discuss subsequent steps.

Through this three-stage process, we aim to align academic preparation with workplace requirements. The anticipated outcomes promise curriculum refinement, increased student awareness, and improved collaboration among institutions. This project stands to positively impact the higher education sector, fostering ongoing collaboration and knowledge-sharing.

Stage 1: Employer and Student Questionnaire

The project commenced with an extensive survey distributed to employers and students associated with the collaborating institutes. In consideration of Welsh medium and bilingual provision, all materials, surveys, and communications were made available in both English and Welsh. This approach was in alignment with our commitment to inclusivity and accessibility within the context of higher education in Wales. All participants were over the age of 18, with no exclusion criteria related to sex, gender, ethnicity, or nationality. Participants provided details on their sex, gender, age, nationality, ethnicity, programme of study, and/or position within their respective companies to identify any biases and discern patterns in the data. Demographic questions adhered to Advance HE guidance on diversity monitoring data collection.

Prior to the creation of the questionnaires, a scoping exercise was conducted to draw together the graduate outcomes marketed to student by each of the collaborating institutes. One institute does not currently use the term 'graduate attributes' but has a list of skills that should be achieved by all graduates so this was utilised instead. Mapping enabled the attributes and skills to be synthesised into a final list of ten Graduate Attributes and thirty-seven Skills.

The final list of Graduate Attributes used in the questionnaires was as follows:

1. Ingenuity: Empowered to think outside the box and solve global problems.
2. Inspiring: Able to utilise all opportunities to unlock future potential.
3. Self-Direction: Ability to manage one's work effectively, identify tasks, and assess developmental needs.
4. Individuality: Able to create your own unique career paths and contributions to the world.
5. Application: Proficiency in applying skills and knowledge in various contexts, with real-world examples.
6. Inquiry: Curiosity, openness to exploring ideas, ability to share views based on evidence, and awareness of developments and challenges in one's field.
7. Challenge: Resilience in facing challenges, viewing them as opportunities for learning and growth, and challenging expectations when necessary.
8. Inclusivity: Accepting in all that you do and with all who cross your path.
9. Independence: Informed and confident citizens able to work independently.
10. Collaboration: Skill in working effectively with others, building positive relationships, and achieving outcomes as a team.

The final list of Skills used in the questionnaire was as follows:

1. Adaptability and flexibility
2. Curiosity
3. Problem solving
4. Creative thinking
5. Innovative thinking
6. Critical thinking
7. Verbal communication
8. Rapport building
9. Team working
10. Collaborating
11. Working independently
12. Leadership
13. Managing challenges

14. Managing setbacks and failure
15. Willingness to learn
16. Managing conflict
17. Networking
18. Emotional intelligence
19. Resilience
20. Commitment
21. Confidence and self-esteem
22. Ambition
23. Self-reflection and critical self-awareness
24. Being organised
25. Working to deadlines
26. Punctuality and attendance
27. Equality, diversity, and inclusivity awareness
28. Environmental and sustainability awareness
29. Ethical awareness and commitment
30. Presentation skills
31. Numerical skills
32. Project management
33. Report writing
34. Using multi-media techniques
35. Digital literacy and technology skills
36. Research skills
37. Subject-specific knowledge

The **employer questionnaire** was disseminated through careers services at the collaborating institutions. Its purpose was to have employers rank the graduate attributes currently in use, thereby gaining a comprehensive understanding of industry expectations. Collaborating with multiple institutions ensured diversity in responses, capturing a broad spectrum of employer perspectives. Key questions were as follows:

1. **What graduate attributes are important for work in your field?** Think about what graduate attributes are needed to be successful in your organisation/company/business. Please re-order the following ten attributes to show their importance for work in this area. Put the most important attribute at the top of your list and the least important attribute at the bottom of your list.
2. **What attributes do you see in current graduates?** Think about your experience of graduates entering your organisation/company/business. Please re-order the following attributes below to show which seem to be present in graduates today. Put the attribute that you have seen the most at the top of your list and the attribute that you have seen the least at the bottom of your list.
3. **What skills, knowledge, and abilities are important in your organisation/company/business?** Please indicate below how important these different skills, knowledge, and abilities are for your field of work. Select between 'Extremely Important', 'Very Important', 'Moderately Important', 'Slightly Important', and 'Not at All Important'.
4. **What skills, knowledge, and abilities have you seen in graduates?** Think about your experience of graduates and tell us how much they demonstrate the skills, knowledge, and abilities below when they are first employed in your organisation/company/business after graduating. Select between 'Extremely', 'Very', 'Moderately', 'Slightly', and 'Not at All'.

An opportunity sample of participants was engaged through an online survey. These participants, all employers located within the UK, were recruited via email and contact through online systems managed by the careers and employability services of the collaborating institutions. The researcher did not have direct access to any contact details; instead, careers services disseminated the emails through their established systems, which included email or interactive engagement platforms like Target Connect. Necessary permissions were obtained from careers services and relevant departments prior to using these systems.

The **student questionnaire** was distributed to students across the same institutions to gauge their awareness of the graduate attributes most valued by employers. This aimed to assess the alignment between students' perceptions and actual industry expectations, specifically concerning the attributes of a graduate, thus bridging the gap between academic preparation and workplace requirements. Key questions were as follows:

1. **What graduate attributes are important for your career?** Think about what graduate attributes you need to be successful in your future career. Please re-order the following ten attributes to show how important they are for your chosen career. Put the most important attribute at the top of your list and the least important attribute at the bottom of your list.
2. **What graduate attributes have you developed on your course?** Think about your current course and consider how the teaching on your course has helped you to develop the graduate attributes below. Please re-order the following ten attributes to show how much you have developed these attributes on your course so far. Put the attribute that you have developed the most at the top of your list and the attribute that you have developed the least at the bottom of your list.
3. **What skills, knowledge, and abilities are important for your career?** Please indicate below how important the following skills, knowledge, and abilities are for your chosen career. Select between 'Extremely Important', 'Very Important', 'Moderately Important', 'Slightly Important', and 'Not at All Important'.
4. **What skills, knowledge, and abilities have you gained on your course?** Think about your current course and tell us how much your course has helped you to develop the following skills, knowledge, and abilities. Select between 'Extremely', 'Very', 'Moderately', 'Slightly', and 'Not at All'.

Participants were students enrolled in Higher Education programmes (undergraduate and postgraduate) at the collaborating institutions. Recruitment occurred via email, careers systems, academic employability leads, and Student Unions. Like the employer survey, the researcher did not directly access contact details. Each institution utilized existing systems for sharing careers-related information, such as announcements on careers-specific VLE sites, messages through Target Connect, student bulletins, and all-student emails from Employability Leads. Methods varied between institutions according to their specific career systems, with necessary permissions obtained beforehand. At Bangor University, additional recruitment occurred via SONA in the School of Psychology and Sport Science.

The subsequent sections detail the findings of the employer and student questionnaires, culminating in a comparative analysis of the two sets of results.

Employer Questionnaire

After excluded partial responses with insufficient data for analysis, results were processed for 67 employer respondents. Please refer to the Appendix for additional data analysis.

Organisation and Position

The survey respondents comprised a diverse group in terms of their positions, the size of their organisations, and their sectors. In terms of positions, 32.8% were Senior Staff Members, 31.3% were Owners, CEOs, or Managing Directors, 25.4% were Mid-level Staff Members, 9.0% were responsible for recruiting or hiring new staff, and 1.5% were Junior Staff Members. Regarding organisation size, 35.8% worked in sole trader organisations, 23.9% in small enterprises (11 to 49 employees), 20.9% in micro enterprises (fewer than 10 employees), and 19.4% in medium enterprises (50 to 249 employees). The sector distribution showed that 20% were involved in Professional, Scientific, and Technical Activities, 12.3% in Education, and 9.2% each in Information and Communication as well as Manufacturing. Other sectors included Arts, Entertainment and Recreation, Public Administration, Human Health and Social Work, and various other fields, each constituting smaller percentages of the total respondents.

Graduate Attributes: Perceived Importance

Analysis considered the perceived importance of each Graduate Attribute in the sector of the employer. Note that a lower score means that it was ranked closer to first place so indicates a higher ranking.

Self-Direction and Application are generally ranked the highest, with mean rankings of 3 and 4, indicating they are frequently placed near the top of the list. Their mode rankings, 2 and 1 respectively, further support their high preference. Collaboration, Ingenuity, and Challenge also show high rankings with means of 4, 5, and 5. Attributes of Inquiry and Inspiring have slightly higher mean and mode rankings, suggesting a middle-tier preference. Finally, Inclusivity, Individuality, and Independence have high means (8, 8, 6) and modes (10, 9, 10), indicating they are more frequently ranked lower.

Attribute	Mean Rank	Mode Rank
Application	4	1
Challenge	5	4
Collaboration	4	3
Inclusivity	8	10
Independence	6	10
Individuality	8	9
Ingenuity	5	1
Inquiry	6	7
Inspiring	6	6
Self-Direction	3	2

Graduate Attributes: Demonstrated by Graduates

Analysis in this section considered employer perceptions regarding how much these Graduate Attributes are demonstrated by graduates in their sector. Note that a lower score means that it was ranked closer to first place so indicates a higher ranking.

Inspiring and Ingenuity are highly demonstrated the most in graduates, with mean rankings of 4 and 5 alongside mode rankings of 1 and 2 for attributes of Self-Direction, Individuality, Application, Inquiry, and Inclusivity, and scored mid-table with mean rankings of 5 but mode ranking in the order presented here. Lastly, Collaboration, Challenge, and Independence have the lowest means of 6, 7, and 8, and mode rankings of 7, 9, and 10, indicating that they were ranked lowest as seen in graduates.

Attribute	**Mean Rank**	**Mode Rank**
Application	5	5
Challenge	7	7
Collaboration	6	10
Inclusivity	5	8
Independence	8	9
Individuality	5	4
Ingenuity	4	1
Inquiry	5	6
Inspiring	5	2
Self-Direction	5	3

Paired t-test analysis compared the rankings for importance in the sector with the rankings for seen in graduates. Note that data is slightly amended from the above tables because results were omitted for any item that could not be paired due to missing data on one ranking question.

Analyses revealed that employers ranked five Graduate Attributes significantly more highly on importance for a career in that sector than demonstrated by graduates: Application, Challenge, Collaboration, Independence, and Self-Direction. In contrast, they ranked four attributes as seen in graduates significantly more highly than in importance for that career: Inclusivity, Individuality, Inquiry, and Inspiring. There was no significant difference identified for Ingenuity.

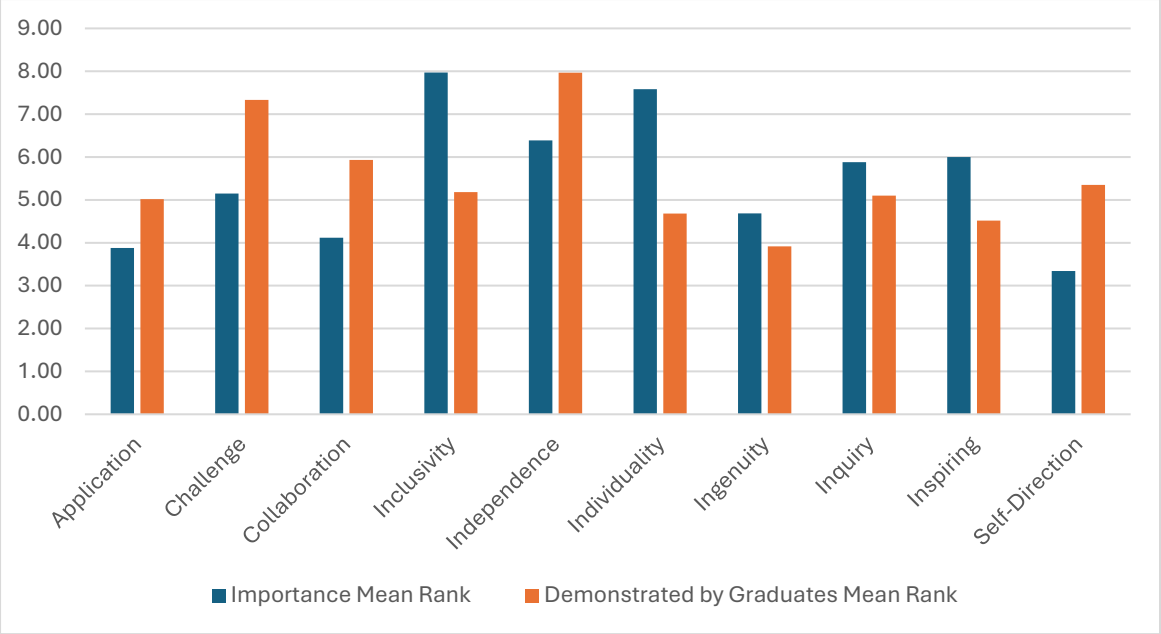


Figure 1: Mean rank for graduate attribute perceived importance and how much it is demonstrated by graduates (note that a lower mean means it was ranked more highly).

Skills and Abilities: Perceived Importance

Analysis considered the perceived importance of each Skill and Ability in the sector of the employer. Note that scores were aligned to a Likert scale from 'Not at All Important' to 'Extremely Important', so a higher score indicates greater importance.

Analysis reveals that employers generally rated most skills as important, although Leadership (M = 2.94) and Using Multimedia Techniques (M = 2.77) showed a low average within the 'slightly important' category. Notably, Willingness to Learn (M = 4.52), Adaptability (M = 4.42), and Problem Solving (M = 4.38) received the highest ratings, indicating these skills are deemed crucial by most employers. Also, skills related to working with others were also deemed important by employers: Verbal Communication (M = 4.33), and Collaborating (M = 4.33).

Skill	**Importance Mean Rating**
Willingness to learn	4.52
Adaptability	4.42
Problem solving	4.38
Team working	4.33
Verbal communication	4.33
Collaborating	4.31
Working independently	4.26
Working to deadlines	4.21
Being organised	4.15
Critical thinking	4.10
Commitment	4.08
Resilience	4.04

Managing challenges	4.02
Managing setbacks and failure	4.02
Punctuality and attendance	3.94
Rapport building	3.94
Curiosity	3.81
Innovative thinking	3.81
Creative thinking	3.73
Subject-specific knowledge	3.72
Ethical awareness and commitment	3.69
Digital literacy and technology skills	3.65
Confidence and self-esteem	3.60
Emotional intelligence	3.56
Self-reflection and critical self-awareness	3.56
Equality, diversity, and inclusivity awareness	3.55
Numerical skills	3.45
Managing conflict	3.35
Environmental and sustainability awareness	3.34
Ambition	3.25
Research skills	3.19
Presentation skills	3.17
Project management	3.15
Report writing	3.11
Networking	3.04
Leadership	2.94
Using multi-media techniques	2.77

Skills and Abilities: Demonstrated by Graduates

Analysis in this section considered how much each Skill and Ability was demonstrated in current graduates, according to the employer. Note that scores were aligned to a Likert scale from 'Not at All' to 'Extremely', so a higher score indicates greater demonstration of the skill and/or ability by graduates.

