

The Health, Wellbeing
and Future of



***Technology &
Design***

in Northern Ireland



STRANMILLIS
UNIVERSITY COLLEGE
A College of Queen's University Belfast



St Mary's
University College
Belfast
A College of Queen's University



The Health, Wellbeing and Future of Technology & Design in Northern Ireland

EXECUTIVE SUMMARY

On the 23rd June, 2025, a conference was hosted by Stranmillis University College, Belfast, to address, “*The Health, Wellbeing and Future of Technology and Design in Northern Ireland*”. This short report summarises the conference and offers an analysis of the subject of Technology and Design (T&D) in Northern Ireland (NI). Evidence in this report presents: a brief historical development of the subject; a summary of findings emerging from Orr’s (2024) study of the perceptions of T&D teachers; and data emerging from engagement from schools, teachers and stakeholders.

The conference was organised by a consortium representing the Teacher Education provision for Technology & Design in Northern Ireland, being: Stranmillis University College, St. Mary’s University College, and Ulster University. The Conference Chair highlighted the following key aspects of the Consortium’s findings.

The consortium had first targeted Heads of T&D Departments from a random sample of 10 schools to capture current thinking, with responses analysed by constant comparison. There were three questions:

What would be the priorities and values that you would espouse in delivery of your subject?

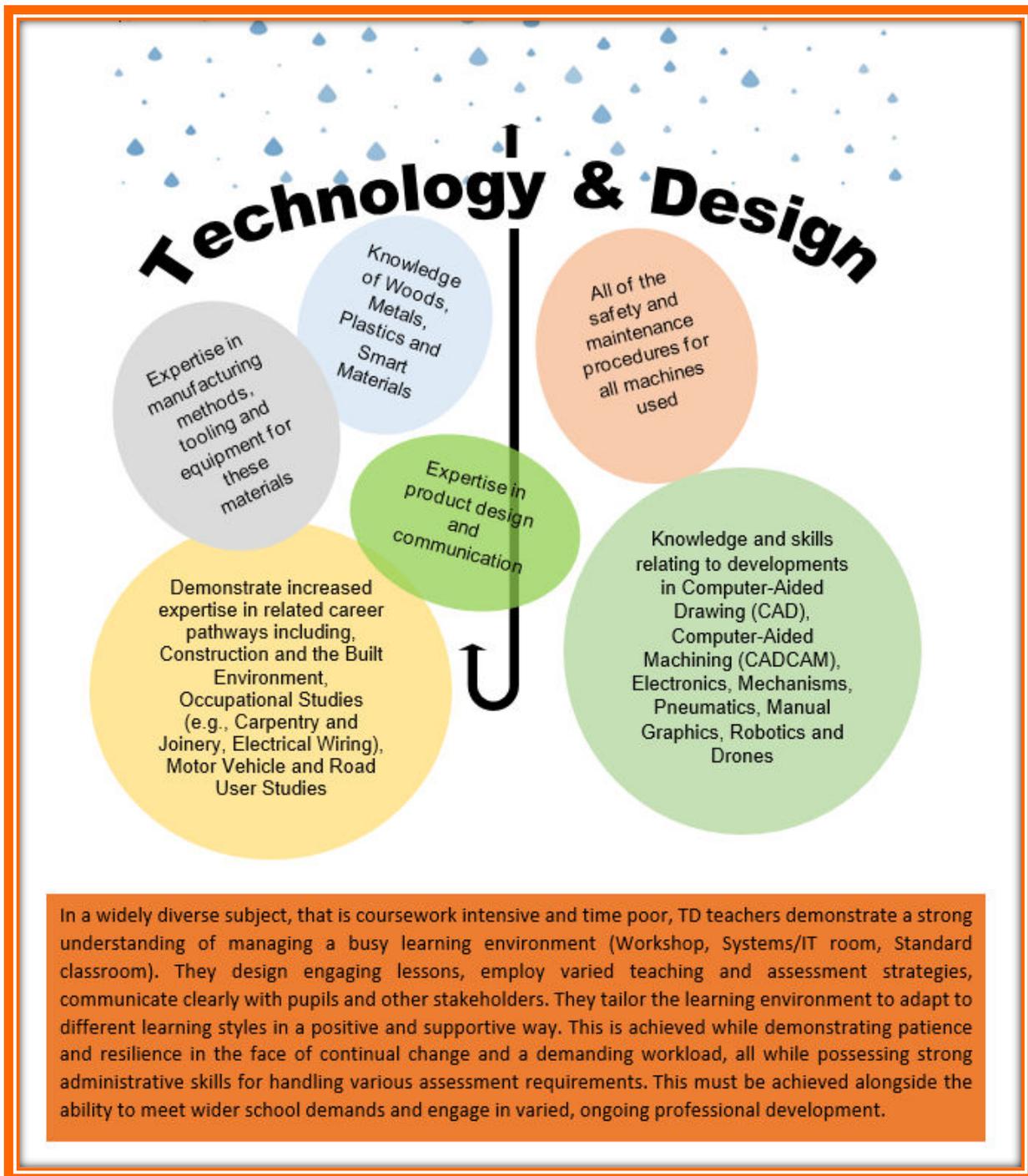
What would you consider to be threats to face the future of this subject?

What would you consider to be opportunities for the future of this subject, and what would be your vision?

Five priorities summarised the responses:

- 1. Development through Project-Based Learning (PBL) of critical thinking, creativity and problem-solving skills that are relevant to industry and careers;*
- 2. Links with industry and meeting the needs of the economy;*
- 3. University recognition of T&D knowledge & skill sets;*
- 4. Teacher education and the supply of newly qualified T&D teachers;*
- 5. A new curriculum that defines the subject knowledge and skills, along with assessment mechanisms that are fit for purpose.*

A major responsibility for consortium members is to assess student teachers on placement in schools. This takes members into almost every T&D department in the country over the years, and a summary of their conclusions was proffered. Demands that are made upon current practitioners of T&D include:



Arguably, T&D is no longer a single subject, but rather an umbrella term for an increasingly vast array of disciplines. Many instances were noted of exemplary standards and inspiring work that consortium members have witnessed in schools across Northern Ireland, but it was also concluded that there is no cohesion, no one definition of the subject:

“Where two teachers are gathered in the name of T&D, there will be at least three definitions of what T&D should be”
(M. levers).

The reference to Project-Based Learning (PBL) merits a note of introduction. Current methods of coursework assessment attracted extensive criticism within the random sample responses, and the alternative of PBL was discussed at length at the conference. Research in Stranmillis (Ievers, Cummins & Ballentine, 2022) established the introduction of PBL as exemplary practice in South Eastern Regional College. PBL activity is not new: the concept was originally introduced by the educationalist John Dewey (Dewey, 1900). Critically, PBL has been shown to support the development of 'transversal skills' (UNESCO 'Bangkok', 2016; UNESCO 'Bangkok', 2014), skills that are specifically prioritised by employers, and would therefore be likely to be recognised by universities.

The consortium members also proffered that of all the subjects in the Northern Ireland curriculum, T&D is uniquely designed to ignite interest among all pupils in the knowledge and skills required across a critical spectrum of need within society, from essential practical skills, through the Trades, through the Engineering disciplines to Advanced Manufacturing. Furthermore, they concluded that of all the subjects in the Northern Ireland curriculum, T&D is uniquely positioned deliver PBL. Perhaps, the two most significant developments from the conference were:



Delegates were urged:

opinion and external institutions.”
(M. Ievers)

accurately described as a cry for help.

