The Big Idea Ideation Tool

Project Report: June 2023

Figure 1: The Creativity Card Kit Ideation Tool Resource.

This report presents the outcomes from a project in collaboration with the Centre for Excellence in Universal Design (CEUD) at the National Disability Authority (NDA), in partnership with the Institute of Designers in Ireland (IDI) to develop a The Big Idea (TBI) Creativity Card Kit Ideation Tool. The Creativity Card Kit was produced and provided as a physical deck of printed cards and an app based digital version. Associated teaching and learning resources were also developed to scaffold learners through the ideation stage of the creative process. The Ideation Tool activates Universal Design (UD) and Universal Design for Learning (UDL) principles in its design, implementation, and application.

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Executive Summary

Project Background

This report presents the outcomes from a 2022 – 2023 project in collaboration with the Centre for Excellence in Universal Design (CEUD) at the National Disability Authority (NDA) and in partnership with the Institute of Designers in Ireland (IDI). The Big Idea (TBI) and CEUD Project was designed to scaffold TBI students through the ideation stage of the creative process and to implicitly integrate the Principles of Universal Design (UD) and Universal Design for Learning (UDL). The project deliverable referred to as The Creativity Card Kit was integrated throughout the 2023 TBI Transition Year (TY) and Leaving Certificate Applied (LCA) programme in second level schools. The Creativity Card Kit was produced and provided as a physical deck of printed cards and an app based digital version. A suite of associated teaching and learning resources were also developed to support the integration and application of The Creativity Card Kit throughout the TBI lessons.

The promotion of UD and UDL through TBI 2023 programme follows on from a successful 2020 Big Idea trial project and a 2021 Further Development project conducted in partnership between TBI, CEUD at the NDA, and the IDI. (Reference Appendix A: An Overview of Project Partners and The Big Idea Team)

TBI is a creative education programme for students in TY and LCA. The programme launched in 2021 with 500 students across three counties in Ireland. The programme expanded in 2022 onboarding over 2000 students across twenty-two counties nationally, culminating in a celebration of student work, through The Big Idea Showcase event. In January 2023, 4000 students nationally participated in a modified 14-week programme, including students from LCA and two schools in Northern Ireland (NI). (Reference Appendix B: The Big Idea Year 1 & Year 2 Outcomes, Year 3 Outcomes & Outputs)

During TBI programme, students work in teams to respond to one of five socially conscious project briefs while also developing key skills in critical and creative thinking, collaboration and communication. Project briefs were co-created with students so they can respond to social issues pertinent to them and their peers. In addition, over 400 industry professionals worked with TBI to support students in developing their Big Idea project through a structured mentoring programme. To progress from a concept to a realised solution, students worked through the stages of research, ideation, development and delivery. (Reference Appendix C: The Big Idea 2023 Programme Outline)

TBI programme was endorsed by the National Council for Curriculum and Assessment (NCCA) in June 2021 and now features as a suggested [Transition Year Curriculum Component](#) on the NCCA website alongside other accredited programmes. TBI was also the winner in the 2021 Design Education and Research category and the 2021 Grand Prix prize winner at the annual Institute of Designers in Ireland (IDI) awards and was shortlisted for the 2022 Education and Research

Category. TBI was shortlisted for the 2022 Think Global Awards for Education & e-Learning and Inclusivity & Accessibility. Equally recognised in business and enterprise sectors, TBI won 'The 2022 Best Start-up' at the National Enterprise Awards through the Carlow Local Enterprise Office and was also a winner at the Carlow Web Awards in association with the Sunday Business Post 'Public Choice' award. Additionally, TBI was shortlisted for The Irish Times Innovation Awards (New Frontiers category), the Diversity in Tech Awards (Social Impact Award) and Institute of Designers in Ireland Awards (Design Education and Research Award). Thus far in 2023, TBI won the Think Global Awards (Education & eLearning category) and Carlow Digital Awards (People's Choice Award). In addition, in 2023 TBI was shortlisted for The Irish Business Design Challenge, the National Enterprise Awards and the HundrED.org – global education innovators.

The 2020, 2021 and 2022 collaborative Big Idea education projects focused on advancing the interests of all three partners, communicating a cohesive understanding of creativity, UD and innovation and the continuous improvement of accessibility with respect to learning materials, lesson design and web interfaces. In evaluation of the 2022 programme, students and teachers reported significant challenges in navigating the ideation phase of the creative process. Existing teaching and learning resources did not fully support the generation of design ideas or the integration of UD Principles at critical design decision and reflection points. Feedback also indicated that a select number of students from the 2022 programme struggled to navigate the creative process and to move freely between stages to refine their thinking. This promoted the idea for a supporting TBI Ideation Tool project, or TBI Creativity Card Kit, to scaffold the ideation and development process of TBI programme.