Analysis reveals that employers generally rated skills and abilities at a low level of being demonstrated by graduates, with no skills achieving a rounded rating within the highest category. Notably, Willingness to Learn (M = 3.73), Equality, Diversity, and Inclusivity Awareness (M = 3.64), and Environmental and Sustainability Awareness (M = 3.59) received the highest ratings, indicating these skills are experienced as being seen most in graduates. Conversely, Leadership (M = 2.11), Managing Conflict (M = 2.39), and Project Management (M = 2.50) scored the lowest, suggesting these skills are viewed as demonstrated less in current graduates. Also, those skills associated with resilience were also rated low in terms of being demonstrated by graduates: Resilience (M = 2.67), Managing Challenges (M = 2.62), and Managing Setbacks and Failure (M = 2.58).

Skill	Demonstrated by Graduates Mean Rating
Willingness to learn	3.73
Equality, diversity, and inclusivity awareness	3.64
Environmental and sustainability awareness	3.59
Digital literacy and technology skills	3.47
Team working	3.47
Ambition	3.40
Collaborating	3.38
Ethical awareness and commitment	3.36
Using multi-media techniques	3.33
Working to deadlines	3.33
Punctuality and attendance	3.30
Curiosity	3.29
Commitment	3.27
Being organised	3.22
Verbal communication	3.20
Adaptability	3.16
Numerical skills	3.16
Research skills	3.16
Subject-specific knowledge	3.16
Rapport building	3.13
Confidence and self-esteem	3.04
Problem solving	2.96
Working independently	2.96
Emotional intelligence	2.93
Innovative thinking	2.91
Creative thinking	2.89
Presentation skills	2.89
Self-reflection and critical self-awareness	2.89
Critical thinking	2.82
Report writing	2.76
Networking	2.71
Resilience	2.67
Managing challenges	2.62
Managing setbacks and failure	2.58
Project management	2.50
Managing conflict	2.39
Leadership	2.11

Paired t-test analysis compared the rankings for importance in the sector of the employer with the rankings for demonstrated by graduates. Note that data is slightly amended from the

above tables because results were omitted for any item that could not be paired due to missing data on one question.

Analyses revealed that employers rated 29 out of 37 skills significantly higher on importance for their sector than demonstrated by current graduates. This gap between importance and demonstrated by graduates was particularly striking for Managing Setbacks and Failure (importance = 4.02, demonstrated = 2.58), Problem Solving (importance = 4.38, demonstrated = 2.96), Managing Challenges (importance = 4.02, demonstrated = 2.62), and Resilience (importance = 4.04, demonstrated = 2.67).

In contrast, only the skill of Using Multi-media Techniques was found to be significantly more demonstrated in graduates (3.33) compared with importance in the sector (2.77). This skill was rated the lowest in terms of importance for the sector, but in ninth place for being demonstrated by graduates.

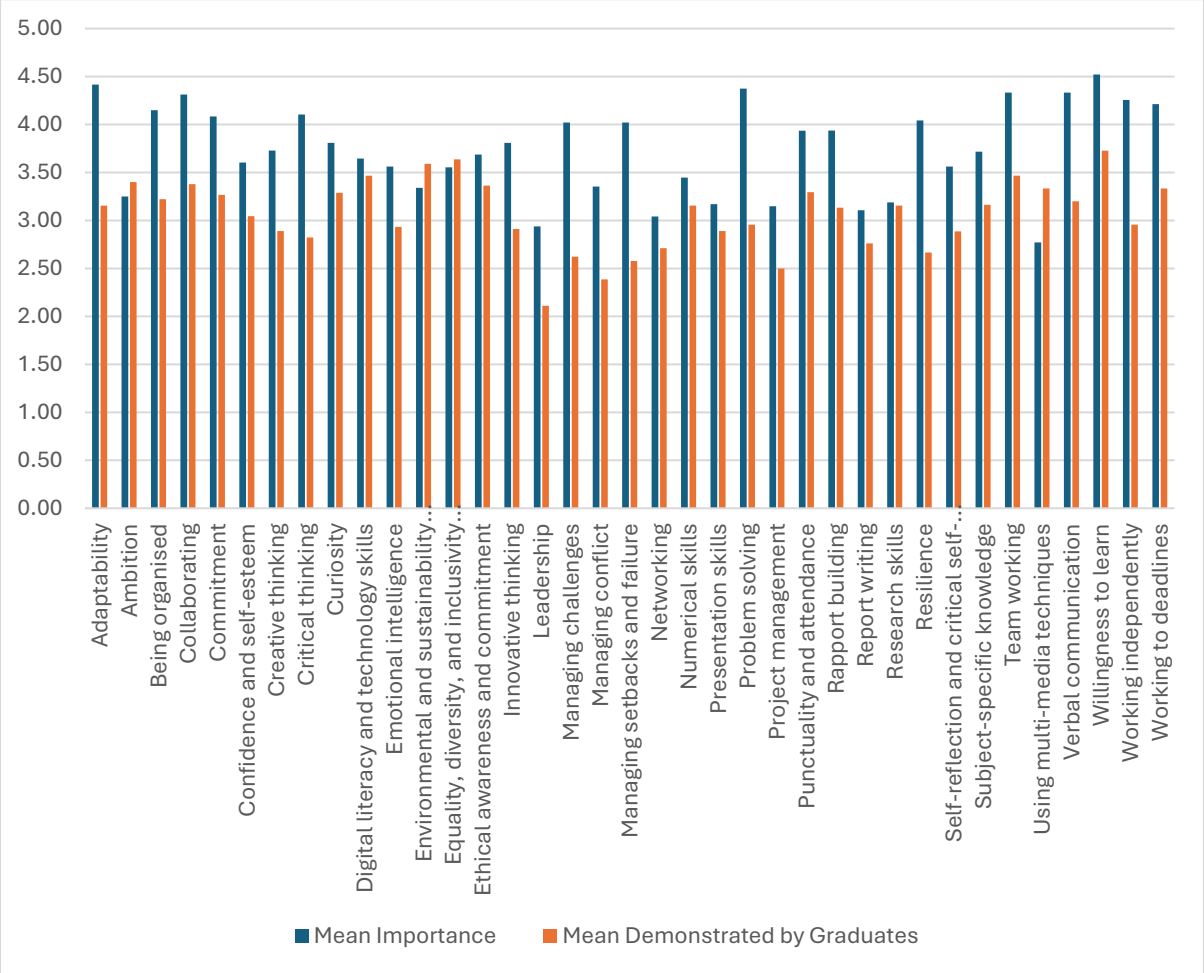


Figure 2: Mean ratings for skills perceived importance and how much it has been developed on the current course.

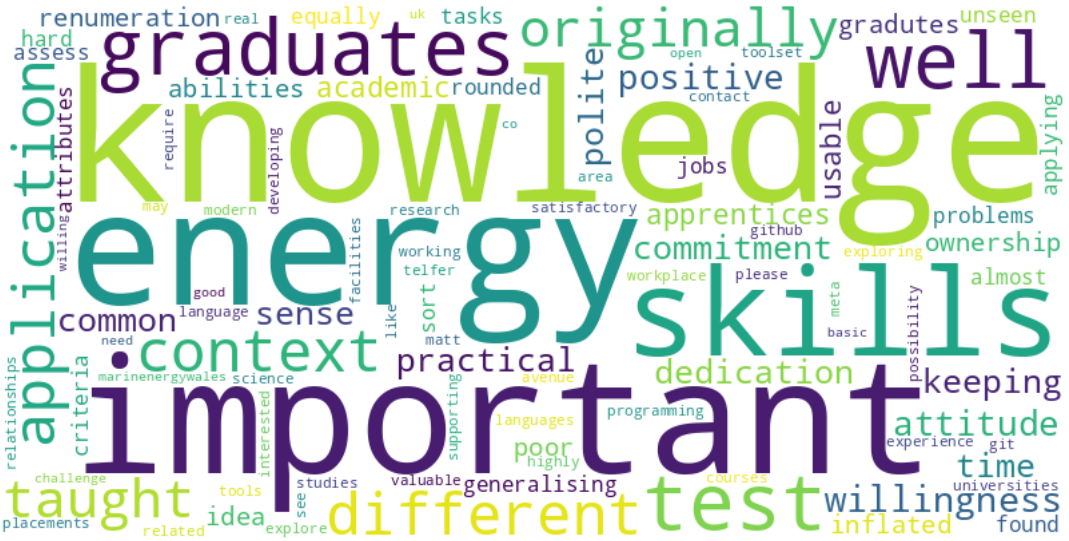
Thematic Analysis of Open Questions

Basic thematic analysis of the open comments on the questionnaire revealed the following themes:

1. Ownership and Responsibility

- "Taking ownership - very important."
- "Graduates often have an overinflated idea of remuneration."

2. Attitude, Adaptability, and Application
   - “Application of knowledge in a different context to that originally taught.”
   - "Need to have good basic knowledge, and be open to challenge and willing to learn."
   - "Practical skills and common sense, dedication and commitment, time keeping, [being] polite."
   - "A willingness to learn and a positive attitude are important."
3. Practical Experience
   - “Apprentices are the way to go. Academic Graduates lack usable skills."
   - “Placements and real workplace experience are highly valuable."



Student Questionnaire

After excluded partial responses with insufficient data for analysis, results were processed for 434 student respondents. Please refer to the Appendix for additional data analysis.

Demographics

Respondents ranged in age from 18 to 64, with 56% of respondents aged 18-24 and 28% aged 35-44. There was a predominant female sex representation (74% female / 24% male). Most identify as women (72%) with fewer identifying as men (23%) and a minority identifying as genderfluid or non-binary (4%). British nationality is most common (33.4%), followed by Welsh (17.7%) and English (9.7%). Other notable ethnicities include Asian or Asian British (20.7%) and Black (4.4%). There is a small but diverse representation of other nationalities and ethnic backgrounds.

Academic Level and Subject

Responses showed representation across all academic levels and subjects. The greatest proportion of respondents were studying on undergraduate Bachelor degrees (33% BSc, 10% BA) with the next largest proportion on postgraduate Master's degrees (24% MSc, 4% MA). The greatest proportion of respondents were studying Psychology (45%) with representation well spread across thirty other subject areas.

Future Career Preferences

Future career preferences focused on being employed (65%) rather than self-employed (16%), but preference for organisation size was balanced across respondents (22% preferred large enterprise, 18% preferred medium enterprise, and 15% preferred small enterprise). There was wide representation across industries in response to the question on preferred future sector, with the greatest proportion preferring human health and social work (39%), education (12%), and professional scientific and technical activities (10%). The remaining respondents were reasonably distributed over eighteen other sectors. See Appendix 3 for more detail on the future career preferences of the student sample.

Graduate Attributes: Perceived Importance

Analysis of the rankings for graduate attributes first considered their perceived importance in the future career of the student. Note that a lower score means that it was ranked closer to first place so indicates a higher ranking.

Self-Direction and Ingenuity are generally ranked the highest, with mean rankings of 4, indicating they are frequently placed near the top of the list. Their mode rankings, 3 and 1 respectively, further support their high preference. Following these, attributes like Application and Inspiring also show high rankings with means of 5. Attributes such as Challenge, Collaboration, Individuality, and Inquiry have slightly higher mean rankings around 6, suggesting a middle-tier preference. Finally, Inclusivity and Independence have the highest mean rankings of 7, indicating they are more frequently ranked lower.

Attribute	Mean Rank	Mode Rank
Application	5	5

Challenge	6	7
Collaboration	6	10
Inclusivity	7	8
Independence	7	9
Individuality	6	4
Ingenuity	4	1
Inquiry	6	6
Inspiring	5	2
Self-Direction	4	3

Graduate Attributes: Developed on Course

Analysis in this section considered student perceptions regarding the teaching of these graduate attributes, revealing similar trends to their perceived importance. Note that a lower score means that it was ranked closer to first place so indicates a higher ranking.

Self-Direction and Ingenuity are highly valued, with mean rankings of 3 and 4 respectively, indicating they are often ranked near the top. Their mode rankings, 3 for Self-Direction and 1 for Ingenuity, further underscore their perceived importance. Attributes such as Application and Inspiring also hold significant positions, with mean rankings of 5 and 5, and mode rankings of 5 and 2 respectively. Middle-tier preferences include Challenge, Individuality, and Inquiry, with mean rankings of 5, 6, and 6. Lastly, Inclusivity, Independence, and Collaboration have the highest mean rankings of 7, 7, and 7, and mode rankings of 8, 9, and 10, indicating they are more frequently ranked lower.

Attribute	**Mean Rank**	**Mode Rank**
Application	5	5
Challenge	5	7
Collaboration	7	10
Inclusivity	7	8
Independence	7	9
Individuality	6	4
Ingenuity	4	1
Inquiry	6	6
Inspiring	5	2
Self-Direction	3	3

Paired t-test analysis compared the rankings for importance to the future career of the student with the rankings for currently being developed on the course. Note that data is slightly amended from the above tables because results were omitted for any item that could not be paired due to missing data on one ranking question.

Analyses revealed that students ranked Collaboration and Inclusivity significantly more highly on importance for future career than on the degree to which they are developing it on their course. In contrast, they ranked Challenge, Independence, Individuality, Inspiring, and Self-Direction significantly more highly for how much it was being taught in comparison to

how important it is for their future career. There were no significant differences identified for the remaining attributes.

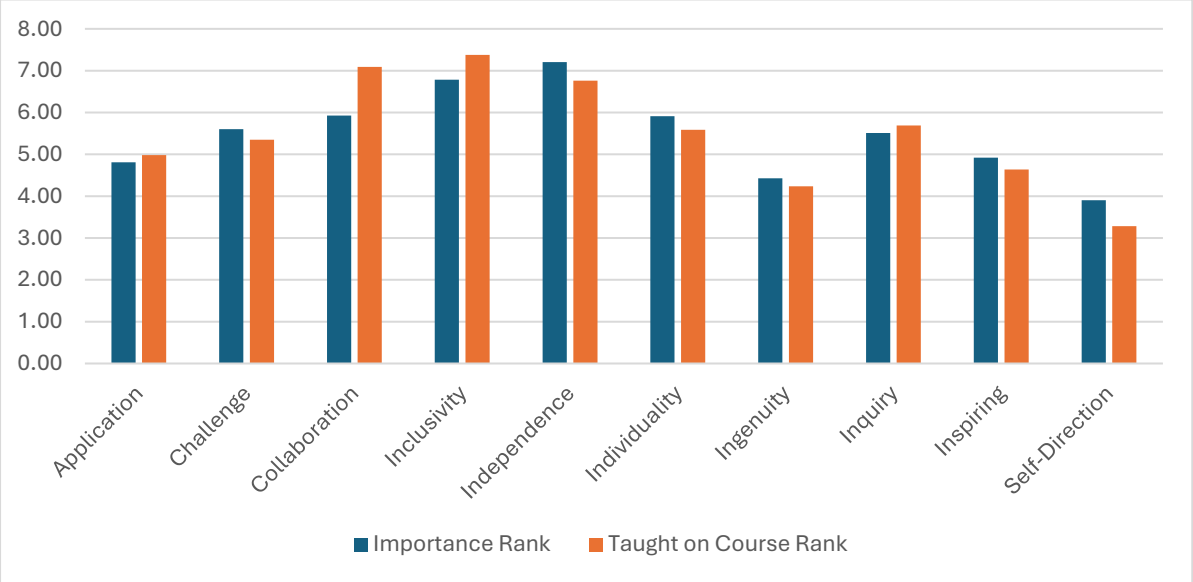


Figure 3: Mean rank for graduate attribute perceived importance and how much it is taught on the current course (note that a lower mean means it was ranked more highly).