In conclusion, the conference offered demonstration of a solution, whereby, in balance with a carefully chosen core of knowledge, a PBL approach provides cohesion, focus and rationalisation of the disparate strands through reflection of the essentially problem-solving nature of Technology and Design.

The findings of this study underscore the pivotal role of Technology and Design in shaping the future workforce and the economy. Despite the subject's clear potential, however, the subject is facing several challenges within Northern Ireland and, indeed, more broadly, including misconceptions about its value, inequitable access to resources, and a lack of clarity in its identity within the curriculum.

Summary of Key Findings

At-a-glance

1. **The Evolving Identity of Technology and Design**

- There appears to be ongoing uncertainty around how Technology and Design is classified within the curriculum.
- The overlap with other subjects may be contributing to a lack of distinct identity.

2. **Perceived Value and Recognition**

- There are indications that Technology and Design may not always be valued as highly as core subjects, such as Maths and Science.
- Some evidence suggests that other educators, school leadership, and universities may not fully recognise its significance.

3. **Challenges Faced by Teachers**

- Financial and resource limitations could be impacting the provision and quality of Technology and Design.
- Support for the subject appears to vary across different schools, potentially leading to inconsistencies in pupil experience.

4. **Gender Representation in Technology and Design**

- The subject seems to remain male-dominated in some quarters, with fewer female students choosing to engage with it.
- There may be underlying societal perceptions and confidence-related factors influencing this trend.

5. **Influences on Pupil Subject Choices**

- Several factors, including school policies, timetabling structures, and external influences (e.g., parents, teachers, career prospects), may play a role in shaping pupils' decisions.
- In some cases, the availability of vocational alternatives might be affecting the uptake of Technology and Design.



STRANMILLIS
UNIVERSITY COLLEGE
A College of Queen's University Belfast



St Mary's
University College
Belfast
A College of Queen's University





STRANMILLIS
UNIVERSITY COLLEGE
A College of Queen's University Belfast



St Mary's
University College
Belfast
A College of Queen's University



About the Authors

Consortium Chair:

Dr Michael Ievers BEM is a Senior Lecturer and Co-ordinator for the B.Ed. Post-Primary degree at Stranmillis University College.

Victoria Orr is an accomplished Technology and Design teacher with a BSc in Technology with Design, a PGCE in Technology & Design Education, and an MEd with Distinction in Education with Leadership, awarded by Ulster University in July 2024.

Sammy Taggart is a Teacher Educator in Technology and Design with Engineering & Manufacturing Education at the School of Education, Ulster University.

Dr Brian Cummins is a Senior Lecturer for the B.Ed. Post-Primary degree at Stranmillis University College.

Joe Hughes is a Senior Lecturer at St. Mary's University College.

David Neill is an Associate Lecturer at St. Mary's University College.



Contents

<i>About the Authors</i>	7
<i>Where Are We and How Did We Get Here?</i>	9
Introduction.....	9
A Snapshot of the Present	9
The Path to Here - Milestones and Movements	10
Policy and Economic Alignment.....	11
Data Sources and Activities Contributing to this Report.....	11
<i>Summary of Key Findings</i>	13
Subject Identity and Purpose.....	13
Perceived Value Among Stakeholders	14
Professional and Pedagogical Challenges	14
Visions for the Future	16
<i>Discussion</i>	17
Reconceptualising Subject Identity.....	17
Rethinking Value and Recognition	17
Curriculum and Assessment Reform.....	18
Teacher Education and Professional Capacity	19
Alignment with Policy and Economic Goals.....	19
Implications for Education Policy.....	20
<i>Conclusion</i>	22
<i>References</i>	23
<i>Appendix 1</i>	25
<i>Appendix 2</i>	30
<i>Theme 1 Round Table Discussion: The Value of Technology and Design</i>	30



Where Are We and How Did We Get Here?

Introduction

The educational landscape of Technology and Design (T&D) in Northern Ireland's schools has evolved significantly, shaped by cycles of reform, scrutiny, and changing societal demands. Emerging from roots in 'Craft, Design and Technology' (CDT), T&D has grown into a subject championed for its contribution to creative, technical, and problem-solving skills. Research consistently affirms the value of T&D in enriching the educational experience of pupils (Gibson, 2007), fostering innovation, and nurturing a generation equipped for a world driven by technological advancement.

The subject's current standing, however, reflects a complex picture. Across the UK, a downward trend in pupil uptake in Design and Technology (D&T) has raised alarms among educators, policymakers, and professional bodies (BSA, 2022; EPI, 2022; DATA, 2023). This report aims to stimulate the investigation into these developments more locally, offering a detailed snapshot of where T&D stands today and how it has arrived at this critical juncture exploring evidence of the subject's **health** (structure, resources and uptake), **wellbeing** (the experiences of teachers and pupils) and **future prospects** (risks, opportunities and policy priorities).

A Snapshot of the Present

To understand the health of T&D in Northern Ireland's schools, it is essential to examine key factors influencing its current state:

- **Policy Evolution:** The 1989 Education Reform (NI) Order introduced a reformed T&D curriculum, backed by £167 million to equip schools and implement the changes (DENI, 2001). The subject became mandatory at KS3, positioned as essential for national "creativity, culture, wealth, and well-being" (DE, 2013).
- **Curriculum and Funding Constraints:** While the policy placed T&D at the heart of the KS3 curriculum, funding pressures and resource gaps have since challenged the subject's sustainability.



- **Pupil Engagement Trends:** The future of Technology and Design, however, is reportedly uncertain due to a notable decline in pupil uptake recorded throughout the United Kingdom (UK) (BSA, 2022; EPI, 2022; DATA, 2023).
- **Societal and Industry Needs:** The demand for skills in STEM-related fields, particularly engineering and design, continues to grow (Lucas & Hanson, 2021). Yet, the decreasing pipeline of students pursuing T&D-related qualifications raises questions about the alignment between educational policy and workforce demands.

The Path to Here - Milestones and Movements

Technology and Design education in Northern Ireland has evolved from earlier traditions of industrial preparations. During the mid-20th century, boys typically studied Woodwork and Metalwork, while girls pursued Domestic Science or Needlework. These gendered divisions reflected social and economic norms rather than pedagogical rationales. The introduction of Craft Design and Technology (CDT) in the 1980s and the subsequent emergence of Technology and Design sought to unify, in time, practical craftsmanship and capability with creative and technological understanding.

Defining, however, what T&D actually encompasses has remained problematic. McCormick (1990) noted that “the nature of technology is not easy to pin down,” while Smithers and Robinson (1992) argued that T&D lacks a distinct identity. Jarvis and Rennie (1995) further observed that the term ‘technology’ evokes diverse interpretations, making the subject difficult to delineate. More recently, Kimbell and Stables (2007) described it as a “restive and itinerant non-discipline,” suggesting that its boundaries are inherently fluid.