The rationale for the 2022 – 2023 project covered in this report was developed based on student and teacher feedback from the TBI programme delivered in spring 2022. Feedback identified a significant increase in students' creative skills and understanding of UD with many also indicating skill development in problem solving and analytical thinking. Some students along with teacher feedback however indicated that the iterative nature of the creative process was difficult for many students to navigate. This was captured in the feedback from Megan, a student at St. Brendan's Community School, Co. Offaly *"I would find it all easier if we were given more instruction on what we have to do and how we go about achieving our big idea"*. Feedback from Teachers' experience of TBI, while extremely positive, also focused on the need for a support mechanism to manage the learning and depth of immersion through the creative process stages. This is represented in feedback from Niamh, a teacher at Lusk Community college who spoke about the need for *"dedicated creative thinking tools"* and guidance about the stages of the creative process and *"Information about what to expect at each stage"*. This feedback confirmed the need for a teaching and learning resource to support students' understanding of the Ideation phase and to support students to navigate through the stages of the creative process in an iterative manner.

The 2022 – 2023 project research phase identified the requirements for a teaching and learning resource to support not just the Ideation phase of the creative process but the four stages of Discover, Define, Develop (Ideation) and Deliver. The project solution was the TBI Creativity Card Kit which was co-designed and co-developed with CEUD to support divergent thinking through the four creative process stages. The TBI Creativity Card Kit used in the spring 2023 TBI programme implicitly supports the integration of Universal Design (UD) and Universal Design for Learning (UDL) principles and active methodologies in its design, implementation and application, increasing the depth of treatment across both learning resources and programme accessibility. The TBI Creativity Card Kit was distributed to the 4000 TY and LCA students participating in the programme nationally.

The project was structured on six Work Packages. Each Work Package (WP) moves through the stages of Research, Analysis and Investigation of the problem, through to identifying opportunities to align the learning and experiences, to idea development and final delivery. Each work package is then subdivided into key deliverables with outputs outlined in detail later in this report.

* Note: Review and development of all project work packages were conducted in consultation with CEUD.

Work Packages and Deliverables

Work Package 1 (WP1): Research, Investigation and Analysis

WP1 presents a summary of the research, investigation and analysis of existing data, teachers' and students' feedback and creative thinking support tools and processes. An overview of existing UD and UDL resources integrated through the current TBI programme are reviewed alongside established UD and UDL supporting resources used in Industry and Education.

- Analyse and evaluate student and teacher summative feedback to establish specific needs and support requirements.
- Research & review existing creative process teaching and learning methodologies from academic and industry practitioners nationally and globally.
- Research & define UD Principles and Guidelines with respect to the design and development of print and web teaching and learning resources.
- Capture, analyse and present feedback and research findings of WP1.
- Define at least five opportunities to embed the learning resource in the TBI programme.

Work Package 2 (WP2): Mapping Alignment of Learning

WP2 communicates how and where the TBI Creativity Card Kit might support learning and engagement across existing Junior Cycle (JC), Transition Year (TY) and Senior Cycle (SC) curricular and national Education Policy. It also presents an

overview of alignment opportunities to engage UD principles and guidelines and opportunities to active UDL teaching and learning methodologies.

- Map the learning opportunities for the TBI Creativity Card Kit to impact students' experience and support the development of JC and SC key skills and associated subject curriculum learning outcomes.
- Visually map and position the feasibility of the TBI Creativity Card Kit and associated learning resources in alignment with national Education, Government and Industry Policy.
- Map the opportunities to integrate the principles of UD and UDL in integrating the TBI Creativity Card Kit through TBI programme and learning interfaces.

Work Package 3 (WP3): Design and Development of TBI Creativity Card Kit

WP3 presents an overview of the design and development phase of the TBI Creativity Card Kit and the associated teaching and learning resources and opportunities. The integration of UD and UDL through the programme will also be captured and supported with examples of learning opportunities.

- Design and develop TBI Creativity Card Kit to scaffold learners through the ideation stage of the creative process.
- Design and develop programme teaching and learning activities to maximize student and teacher engagement with the TBI Creativity Card Kit through the programme.
- Integrate the principles of UD and UDL through the design and development of the TBI Creativity Card Kit and associated support learning content and interfaces.

Work Package 4 (WP4): Pilot Testing and Modification of TBI Creativity Card Kit & Mid-Project Report

WP4 captures key learnings from the pilot testing and subsequent modification phase of the TBI Creativity Card Kit project. This phase was further supported by a mid-project report which also covered progress from WP1, WP2 and WP3.