Skills and Abilities: Perceived Importance

Analysis considered the perceived importance of each Skill and Ability in the future career of the student. Note that scores were aligned to a Likert scale from 'Not at All Important' to 'Extremely Important', so a higher score indicates greater importance.

Analysis reveals that students generally rated all skills as important, with the lowest rated skill showing a mean of 3.43 which is categorised as ‘moderately important’ so no skills rated with a mean indicating ‘slightly important’ or ‘not at all important’. Notably, Verbal Communication (M = 4.50), Willingness to Learn (M = 4.49), and Problem Solving (M = 4.40) received the highest ratings, indicating these skills are deemed crucial by most students. Conversely, Numerical Skills (M = 3.43), Using Multi-media Techniques (M = 3.47), and Environmental and Sustainability Awareness (M = 3.55) scored the lowest, suggesting these skills are viewed as less critical.

Skill	**Importance Mean Rating**
Verbal communication	4.5
Willingness to learn	4.49
Problem solving	4.4
Commitment	4.38
Critical thinking	4.35
Managing challenges	4.35
Subject-specific knowledge	4.35
Punctuality and attendance	4.34
Being organised	4.31
Resilience	4.3
Adaptability	4.28

Ethical awareness and commitment	4.26
Managing setbacks and failure	4.25
Self-reflection and critical self-awareness	4.24
Equality, diversity, and inclusivity awareness	4.24
Working to deadlines	4.21
Confidence and self-esteem	4.18
Emotional intelligence	4.15
Rapport building	4.14
Team working	4.13
Collaborating	4.11
Working independently	4.05
Managing conflict	4.02
Creative thinking	4.01
Innovative thinking	3.97
Research skills	3.97
Ambition	3.92
Report writing	3.87
Curiosity	3.84
Digital literacy and technology skills	3.78
Presentation skills	3.74
Networking	3.73
Leadership	3.7
Project management	3.59
Environmental and sustainability awareness	3.55
Using multi-media techniques	3.47
Numerical skills	3.43

Skills and Abilities: Developed on Course

Analysis in this section considered how much each Skill and Ability was developed in the current course, according to the student. Note that scores were aligned to a Likert scale from 'Not at All' to 'Extremely', so a higher score indicates greater demonstration of the skill and/or ability by graduates.

Analysis reveals that students generally recognised that they are developing all the listed skills on their current programme, with the lowest rated skill showing a mean of 3.03 which is categorised as ‘moderately’ so no skills rated with a mean indicating ‘slightly’ or ‘not at all’. Notably, Working Independently (M = 4.34), Working to Deadlines (M = 4.31), and Subject-Specific Knowledge (M = 4.28) received the highest ratings, indicating these skills are experienced as being developed most on their training courses. Conversely, Networking (M = 3.03), Leadership (M = 3.04), and Managing Conflict (M = 3.09) scored the lowest, suggesting these skills are viewed as less well developed on current programmes.

Skill	**Developed on Course Mean Rating**
Working independently	4.34
Working to deadlines	4.31

Subject-specific knowledge	4.28
Research skills	4.25
Willingness to learn	4.2
Critical thinking	4.17
Self-reflection and critical self-awareness	4.05
Being organised	4.04
Commitment	4.03
Punctuality and attendance	3.97
Report writing	3.97
Managing challenges	3.89
Problem solving	3.88
Resilience	3.86
Verbal communication	3.85
Ethical awareness and commitment	3.83
Presentation skills	3.83
Curiosity	3.8
Managing setbacks and failure	3.75
Ambition	3.7
Adaptability	3.69
Equality, diversity, and inclusivity awareness	3.69
Innovative thinking	3.63
Creative thinking	3.62
Confidence and self-esteem	3.61
Digital literacy and technology skills	3.6
Team working	3.49
Collaborating	3.49
Emotional intelligence	3.47
Rapport building	3.46
Project management	3.37
Using multi-media techniques	3.31
Numerical skills	3.28
Environmental and sustainability awareness	3.24
Managing conflict	3.09
Leadership	3.04
Networking	3.03

Paired t-test analysis compared the scores for importance to the future career of the student with the scores for currently being developed on the course. Note that data is slightly amended from the above tables because results were omitted for any item that could not be paired due to missing data on one question.

Analyses revealed that students rated 31 out of 37 skills significantly higher on importance for their future career than the development they perceived in their current course. This suggests that students believe that that these skills are important but do not have the same strength of belief in their training in these skills. Research Skills and Working Independently were rated significantly more highly for being developed on the course than importance in

their future career. Only four skills showed no significant difference: Presentation skills, Report Writing, Subject-specific Knowledge, and Working to Deadlines. This suggests that students perceive most skills as important but rate the extent to which they are being developed on their current course at a significantly lower level.

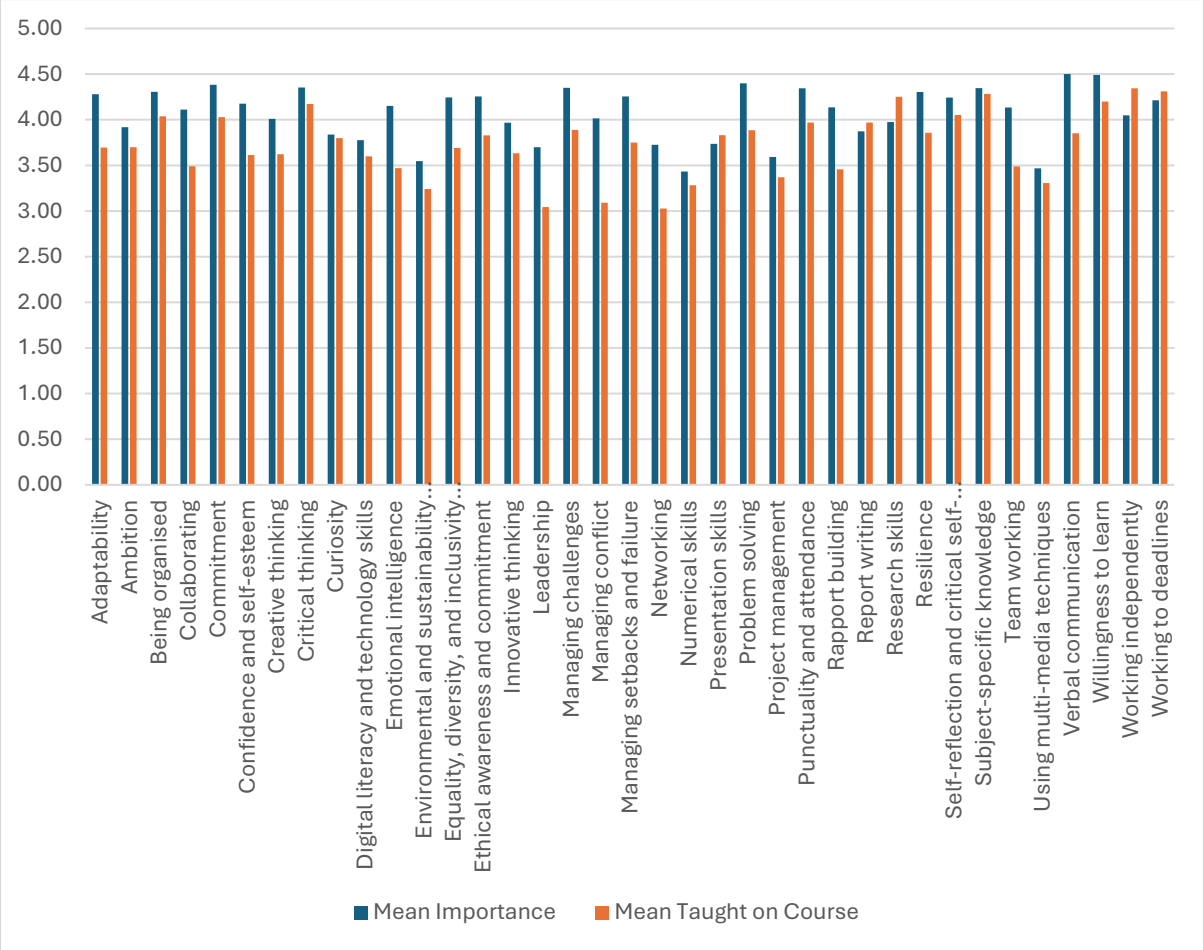


Figure 4: Mean ratings for skills perceived importance and how much it has been developed on the current course.

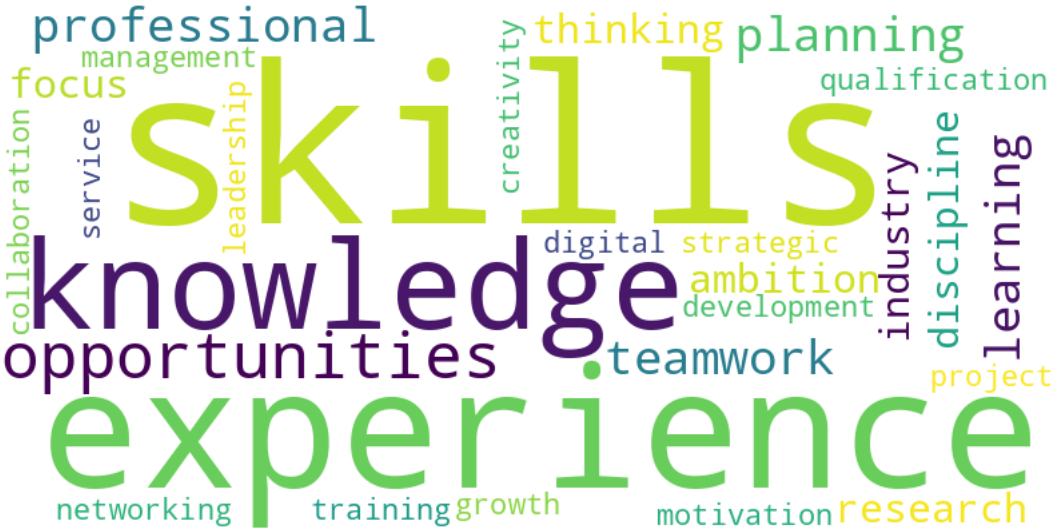
<u>Thematic Analysis of Open Questions</u>

Basic thematic analysis of the open comments on the questionnaire revealed the following themes:

1. Critical Skills
    a. Ambition and Motivation
        - "Ambition and motivation are the most important skills."
        - “I try to foster a growth mentality in all I do.”
    b. Discipline and Focus
        - "Attention, discipline and hard work."
        - "Being focus and discipline."
        -
    c. Resilience
        - "Being resilient is the main thing we need."
        - “[important skills are] the ability to accept rejection.”
2. Work Experience

a. External Work
    - "Work outside of Uni, helps develop organisation, punctuality, teamwork, management."
b. Placements
    - "All skills are gained through hands on placement. Reading from a book is completely different to doing the job hands on."

3. Gaps on Course
    a. Innovation and Enterprise
        - "Believe I have failed to develop my innovative skills within my degree, however I understand this is limited due to my study area in finance, with little room for creativity."
        - "Enterprise skills would be useful as part of the course, learning how to run a business, keeping records."
        - "(I want to learn) how to be self-employed with my qualification."
    b. Teamwork and Collaboration
        - "Group projects in university are very poor. Lack of ambition and accountability in group tasks makes me simply want to be independent and not rely on anyone in the team."
        - "Probably not enough group assignments to learn collaboration and teamwork."
    c. Practical Application
        - “Need more practical experience”
        - “uni is very hard and barely gives the time to breathe and go and experience other stuff”
        - “Utilise resources outside of university to gain practical experience”
    d. Course Structure and Delivery
        - "Some courses needed to be structured and delivered in more concise and logical aspects."
        - "The course needs a refurbish with a fresh mind. It is a good course but it is not phenomenal in the way they present it to be."



Comparison of Employer and Student Responses

Analysis compared the results from 67 employer and 434 student respondents to compare their ratings of importance and understanding of how their course prepares current graduates on Graduate Attributes and other skills. However, due to the discrepancy between sample sizes, all findings in this section must be read with caution. Please refer to the Appendix for additional data analysis.

Graduate Attributes

Independent samples t-test analysis compared the scores for importance of the graduate attributes as ranked by students and employers. Note that a lower score means a higher ranking. Analysis revealed a significant difference in rankings for 6 out of the 10 attributes. Employers ranked three attributes significantly more highly in importance than students: Application, Collaboration, and Independence. Students ranked three attributes significantly more highly in importance than employers: Inclusivity, Individuality, and Inspiring.

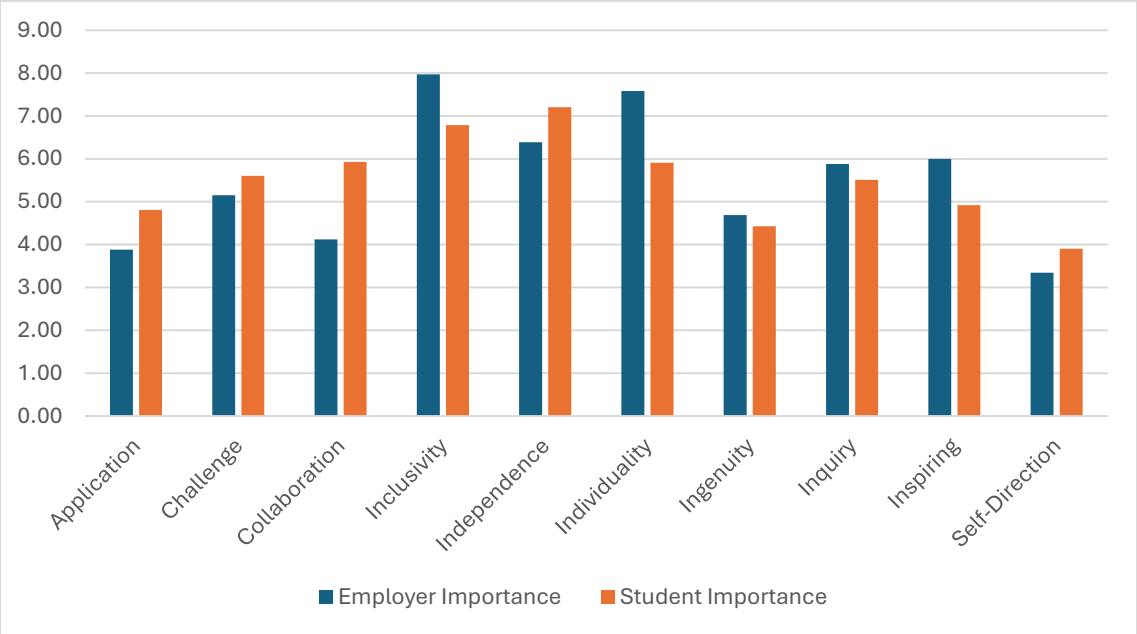


Figure 5: Mean rankings for Graduate Attributes perceived importance from the perspective of students and employers.

Further independent samples t-test analysis compared the rankings on the second key question. Students were asked how well their current course developed those attributes. Employers were asked how much they see the attribute in current graduates. In both cases, the questions assess how well courses are graduating students who have these ten attributes. Analysis revealed a significant difference in rankings for 7 out of the 10 attributes. Employers ranked four attributes significantly more highly than students: Collaboration, Inclusivity, Individuality, and Inquiry. Students ranked three attributes significantly more highly than employers: Challenge, Independence, and Self-Direction.