This ambiguity resonates with Bernstein’s (1971a, 1971b) concept of weakly classified subjects, which occupy unstable positions in curricular hierarchies. While subjects such as Mathematics or History enjoy strong boundaries and epistemic clarity, T&D straddles multiple domains, including Science, Art, and Vocational Practice, placing it at a disadvantage in systems that may value specialisation. Irving-Bell et al. (2019) noted that universities often brand T&D as ‘soft’, deeming it less desirable in admission hierarchies. Yet, this interdisciplinary nature also offers flexibility to embrace emerging technologies and respond to changing societal needs.



A historical review reveals significant milestones that have shaped T&D's current position:

- **The Transition from CDT to T&D (Late 80s):** This rebranding emphasised a shift from traditional craft-focused activities to more modern design, problem-solving, and technology-oriented curricula.
- **The Rise of STEM Initiatives (90s-00s):** STEM programmes aimed at increasing interest in Science, Technology, Engineering, and Mathematics were introduced to inspire pupils and sustain economic growth (DENI, 2009). Despite these efforts, T&D's specific role within STEM has often been overshadowed by other subjects.
- **Impact of the COVID-19 Pandemic (2020):** The pandemic accelerated the adoption of digital learning tools but also exposed disparities in resource access and support for practical, hands-on subjects like T&D.

Policy and Economic Alignment

Despite its uncertain status more broadly, locally T&D aligns closely with Northern Ireland's 10x Economy strategy, which aspires to make the region one of the world's most innovative small economies. The strategy emphasises creativity, collaboration, and technological capability, competencies that lie at the heart of T&D education. UNESCO (2014, 2016) identifies transversal skills such as critical thinking, problem-solving, and adaptability as essential for modern workforces. T&D, by fostering these through design processes and project-based learning, can play a pivotal role in achieving policy ambitions. Nonetheless, this potential remains under-realised in the absence of coherent curriculum direction and sustained investment.

Data Sources and Activities Contributing to this Report.

The data underpinning this report originate from the Master's dissertation of Victoria Orr, completed as part of her Master of Education degree at Ulster University. Orr, an in-service Technology and Design teacher at Dalriada School, Ballymoney, conducted this research to investigate the perspectives of post-primary Technology and Design (T&D) teachers across Northern Ireland.



The work of the consortium further targeted Heads of T&D Departments drawn from a random sample of ten post-primary schools, representing a balance of selective and non-selective institutions. This approach aimed to capture current professional thinking from those responsible for curriculum leadership and subject provision within their schools. Data were analysed enabling themes to emerge inductively from participant responses (Appendix 1).

This element focused on three guiding questions:

- What would be the priorities and values that you would espouse in delivery of your subject?
- What would you consider to be threats to face the future of this subject?
- What would you consider to be opportunities for the future of this subject, and what would be your vision?

Additionally, a roundtable conference was held in June 2025 to deepen and extend the discussion. The one-day event invited delegates to reflect on key themes and record their thoughts using feedback sheets. The session sought to identify shared priorities and challenges that could inform the next phase of work in T&D education.

Presentations during the conference were designed to stimulate critical dialogue around three focal themes:

- The value of Technology and Design;
- The challenges of current practice; and
- The future direction of Technology and Design.

Feedback collected from participants captured both individual insights and group reflections. These data were subsequently synthesised to highlight emerging themes, serving as a foundation for further research and collaborative curriculum development (Appendix 2).



Summary of Key Findings

Overview

1. The Evolving Identity of Technology and Design

- There appears to be ongoing uncertainty around how Technology and Design is classified within the curriculum.
- The overlap with other subjects may be contributing to a lack of distinct identity.

2. Perceived Value and Recognition

- There are indications that Technology and Design may not always be valued as highly as core subjects, such as Maths and Science.
- Some evidence suggests that other educators, school leadership, and universities may not fully recognise its significance.

3. Challenges Faced by Teachers

- Financial and resource limitations could be impacting the provision and quality of Technology and Design.
- Support for the subject appears to vary across different schools, potentially leading to inconsistencies in pupil experience.

4. Gender Representation in Technology and Design

- The subject seems to remain male-dominated in some quarters, with fewer female students choosing to engage with it.
- There may be underlying societal perceptions and confidence-related factors influencing this trend.

5. Influences on Pupil Subject Choices

- Several factors, including school policies, timetabling structures, and external influences (e.g., parents, teachers, career prospects), may play a role in shaping pupils' decisions.
- In some cases, the availability of vocational alternatives might be affecting the uptake of Technology and Design.

Subject Identity and Purpose

A recurring theme across all data sources was ambiguity surrounding what T&D represents. Many teachers described a lack of shared understanding among educators, pupils, and parents. Some



saw T&D as primarily academic due to written examinations, while others viewed it as a bridge between academic and vocational learning.

Some expressed concern that the range of specialist options, namely, Product Design, Electronics, Systems, and Control, had diluted coherence: “The level of variation within our subject makes it more difficult to distinguish a clear identity.” Many reported that T&D content overlaps substantially with other subjects. While this interdisciplinarity was sometimes celebrated, others felt it contributed to marginalisation.

In selective schools, perceptions leaned towards T&D as rigorous and academic, whereas non-selective teachers described it as balanced between theory and practice. Yet across contexts, teachers resisted the notion that T&D was a ‘soft’ option. Many characterised it as intellectually demanding, albeit constrained by outdated assessment frameworks.

Perceived Value Among Stakeholders

Teachers widely acknowledged that pupils and parents often fail to appreciate T&D’s broader relevance. Only around one-fifth of teachers engaging with Orr’s (2024) Master’s study believed parents recognised its value, compared with 39% who felt they did not. One participant remarked: “Parents in particular do not recognise the value of Technology and Design for future careers; they just see it as a practical subject”. Similarly, several teachers reported that pupils viewed Construction or Engineering as more directly linked to employability.

Perceptions of university recognition were mixed. While 43% of teachers believed universities valued T&D, 19% disagreed, citing the absence of subject prerequisites for Engineering or Design degrees. Some participants argued that this lack of institutional recognition undermines T&D’s academic credibility and discourages high-achieving pupils from pursuing it.

Professional and Pedagogical Challenges

Resource and Staffing Constraints

Funding limitations emerged as a critical concern. Non-selective schools, in particular, reported difficulties maintaining equipment and accessing new technologies: “It is difficult to keep up with



advancements in technology when budget constraints prevent the purchase of new equipment, such as 3D printers”. Around 44% of teachers from these schools disagreed that their departments were adequately resourced. Staffing shortages were similarly prominent, with 36% describing their departments as under-resourced in personnel and some identifying as “one-person departments,” limiting opportunities for collaboration or curriculum development.

Curriculum and Assessment Pressures

Teachers consistently described the GCSE curriculum as demanding and, in some cases, unmanageable for pupils. Around half of non-selective school teachers and over a third of selective school teachers agreed that the course was too challenging. One participant stated directly: “The coursework is far too intense for our pupils.” Some teachers linked these pressures to declining uptake, as pupils sought less demanding alternatives.

Many also criticised controlled assessment arrangements, arguing that they constrain creativity and overload both teachers and learners. 36% of teachers from Selective schools agreed or strongly agreed that GCSE Technology and Design is too challenging for their pupils. 51% of teachers from Non-Selective schools agreed or strongly agreed that the course is too challenging for their pupils. The sentiment that “T&D consistently attracts fewer top grades than other subjects” reflected frustration with the subject’s assessment structure and perceived inequity in grading.