- Pilot TBI Creativity Card Kit associated teaching and learning material with one class of students and a teacher. Modify and further develop the TBI Creativity Card Kit design in response to pilot feedback.
- A mid-project report of Work Package 1,2, 3 & 4 provided a brief overview of the Research, Learning Opportunities, Alignment and Design and Development of the TBI Creativity Card Kit.

Work Package 5 (WP5): Manufacture, Distribution and Promotion

- Manufacture and distribution of TBI Creativity Card Kit and associated teaching and learning resources to circa 4000 students nationally branded with TBI and CEUD branding.
- Promotion of TBI Creativity Card Kit and associated teaching and learning resources across TBI platforms and media outlets and CEUD platforms.

Work Package 6 (WP6): Programme Outputs and Integration

- An additional work package (WP6) was added to the project to highlight and provide an overview of the programme outputs and integration of The Creativity Card Kit and supporting activities.

Work Package 7 (WP7): Final Report

- A final report will capture the executive findings from the Work Package 1,2,3 & 4, the mid-project report findings plus an additional overview of WP5 Manufacture, Distribution and Promotion phase and an overview of WP6 Programme Outputs and Integration. Post completion of the 2023 Big Idea programme the team will deliver a brief overview to CEUD of student impact, and teacher evaluation.
- The final report will include impact data, Student and Teacher testimonials and 2023 programmatic evaluation.

TBI Ideation Project - Summary list of Work Packages

This report (WP7) is structured in-line with the project tasks that framed the methodology as six Work Packages that included:

- Work Package 1: Research, Investigation and Analysis
- Work Package 2: Mapping Alignment of Learning
- Work Package 3: Design and Development
- Work Package 4: Pilot Testing & Modification (Mid-project report)
- Work Package 5: Manufacture, Distribution and Promotion
- Work Package 6: Programme Outputs and Integration
- Work Package 7: Final Project Report (June 2023)

Impact and recommendations

Creativity Card Kit Impact and recommendations

On completion of the TBI 2023 programme, students were surveyed to gather feedback and review the impact of the TBI programme and resources. 100% of students agreed that the programme and associated suite of physical and digital resources contributed to developing the following skills and competencies, including:
- creative skills and knowledge
- overall wellbeing

- confidence and sense of empowerment
- ability to communicate and work well in a team
- ability to work independently, research and investigation skills and
- ability to learn from failure

87% of students responded that the creative resources (including the Creativity Card Kit) had a positive impact on their understanding of the creative process and 12% reported that the creative resources had a neutral impact on their understanding of the creative process. 66% of students used the physical creative resources while 65% used the digital creative resources as a support throughout the creative process. This finding highlights the importance of having a choice of both digital and physical resources available to students to empower them to learn in a manner that best suits their needs.

Going forward it would be recommended to gather insight into; how many students used the physical resources only, how many students used the digital resources only and how many students use both the digital and physical resources. To further expand and capitalise on the impact of the Creativity Card Kit to date, a review of the design and content is suggested to improve and modify the cards. This would be conducted with a view to manufacturing and distributing an updated Creativity Card Kit to all students participating in the 2024 programme.

TBI impact and recommendations

TBI attracted nearly 400 Industry and Academic professionals in 2023 from every sector nationally and internationally to support 4000 students through their learning journey. Qualitative data from the programme in 2022 and 2023 indicates positive effects on mentors' creative mindset, work practices and relationships, with improvements in coaching, mentoring, and providing feedback skills. Employee skills including coaching, mentoring, and providing feedback are being improved through participation in TBI second-level programme.

TBI has identified an emerging opportunity to build on the Mentor appetite for learning events, CPD and for peer-to-peer engagement and learning. A future project could look to amend current programme assets to create a structured pathway for an immersive creative thinking micro-credential, CPD or digital badge for Mentors, Teachers and adult learners. The programme could offer a semi-structured, hands-on, and flexible online learning module focused on creative problem solving (and potentially, Coaching and Mentoring) for companies to provide to their employees or for teachers to complete professional CPD (which has the added value of marketing our Big Idea youth programme to schools and teachers). This could be delivered in collaboration with education centres nationally and third level teacher training. The course would provide participants with the opportunity to connect with like-minded professionals from various industries, fostering collaboration and innovation. Key elements of the course may include interactive modules, real-world case studies,

practical exercises, social issues challenges and access to industry experts as mentors through events and meet-ups.

Introduction

This final project report sets out the results from the TBI Ideation Tool Creativity Card Kit project. The project was a joint project partnership between the Centre for Excellence in Universal Design, henceforth known as (CEUD) at the National Disability Authority, henceforth known as (NDA), the Institute of Designers Ireland, henceforth known as (IDI) and The Big Idea, henceforth known as (TBI), running from September 2022 to June 2023.