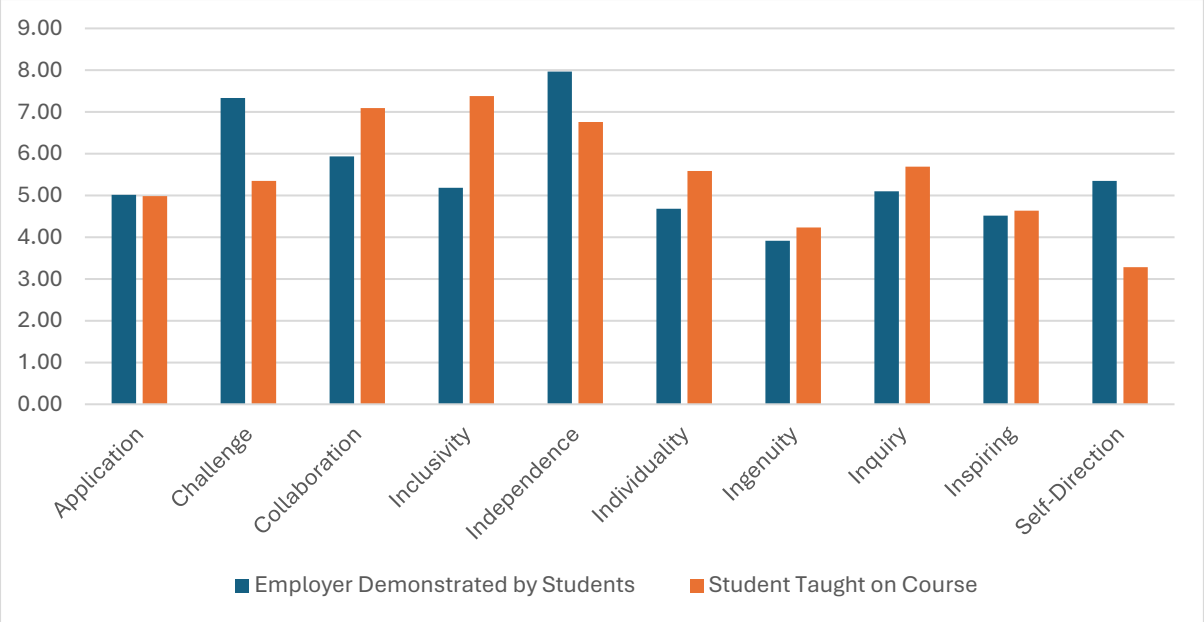


Figure 6: Mean rankings for how much courses develop these Graduate Attributes from the perspective of students and employers.

The findings reveal a misalignment between students and employers in both the perceived importance of graduate attributes and the effectiveness of current courses in developing these attributes. While employers place greater value on practical skills such as application, collaboration, and independence, students prioritize personal expression and inclusivity. This difference in priorities is further reflected in how each group perceives the success of educational programmes in fostering these attributes. Employers see graduates demonstrating strengths in areas like collaboration and inquiry, whereas students feel that these are less well developed on their programmes. In contrast, students feel more prepared in areas such as challenge and self-direction, which employers find less visible in graduates. These discrepancies suggest a gap between the skills that students believe they are developing and those that employers expect or observe, indicating a potential need for educational programmes to better align with the demands of the workplace.

	Perceived Importance		Current Graduates / Course Development	
Graduate Attribute	**Employer**	**Student**	**Employer**	**Student**
Application	3.88	4.81	5.02	4.98
Challenge	5.15	5.60	7.33	5.35
Collaboration	4.12	5.93	5.93	7.09
Inclusivity	7.97	6.79	5.18	7.38
Independence	6.39	7.21	7.97	6.76
Individuality	7.58	5.91	4.68	5.59
Ingenuity	4.69	4.43	3.92	4.24
Inquiry	5.88	5.51	5.10	5.69
Inspiring	6.00	4.92	4.52	4.64
Self-Direction	3.34	3.90	5.35	3.28

Figure 7: Mean rankings for Graduate Attributes perceived importance and how much courses develop these attributes from the perspective of students and employers.

Skills

Independent samples t-test analysis compared the scores for skills as rated by students and employers. Analysis across all skills found that students (M = 4.07) rated them as significantly more important than employers (M = 3.74), $t(446)=3.96$, $p<.001$. Similarly, students (M = 3.73) rated skills as being more highly developed on their courses than employers (M = 3.06) rated skills as being demonstrated by graduates, $t(434)=5.84$, $p<.001$.

Independent samples t-test analysis found 19 out of 37 skills were rated as significantly more important by the student relative to the employer. Interestingly, Willingness to Learn and Problem Solving were rated in the top three for both student and employer, with no significant difference in scores.

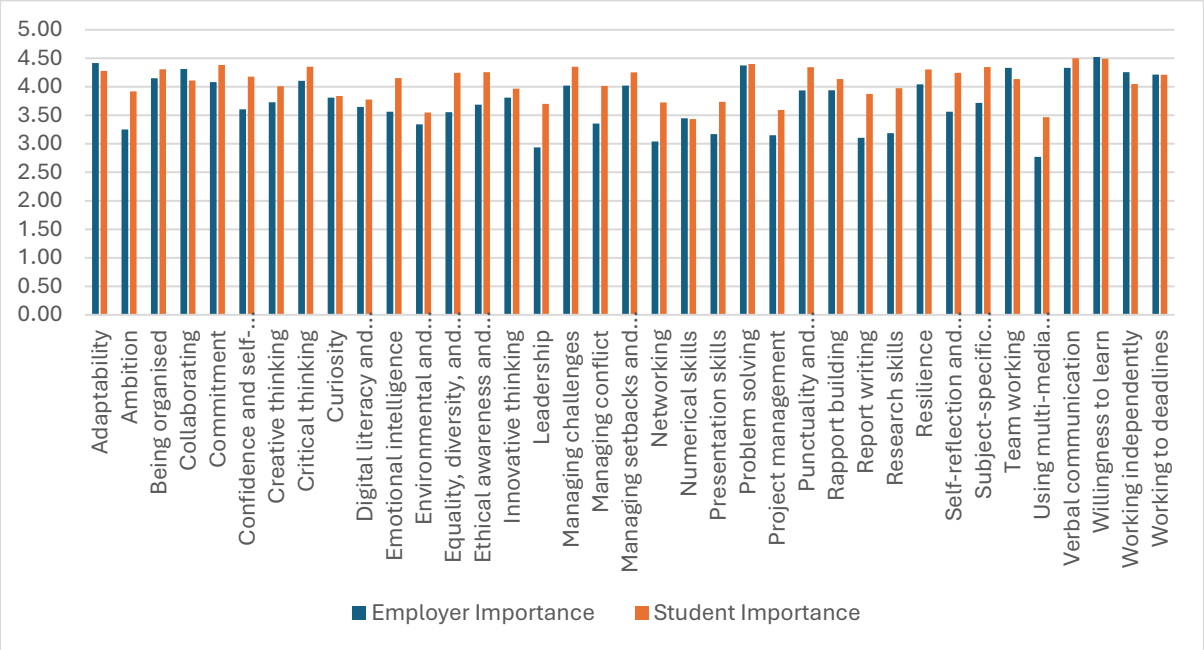


Figure 8: Mean rankings for Skills perceived importance from the perspective of students and employers.

Further independent samples t-test analysis also found 29 out of 37 skills were rated significantly more highly by students on the questions assessing how well current courses are graduating students with these skills. Of note, there was a significant difference between the employer observation of Willingness to Learn in graduates (M = 3.73) and the degree to which students believe it is being taught on the course (M = 4.20), $t(425)=2.93$, $p=.004$. Indeed, the ten skills scoring lowest by employers for being seen in graduates were all rated significantly more highly by students for being taught on their courses: Leadership, Self-reflection and Critical Self-awareness, Critical Thinking, Report Writing, Networking, Resilience, Managing Challenges, Managing Setbacks and Failure, Project Management, and Managing Conflict.

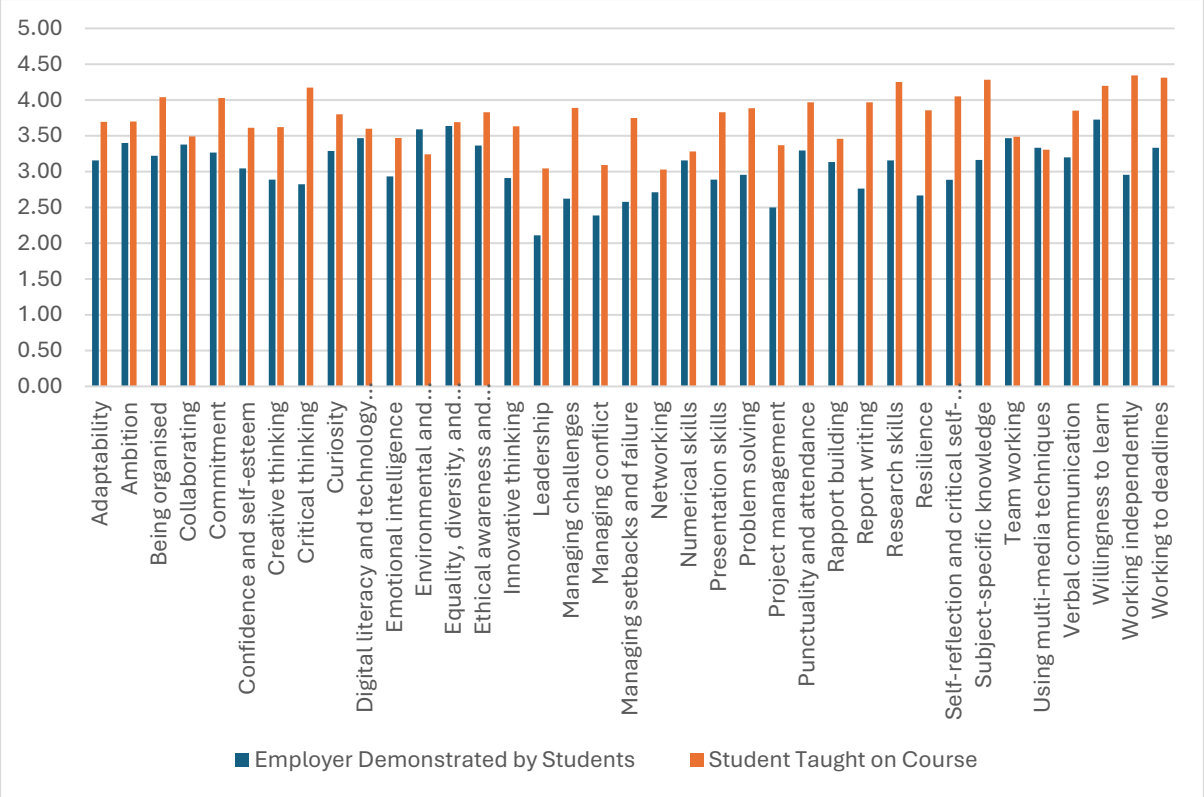


Figure 9: Mean rankings for how much courses develop these Skills from the perspective of students and employers.

The analysis reveals a clear discrepancy between students' and employers' perceptions of the importance and development of various skills. Students generally perceive skills to be more important and feel more confident that their courses adequately develop these skills compared to employers, who tend to rate both the importance and the presence of these skills in graduates lower. This gap is particularly striking for specific skills such as Leadership, Critical Thinking, and Project Management, where students rate their preparation significantly higher than what employers observe in the workplace. Despite these differences, there are areas of alignment, such as in the perceived importance of Problem Solving and Willingness to Learn, indicating some common ground between students and employers. However, the overall findings suggest a potential misalignment between academic preparation and workplace expectations, particularly in the development of certain critical skills that employers find lacking in graduates.

	Perceived Importance		Current Graduates / Course Development	
Skill	**Employer**	**Student**	**Employer**	**Student**
Adaptability	4.42	4.28	3.16	3.69
Ambition	3.25	3.92	3.40	3.70
Being organised	4.15	4.31	3.22	4.04
Collaborating	4.31	4.11	3.38	3.49
Commitment	4.08	4.38	3.27	4.03
Confidence and self-esteem	3.60	4.18	3.04	3.61
Creative thinking	3.73	4.01	2.89	3.62
Critical thinking	4.10	4.35	2.82	4.17
Curiosity	3.81	3.84	3.29	3.80

Digital literacy and technology skills	3.65	3.78	3.47	3.60
Emotional intelligence	3.56	4.15	2.93	3.47
Environmental and sustainability awareness	3.34	3.55	3.59	3.24
Equality, diversity, and inclusivity awareness	3.55	4.24	3.64	3.69
Ethical awareness and commitment	3.69	4.26	3.36	3.83
Innovative thinking	3.81	3.97	2.91	3.63
Leadership	2.94	3.70	2.11	3.04
Managing challenges	4.02	4.35	2.62	3.89
Managing conflict	3.35	4.02	2.39	3.09
Managing setbacks and failure	4.02	4.25	2.58	3.75
Networking	3.04	3.73	2.71	3.03
Numerical skills	3.45	3.43	3.16	3.28
Presentation skills	3.17	3.74	2.89	3.83
Problem solving	4.38	4.40	2.96	3.88
Project management	3.15	3.59	2.50	3.37
Punctuality and attendance	3.94	4.34	3.30	3.97
Rapport building	3.94	4.14	3.13	3.46
Report writing	3.11	3.87	2.76	3.97
Research skills	3.19	3.97	3.16	4.25
Resilience	4.04	4.30	2.67	3.86
Self-reflection and critical self-awareness	3.56	4.24	2.89	4.05
Subject-specific knowledge	3.72	4.35	3.16	4.28
Team working	4.33	4.13	3.47	3.49
Using multi-media techniques	2.77	3.47	3.33	3.31
Verbal communication	4.33	4.50	3.20	3.85
Willingness to learn	4.52	4.49	3.73	4.20
Working independently	4.26	4.05	2.96	4.34
Working to deadlines	4.21	4.21	3.33	4.31

Figure 10: Mean ratings for skills perceived importance and how much it has been developed on the current course.

Stage 2: Academic, Professional Services, and Student Focus Groups

Focus group interviews with students, careers service staff, and academic staff to provide qualitative insights into methods to develop the most valued attributes. These interviews, facilitated through student unions, explored the identification of academic activities that contribute to the development of graduate attributes. The focus groups also considered obstacles and challenges associated with these activities, informing the project on potential areas of improvement.

Each focus group ran for approximately fifty minutes remotely via Microsoft Teams. Questions were delivered by one of the two interns on the project and included the following:

1. Please can you tell me whether you have heard of graduate attributes before? If yes, where did you learn about graduate attributes?

a) What do you think the term ‘graduate attributes’ mean?

3. Which do you think that employers value the most: subject-specific knowledge and abilities or more general graduate attributes?
4. What do you think are the most important attributes that a graduate can have to be successful in their career?
5. Do you think that students today are graduating with these attributes?
6. How are students at your institute supported in developing these graduate attributes?
7. What are the main challenges or barriers to helping students develop these graduate attributes?
8. What do you think could be done to help students develop these graduate attributes?

After conclusion of the focus group, the automatically generated transcript was reviewed manually against the video recording for accuracy and anonymised as needed. Transcripts for each participant group from across the different institutes were brought together for thematic analysis. Initial analysis was conducted by the interns and then reviewed by the lead researcher. The agreed themes and subthemes were evaluated as a quality check through generative AI (ChatGPT). The final themes and subthemes, with illustrative quotes, are outlined in the following sections. Each section concludes with three strategies for improving training in graduate attributes, based on feedback from the participants.