Gender Imbalance

Gender disparity remains a persistent feature of T&D. Fifty-six percent of teachers agreed that the subject is male-dominated, and 64% reported significant gender imbalance in their KS4 cohorts. Approximately 72% of GCSE classes were composed of 70% or more boys. Teachers attributed this to enduring stereotypes: “Girls lack confidence and they often don’t realise how good they can be at the subject”.



Competing Pathways and Subject Overlap

Alternative qualifications such as Construction (44%), Occupational Studies (40%), and Engineering (28%) were commonly offered in the responding T&D Teacher's schools in Orr's (2024) study. Eighty-five percent of non-selective schools offered such pathways, compared to 53% of selective schools. While teachers recognised these courses as valuable, they also noted that they diverted pupils away from T&D: "Our uptake for GCSE Technology has definitely changed because our pupils can't cope with the course and are more suited to construction".

Visions for the Future

Despite these challenges, teachers articulated clear priorities for reform. Participants emphasised the need for stronger industry links, greater creativity, and more manageable assessment models. Common aspirations included "project-based learning," "collaboration with local industry," and "developing creative and analytical thinking." When asked about threats to the subject, responses highlighted teacher shortages, curriculum stagnation, and limited recognition from universities.

Several participants used metaphors to describe the subject's condition: "It is an old tree now, which has spread out in many directions—it needs pruning." This metaphor captures a widespread desire for renewal through simplification and focus.

Five key priorities emerged:

- (1) cultivating creativity and problem-solving;
- (2) forging industry partnerships;
- (3) securing university recognition;
- (4) addressing teacher supply; and
- (5) designing a curriculum fit for contemporary needs.



Discussion

Reconceptualising Subject Identity

The findings reinforce longstanding debates about T&D's identity. Teachers' uncertainty reflects the broader theoretical ambiguity identified by McCormick (1990) and Kimbell and Stables (2007). It may be argued that this lack of clarity stems less from teacher misunderstanding and more from the subject's evolving epistemology. As technologies change, so too must the conceptual boundaries of T&D. Policymakers might therefore consider articulating a clearer regional definition as we look to current timelines for curriculum reform in NI, one that defines without constraining innovation and that acknowledges both the creative and technical dimensions without privileging one over the other.

Applying Bernstein's (1971a, 1971b) framework, T&D's weak classification contributes to its marginal status in a curriculum hierarchy that privileges traditional academic subjects. However, this same flexibility could be reframed as a strength. As Irving-Bell et al. (2019) note, weakly classified subjects can adapt to innovation more readily than tightly bounded disciplines. Thus, rather than striving for rigid categorization in the revising of NI's curriculum provision, the field might embrace its interdisciplinary nature while ensuring conceptual coherence through shared pedagogical principles such as design thinking and technological literacy.

Rethinking Value and Recognition

Perceptions of undervaluation among pupils, parents, and universities raise questions about the alignment between educational and economic priorities. Although teachers perceive T&D as central to skills development, some external stakeholders appear less convinced. This disconnect could suggest a communication gap rather than a substantive deficiency in the subject itself. Increasing public awareness of the competencies nurtured through T&D, such as creativity, collaboration, and problem-solving, may therefore enhance its perceived legitimacy.

Embedding T&D more visibly within STEM and STEAM frameworks might also elevate its profile. While some teachers view this association cautiously, it could help situate T&D as an applied bridge between scientific theory and creative practice. However, such integration should be



underpinned by explicit recognition of T&D's distinctive contribution, avoiding the risk of subsumption under broader agendas.

Curriculum and Assessment Reform

Recent curriculum reform discourse across NI has emphasised a shift from skills-based to knowledge-rich frameworks. This movement, while intended to strengthen subject rigour and ensure the systematic acquisition of core disciplinary concepts, presents both opportunities and risks for T&D.

For T&D, the opportunity lies in the potential to articulate a clearer epistemological foundation. One that foregrounds technological principles, design theory, and systems thinking. By aligning with knowledge-rich approaches, T&D may achieve greater academic recognition, ensuring that conceptual understanding of design processes, materials science, and engineering logic is valued *alongside* practical competence. Such positioning could reinforce the subject's contribution to technological literacy and bridge the gap between theory and practice in education policy discourses.

This policy direction, however, also carries significant challenge. A narrow interpretation of "knowledge-rich" risks privileging propositional knowledge at the expense of procedural, experiential, and creative learning. These are the hallmarks of T&D pedagogy. When knowledge is conceptualised as static content to be memorised rather than constructed through design and making, there is a danger that pupils' creative agency and problem-solving capacities become constrained or even lost. T&D's distinctive educational value resides precisely in its capacity to integrate cognitive understanding with hands-on exploration, iteration, and reflection. This value must be cherished in any curriculum.

Balancing these paradigms requires careful curriculum design that recognises knowledge and skill as interdependent rather than oppositional. Conceptual understanding should inform practical activity, and practical activity should, in turn, deepen conceptual understanding. A reformed T&D curriculum could be well placed to model an integrative pedagogy, one that resists reductive binaries and positions design as both a form of knowledge creation and a mode of action.



As NI looks towards reimagining its curriculum and T&D's role within it, there may be value in **describing** the processes that make up iterative design, make and evaluate cycles, and the capabilities they develop, in preference over a narrow focus on **prescribing** a static body of content.

Ultimately, the transition towards a knowledge-rich curriculum represents an inflection point for T&D. It is a chance to consolidate its disciplinary legitimacy, but also a risk if reform fails to preserve the creative and practical essence that defines the subject. Thoughtful dialogue between policymakers, teacher educators, and practitioners will therefore be critical to ensuring that any new framework sustains the balance between knowing, understanding, making, and doing that underpins meaningful technology and design education.

Teacher Education and Professional Capacity

The shortage of qualified T&D teachers presents a pressing challenge. As noted by the BSA (2022) in the broader UK context and reflected in participants' experiences locally, recruitment to initial teacher education in T&D has declined dramatically. Addressing this requires multifaceted policy responses, including the newly announced targeted bursaries and enhanced visibility of teaching careers. Subject specific teacher professional learning should focus on digital manufacturing, sustainability, and pedagogical innovation, ensuring teachers remain confident with emerging technologies and developing pedagogical practices to sustain pupil interest and learning in the subject.

Teachers' accounts of isolated practice and excessive workload suggest that support networks could play a crucial role. The establishment of NI's professional learning community for T&D teachers is a welcomed step in this regard. The reestablishment of regional subject hubs might foster collaboration and help reduce burnout, helping to sustain teacher motivation.

Alignment with Policy and Economic Goals

T&D's potential contribution to Northern Ireland's 10x Economy strategy offers a compelling rationale for renewed investment. The skills developed through design-based learning, including creativity, critical thinking, and adaptability, align closely with the region's aspirations for



innovation-led growth. This alignment, however, requires explicit policy articulation. Without clear integration into strategic education planning, T&D risks remaining peripheral despite its relevance.

Policymakers and those involved in curriculum reimagining might therefore consider embedding T&D within wider STEM policy initiatives, linking schools with local industry, as suggested for Digital Technologies, and incentivising project-based collaborations that mirror real-world contexts. Such measures could not only enhance curricular relevance but also strengthen pathways from education to employment.

Implications for Education Policy

The findings highlight several areas for policy consideration.