The NDA recognises the IDI as the National body representing professional designers in Ireland, with an Education Sub-committee and membership that is supporting development of design education for 2nd Level schools. As such, the NDA identifies the IDI as a sole source provider for collaboration and partnership given their membership reach and their initiative for the promotion of Universal Design through the TBI 2nd level educational programme.

Following the TBI 2022 programmatic review and impact analysis, findings identified a specific need for the development of a teaching and learning resource to support students to navigate and maximise their understanding of the creative process for use in the 2023 TBI programme. The Ideation Tool outputs from this project were integrated in the 2023 TBI programme commencing with 4000 students in January 2023 and culminating in May 2023. The key project outputs include a uniquely designed learning resource entitled TBI Creativity Card Kit and associated teaching and learning supports, along with project evaluation and reporting.

The TBI Creativity Card Kit scaffolds learners through the ideation stage of the creative process to activate methodologies for UD/UDL principles in creative design problem solving, implementation and application. Considering the needs of the user (Hero) is central to the decision-making process, aligning with the UD Principles and Guidelines. It supports students to develop their capacity and confidence to generate ideas and share their ideas with their peers, and it helps to build their autonomy and activate their student voice.

Demystifying creativity and broadening students and teachers' understanding of the applications of creative thinking complements the actions identified in The Department of Business Enterprise and Innovation [Together for Design: Digital, Product and Strategic Design Skills of the Future](#) (2019). This study examines the future demand for design skills over the years 2020 to 2025 and is published by the Expert Group for Future Skills Needs (EGFSN). TBI features in the Together for Design Report: Annual Review 2021-2022 as a key action project, summarising the programme's national reach and impact with Young People. The European Skills Agenda recognised that the labour market increasingly needs transversal skills like working together, critical thinking, and creative problem solving" (European

Commission: Communication on a European Skills Agenda for sustainable competitiveness, social fairness and resilience, 2020, p. 13). The TBI Creativity Card Kit promotes the development of these sought-after skills including problem solving, critical thinking, resilience, ideation and, of course, creativity through an iterative process.

Project Rationale - Feedback from 2022 Big Idea programme

Feedback indicated that a select number of students from the 2022 programme found the ideation stage quite difficult and many struggled to navigate the creative process and to move freely between stages to refine their thinking. This promoted the idea for a project to develop the TBI Creativity Card Kit to scaffold the ideation and development process of TBI programme.

Overarching research of existing creative process support tools identified gaps in the level and suitability for a diverse second level student audience. Many of the tools reviewed that focus on a specific phase in the creative process are pitched at an adult audience with unfamiliar design terminology employed. In most cases, there is little physical interaction, and the format of the resource does not support the early stages of ideation or provide any methodology for coming up with ideas. There is limited focus on the reach of design solutions into spaces outside of product design and most apply to ICT/UX design, wearables or the built environment. Allanah, a student of Ard Scoil Chiarain Naofa, Co. Offaly suggested that the Think Big Bags *"should be full of content that would help generate ideas and to understand where I am in the project and what is next."* Rebecca, a student at St. Leo's College indicated in her feedback that she would like further support to *"encourage more creative thinking"*. This is also emphasised by another student Sean, from Presentation De La Salle, Carlow who adds that the programme would be even better if, *"you were able to expand on an already present idea. Coming up with a new idea is very challenging."* These extracts represented the feedback captured across student evaluation and their need for a resource/tool to support students through the creative process.

Teachers also expressed a requirement for more resources to help guide their students through the creative process along with concrete teaching and learning methodologies. Kevin, a teacher of Ennistymon Vocational School stated that he found it difficult to motivate students to take ownership of their projects and their Big Ideas. He suggested that a set of *"dedicated creative thinking tools"* would enhance not only his students' experience of TBI but his ability to manage the programme as students would have more agency to move through stages to refine their thinking if there was a process resource to support this.

The need for a TBI resource was established to help avoid fixation and simultaneously support divergent thinking. This sentiment is captured as a whole by a student in St. Flannan's College, Ennis Co. Clare: *"If we had more help and suggestions to help us with our projects and also give some ideas for what we could do. They could also try to get us more engaged in the classes and make the topics more interesting"*. The TBI Creativity Card Kit aims to promote an iterative and cyclical approach to problem

solving complimenting the Double Diamond process and creative thinking. The final resource guides students through the creative process in a clear, logical path while also showcasing convergent and divergent thinking.