Academic Staff Focus Groups

Four focus groups with 13 academic staff members: Aberystwyth University (4 participants), Bangor University (5 participants), University of Wales Trinity Saint David (1 participant), and Pembrokeshire College (3 participants). Analysis of these transcripts identified the following themes and subthemes:

1. Importance of Graduate Attributes
    a) General vs. Specific Skills:
        - "I think employers would be looking for generic skills that can then be applied."
        - "It depends on the sector and the job 'cause there's a technical job then you need those technical skills more than you need [general attributes]. Well they are obviously critical aren't they the general attributes but... for most roles I think the general attributes are probably more important to employers."
    b) Development through Curriculum
        - "Our degrees are carefully designed to support students towards independence...by third year final semester...they stage a festival as well. So we're trying to support our students to be articulate thinkers and makers."
        - "We advocate quite strongly in our core modules for placement experiences of at least 40 hours which are applicable across every semester."
        - "We're playing around with ways to embed employers into curricular activities... having employers coming in to provide a case study or something like that that's relevant for a particular module."
        - "More experiential learning, more project learning as well would help to develop some of these attributes."
        - "We have started doing it in our degree scheme by bringing our careers consultant in to do a dynamic assessment in the room... the careers consultant watches, observes, and then takes 15 minutes at the end of the session to feedback the skills they see in action."
        - "If it comes from an employer or if it comes from another graduate who's gone through the process, got a job, and come back... they need to see it from somebody other than just their tutors."
    c) Key Skills
        - "Communication skills and the ability to work with others is crucial."
        - "Communication, for the sake of whatever the requirement of the job is, whether that be report writing or engaging with communities or stakeholders, is critical."
        - "The ability to analyse effectively and incorporate policy frameworks or best practices into their specific employment post-university."
        - "Teamworking and cognitive practices are especially important for our graduates."
        - "Working with other people or collaborating with other people might be another important skill."
        - "Strong self-management and critical analysis skills are important for undertaking large research projects."
        - "Dealing with all sorts of things from change and trouble and challenge."
        - "Conflict management and the ability to hear other people's perspectives are really important."

2. Challenges in Developing Graduate Attributes
   a) Student Engagement:
      - "Lack of engagement for some students and there we can't force them to do things... it's very difficult to get students to come along to things."
      - "Engaging our students within the seminar room is particularly challenging. [In] our work sort of attendance rates are quite often below 50%."
      - "We could be given £5000 and bringing speakers in from leading figures and they probably still wouldn't... 10 students might turn up max."
   b) Resource Constraints:
      - "The barriers come down to where the people in the system are given the time, the space, and the resources to actually make the changes and adapt to the current context and the challenges that they face."
      - "It's difficult to develop some of these ideas and initiatives without the necessary funds to do it well because I think there's a real... problematic to be inviting guest speakers in and not paying for them."

3. Cultural Shifts
   a) Generational Changes
      - "Graduates now have different expectations of the job market. You know they don't necessarily want to work 9 till 5 plus the extra hours. Their expectations are higher in terms of salary and the job they're going to go into when they've got their degree."
      - "For a lot of young people, there are fewer role models showing positive attributes. Young people place maybe lesser an emphasis on the world of work and the work-life balance."
   c) Post-Pandemic Changes
      - "Communication skills and the ability to work with others is crucial and something that I think is becoming an increasing challenge for our students coming through post-COVID."
      - "I think a lot of students strongly underestimate the skills that they've got and maybe that's an area that could be something we could look at a little bit more which would then lean towards that growth of their sort of self-confidence and independence."
   d) Institutional Changes
      - "I think there's an increasing sense of feedback forms being anonymous, and I don't think that's helpful actually for preparing students with basic competencies to be able to go out into the workplace."
      - "There's been a return to a little bit of sausage factory approach... we're not a supermarket. We're not putting offers on the table where you can fast track."

These themes and subthemes highlight the key areas discussed in the focus groups regarding the development and importance of graduate attributes, the challenges faced, and the strategies for supporting students in acquiring these attributes.

Below is a word-cloud illustrating the highest frequency words (excluding irrelevant grammatical words and unrelated terms):

Further analysis identified three strategies for enhancing graduate attributes, from the perspective of the academics teaching in Higher Education:

1: Integrate Graduate Attributes into the Core Curriculum
"Embedding it in the curriculum is something that we are doing anyway but we could always do more."
Institutions should embed graduate attributes directly into the core curriculum rather than treating them as supplementary skills. This can be achieved by aligning learning outcomes and assessments with the development of these attributes. By doing so, students will have consistent opportunities to cultivate these skills throughout their academic journey.

- Develop modules that explicitly focus on key graduate attributes.
- Ensure that assessments require students to demonstrate these attributes in practical and relevant ways.
- Encourage faculty to design course content that integrates both subject-specific knowledge and essential skills.

2: Enhance Student Engagement Through Practical Experiences
"Working in cooperation with a range of potential future employers within the community to ensure that we are meeting those attributes."
Institutions should create more opportunities for practical experiences, such as internships, placements, and real-world projects. These experiences not only help students apply their theoretical knowledge but also develop crucial graduate attributes such as communication, teamwork, and problem-solving skills.

- Establish partnerships with industry and community organisations to provide placement opportunities.
- Incorporate project-based learning and case studies into the curriculum.
- Facilitate workshops and seminars with guest speakers from various professional fields.

3: Foster a Reflective and Supportive Learning Environment
"Encourage students to reflect on the skills they've developed... if they don't actually engage with reflection, they probably don't take much notice of it."
Encouraging students to reflect on their learning experiences and providing robust support systems can significantly enhance the development of graduate attributes. Reflection helps

students recognize and articulate their skills, while support systems ensure they have the necessary resources and guidance.

- Implement reflective assessments, such as portfolios or journals, where students can document and analyse their skill development.
- Provide ongoing support through mentoring, career services, and academic advising.
- Facilitate peer learning and feedback sessions to build a supportive community.

Professional Services Staff Focus Groups

Three focus groups with 11 professional services staff members: Aberystwyth University (4 participants), Bangor University (5 participants), and University of Wales Trinity Saint David (2 participants). Staff ranged from across student administration and careers services. Analysis of these transcripts identified the following themes and subthemes:

1. Essential Graduate Attributes
    a) Adaptability
        - "You need to be able to adapt to different work environments and it's been a long time now since you since anybody can expect to have a job for life."
        - "I think adaptability. They're probably a little bit more on the ball with, I think because it's different from my generation."
        - “Generally, and at this moment in time, one of the most important attributes is probably adaptability. For all kinds of reasons because of AI, because of people working remotely.”
    b) Resilience
        - "Resilience never used to be in the vocabulary or terminology of what employers, you know, you would never see it on a job description for example."
        - "And that's, yeah, that's what builds resilience because you don't get resilience if you don't fail."
    c) Communication Skills
        - "It's simple things like that that an employer will want. See, can you go down there and ask them for a gangle flange or whatever?"
        - "I've always been really surprised how brilliantly they do in interviews and how well they communicate and articulate their skills."

2. Barriers to Developing Graduate Attributes
    a) Lack of Real-World Experience
        - "They can go through the whole three years and have very little experience except the same experience of turning up for lectures."
        - "A lot of students are whilst they're at university are only having an academic experience because they're not, they don't have part-time jobs for example."
    b) Over-Supportive Educational Environment
        - "The environment that we provide in university is very nurturing and supporting, but it at times it's too much."
        - "We don't allow our students to fail. And actually, we learn, it's a cliché isn't it, but you learn more from your failures than you do your successes."
    c) Digital Communication Preference
        - "My son would prefer to send an email than to phone somebody."
        - "Everything is done online without having to have that human interaction."
        - "Certain generations that like my generation, would prefer to speak to someone whereas, you know, younger generation would prefer not to speak to someone."

3. Bridging the Gap Between Education and Employment
    a) Alignment of Academic and Industry Terminology

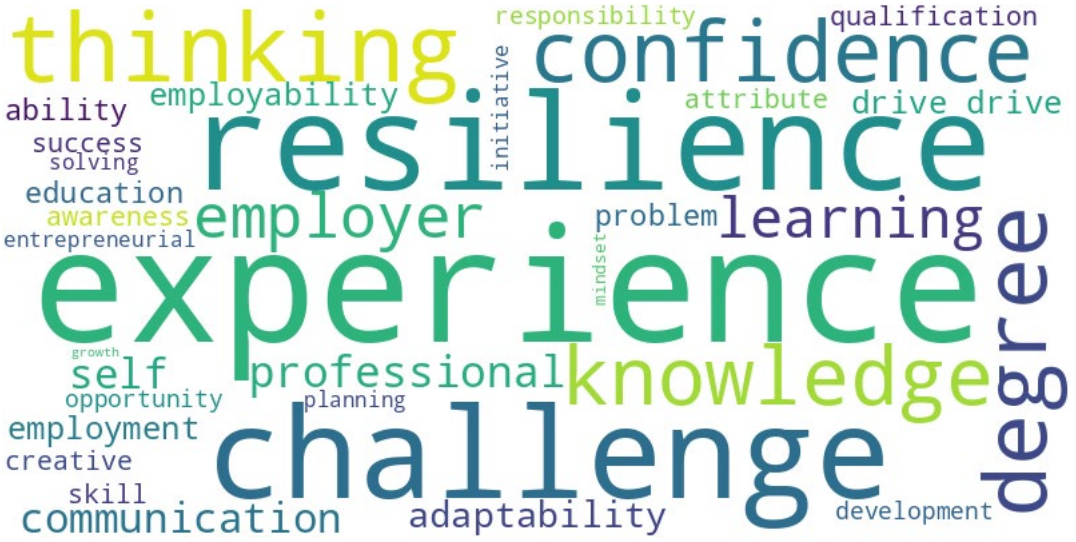
- "We really need to be helping our students and graduates to be able to join the dots between the terminology and what they read as a graduate attribute translates as these other things that they see in a job description."
- "We might have something like inquiry as a graduate attribute of Bangor University which might make sense in an academic realm, but then you'll very unlikely see the word inquiry when you look at a job description."

b) Employer Expectations vs. Graduate Preparedness
- "We speak with companies maybe, you know, they come out they're not ready for work is what we're told."
- "The feedback we get from speaking with externals, what I would be looking for then would be those attributes then from the person that they can work as a part of a team, that they can work independently."

c) Developing a Growth Mindset
- "Creative problem-solving but like the ability to think outside of the box and for the same reasons."
- "They need to be able to deal with losing or even if they don't get the job that they've applied for or just to be able."

These subthemes and quotes illustrate the critical need for aligning educational outcomes with industry expectations, understanding the gaps in graduate preparedness as perceived by employers, and fostering a growth mindset among students to better prepare them for the challenges of the workforce.

Below is a word-cloud illustrating the highest frequency words (excluding irrelevant grammatical words and unrelated terms):



Further analysis identified three strategies for enhancing graduate attributes, from the perspective of professional services staff teaching students in Higher Education:

1: Foster and Value Practical Experience through Work and Volunteering
"Encouraging students to take on work and have that structure in their life of actually going to work I think is very, very important."
Institutions should integrate more practical experiences into their curricula by encouraging work placements, internships, and volunteering opportunities. This approach can help

students develop essential skills such as communication, teamwork, and adaptability, which are highly valued by employers.

- Partner with local businesses, non-profits, and community organisations to create more opportunities for students to gain hands-on experience.
- Incorporate mandatory practical modules or internships into degree programmes.
- Structure programmes to enable and encourage work experience alongside study.

2: Bridge the Gap Between Academic Learning and Industry Needs

"We really need to be helping our students and graduates to be able to join the dots between the terminology and what they read as a graduate attribute translates as these other things that they see in a job description."

There is often a disconnect between the terminology and skills emphasized in academic settings and those required in the workplace. Higher education institutions need to align their teaching and language with industry expectations to better prepare students for employment.

- Work closely with industry partners to ensure that the skills and attributes taught in academic programmes match what employers are looking for.
- Provide students with clear examples of how academic skills translate to job skills and incorporate industry-relevant terminology into their teaching materials.

3: Promote Resilience, Adaptability, and a Growth Mindset

"I think resilience is the one that's starting to be at the forefront now of employers minds and I think that's the challenging one in terms of young people at the moment."

Resilience and the ability to adapt to changing environments are crucial attributes for graduates. Higher education institutions should focus on developing these traits by creating challenging and supportive learning environments that encourage students to learn from failures and embrace challenges.

- Incorporate resilience training into curricula.
- Offer workshops on growth mindset.
- Design assessments that challenge students to step out of their comfort zones.
- Provide opportunities for students to reflect on their experiences and learn from setbacks.

Student Focus Groups

Two focus groups with 6 students: Aberystwyth University (4 participants) and Pembrokeshire College (2 participants). Focus groups included students at all levels of post-compulsory education. Analysis of these transcripts identified the following themes and subthemes:

1. Understanding and Importance of Graduate Attributes
    a) Definition and Awareness
        - "Graduate attributes are high level qualities and skills that students acquire during the university journey. For example, the ability to manage your work independently, show resilience in the face of challenge, collaborate with others, or think outside the box."
        - "I don't think I've heard of them before. I think I understand what it means, but yeah, I'm not particularly heard of them before."
    b) General vs Subject-Specific
        - "I think it depends on the employer. For general office-based work, the more general skills that make someone well-rounded are more important, but for specialized roles like an accountant, subject-specific knowledge is crucial."
        - "It depends on the job role. For a lawyer, general graduate attributes are important because they have to be independent and resilient in court, but they also need subject-specific knowledge."
    c) Attributes Valued by Employers
        - "Resilience is probably a very important one that's very general as well. Especially at the start when you're looking for a job, you're probably going to face a lot of rejection, so you have to keep going, keep applying for those jobs."
        - "Adaptability is also crucial. When we are going out of university, there are definitely a lot of jobs that we tend to look at and think, 'I never thought about this,' but we do go into that. So being adaptable to what you want to find is really important."

2. Challenges in Developing Graduate Attributes
    a) Engagement and Participation
        - "If students are not engaging with all the resources and opportunities that the university is giving them, there's nothing you can do really to compel somebody to apply for a placement or whatever. So I think engagement is definitely the main challenge."
        - "Students don't always know who to reach out to or feel comfortable reaching out to. If they do know who their personal tutor is, there should be a couple of different people available for support."
    b) Well-being and Mental Health
        - "You have students that might have social anxiety or find it really difficult being in new situations. Well-being services can really help with that, but it's still going to be challenging for them."
        - "I've heard of horror stories coming out of some mental health services because staff may be undertrained or there isn't enough staff to deal with the situation properly."
    c) Structural and Financial Barriers

- "A lot of education leads to a final exam which encourages people to work alone. It doesn't encourage teamwork or group work, which are essential skills."
- "Financial issues are a significant barrier. For example, voluntary experiences that enhance attributes are inaccessible if students can't afford to work for free."

3. Support Mechanisms
    a) Institutional Support and Services
        - "The career service supports students not only with graduate schemes but also with year-in placements and part-time jobs, which help develop communication, teamwork, and leadership skills."
        - "The well-being service and specialist mentors are crucial for students struggling in their classes. They provide one-on-one support, which is more personalized and beneficial."
    b) Integrating Attributes into Curriculum
        - "Having modules that require students to create a CV, an artist website, and a fake application for a job can be very useful. These should be integrated into the curriculum more broadly."
        - "There needs to be more integration between employability services and academic courses. For example, tutorials in subjects like geography should also focus on developing employability skills."
    c) Monitoring and Feedback Systems
        - "Maybe having a monitoring system from the start of the course where students can track their attribute development would help. It makes students aware of what skills they should be developing."
        - "Implementing some form of attendance monitoring can be helpful. Just an email saying, 'Hey, are you OK? What's going on?' can make a big difference."