The value of T&D in supporting the 10x Economy strategy

The critical value of Technology and Design in Northern Ireland's curriculum cannot be overstated, particularly in light of the region's ambitious 10x Economy strategy. This strategy, which aims to make NI one of the world's most innovative and competitive small, advanced economies, relies heavily on fostering a workforce equipped with high-level skills in technology, design, engineering, and manufacturing. T&D is uniquely positioned to meet these demands by cultivating a generation of creative problem-solvers, thinkers and doers who can adapt to the ever-changing demands of the modern economy. By emphasising interdisciplinary learning and innovation through PBL, T&D directly contributes to the development of transversal skills such as critical thinking, collaboration, and adaptability, which are increasingly sought after by employers across all sectors.

The potential of T&D to help address employability challenges

Moreover, T&D plays a pivotal role in addressing employability challenges in NI. The subject provides a pathway for young people to access careers in key growth areas such as advanced manufacturing, engineering, and the wider STEM (Science, Technology, Engineering, and Mathematics) fields. By equipping students with hands-on, practical experience and connecting them with industry through robust partnerships, T&D bridges the gap between education and the world of work. This alignment is essential not only to meet current labour market needs but also



to future-proof the NI workforce against technological innovations and disruptions. Importantly, the subject also offers opportunities for inclusivity by actively promoting and encouraging the participation of underrepresented groups, such as women and those from disadvantaged backgrounds, in high-value sectors traditionally dominated by men.

The role for T&D in supporting NI's manufacturing base

The value of T&D also lies in its ability to support NI's manufacturing base, which remains a cornerstone of the regional economy. The subject fosters innovation and technical expertise by engaging students in design thinking, prototyping, and the iterative development of products—skills that are integral to advanced manufacturing processes. Through the incorporation of leading-edge technologies such as 3D printing, robotics, and automation into the curriculum, T&D ensures that students are familiar with industry-standard tools and techniques. This alignment with the manufacturing sector is further reinforced by T&D's focus on problem-solving and optimisation, both of which are critical for maintaining competitiveness and driving efficiency in production systems. By nurturing a pipeline of skilled workers and innovators, T&D plays a key role in sustaining and growing NI's manufacturing capabilities.

The capacity of T&D to promote vocational and technical education

Finally, T&D addresses one of the most significant barriers to educational equity: the perception and value placed on vocational and technical education. By providing students with opportunities to explore and develop their technical aptitude through user-centred design processes, T&D challenges outdated biases and elevates the status of practical and applied learning within the broader educational landscape. Its ability to integrate academic knowledge with hands-on skills makes it a vital component of a balanced and inclusive curriculum. This focus on knowledge, understanding and practice not only enhances student employability, but also empowers them to make meaningful contributions to their communities and the economy. As such, T&D is not merely a subject within the curriculum, but a transformative force that embodies the principles of innovation, inclusivity, and economic alignment that are central to NI's vision for the future.



Conclusion

Technology and Design education in Northern Ireland stands at an important juncture. The findings of this study illustrate both the dedication of its teachers and the systemic barriers they face. Ambiguity around subject identity, declining resources, and uneven provision have contributed to a fragile position. Yet, T&D remains uniquely equipped to address the needs of a modern, innovation-driven economy.

At this critical juncture of the ongoing curricular review, the consortium recognises a unique opportunity to reflect on and amplify T&D's contribution to the Northern Ireland Curriculum. This inflection point provides an ideal moment to align T&D more closely with the region's strategic ambitions and evolving educational priorities.

Tentatively, it may be suggested that subject frameworks adopt a competency-based approach centred on design thinking and technological literacy. Assessment systems might also evolve towards flexible, project-based formats that further emphasise meaningful creativity and problem-solving.

By fostering creativity, collaboration, and technological competence, T&D can help learners become adaptable and inventive contributors to society. Realising this potential will depend on coherent policy, reimagined curriculum and qualifications, and sustained investment in initial teacher education and career long professional learning. While the path forward remains uncertain, the evidence presented here suggests that with strategic reform and sustained support, T&D can continue to play a vital role in preparing Northern Ireland's young people for our collective futures.



References

- Angier, N. (2010). Everyone who knows what STEM means knows what it means. *The New York Times*.
- Bell, D. (2015) *Design and technology; educational fallacy or principal exponent of school-based STEM activity?* Available at: https://research.edgehill.ac.uk/ws/portalfiles/portal/20102101/5.7.15_-_Final_Poster_-_D%26T_educational_fallacy_poster.pdf
- Bell, D., Wooff, D., McLain, M., & Morrison-Love, D. (2017) 'Analysing design and technology as an educational construct: an investigation into its curriculum position and pedagogical identity', *The Curriculum Journal*, 28 (4), pp. 539-558.
- Bernstein, B. (1971a) *Class, codes, and control, vol. 1*. London: Routledge & Kegan Paul.
- Bernstein, B. (1971b) 'On the classification and framing of educational knowledge', in Young, M. (eds.) *Knowledge and Control: New directions for the sociology of education*. London: Collier MacMillan, pp. 47-69.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- British Science Association (BSA). (2022) *Education: As school underfunding bites, what is the future of design & technology?* Available at: <https://www.britishsociety.org/blog/as-school-underfunding-bites-what-is-the-future-of-design-technology>
- Design and Technology Association. (2023). *Teacher recruitment and subject recovery report*. London: Author.
- Dewey, J., 1900. *The School and Society*. Chicago: University of Chicago Press.
- Education Policy Institute (EPI). (2022) *A Spotlight on Design and Technology Study in England: Trends in Subject Take Up and the Teacher Workforce*. England: EPI Publication.
- Levers, M., Cummins, B. and Ballentine, M. (2024) 'The impact of Project-Based Learning on the development of Transversal Skills: A case study approach', *PRHE Journal Online First*, pp. 1-21.
- Levers, M., Cummins, B. & Ballentine, M. (2022) *The Impact of COVID-19 Restrictions upon Transversal Skills Development amongst Higher Education Students*, *TEAN journal*, 14(1), pp. 95-110.
- Levers, M., Cummins, B. & Ballentine, M. (2022) *Evaluation Report of Project-Based Learning at South Eastern Regional College, Northern Ireland* <https://www.serc.ac.uk/news/article/Stranmillis-Researchers-Reveal-Positive-Findings-from-SERCs-PBL-Surveys>
- Irving-Bell, D., Woof, D. & McLain, M. (2019) *Re-designing Design and Technology Education: A living literature review of stakeholder perspectives*. Available at: <https://core.ac.uk/download/pdf/210991386.pdf>
- Jarvis, T., & Rennie, L. (1995). Perceptions about technology held by primary teachers in England. *Research in Science & Technological Education*, 13(1), 43–53.
- Kimbell, R. & Stables, K. (2008) *Researching design learning: issues findings from two decades of research and development*. New York: Springer Publication.



- McCormick, R. (1990) 'Technology and the national curriculum: the creation of a 'subject' by committee?', *Curriculum Journal*, 1 (1), pp. 39-51.
- Orr, V. (2024). *Perceptions of Post-Primary Teachers on KS3 and KS4 Technology and Design in the Northern Ireland Curriculum* (Master's dissertation, Ulster University).
- S Smithers, A. & Robinson, P. (1992) *Technology in the national curriculum: Getting it right*. London: The Engineering Council.
- UNESCO. (2014). *Transversal competencies in education policy and practice (Phase I regional synthesis)*. Bangkok: UNESCO.
- UNESCO. (2016). *Preparing and supporting teachers in the Asia-Pacific to meet the challenges of twenty-first century learning (Phase II regional synthesis)*. Bangkok: UNESCO.