Project Partners

The Centre for Excellence in Universal Design (CEUD) at the National Disability Authority (NDA), in partnership with the Institute of Designers in Ireland (IDI) supported this project to further develop the integration of Universal Design (UD) and Universal Design for Learning (UDL) in TBI Transition Year (TY) programme. The project reviewed, modified and integrated learning resource materials from the CEUD Universal Design Junior Cycle Short Course (CEUD UD JC) curriculum into TBI programme. The project increased the proportion and depth of treatment of UD and UDL across TBI learning resources and initiated the continuous improvement of programme accessibility.

This project focuses on advancing the interests of all three partners, communicating a cohesive understanding of creativity, UD and innovation.

About The Big Idea (TBI)

TBI is a post-primary TY 14-week [creative programme](#) which runs from January to May. The programme guides students and their teachers through the creative process, demonstrating practical applications of creative thinking in solving problems with a real-world context. Students move through the creative process stages of Research, Ideation, Development and Presentation. Each week, lessons engage students in fun and accessible creative activities while also expanding students' understanding of Universal Design, innovation and creative thinking. (Reference Appendix C: The Big Idea 2022 Programme Outline)

The programme is free to schools and students with all teaching and learning resources and equipment for lesson activities provided. Equitable access to the programme materials and reducing the barriers to creativity is a fundamental objective of TBI. The programme can be facilitated by teachers of every subject discipline.

The programme bridges the gap between Industry and Education with Mentors from a range of Industry disciplines, who employ creative thinking in their day-to-day practice, supporting students through the process. Lessons include weekly interviews with Mentors discussing how they apply creative thinking to solve problems. Mentors also provide students with constructive feedback at key milestones in the programme to support the development of students' Big Idea solution.

TBI culminates with a [Showcase Event](#) celebrating students' creative skills and their Big Idea journeys. Students are awarded prizes and medals for each category winning team and an overall Big Idea team winner.

The Big Idea Policy Alignment

TBI programme provides access to learning experiences which facilitate an inquiry-based approach to learning thus supporting students' skill progression from Junior Cycle through to Senior Cycle. The following education policy frameworks and guiding resources collectively inform the continuous design and development of TBI Idea programme:

- The Department of Education and Skills (DES) Action Plan for Education (2019) aims to 'facilitate individuals, through learning, to achieve their full potential and contribute to Ireland's social, economic and cultural development', (Action Plan for Education, 2019, p. 7).
- The Framework for Junior Cycle (2015) describes the creation of learning opportunities whereby, 'learners will be enabled to use and analyse information in new and creative ways, to investigate issues, to explore, to think for themselves, to be creative in solving problems and to apply their learning to new challenges and situations, (The Framework for Junior Cycle, 2015, p. 7).
- The STEM Education Policy Statement 2017-2026, also calls for the creation of learning experiences which help students 'become engaged, creative and critical thinkers, global citizens and active resilient learners in a changing learning environment', (The STEM Education Policy Statement, 2017-2026, p. 21).
- The Junior Cycle programme compliments the Action Plan for Education (2019) promoting Creativity and Innovation as one of the eight Junior Cycle Principles. This recognition of creativity as both an approach to teaching and learning and a key competency is echoed in depth and breadth across Junior Cycle.
- Further Education and Training (FET), Equality, Diversity and Inclusion (EDI) Policy alignment. TBI programme promotes a focus on both human centred and public centred decision making and design considerations, (Ref. Future FET: Transforming Learning. The National Further Education and Training Strategy 2020-2024).
- Activating the students' voice is an integral aspect of TBI both in the context of programme development and for engaging students authentically through the process. This student-centred process supports Article 12 of the United Nations Convention on the Rights of the Child which calls for the views of each child to 'be considered and taken into account in all matters affecting him or her', (Children's Rights Alliance, 2010, p. 15).
- The NCCA Junior Cycle Wellbeing Guidelines (2021) outlines school requirements to 'provide the kind of learning that young people need to deal with the world as they find it, rather than the world as adults imagine it to be for them', (NCCA Wellbeing guidelines, 2019, p. 24). In providing opportunities for students to engage in the design of the programme and the socially conscious project briefs, TBI provides an accessible platform for schools to respond to the NCCA Wellbeing Guidelines.

- The focus throughout TBI process on developing students' awareness and empathy of the diverse needs of others is echoed in The Better Outcomes, Bright Futures Framework. Policy 5.2 speaks to developing opportunities to '…promote and recognise young people's active citizenship and engagement in democratic processes, participation in social and environmental activism and innovation, volunteering and social entrepreneurship', (The Better Outcomes, Brighter Futures, 2014-2020, p. 104).
- The Together for Design Report (2020) developed by The Expert Group on Future Skills Needs (EGFSN) focuses on building connections with the creative industry and education. TBI supports the report recommendations through the structure of the programme mentoring process.