These themes and subthemes highlight the key points and diverse perspectives shared by participants in the focus groups.

Below is a word-cloud illustrating the highest frequency words (excluding irrelevant grammatical words and unrelated terms):

Further analysis identified three strategies for enhancing graduate attributes, from the perspective of students in Higher Education:

1: Enhance Engagement with Practical and Integrated Learning Opportunities
"Having modules that require students to create a CV, an artist website, a fake application for a job can be very useful. These should be integrated into the curriculum more broadly."
Institutes should integrate practical learning opportunities within the curriculum that directly tie into the development of graduate attributes. This includes incorporating modules that require real-world applications, such as CV building, internships, and simulated job applications. Additionally, encouraging participation in extracurricular activities and providing clear pathways for students to see the value of these experiences in their career development can increase engagement.

- Implement modules focused on practical skills, such as CV writing and job application simulations.
- Increase awareness of the importance of extracurricular activities for skill development.
- Provide more real-world learning opportunities, like internships and project-based learning, integrated within the academic curriculum.
- Provide hybrid class options for accessibility.
- Ensure class scheduling enables engagement with work and other external learning experiences.

2: Improve Support Systems for Student Well-being and Engagement
"If students are not engaging with all the resources and opportunities that the university is giving them, there's nothing you can do really to compel somebody to apply for a placement or whatever. So, I think engagement is definitely the main challenge."
Institutes must prioritize well-being services and create robust support systems to address barriers like mental health issues, social anxiety, and financial stress. Ensuring students are aware of and can access these services easily can help them overcome personal challenges that hinder their academic and personal growth. Proactive measures, such as early intervention and regular check-ins, can also play a critical role in supporting students' development.

- Enhance well-being and mental health services with adequate funding and trained staff.
- Implement regular check-ins for students to monitor attendance and engagement.
- Create a supportive environment that addresses financial and social barriers through scholarships, affordable housing options, and peer support networks.

3: Foster Collaboration Between Academic and Career Services
"There needs to be more integration between employability services and academic courses. For example, tutorials in subjects like geography should also focus on developing employability skills."
To ensure students graduate with the necessary attributes, there must be a stronger collaboration between academic departments and career services. This can be achieved by embedding employability skills into academic programmes and ensuring that career services are actively involved in curriculum design. Additionally, providing students with clear and consistent guidance on how to leverage career services throughout their academic journey is essential.

- Integrate career services into academic programmes through joint workshops, guest lectures, and career-focused modules.
- Establish a monitoring system to track the development of graduate attributes and provide feedback.
- Regularly update and communicate available resources and services to students to ensure they are utilized effectively.

Stage 3: Dissemination Event

On the 1st of July 2024, we held an employability event dedicated to sharing and discussing the findings of our QAA-funded project in the Pontio Arts and Innovation Centre at Bangor University. The event saw the participation of 19 attendees, including representatives from two of the collaborating institutes. Despite timetable conflicts with end-of-year exam boards preventing the other institutes from attending, the event boasted a diverse mix of academic employability leads, careers service staff, and senior executive members such as Deans, Associate Pro-Vice-Chancellor, and Pro-Vice-Chancellor. This ensured a broad representation across academic and professional service domains and various levels of seniority. Additionally, the two student interns involved in the project provided valuable student representation.

The event commenced at noon with arrivals and introductions, setting a welcoming tone for the day. Fay Short then presented an introduction to the Graduate Attributes Project, outlining its structure and objectives. Attendees were engaged in an interactive session where they predicted the project findings before they were revealed. This was facilitated through small group activities involving the completion of rating exercises from the questionnaires. This activity was instrumental in allowing attendees to reflect on their own expectations and confront any misconceptions about graduate attributes. Following a lunch and networking break, the attendees reconvened for an activity focused on identifying effective ways to integrate graduate attributes into the curriculum. This session was followed by a discussion on the future direction of the project, where attendees collaborated to determine the next steps and agreed on actionable plans moving forward. The afternoon concluded with tea, coffee, and further networking opportunities.

The key outcome of the event was a collective agreement to continue survey data collection through the first semester, leveraging upcoming careers fairs to gather more employer data. The aim is to complete data collection by January 2025, with the goal of publishing the findings in early 2025. The event was a significant step forward in our collaborative efforts to enhance the understanding and integration of graduate attributes, paving the way for continued progress and collaboration.

Conclusion

This report presents the findings of a comprehensive project exploring graduate attributes and skills. The project included employer and student questionnaires alongside focus groups with academic staff, professional services staff, and students. Analysis of the demographic data for the questionnaire demonstrated broad representation across genders, ages, academic disciplines, organisations, and sectors. The findings highlight several key areas where universities can enhance their approach to preparing students for the workforce.

Key Findings:

1. **Discrepancies in Perceived Graduate Attributes:** Both employers and students recognize the importance of graduate attributes like self-direction and ingenuity. However, significant gaps exist between the attributes employers value most, such as collaboration and application. Employers value practical attributes like application, collaboration, and independence, while students prioritize personal expression and inclusivity. This difference is also evident in their views on educational outcomes: students feel that their courses prepare them in challenge, independence, collaboration, and self-direction, but employers see these skills demonstrated less in graduates. These discrepancies highlight a gap between the skills students believe they are gaining and those employers expect, suggesting that educational programmes may need better alignment with workplace demands.
2. **Discrepancies in Perceived Skills**: Students rated skills more highly than employers in terms of importance and how well these skills are developed in graduates. Willingness to learn and problem solving were both in the top three for importance. However, employers rated the demonstration of willingness to learn in graduates significantly lower than students rated it as being developed on their course.
3. **Challenges in Embedding Graduate Attributes:** Focus groups with academic staff revealed challenges in integrating graduate attributes into the curriculum, particularly due to resource constraints and varying levels of student engagement. Staff emphasized the need for experiential learning and more structured opportunities for students to develop these attributes through practical experiences.
4. **Importance of Practical Experience:** Professional services staff, academic staff, and students highlighted the value of real-world experience, such as internships and placements, in developing key employability skills. Application was also ranked by employers in the top three Graduate Attributes for importance yet ranked significantly lower for being seen in current graduates. Thematic analysis of the open comments on the questionnaires also noted practical experience as important for the development of graduate skills. However, barriers such as financial constraints and limited access to these opportunities can hinder students' ability to gain practical experience.
5. **Cultural Changes:** Focus group transcripts and questionnaire data revealed a potential cultural divide between current professionals (academics, employers, etc) and students, possibly evidencing a generational shift or post-pandemic changes. One theme which emerged across the data was that students overestimate the skills and attributes of graduates in their sector.
6. **Support Systems and Student Well-being:** The focus groups also underscored the importance of robust support systems to help students navigate the challenges of developing employability skills. Issues related to mental health, social anxiety, and engagement were noted as significant factors that can impact students' ability to fully benefit from their education. Questionnaire data highlighted resilience, managing

setbacks and failure, and managing challenge as skills that are seen less in graduates than are deemed important by employers within their sector. These findings suggest that student support must be well managed to provide structured care for wellbeing while allowing space to experience and overcome difficulty.

Recommendations for Enhancing Employability:

1. **Integrate Practical Experiences Across All Disciplines:** Universities should ensure that practical experiences, such as internships, placements, and project-based learning, are embedded within all academic programmes. This integration will help students apply theoretical knowledge in real-world settings and develop critical skills such as teamwork, communication, and adaptability.
2. **Enhance Collaboration Between Academic and Professional Services:** Stronger partnerships between academic departments and professional services, including career services, are essential to ensure that employability skills are consistently reinforced throughout the student journey. Joint initiatives, such as career-focused workshops and modules, can help bridge the gap between academic learning and industry expectations.
3. **Focus on Resilience, Adaptability, and a Growth Mindset:** The ability to adapt to changing environments and overcome challenges is increasingly important in the modern job market. Universities should incorporate resilience training into their curricula and provide students with opportunities to reflect on and learn from setbacks and failure.
4. **Improve Access to Support Services:** To address the challenges related to student well-being and engagement, universities must invest in accessible and effective support services. Regular check-ins, mentoring, and targeted interventions can help students overcome barriers related to mental health, financial constraints, and social anxiety.
5. **Align Academic and Industry Terminology:** To better prepare students for the workforce, universities should work closely with industry partners to ensure that the language and skills emphasized in academic settings are aligned with those required in the workplace. Clear communication about how academic achievements translate to job-related competencies will help students understand the value of their education. Universities may want to review the language of their graduate attributes and skills to ensure it is meaningful in employment and coach students on using relevant terminology to describe their abilities when applying for work.

Next Steps

As a key outcome of the recent dissemination event, the project team has collectively agreed to continue data collection through the first semester of the upcoming academic year. This extended data collection will leverage upcoming careers fairs to gather additional insights from employers, with the aim of completing the data set by January 2025. The expanded data set will allow for a more comprehensive analysis and is expected to culminate in the publication of final findings in early 2025.

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Appendix

Appendix 1: Organisational analysis of employer questionnaire data

Category	Subcategory	Number	Percentage
Position	Senior Staff Member	22	32.8
	Owner, CEO, or Managing Director	21	31.3
	Mid-level Staff Member	17	25.4
	Staff member responsible for recruiting/hiring new staff	6	9
	Junior Staff Member	1	1.5
Size	Large enterprise (250+ employees)	0	0
	Medium enterprise (50 to 249 employees)	13	19.4
	Small enterprise (11 to 49 employees)	16	23.9
	Micro enterprise (fewer than 10 employees)	14	20.9
	Sole-Trader	24	35.8
Sector	Human Health and Social Work Activities	5	7.5
	Professional, Scientific and Technical Activities	13	19.4
	Education	8	11.9
	Arts, Entertainment and Recreation	5	11.9
	Agriculture, Forestry and Fishing	2	3
	No Preference	0	0
	Public Administration and Defence; Compulsory Social Security	5	7.5
	Financial and Insurance Activities	2	3
	Manufacturing	6	9
	Information and Communication	6	9
	Wholesale Trade	0	0
	Water Supply, Sewerage, Waste Management and Remediation Activities	1	1.5
	Other Service Activities	3	4.5
	Activities of Extraterritorial Organisations and Bodies	2	3
	Transportation and Storage	0	0
	Administrative and Support Service Activities	0	0
	Repair Activities	0	0
	Real Estate Activities	0	0
	Accommodation and Food Service Activities	0	0
	Electricity, Gas, Steam and Air Conditioning Supply	1	1.5
	Construction	1	1.5
	Unknown	4	6
	No Answer	1	1.5

Appendix 2: Graduate Attributes (Employers)

Perceived importance by employers

Attribute	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Application	12	11	8	9	10	8	5	3	1	0
Challenge	6	4	7	14	4	12	6	7	6	1
Collaboration	13	9	15	9	4	3	2	2	4	6
Inclusivity	2	1	2	4	3	1	5	11	16	22
Independence	3	6	6	2	12	7	2	4	11	14
Individuality	0	0	1	7	7	2	10	13	14	13
Ingenuity	15	6	7	3	9	5	8	7	3	4
Inquiry	4	4	3	7	8	9	15	10	4	3
Inspiring	0	9	5	1	8	13	12	10	7	2
Self-Direction	12	17	13	11	2	7	2	0	1	2

Extent to which Graduate Attributes are demonstrated by graduates

Attribute	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Application	4	3	5	6	20	11	6	3	0	2
Challenge	0	0	3	3	4	3	19	11	10	7
Collaboration	7	12	4	2	3	3	4	1	4	20
Inclusivity	13	6	6	3	1	4	2	15	7	3
Independence	0	3	3	1	1	4	1	12	23	12
Individuality	3	7	7	21	6	2	6	1	3	4
Ingenuity	21	4	7	5	5	5	4	3	2	4
Inquiry	7	4	3	6	6	19	8	5	2	0
Inspiring	1	19	5	7	9	5	5	3	5	1
Self-Direction	4	2	17	6	5	4	5	6	4	7

Paired t-test comparison of Importance and Demonstrated

Graduate Attribute	Importance Mean Rank	Demonstrated by Graduates Mean Rank	Difference	t-value	p-value	Which is ranked most highly?
Application	3.88	5.02	-1.14	-3.193	0.001	Importance
Challenge	5.15	7.33	-2.18	-5.279	<.001	Importance
Collaboration	4.12	5.93	-1.81	-3.775	<.001	Importance
Inclusivity	7.97	5.18	2.79	5.901	<.001	Graduates
Independence	6.39	7.97	-1.58	-3.749	<.001	Importance
Individuality	7.58	4.68	2.90	8.267	<.001	Graduates
Ingenuity	4.69	3.92	0.77	1.569	0.061	Graduates
Inquiry	5.88	5.10	0.78	2.296	0.013	Graduates
Inspiring	6.00	4.52	1.48	4.097	<.001	Graduates
Self-Direction	3.34	5.35	-2.01	-4.185	<.001	Importance

Appendix 3: Skills (Employers)

Perceived importance

Skill	Extremely important %	Very important %	Moderately important %	Slightly important %	Not at all important %
Adaptability	41.8	20.9	7.5	0	1.5
Ambition	7.5	22.4	25.4	13.4	3
Being organised	22.4	38.8	7.5	0	1.5
Collaborating	38.8	20.9	9	1.5	1.5
Commitment	28.4	25.4	14.9	1.5	1.5
Confidence and self-esteem	13.4	25.4	25.4	6	1.5
Creative thinking	11.9	34.3	20.9	3	1.5
Critical thinking	25.4	32.8	10.4	1.5	1.5
Curiosity	16.4	29.9	19.4	3	1.5
Digital literacy and technology skills	14.9	31.3	13.4	9	3
Emotional intelligence	13.4	25.4	22.4	9	1.5
Environmental and sustainability awareness	14.9	16.4	19.4	16.4	3
Equality, diversity, and inclusivity awareness	11.9	28.4	19.4	7.5	3
Ethical awareness and commitment	19.4	17.9	28.4	4.5	1.5
Innovative thinking	17.9	28.4	17.9	4.5	1.5
Leadership	4.5	13.4	29.9	20.9	3
Managing challenges	23.9	31.3	9	4.5	1.5
Managing conflict	9	22.4	26.9	11.9	1.5
Managing setbacks and failure	26.9	23.9	14.9	3	1.5
Networking	10.4	10.4	25.4	22.4	3
Numerical skills	13.4	20.9	22.4	10.4	3
Presentation skills	7.5	16.4	29.9	13.4	3
Problem solving	32.8	35.8	1.5	0	1.5
Project management	9	17.9	23.9	13.4	6
Punctuality and attendance	23.9	26.9	13.4	3	3
Rapport building	22.4	28.4	16.4	3	1.5
Report writing	9	16.4	18	6	6
Research skills	11.9	19.4	16.4	17.9	6
Resilience	26.9	26.9	13.4	3	1.5
Self-reflection and critical self-awareness	11.9	26.9	23.9	7.5	1.5
Subject-specific knowledge	28.4	11.9	11	3	5
Team working	37.3	25.4	6	1.5	1.5
Using multi-media techniques	4.5	13.4	23.9	20.9	9
Verbal communication	40.3	17.9	11.9	0	1.5
Willingness to learn	44.8	19.4	1.5	1.5	1.5