Appendix 1

Theme Analysis Responses to Question Five

Summary

The feedback collected in response to Question Five highlights various visions for the subject of Technology and Design. The responses have a significant emphasis on developing pupils and providing learning opportunities. The key themes identified include the integration of modern technology, fostering innovation and creativity, industry-relevant skills, showcasing student work, and the importance of Technology and Design in the curriculum.

Analysis

Theme 1: Integration of Modern Technology

- **Feedback A:** Emphasises the opportunity for pupils to use modern technology and manufacturing processes.
- **Feedback B:** Highlights the integration of CAD and CAM into various key stages, providing hands-on experience and industry-relevant skills.
- **Feedback F:** Identifies value of state-of-the-art, clean manufacturing and technologically advanced learning spaces.

Theme 2: Fostering Innovation and Creativity

- **Feedback B:** Encourages fostering innovation and creativity through projects that require innovative thinking and creative problem-solving.
- **Feedback C:** Suggests that Technology and Design should be at the forefront of curriculum development to boost the economy and embrace mixed reality classrooms and AI.

Theme 3: Industry-Relevant Skills

- **Feedback A:** Stresses the importance of developing skills in school that match those required in university and the workplace, including the use of industry-standard software and hardware.
- **Feedback B:** Ensures that students gain skills relevant to current industry standards and practices.

Theme 4: Showcasing Student Work

- **Feedback B:** Recommends organising exhibitions and competitions to showcase student projects and celebrate their achievements.
- **Feedback B:** Encourages students to create digital portfolios of their work for university applications and job interviews.

Theme 5: Importance of Technology and Design in Curriculum

- **Feedback E:** Views Technology and Design as a core skillset for all pupils, comparable to Mathematics or Language.
- **Feedback F:** Aims to equip students with the skills, creativity, and confidence needed to thrive in the modern world of technology and innovation.
- **Feedback A:** Fit for purpose exam process

Additional Perspectives

- Need for support from DENI and EA
- Well trained teachers
- Hands On experience
- Value of legacy specifications
- Access to a variety of materials and tools, including software, hardware, and prototyping equipment
- Recognition of continually changing world of technology and innovation.



Response to Question Five: What would be your vision for this subject?

A

Opportunity for pupils to use modern technology and manufacturing processes.

Skills developed in school to match those required in university and workplace. Including use of industry standard software and hardware.

Fit for purpose assessment at GCSE and A level linked to updated skills/theory requirements.

Support from DENI and EA to coordinate and help departments to develop Technology and Design.

B

Try to foster Innovation and Creativity:

Encourage students to work on projects that require innovative thinking and creative problem-solving.

Develop students' critical thinking and analytical skills through problem-solving activities and challenges.

Provide the opportunity for to students present their work to the class, sharing their ideas and learning from each other.

Integrate CAD and CAM into Key stage 3, 4 &5:

Hands-On Experience: Provide students with hands-on experience using CAD software to design and visualise their projects.

CAM Applications: Teach students how to use CAM tools to bring their digital designs to life through manufacturing processes such as 3D printing, CNC machining, and laser cutting.

Industry-Relevant Skills: Ensure that students gain skills that are relevant to current industry standards and practices, preparing them for future careers.

Encouraging Exploration and Experimentation:

Open-Ended Projects: Allow students to explore their interests through open-ended projects that encourage experimentation and modelling.

Access to Resources: Provide access to a variety of materials and tools, including software, hardware, and prototyping equipment.

Mentorship and Guidance: Offer mentorship from industry professionals and educators to guide students through their creative processes.



Showcasing Student Work:

Exhibitions and Competitions: Organise exhibitions within school and compete in competitions to showcase student projects and celebrate their achievements.

Digital Portfolios: Encourage students to create digital portfolios of their work, which can be used for university applications and job interviews.

We need to raise our profile to the public– CCEA need to showcase the work that is going on in schools.

Technology and Design is crucial for developing critical thinking, problem-solving skills, and fostering innovation, we need to focus on developing these skills to prepare our pupils for jobs now and in the future. Technology and Design not only prepares students for high-demand careers but also equips them with the skills necessary to tackle complex global challenges. By choosing Technology and Design as a subject, pupils will be better prepared to contribute to advancements in technology and innovation, driving progress in various fields.

C

My vision is that our subject is at the fore of curriculum development to help boost our economy through linking with already successful companies. T&D needs to be the leader ahead of Engineering & Construction, teachers are developed as subject specialists in these three distinct subject areas. T&D should also embrace the use and development of mixed reality classrooms, using AI effectively in design and development of products, educational technology and help prepare our pupils for the needs of a 21st century economy of a thriving developed country.

D

To refocus on the older CDT spec to help develop pupils that can set them up for apprenticeships in vocational skills.

E

A subject that is as key to child learning as Mathematics or Language. A core skillset that is seen as crucial and required by all pupils. A well-defined yet flexible specification (flexible not broad) that meets the needs of industry and our society.

F



To equip our students with the skills, creativity, and confidence needed to thrive in the continually changing world of technology and innovation.

Provide students of all ages with access to a modern, forward-thinking curriculum and well-trained teachers.

To collaborate in state-of-the-art, clean manufacturing and technologically advanced spaces.

For students at St. Mary's College to leave us with the knowledge and skills needed to access careers in STEM fields and confidently navigate the technology-driven modern world.



Appendix 2

Conference Delegate Feedback from Round Table Discussions

The roundtable took place over a one-hour session, where delegates were invited to discuss key themes and share their responses using feedback sheets to capture each group's reflections. Our aim was to identify the main takeaways from the discussion and use them as a foundation for future work.

Delegates were offered presentations to stimulate dialogue by representatives from: Queen's University, Belfast; The Education Authority for Northern Ireland (EA); and, the Northern Ireland Council for Curriculum, Examinations and Assessment (CCEA); along with a practicing Technology and Design teacher and a final year undergraduate Technology and Design student teacher

Themes of the roundtable discussion were:

- Value of Technology and Design
- Challenges of Current Practice
- Future of Direction of Technology and Design.

Additional thoughts and insight were also recorded.