Project activities and deliverables

Work Package 1 (WP 1): Research, Investigation and Analysis

Research findings collated from design industry leaders and design education practitioners, CEUD UD education resources, The Liz Sanders Generative Design Method Cards informed the positioning of the primary and tertiary needs of the user to the forefront of The TBI Creativity Card Kit. This is echoed in TBI Ideation Instruction card question prompts based on the Sanders and Stappers (2014) Designing to Co-Designing to Collective Dreaming: Three Slices in Time paper where the 'wants and needs of people, as well as social value, the objective of which is to be able to deliver on more sustainable and convivial ways of living', (Sanders & Stappers, 2014. p. 30).

WP 1: Analyse and evaluate student and teacher summative feedback to establish specific needs and support requirements.

- Feedback identified that students and teachers both felt they were lacking adequate resources to guide them through the creative thinking process during TBI programme. This was further compounded when students approached ideation with many lacking the confidence to proceed with their idea and losing motivation. It was noted that a tool was needed to empower students with knowledge, resources and methodology to overcome the struggles identified. Sina, a student of Ard Scoil Chiarain Naofa in Co. Offaly stated that she *would like to see some more helpful information to help complete and comprehend tasks. It would be great if examples were given."* This highlights that students need to be shown how divergent thinking can be applied to real life situations and how the creative thinking process is not only a valuable tool but a knowledgeable one.
- Jade, as student at St. Flannan's College in Co. Clare suggested that there could be *"more interactive things to do in the class so we can get more of an idea of our pitch"* while Elisha, another student from the same class, suggested they would have learned more if *"we had more resources."*

- Teachers mirrored similar feedback stating that they would add extra resources for their students and more information about the process to make the programme more successful. Aine, a teacher from Lusk Community College said more emphasis should be placed on supporting students to *"move through the programme at their own pace and with an idea of the stages before and after"*.
- A focus on supporting creative thinking was captured across teacher evaluations with Claire, a teacher in Bush Post Primary in Louth stating that she would welcome more resources to support her understanding of creative thinking and *"some useful teaching methodologies"* to engage her students in creative thinking beyond TBI programme.

WP1: Research & review existing creative process teaching and learning methodologies from academic and industry practitioners nationally and globally.

Design Methods Cards and Design Process Guides:
The following research reviewed and analysed examples of design method cards and design guides and their application in a second-level classroom context to support students at various phases of the creative process. The images below include a collaborative research and analysis process using a shared Miro Board. Each section contains an image of the reference material, surrounded by notes and observations from the reference. Overall, each example reviewed contained attributes that helped to inform the design of the Creativity Card Kit.

- IDEO Method Cards - Learn, Look, Ask and Try is a deck of 51 cards representing diverse ways that design teams can understand the people they are designing for. This product was an insightful resource to analyse due to its deliberate inclusion of user experience through its design process. This is evident through the consistent repetition and highlighting of the 'learn, look, ask, try' prompts that attempt to assist in memory retention. The ability of this tactic to provide a line of focus through the exercise could have further benefited from a colour coded solution. The addition of a contextual example on each method provides further context while simultaneously providing a direct path for users on how to apply this card to a project and furthermore how their project will be informed or benefit from the card. The image below shows the collaborative research and analysis of the IDEO Methods cards and the Interactive Design Foundation design process model.
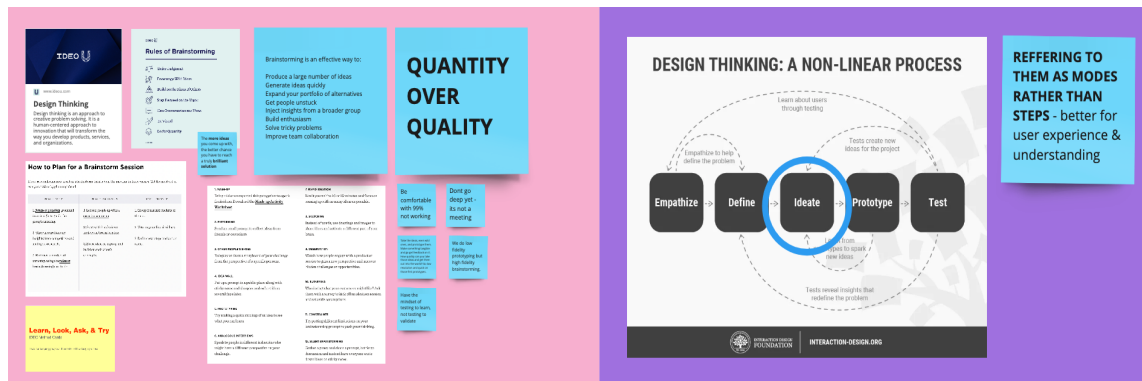
Figure 2: An image showing the collaborative research and analysis of the IDEO Methods cards and the Interactive Design Foundation design process model.