Working independently	26.9	37.3	4.5	0	1.5
Working to deadlines	28.4	31.3	9	0	1.5

Extent to which Skills are demonstrated by graduates

Skill	Extremely %	Very %	Moderately %	Slightly %	Not at all %
Adaptability	6	16.4	29.9	11.9	3
Ambition	9	25.4	20.9	7.5	4.5
Being organised	3	23.9	29.9	6	4.5
Collaborating	7.5	23.9	28.4	1.5	6
Commitment	4.5	28.4	17.9	13.4	3
Confidence and self-esteem	4.5	13.4	35.8	7.5	6
Creative thinking	1.5	14.9	31.3	13.4	6
Critical thinking	1.5	10.4	34.3	16.4	4.5
Curiosity	7.5	23.9	20.9	10.4	4.5
Digital literacy and technology skills	7.5	29.9	20.9	4.5	4.5
Emotional intelligence	1.5	20.9	23.9	13.4	7.5
Environmental and sustainability awareness	16.4	17.9	22.4	6	3
Equality, diversity, and inclusivity awareness	11.9	31.3	11.9	7.5	3
Ethical awareness and commitment	6	25.4	23.9	7.5	3
Innovative thinking	3	10.4	35.8	13.4	4.5
Leadership	0	10.4	17.9	34.3	13.4
Managing challenges	0	10.4	25.4	26.9	4.5
Managing conflict	0	1.5	31.3	23.9	9
Managing setbacks and failure	0	10.4	26.9	20.9	9
Networking	0	13.4	28.4	17.9	7.5
Numerical skills	1.5	26.9	23.9	10.4	4.5
Presentation skills	1.5	14.9	29.9	16.4	4.5
Problem solving	0	17.9	32.8	11.9	4.5
Project management	0	6	26.9	26.9	6
Punctuality and attendance	6	26.9	17.9	10.4	4.5
Rapport building	4.5	14.9	37.3	6	4.5
Report writing	3	10.4	23.9	19.4	6
Research skills	6	16.4	31.3	9	4.5
Resilience	0	13.4	26.9	17.9	9
Self-reflection and critical self-awareness	1.5	11.9	32.8	16.4	3
Subject-specific knowledge	6	16.4	28.4	9	4.5
Team working	6	34.3	17.9	3	6
Using multi-media techniques	6	20.9	26.9	6	3
Verbal communication	3	25.4	25.4	9	4.5
Willingness to learn	17.9	25.4	13.4	4.5	4.5
Working independently	4.5	14.9	28.4	11.9	7.5
Working to deadlines	3	31.3	22.4	6	4.5

Paired t-test comparison of Importance and Demonstrated

Skill	Importance Mean	Demonstrated by Graduates Mean	Difference	t-value	p-value	Which is ranked most highly?

Adaptability	4.42	3.16	1.26	8.344	<.001	Importance
Ambition	3.25	3.40	-0.15	-0.679	0.25	Graduates
Being organised	4.15	3.22	0.93	6.413	<.001	Importance
Collaborating	4.31	3.38	0.93	5.483	<.001	Importance
Commitment	4.08	3.27	0.82	4.026	<.001	Importance
Confidence and self-esteem	3.60	3.04	0.56	2.571	0.007	Importance
Creative thinking	3.73	2.89	0.84	5.046	<.001	Importance
Critical thinking	4.10	2.82	1.28	7.112	<.001	Importance
Curiosity	3.81	3.29	0.52	2.974	0.002	Importance
Digital literacy and technology skills	3.65	3.47	0.18	1.324	0.096	Importance
Emotional intelligence	3.56	2.93	0.63	2.934	0.003	Importance
Environmental and sustainability awareness	3.34	3.59	-0.25	-1.107	0.137	Graduates
Equality, diversity, and inclusivity awareness	3.55	3.64	-0.08	-0.693	0.246	Graduates
Ethical awareness and commitment	3.69	3.36	0.32	1.522	0.068	Importance
Innovative thinking	3.81	2.91	0.90	5.578	<.001	Importance
Leadership	2.94	2.11	0.83	5.361	<.001	Importance
Managing challenges	4.02	2.62	1.40	6.99	<.001	Importance
Managing conflict	3.35	2.39	0.97	5.277	<.001	Importance
Managing setbacks and failure	4.02	2.58	1.44	7.435	<.001	Importance
Networking	3.04	2.71	0.33	1.854	0.035	Importance
Numerical skills	3.45	3.16	0.29	2.143	0.019	Importance
Presentation skills	3.17	2.89	0.28	1.614	0.057	Importance
Problem solving	4.38	2.96	1.42	10.024	<.001	Importance
Project management	3.15	2.50	0.65	3.62	<.001	Importance
Punctuality and attendance	3.94	3.30	0.64	3.058	0.002	Importance
Rapport building	3.94	3.13	0.80	4.881	<.001	Importance
Report writing	3.11	2.76	0.34	2.068	0.023	Importance
Research skills	3.19	3.16	0.03	0.67	0.253	Importance
Resilience	4.04	2.67	1.38	6.747	<.001	Importance
Self-reflection and critical self-awareness	3.56	2.89	0.68	2.936	0.003	Importance
Subject-specific knowledge	3.72	3.16	0.55	2.731	0.005	Importance
Team working	4.33	3.47	0.87	4.584	<.001	Importance
Using multi-media techniques	2.77	3.33	-0.56	-2.27	0.014	Graduates
Verbal communication	4.33	3.20	1.13	7.048	<.001	Importance
Willingness to learn	4.52	3.73	0.79	4.219	<.001	Importance
Working independently	4.26	2.96	1.30	6.977	<.001	Importance
Working to deadlines	4.21	3.33	0.88	5.655	<.001	Importance

Appendix 4: Demographic analysis of student questionnaire data

Category	Subcategory	Number	Percentage
Age	18-24	243	56%
	25-34	123	28.30%
	35-44	24	5.50%
	45-54	26	6%
	55-64	8	2.80%
Sex	Female	319	73.50%
	Male	104	24%
	No Answer	11	2.50%
Gender	Woman	314	72.40%
	Man	100	23%
	Non-Binary	14	3.20%
	Genderfluid	1	0.20%
	No Answer	5	1.20%
Ethnicity	White	285	65.70%
	Asian or Asian British	90	20.70%
	Black	19	4.40%
	Mixed or Multiple Ethnic Groups	13	3%
	Arab	8	1.80%
	Other Ethnic Background	7	1.60%
	No Answer	12	2.80%
Nationality	British	145	33.40%
	Welsh	77	17.70%
	Indian	44	10.10%
	English	42	9.70%
	Pakistani	14	3.20%
	Nigerian	9	2.10%
	Irish	8	1.80%
	American	7	1.60%
	Turkish	7	1.60%
	Malaysian	5	1.20%
	Nepalese	5	1.20%
	Polish	5	1.20%
	Chinese	4	0.90%
	Bangladeshi	3	0.70%
	French	3	0.70%
	German	3	0.70%
	Hungarian	3	0.70%
	Italian	3	0.70%
	South African	3	0.70%

	Sri Lankan	3	0.70%
	Belgian dual national	2	0.50%
	Kuwaiti	2	0.50%
	Romanian	2	0.50%
	Saudi	2	0.50%
	Scottish	2	0.50%
	Afghan	1	0.20%
	African	1	0.20%
	Algerian	2	0.40%
	Bruneian	1	0.20%
	Canadian	1	0.20%
	Dominican Republican	1	0.20%
	Greek	1	0.20%
	Italian-American	1	0.20%
	Lithuanian	1	0.20%
	Spanish	1	0.20%
	Taiwan	1	0.20%
	Thai	1	0.20%
	Vietnamese	1	0.20%
	No Answer	17	3.90%

Appendix 5: Academic level, subject, and career preferences for student questionnaire data

Academic Levels	Number	Percentage
Bachelor of Science (BSc)	141	32.5
Master of Science (MSc)	105	24.2
Bachelor of Arts (BA)	42	9.7
Postgraduate Certificate	17	3.9
Master of Arts (MA)	16	3.7
PhD	16	3.7
Integrated Master's (MSci)	12	2.8
Diploma of Higher Education	10	2.3
Graduate Certificate	7	1.6
Certificate of Higher Education	5	1.2
Postgraduate Diploma	3	0.7
Doctorate	3	0.7
Graduate Diploma	2	0.5
Master of Research (MRes)	2	0.5
Master of Laws (LLM)	1	0.2
No Answer	52	12
Academic Subjects	**Number**	**Percentage**
Psychology	197	45.4
Business and Management	38	8.8
Geography, Earth, and Environmental Studies	31	7.1
Computing	17	3.9
Sport and Exercise Sciences	15	3.5
Biosciences	14	3.2
Education and Teaching	14	3.2
Allied Health	10	2.3
English Studies	9	2.1
Nursing and Midwifery	8	1.8
Law	7	1.6
Sociology, Social Policy and Anthropology	7	1.6
Veterinary Sciences	6	1.4
Engineering	6	1.4
Languages and Area Studies	5	1.2
History and Archaeology	5	1.2
Health and Social Care	5	1.2
Creative Arts and Design	5	1.2
Medical Sciences	4	0.9
Philosophy and Religious Studies	2	0.5
Mathematical Sciences	2	0.5
Medicine and Dentistry	2	0.5
Architecture, Building and Planning	2	0.5
Performing Arts	2	0.5
Agriculture, Food and Related Studies	2	0.5
Politics	2	0.5

Chemistry	2	0.5
Physics and Astronomy	1	0.2
General, Applied and Forensic Sciences	1	0.2
Economics	1	0.2
Pharmacology, Toxicology and Pharmacy	1	0.2
No Answer	11	2.5
Career Preferences	**Number**	**Percentage**
Employed	281	64.7
Self-Employed	71	16.4
No Preference	74	17.1
No Answer	8	1.8
Preferred Future Organisation Size	**Number**	**Percentage**
Large enterprise (250+ employees)	95	21.9
Medium enterprise (50 to 249 employees)	77	17.7
Small enterprise (11 to 49 employees)	65	15
Micro enterprise (fewer than 10 employees)	25	5.8
Sole-Trader	29	15
No Preference	138	31.8
No Answer	15	3.5
Preferred Future Sector	**Number**	**Percentage**
Human Health and Social Work Activities	168	38.7
Education	51	11.8
Professional, Scientific and Technical Activities	45	10.4
Arts, Entertainment and Recreation	23	5.3
Agriculture, Forestry and Fishing	16	3.7
Manufacturing	11	2.5
Information and Communication	11	2.5
Financial and Insurance Activities	10	2.3
Wholesale Trade	6	1.4
Public Administration and Defence; Compulsory Social Security	5	1.2
Water Supply, Sewerage, Waste Management and Remediation Activities	5	1.2
Other Service Activities	5	1.2
Administrative and Support Service Activities	5	1.2
Activities of Extraterritorial Organisations and Bodies	4	0.9
Transportation and Storage	3	0.7
Repair Activities	2	0.5
Real Estate Activities	2	0.5
Accommodation and Food Service Activities	2	0.5
Mining and Quarrying	2	0.5
Electricity, Gas, Steam and Air Conditioning Supply	1	0.2
Construction	1	0.2
Undecided	31	7.1
No Preference	12	2.8

No Answer	7	1.6

Appendix 6: Graduate Attributes (Students)

Perceived importance

Attribute	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Application	48	54	51	40	84	49	29	34	21	24
Challenge	31	36	47	53	29	38	83	55	38	24
Collaboration	45	38	43	41	39	31	32	30	37	98
Inclusivity	28	29	25	20	25	30	38	88	81	70
Independence	19	19	14	23	35	32	45	54	108	85
Individuality	28	25	31	61	54	49	46	40	56	44
Ingenuity	94	49	54	42	48	33	34	27	22	31
Inquiry	39	28	40	42	44	88	54	36	36	27
Inspiring	41	84	43	44	29	42	48	58	26	19
Self-Direction	61	72	86	68	47	42	25	12	9	12

Extent to which Graduate Attributes are developed on courses

Attribute	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Application	36	31	39	38	136	45	39	30	22	9
Challenge	55	40	32	34	27	27	130	38	24	18
Collaboration	21	27	32	22	34	34	28	27	31	169
Inclusivity	9	11	18	23	24	23	26	153	85	53
Independence	32	30	22	28	26	26	29	32	142	58
Individuality	12	23	30	132	43	37	32	41	40	35
Ingenuity	130	45	30	34	38	39	31	24	19	35
Inquiry	24	27	31	33	38	130	53	44	27	18
Inspiring	30	120	44	32	35	42	41	28	27	26
Self-Direction	76	71	147	49	24	22	16	8	8	4

Paired t-test comparison of Importance and Taught

Graduate Attribute	Importance Mean Rank	Demonstrated by Graduates Mean Rank	Difference	t-value	p-value	Which is ranked most highly?
Application	4.81	4.98	-0.17	-1.136	0.128	Important
Challenge	5.60	5.35	0.25	1.821	0.035	Taught
Collaboration	5.93	7.09	-1.17	-6.714	<.001	Important
Inclusivity	6.79	7.38	-0.59	-4.275	<.001	Important
Independence	7.21	6.76	0.45	2.603	0.005	Taught
Individuality	5.91	5.59	0.32	2.193	0.014	Taught
Ingenuity	4.43	4.24	0.19	1.295	0.098	Taught
Inquiry	5.51	5.69	-0.18	-1.092	0.138	Important
Inspiring	4.92	4.64	0.28	1.964	0.025	Taught
Self-Direction	3.90	3.28	0.62	4.563	<.001	Taught

Appendix 7: Skills (Students)

Perceived importance

Skill	Extremely important %	Very important %	Moderately important %	Slightly important %	Not at all important %	Prefer not to answer %
Adaptability	43.8	33.6	10.6	3.5	0.2	8.3
Ambition	32.7	29.5	18.2	7.8	2.1	9.7
Being organised	42.9	34.3	9.7	1.8	0.7	10.6
Collaborating	36.2	34.6	15	4.8	0.5	9
Commitment	50	26.7	8.8	1.6	1.4	11.5
Confidence and self-esteem	39.9	31.3	12.9	3.2	1.6	11.1
Creative thinking	36.2	29.7	18.2	7.1	0.9	7.8
Critical thinking	48.8	29	11.1	2.1	0.5	8.5
Curiosity	29	29	25.1	7.4	1.4	8.1
Digital literacy and technology skills	26.3	30.6	22.8	8.8	2.1	9.4
Emotional intelligence	45.2	24	12.4	6.5	2.1	9.9
Environmental and sustainability awareness	24.4	24	24	12	5.8	9.9
Equality, diversity, and inclusivity awareness	49.5	19.1	13.8	3.9	2.1	11.5
Ethical awareness and commitment	12.4	23.7	10.8	4.1	1.8	12.4
Innovative thinking	30.2	34.8	19.1	6	0.7	9.2
Leadership	26.7	24.2	26.3	10.6	2.1	10.1
Managing challenges	47	30	11.3	1.4	0.5	9.9
Managing conflict	36.2	27.4	20.7	4.6	1.6	9.4
Managing setbacks and failure	40.8	33.2	12.2	1.6	0.9	11.3
Networking	23	31.1	26.5	9	1.2	9.2
Numerical skills	19.4	23.3	29.7	12	5.5	10.1
Presentation skills	26.3	28.3	23	20.4	2.1	9.9
Problem solving	51.4	29	25.1	7.4	1.4	8.8
Project management	24	24.4	26.3	11.3	3.9	10.1
Punctuality and attendance	48.8	25.8	11.3	2.1	0.9	11.1
Rapport building	41.9	26	15.7	4.6	1.6	10.1
Report writing	30.9	27	22.4	6.5	2.3	11.1
Research skills	35.9	27.2	16.1	8.3	1.8	10.6
Resilience	45.4	30.2	10.6	2.1	1.2	10.6
Self-reflection and critical self-awareness	43.3	29	14.1	3	0.5	10.1
Subject-specific knowledge	51.2	23	11.1	2.5	1.4	10.8
Team working	37.6	33.2	15.4	3.9	0.7	9.2
Using multi-media techniques	18	27.9	26.7	13.8	3.9	9.7
Verbal communication	58.3	21.9	8.5	1.2	0.7	9.4