Theme 1 Round Table Discussion: The Value of Technology and Design

Group 1:

Creative subject; Problem solving; Reward in what you have created in the subject (bringing home practical projects); Deemed to be a hands-on subject

Group 2:

Depends on the type of school you are in - secondary schools, grammar schools, local need and industry links and how those influence 'the value' of the subject; Management of schools making decisions for pupils, pushing pupils into subjects who are 'weak' or using the subject for AS UCAS points, equally telling pupils the subject is too 'easy.'; Is the value in industry links or in the education system?; Subject has great value but due to how broad the subject is, it is difficult to pin down the value; Development of skills within pupils; Practical skills in range of different material/ processes; Thinking skills of problem solving, being creative, innovative; Unique culture of a Technology and Design department; Relationships of working with others (staff and pupils); SLKT/SMT not valuing the work being done/ effort being put in by pupils and teachers; Parents maybe not valuing Technology and Design in the same way they may have in the past



Group 3:

A-Level students not studying T&D due to lack of recognition by universities; Value by some schools and parents is lacking; Disconnect between industry and what schools are teaching; Funding limits what can be done in the subject/workshop/ buying new technologies (3D printers); What's the difference between PBL and coursework? How is it assessed? Schools wanting lots of tracking data - how does PBL fit with this? Value differs for every stakeholder group (pupils, parents, teachers, universities, industry); Rebrand: name doesn't show value/status; Very content heavy at GCSE/A-Level; Handbook has not been updated in decades; Too many branches, people don't know what skills/knowledge pupils have at the end; Outdated technologies still taught

Group 4:

Value of Technology & Design; Value of the subject seen by how many of our students are choosing university or connected subject.; Offers diversity- gives pupils applicable skills to the real world; Lack of understanding from SMT of the subject and the complexities

Group 5:

Gives you a variety of pathways for careers; Opportunity for creativity/within us; It would be worth having principles/ pillars/values which help direct the teachers.; Important to get the balance between flexibility and guidelines/creativity; Problem solving skills; Allows students to follow instructions; Students get the chance to make something to do something practical; Opportunity to use machinery and new tech – (if the teacher will do this)

Group 6:

AI can't replace dexterity / can't replace emotional intelligence; Pupils used to look forward to coming to the department for a break from the norm. There is fun element which seems to have dissipated.; Technology/Engineering – similar or dissimilar; Construction has meant a reduction in class sizes for Technology and Design – means that numbers for A-Level T&D have greatly reduced; Has the subject been diluted? – Maybe the umbrella situation of so many strands leaves the subject without a clear trajectory for the future; Traditional skills may be lost; How do we marry AI with Design – Do we need more industrial help to see the benefit the AI can lend to basic concoction of ideas

Group 7:

Links with industry; Problem solving development and other personal skills; Links to cross-over into other subject/even normal life; Can link to FE courses; Provides elementary level experiences in many specialities; CAD / CAM

Group 8:



Hands on and academic value; Purpose - Subject skills equip for key areas - Related to real world skills; Application of real-world examples

Group 9:

Creative thinking; Collaboration; Hands-on learning; Problem solving; Transferable skills learned; Value of subject not consistent throughout schools; Sustainability – recycling of materials

Group 10:

Transferable skills; Teamwork; Skills based; Thinking skills; Creativity skills; Valued outside school by employers – not necessarily by school leaders/parents/pupils.



Theme 2 Round Table Discussion: Challenges of Current Practice

Group 1:

Where does it sit within subject areas? Teachers wide range of subjects to teach; Some teachers/Heads have a preference for certain areas & the course may be skewed towards that; Older members of staff may not want change and promote adoption of new technologies; There is currently no mandatory upskilling; Some teachers can't do certain things e.g. CAD; Pathways aren't connected; Careers advice is disconnected.; There are so many pathways to careers so it is hard to find all resources to answer these; Technicians; Schools are geared towards UCAS – lack of info for alternative routes.; Class sizes.; Timetable issues → need bigger chunks of time; Access to computers; Funding for equipment e.g. 3D printers.

Group 2:

Teachers need to try to be specialists in so many areas.; Timetabling → Resources; Staff shortages; Technician shortages; Computer shortages; Lab shortages; Costs

Group 3:

Funding – some schools have much more funding than others; Timetabling – KS3 T&D on carousel in some schools; Product Design appears more difficult to access higher marks compared to Systems; Lack of support from examining body (e.g. CEA agreement trial in December – very late considering controlled assessment well underway); Subject becoming more elitist – better-resourced schools able to access higher mark bands easier; Time – too much required to deliver theoretical content along with controlled assessment; Moderation process – feedback can't be given on the day; Professional opinion called into question – what is the point in marking if it can be unilaterally changed by a moderator? Would be better if the work was simply marked externally.

Group 4:

Scope of subject – too much expectation in specification; Enormous demands from teacher & pupils to complete coursework & practical; Time required to complete coursework & practical & cover theory for exam; Course content (theory & practical) impossible to complete in time set; After-school attendance required; Far easier subject alternatives exist with significantly less workload; Funding for the subject increasing costs of material machines and maintenance; Availability of experienced staffing; Equity across schools (facilities/equipment); Marking & moderation ; Subject view from non-specialist within school; Staff upskilling; University value; H&S on top of course content - often on at a busy time of year; Professional guilt about taking time away from the classroom; Exam board standards; Lack of A grades; Class sizes & Health & Safety concerns; Assessment of coursework at GCSE & A-Level; Expectation of CCEA particularly at A-Level.*

Group 5:



Name of the subject; Teacher uptake; Funding; Access to resources & training; Status/profile with pupils / SLT in schools/ parents; Broad subject content; Disconnect between what's taught at different schools; GCSE – no manufacturing in Year 11 Term 1; No natural development KS3 → GCSE → A-Level; Why are pupils studying engineering at university but not GCSE/A-Level T&D? Doing more strands but no more pupil numbers just leading to dilution; Teacher upskilling – variety of graduates; Recruitment of teachers & technical staff (not all full-time/qualified); Teacher 'Burnout'; Volume of practical work; Not enough contact time; Each pupil doing a different project; Too many courses being delivered by one department; Learning hours not realistic to deliver coursework; Lack of relevant teacher CPD to drive innovation (only H&S provided); Time for marking/moderation coursework; Little support from EA for all teachers and beginning teachers; Teacher expectations to complete coursework in own time !! TOO MUCH! Recognition of need to involve industry – NO HELP; Class sizes – e.g. 26 in KS3; Primary school curriculum WAU – weak/no prior knowledge form KS1/KS2; Review of CCEA/GCSE specifications! TOO LITTLE, not happening quick enough NO REALISTIC PUPIL TIME LISTED FOR COURSEWORK; MONEY/RESOURCES – NOT ENOUGH- Needs to be standardised across schools; Why do Secondary Schools have to buy off EA schedule?

Group 6:

Loss of resources, equipment, and budget; Not consistent across schools; Technicians are inconsistent; Lack of clarity on content, varying teacher specialisms; Course content e.g. GCE Product Design marketing heavy; Disconnect from subject; Relevant-to-industry specification knowledge; Lack of guidance/support from exam bodies; Timetabling for teachers – no prep time; Class sizes far too big – e.g. 46 GCE pupils currently possible on one timetable; A grades too hard to achieve in allocated time specified by CCEA; Universities lack recognition of the subject's value; Course content spread too thin – lack of support from all areas; KS3 classes above 20 people, meaning workshop rotation must happen.*

Group 7:

Lack of upskilling of teachers; Lack of support from school leaders; Lack of skilled technicians; Funding/material costs increasing; Departmental budgets decreasing; Health & Safety – lots of regulations we (teachers) are not experts; How can we teach and maintain equipment?; Too much content at GCSE (CCEA spec); No time to make mistakes- no trial and error; Too many modern manufacturing processes that as teachers we cannot keep up with or budget for new machines; Time allocation for KS3 classes 50 mins – 1 hour per week; Moderation (CCEA) – hard to achieve top marks compared to other subjects; Attracting teachers people can earn higher salaries in industry; What does PBL look like and how is it assessed? Classroom management / assessment deadlines; Sustainability of GCSE/A-Level projects

Group 8:



Lack of technician support; Lack of advisory roles (support); Workload regarding CA (Controlled Assessment); Prices of materials; Budget; Money will always be a challenge to the subject, even the difference between budgets and various schools; Opportunity for the highest grades- At present opportunity to gain top grades is easier in other subjects compared to Technology and Design; Possibly the expanded nature of the subject, so much diversity and coursework leads the dilution of the grades; Subject is too broad/there is no time to fail, everything needs to be perfection to get top marks; Students need to feel independent about the outcomes in the subject and needs more pupil led through ideas and design rather than teacher led; Practical aspect of subject so important; Product Design doesn't seem to have the same weighting as the Systems approach.