- Pipdecks is an online market of cards and resources to encourage innovation and collaboration. The target audience is undefined and as a result the product is too wide ranging in its approach; a clearly defined audience would lead to a more successful product. The Pipdecks website covers topics such as workshopping, storytelling, teamwork, innovation, and strategy. While these are all very useful and generate value, the inclusion in their decks of only one step of the Double Diamond model leaves room for confusion and is missing an aid for individuals that can find these stages the most difficult. Figure 2 below shows a collaborative analysis of the Pipdecks resource.

- 46 Design Heuristics Creativity Unfolded is a design process tool developed by The University of Limerick to support students through the ideation phase. The resource folds out from one single sheet into a card deck. The concept of shortcuts through ideation offers visual cues to ignite creativity and design alternatives. However, in using this resource with students, many found it confusing and more of a chore to work through each iteration rather than a support. This product only applies to a very specific stage of ideation, it is constricting in its use. The concept of visual shortcuts employed through the visual icons might inform the development stage of the TBI Creativity Card Kit. The image below shows the collaborative analysis of the 46 Design Heuristics Creativity Unfolded resource.
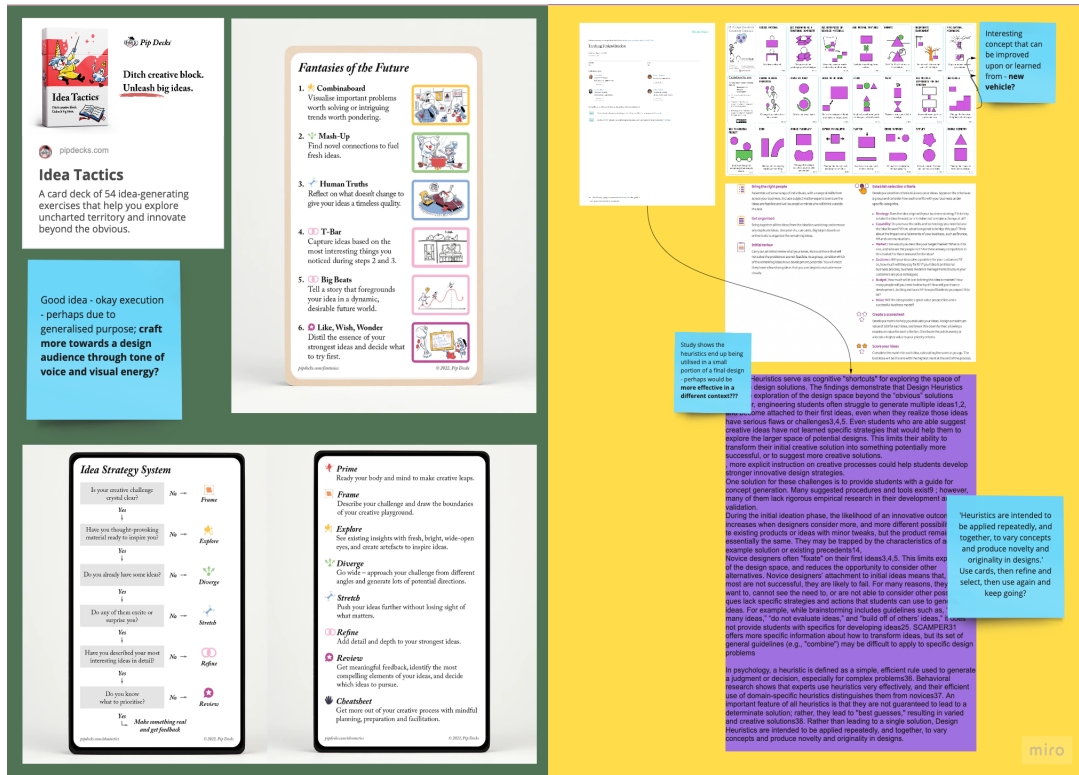
Figure 3: An image showing the collaborative analysis of the 46 Design Heuristics Creativity Unfolded resource and the Pipdecks resources.