Willingness to learn	55.5	24	8.1	1.2	0.5	10.8
Working independently	33.9	35.3	14.3	6.2	0.9	9.4
Working to deadlines	40.6	31.3	13.1	3.2	0.7	11.1

Extent to which Skills are developed on courses

Skill	Extremely %	Very %	Moderately %	Slightly %	Not at all %	Prefer not to answer %
Adaptability	24	28.6	26	8.5	2.8	10.1
Ambition	29.3	25.3	19.4	10.1	5.5	10.4
Being organised	37.8	28.1	16.8	3.9	3.2	10.1
Collaborating	20	27.9	23.5	11.3	6.5	10.8
Commitment	35.5	30.9	15.9	4.4	2.8	10.6
Confidence and self-esteem	24.4	27	21.9	10.6	5.3	10.8
Creative thinking	25.8	24.4	23.7	11.1	4.6	10.4
Critical thinking	39.4	32.3	13.1	3	1.6	10.6
Curiosity	28.3	28.6	21.4	9	2.3	10.4
Digital literacy and technology skills	24	25.8	24	10.6	4.8	10.8
Emotional intelligence	24.9	24.4	18.4	10.6	10.8	10.8
Environmental and sustainability awareness	22.8	20.5	15.2	16.1	14.3	11.1
Equality, diversity, and inclusivity awareness	30.2	24	17.3	9.7	6.9	12
Ethical awareness and commitment	31.8	27.6	15.2	7.8	5.3	12.2
Innovative thinking	23	27.2	26.5	9.2	3.7	10.4
Leadership	16.1	18	22.8	18.7	13.8	10.6
Managing challenges	29.5	31.6	19.1	6	2.8	11.1
Managing conflict	16.8	19.8	21.7	15.9	14.7	11.1
Managing setbacks and failure	27.6	27.2	22.4	8.3	3.7	10.8
Networking	16.4	17.5	23	17.7	15	10.4
Numerical skills	18.7	24.9	20.5	13.6	11.8	10.6
Presentation skills	26.3	33.9	19.6	7.1	2.5	10.6
Problem solving	27.9	33.9	19.6	6.2	2.1	10.4
Project management	20.7	21.2	25.6	12.4	8.8	11.3
Punctuality and attendance	35.5	29.7	13.4	5.5	4.6	11.3
Rapport building	21.9	21.9	26.7	11.3	6.9	11.3
Report writing	35.3	27.2	18.4	4.6	3.5	11.1
Research skills	46.3	24.4	13.1	3.7	1.2	11.3
Resilience	30.9	26.3	22.6	6	3	11.3
Self-reflection and critical self-awareness	36.4	29.5	16.1	5.8	1.4	10.8
Subject-specific knowledge	45.9	27.2	12	3	0.9	11.1
Team working	21.2	25.8	23	12.4	6.2	11.3

Using multi-media techniques	19.1	21.7	24	15.7	8.5	11.1
Verbal communication	28.1	31.8	20.5	7.4	2.1	10.1
Willingness to learn	43.1	28.1	10.8	3.9	2.3	11.8
Working independently	47.9	28.1	9.7	2.1	1.2	11.1
Working to deadlines	48.8	25.8	10.6	2.1	2.1	10.6

Paired t-test comparison of Importance and Taught

Skill	**Importance Mean Rating**	**Taught Mean Rating**	**Difference**	**t-value**	**p-value**	**Which is ranked most highly?**
Adaptability	4.28	3.69	0.58	9.084	<.001	Importance
Ambition	3.92	3.70	0.22	4.011	<.001	Importance
Being organised	4.31	4.04	0.27	5.121	<.001	Importance
Collaborating	4.11	3.49	0.62	10.048	<.001	Importance
Commitment	4.38	4.03	0.35	6.033	<.001	Importance
Confidence and self-esteem	4.18	3.61	0.56	8.842	<.001	Importance
Creative thinking	4.01	3.62	0.39	6.603	<.001	Importance
Critical thinking	4.35	4.17	0.18	3.653	<.001	Importance
Curiosity	3.84	3.80	0.04	0.525	0.3	Importance
Digital literacy and technology skills	3.78	3.60	0.18	3.025	0.001	Importance
Emotional intelligence	4.15	3.47	0.68	10.04	<.001	Importance
Environmental and sustainability awareness	3.55	3.24	0.31	5.424	<.001	Importance
Equality, diversity, and inclusivity awareness	4.24	3.69	0.55	8.53	<.001	Importance
Ethical awareness and commitment	4.26	3.83	0.43	7.295	<.001	Importance
Innovative thinking	3.97	3.63	0.33	5.588	<.001	Importance
Leadership	3.70	3.04	0.66	10.426	<.001	Importance
Managing challenges	4.35	3.89	0.46	7.987	<.001	Importance
Managing conflict	4.02	3.09	0.92	13.357	<.001	Importance
Managing setbacks and failure	4.25	3.75	0.51	8.428	<.001	Importance
Networking	3.73	3.03	0.70	10.444	<.001	Importance
Numerical skills	3.43	3.28	0.15	2.456	0.007	Importance
Presentation skills	3.74	3.83	-0.09	-1.248	0.106	Taught
Problem solving	4.40	3.88	0.51	9.014	<.001	Importance
Project management	3.59	3.37	0.22	3.519	<.001	Importance
Punctuality and attendance	4.34	3.97	0.38	6.309	<.001	Importance
Rapport building	4.14	3.46	0.68	10.01	<.001	Importance

Report writing	3.87	3.97	-0.10	-1.268	0.103	Taught
Research skills	3.97	4.25	-0.28	-4.498	<.001	Taught
Resilience	4.30	3.86	0.45	7.541	<.001	Importance
Self-reflection and critical self-awareness	4.24	4.05	0.19	3.44	<.001	Importance
Subject-specific knowledge	4.35	4.28	0.06	1.333	0.092	Importance
Team working	4.13	3.49	0.65	10.767	<.001	Importance
Using multi-media techniques	3.47	3.31	0.16	2.865	0.002	Importance
Verbal communication	4.50	3.85	0.65	11.656	<.001	Importance
Willingness to learn	4.49	4.20	0.29	5.742	<.001	Importance
Working independently	4.05	4.34	-0.30	-5.044	<.001	Taught
Working to deadlines	4.21	4.31	-0.10	-1.493	0.068	Taught

Appendix 8: Graduate Attributes (Employers vs Students)

Independent samples t-test comparison of importance of graduate attributes

Graduate Attribute	Employer Importance	Student Importance	Difference	t-value	p-value	Who ranked most highly?
Application	3.88	4.81	-0.93	2.789	0.005	Employer
Challenge	5.15	5.60	-0.45	1.333	0.183	Employer
Collaboration	4.12	5.93	-1.81	4.706	<.001	Employer
Inclusivity	7.97	6.79	1.18	-3.635	<.001	Student
Independence	6.39	7.21	-0.82	2.137	0.036	Employer
Individuality	7.58	5.91	1.67	-5.986	<.001	Student
Ingenuity	4.69	4.43	0.26	-0.68	0.497	Student
Inquiry	5.88	5.51	0.37	-1.116	0.265	Student
Inspiring	6.00	4.92	1.08	-3.486	<.001	Student
Self-Direction	3.34	3.90	-0.56	1.901	0.058	Employer

Independent samples t-test comparison of how well courses train graduates in these attributes

Graduate Attribute	Employer Demonstrated by Students	Student Taught on Course	Difference	t-value	p-value	Who ranked most highly?
Application	5.02	4.98	0.03	-0.109	0.913	Student
Challenge	7.33	5.35	1.98	-7.292	<.001	Student
Collaboration	5.93	7.09	-1.16	2.356	0.021	Employer
Inclusivity	5.18	7.38	-2.20	5.074	<.001	Employer
Independence	7.97	6.76	1.21	-3.736	<.001	Student
Individuality	4.68	5.59	-0.90	2.682	0.008	Employer
Ingenuity	3.92	4.24	-0.32	0.76	0.448	Employer
Inquiry	5.10	5.69	-0.59	1.888	0.06	Employer
Inspiring	4.52	4.64	-0.12	0.321	0.748	Employer
Self-Direction	5.35	3.28	2.07	-5.515	<.001	Student

Appendix 9: Skills (Employers vs Students)

Independent samples t-test comparison of importance of skills

Skill	Employer Importance	Student Importance	Difference	t-value	p-value	Who rates most highly?
Adaptability	4.42	4.28	0.14	-1.083	0.279	Employer
Ambition	3.25	3.92	-0.67	4.156	<.001	Student
Being organised	4.15	4.31	-0.16	1.274	0.203	Student
Collaborating	4.31	4.11	0.20	-1.457	0.146	Employer
Commitment	4.08	4.38	-0.30	2.259	0.024	Student
Confidence and self-esteem	3.60	4.18	-0.57	3.988	<.001	Student
Creative thinking	3.73	4.01	-0.28	1.869	0.062	Student
Critical thinking	4.10	4.35	-0.25	1.972	0.049	Student
Curiosity	3.81	3.84	-0.03	0.185	0.853	Student
Digital literacy and technology skills	3.65	3.78	-0.13	0.814	0.416	Student
Emotional intelligence	3.56	4.15	-0.59	3.664	<.001	Student
Environmental and sustainability awareness	3.34	3.55	-0.21	1.117	0.265	Student
Equality, diversity, and inclusivity awareness	3.55	4.24	-0.69	4.367	<.001	Student
Ethical awareness and commitment	3.69	4.26	-0.57	3.739	<.001	Student
Innovative thinking	3.81	3.97	-0.16	1.093	0.275	Student
Leadership	2.94	3.70	-0.76	5.14	<.001	Student
Managing challenges	4.02	4.35	-0.33	2.614	0.009	Student
Managing conflict	3.35	4.02	-0.66	4.344	<.001	Student
Managing setbacks and failure	4.02	4.25	-0.23	1.767	0.078	Student
Networking	3.04	3.73	-0.68	4.454	<.001	Student
Numerical skills	3.45	3.43	0.01	-0.076	0.939	Employer
Presentation skills	3.17	3.74	-0.57	3.445	<.001	Student
Problem solving	4.38	4.40	-0.02	0.198	0.843	Student
Project management	3.15	3.59	-0.44	2.526	0.012	Student
Punctuality and attendance	3.94	4.34	-0.41	2.985	0.003	Student
Rapport building	3.94	4.14	-0.20	1.308	0.192	Student
Report writing	3.11	3.87	-0.77	4.648	<.001	Student
Research skills	3.19	3.97	-0.79	4.232	<.001	Student
Resilience	4.04	4.30	-0.26	1.961	0.051	Student
Self-reflection and critical self-awareness	3.56	4.24	-0.68	5.045	<.001	Student
Subject-specific knowledge	3.72	4.35	-0.63	4.16	<.001	Student
Team working	4.33	4.13	0.20	-1.449	0.148	Employer
Using multi-media techniques	2.77	3.47	-0.70	4.13	<.001	Student
Verbal communication	4.33	4.50	-0.17	1.383	0.167	Student
Willingness to learn	4.52	4.49	0.03	-0.258	0.797	Employer
Working independently	4.26	4.05	0.21	-1.442	0.15	Employer
Working to deadlines	4.21	4.21	0.00	-0.002	0.998	SAME
	3.74	**4.07**	**-0.33**	**3.957**	**<.001**	Student

Independent samples t-test comparison of how well courses train graduates in these skills

Skill	Employer Demonstrated by Students	Student Taught on Course	Difference	t-value	p-value	Who rates most highly?
Adaptability	3.16	3.69	-0.54	3.258	0.001	Student
Ambition	3.40	3.70	-0.30	1.588	0.113	Student
Being organised	3.22	4.04	-0.82	4.986	<.001	Student
Collaborating	3.38	3.49	-0.11	0.617	0.538	Student
Commitment	3.27	4.03	-0.76	4.726	<.001	Student
Confidence and self-esteem	3.04	3.61	-0.57	3.611	<.001	Student
Creative thinking	2.89	3.62	-0.73	4.841	<.001	Student
Critical thinking	2.82	4.17	-1.35	9.331	<.001	Student
Curiosity	3.29	3.80	-0.51	3.021	0.003	Student
Digital literacy and technology skills	3.47	3.60	-0.13	0.736	0.462	Student
Emotional intelligence	2.93	3.47	-0.54	3.196	0.002	Student
Environmental and sustainability awareness	3.59	3.24	0.35	-1.924	0.059	Employer
Equality, diversity, and inclusivity awareness	3.64	3.69	-0.05	0.318	0.752	Student
Ethical awareness and commitment	3.36	3.83	-0.47	2.507	0.013	Student
Innovative thinking	2.91	3.63	-0.72	4.966	<.001	Student
Leadership	2.11	3.04	-0.93	7.183	<.001	Student
Managing challenges	2.62	3.89	-1.27	7.86	<.001	Student
Managing conflict	2.39	3.09	-0.70	5.306	<.001	Student
Managing setbacks and failure	2.58	3.75	-1.17	6.78	<.001	Student
Networking	2.71	3.03	-0.32	2.072	0.042	Student
Numerical skills	3.16	3.28	-0.13	0.8	0.427	Student
Presentation skills	2.89	3.83	-0.94	5.866	<.001	Student
Problem solving	2.96	3.88	-0.93	5.97	<.001	Student
Project management	2.50	3.37	-0.87	6.411	<.001	Student
Punctuality and attendance	3.30	3.97	-0.67	3.774	<.001	Student
Rapport building	3.13	3.46	-0.32	2.154	0.035	Student
Report writing	2.76	3.97	-1.21	6.932	<.001	Student
Research skills	3.16	4.25	-1.10	7.324	<.001	Student
Resilience	2.67	3.86	-1.19	7.098	<.001	Student
Self-reflection and critical self-awareness	2.89	4.05	-1.17	7.48	<.001	Student
Subject-specific knowledge	3.16	4.28	-1.12	7.669	<.001	Student
Team working	3.47	3.49	-0.02	0.13	0.897	Student
Using multi-media techniques	3.33	3.31	0.03	-0.172	0.864	Employer
Verbal communication	3.20	3.85	-0.65	4.046	<.001	Student
Willingness to learn	3.73	4.20	-0.47	2.93	0.004	Student
Working independently	2.96	4.34	-1.39	9.977	<.001	Student
Working to deadlines	3.33	4.31	-0.98	6.641	<.001	Student
	3.06	**3.73**	**-0.67**	**5.839**	**<.001**	**Student**