Group 9:

Too broad a subject – “subjects within subjects”; Lack of current & newly qualified teachers; Lack of space - computer labs, workshops; Large workload for both students and pupils; Lack of awareness of subject by parents; Expectation of links with employers; Lack of identity internally; Lack of external identity outside; Expectation to be master of all subjects; Pupils' experiences vary from school to school; Career or future options – Lack Recognition; Technology lacking contact time; Too much content; Difficult GCSE compared to others; T&D viewed as weighted lower; Funding ; It needs to work for the kids; Lack of shared knowledge or best practice; No change in SPECS.

Group 10:

Expectations; Recruitment; Coursework; Specification; Changing Key Stage 3 project to be relevant to pupils and curriculum; Funding - access to resources; Allocation of time; Balance between basic skills (practical) and advanced skills (industry 4.0)



Theme 3 Round Table Discussion: Future of subject; direction of reform

Group 1:

Reduced array of areas to cover; More specific topics; Addressing access to tech requirements (computer suites and new technology); Needs to be more funding for technicians; Level of upskilling is so high – there needs to be more budget for upskilling; More finance for materials; Reduced class sizes; Software; KS3 is not branched out; Project-based learning.

Group 2:

Technology subject needs streamlined; Does it need to split into Product Design and Technology/Engineering/Electronics? More collaboration with industry – group visits (should be inspiring); CCEA needs to take into consideration that it is often 1 teacher working with a GCSE class size of 15–20 making individual projects to an increasingly unachievable level; Teachers are burning out; Sustainability of materials – such a waste of plastic every year.

Group 3:

Comparable to other subjects, such as for coursework output; Clarity on the subject; Streamline on the subject.; Curriculum knowledge required for T&D; Investment and technology and design teachers; Balance between practical skills and Advanced skills; Staff/teacher training on PBL; If PBL, how is this assessed?

Group 4:

Streamlining of the subject; There is excitement towards the use of AI within the subject over the next number of years; The question is, How do we marry AI with all the other elements of the subject? There needs to be much more involvement from industry within the schools so that both teachers and pupils can see the outcomes that can be achieved; Needs to be a tie-in with “Big Industry” in Mid Ulster, so schools can visualise what exactly is going on in Industry; Linked-In approach to Past Pupils and what they have achieved and what professions they now are participating in; Celebrations of past pupil achievement.

Group 5:

AI; Concerning teacher Recruitment; Skills required in industry (needs); Divide subject into sections: materials, engineering, manufacturing processes at specification level; Needs to reduce teacher workload; Coursework needs to become less difficult, less teacher-led; We need to be informing students of sustainability/environment; Fix instead of throwaway society; Room for failure; Shared resources; KS3 textbook; KS4 textbook; We cannot wait until 2029 for new specification; Move away from themes at GCSE

Group 6:



New technologies + clean manufacturing; Funding; Focus put on Product Design and redevelopment and design, rather than finishing; More content and consistency with CAD across schools; Use of AI; More marks given to development section of coursework; A2 coursework: development (40), manufacturing (20); PBL used to assess transferable skills – accessible assessment; Consistent KS3 curriculum across all schools.

Group 7:

Standardisation of HEI courses; More relevant training to keep up-to-date with technologies/developments; Work with companies (such as, MEGA) to develop industrial links; Industry must have input and shape subject; CCEA needs to reduce number of courses and content; Professional network of subject specialists is a good move.

Group 8:

Uniqueness – Manufacturing, CAD/CAM; Proposal: Who chooses the material/system to teach? Funding for any changes; Handbook specifies too many workshop equipment requirements; Less content to teach; Better identity through a subject rebrand.

Group 9:

Timed practical exams – exam conditions; Theory content significantly reduced (Unit 1?); Coursework – timed and significantly reduced; Separate subjects into clearly defined courses; Systems approach; Product design approach; Helpful for FE/HE course selection; Clear definition of appropriate use of AI; Additional and specific funding for T&D materials/machines; Coursework folder page limit to be maintained or reduced; Digital coursework; Practical: greater emphasis on prototyping as opposed to final product which is shop-floor ready

Group 10

Uniformity in approach; Collaboration instead of competition; Greater support from CCEA – at the moment there is a huge disconnect between CCEA and schools; Reduction of theory; More courses offered to upskill staff



Theme 4 Round Table Discussion: Additional Thoughts

Group 1:

Share research on all aspects of development for teachers to review and feedback; Curriculum expectations; Continued reviewing of specification – is every 3–5 years enough due to advancements in the subject.

Group 2:

Technology & Design as a subject must to change; There is too much content at GCSE & A-Level; What exactly are industries looking for and feed this into KS3 & KS4; CCEA needs to open their eyes and start listening to teachers; Too much coursework - not enough time in teachers' time budget, especially if they have no technician; Technology & Design needs funding – could employers adopt a school? Be there for school visits; Work experience; Inspiring next generation; Can we get lists & locations of companies/employers open to working with schools?

Group 3:

Hours spent on coursework far exceeds exam board's specification; Skills tested in a timed format rather than coursework; CAD task, Systems task, Design task

Group 4:

International perspectives & published research on similar subjects required; Timed practical exams & written coursework; Reduce coursework content – timed conditions? Exam grade boundaries at A2 level far too high (esp. for CCEA Electronics); The subject is too big for many students – class size can be too big for the subject; Offer H&S course at quieter times of year, please; Thank you for today!

Group 5:

More focus on design/development; Prototypes should be rewarded for design/development, less on finish or manufacture; More transparent links to industry - potential list of willing-to-accommodate organisations; High amount of material wastage; Move towards using more recycled material & sustainability.

Group 6:

Quarterly updates of opportunities/events/new technologies in NI; Opportunities & funding for teachers to retrain into T&D; Ask industry: what are their needs? What about a whole subject reset?

Group 7:

New curriculum needs to be fast-tracked – 3 years too far away; Move away from themed design? Assessment criteria needs to tighten up; Remote access training needed for all content other than



H&S; Lack of equity across departments expected to deliver the same content/coursework (staff, equipment, materials, etc.); Findings from today need to be sent to Principals.

Group 8:

Provide more training for staff – on a regular basis, especially for new Innovative Technologies; Investment in Departments; Look at timetabling and invest more time in KS3 groups; Foster more excitement in the subject.

Group 9:

Mandatory upskilling; A resource bank with useful resources + shared content; A community of practice for people to share ideas; A culture of sharing among schools; Need for a community forum to ask questions and share ideas; Information-sharing days are good; What is demanded of tech teachers is huge; We are losing the spark with the kids, as teachers are being pulled in all directions; Resource packs from industry/externals to run project-based learning; Tech & Design is constantly evolving; Resource packs provided to all schools.