- Liz Sanders - Generative Design Methods Cards and Mapping Method. This is a valuable creative resource which successfully integrated the UD Principles and Guidelines implicitly through the question prompts and activities. The resource employs numerous active methodologies to engage and support users through the creative process, with an emphasis on meeting both user needs and social needs through collaborative co-created ideation. The breakdown at the start of each card to show method, activity and experience is successful and gives a focus or purpose to the activity. The minimalist design of the cards supports UDL and UD integration however the use of photographs as opposed to pictograms or illustrations might age the resource or could activate bias towards those represented in the examples. The cards support the user to engage with divergent thinking and collaborative investigation and the sharing of ideas and opinions in a group setting. Combining these methods with the Double Diamond process model for the TBI Creativity Card Kit might increase success and the integration of UD across TBI.
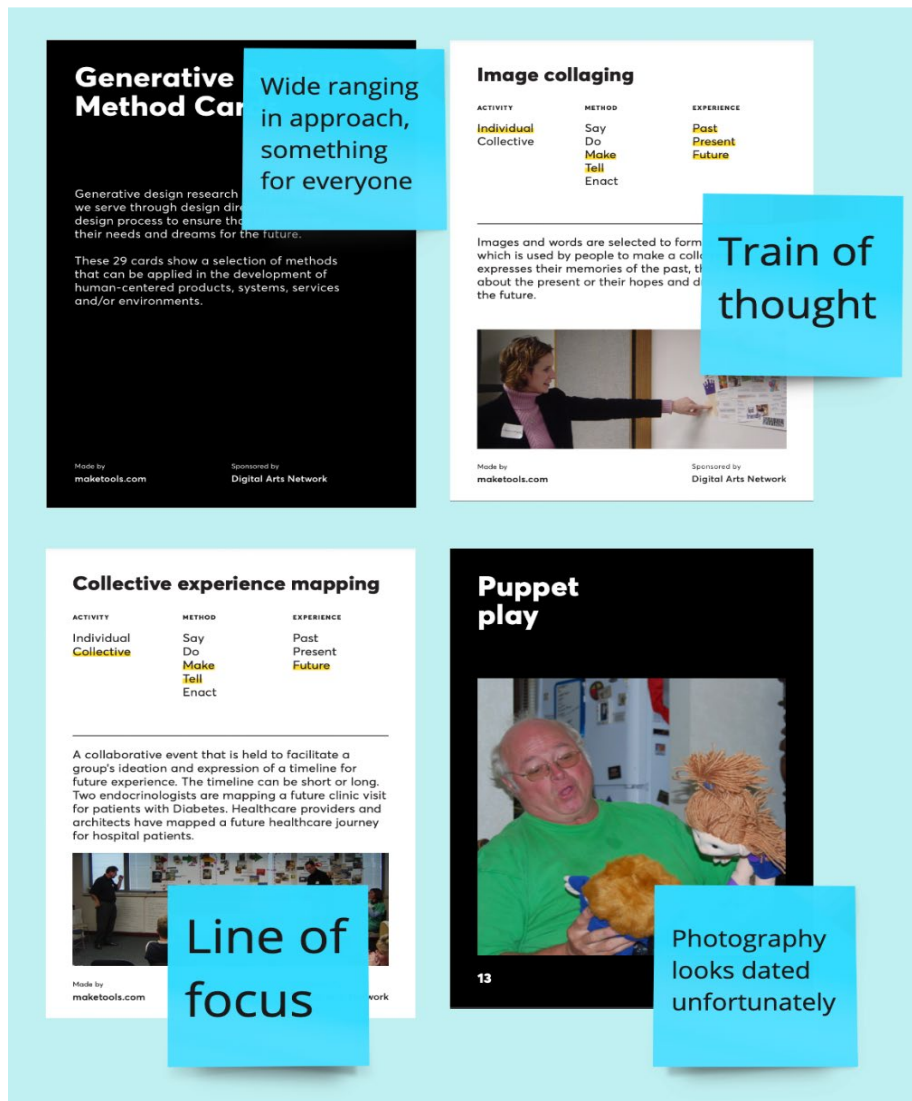
Figure 4: An image showing the collaborative analysis of the Liz Sanders - Generative Design Methods Cards resource.

- My Design Guide was developed for Junior Cycle Teachers (JCT) and was delivered through a national CPD reform programme to all Applied Technology, Graphics, Wood Technology and Engineering Teachers. The guide employs a contemporary approach and considers both students and teachers in its content. Established teaching and learning methodologies and applications are included throughout. The tips section at the bottom of each design phase are concise and use accessible question prompts. The consistent use of prompts is an effective method for engaging students especially when they are either new to the creative process or struggling to progress beyond a stage. The clean selection of content dedicated to two pages for each stage of the Double Diamond model highlights an excellent example of defining and refining, and each section is short and to the point. Learning from this resource design and content application will inform the development of the TBI Creativity Card Kit. The image below shows the design and layout of the JCT Design Guide with the section for prompt reflective questions included.
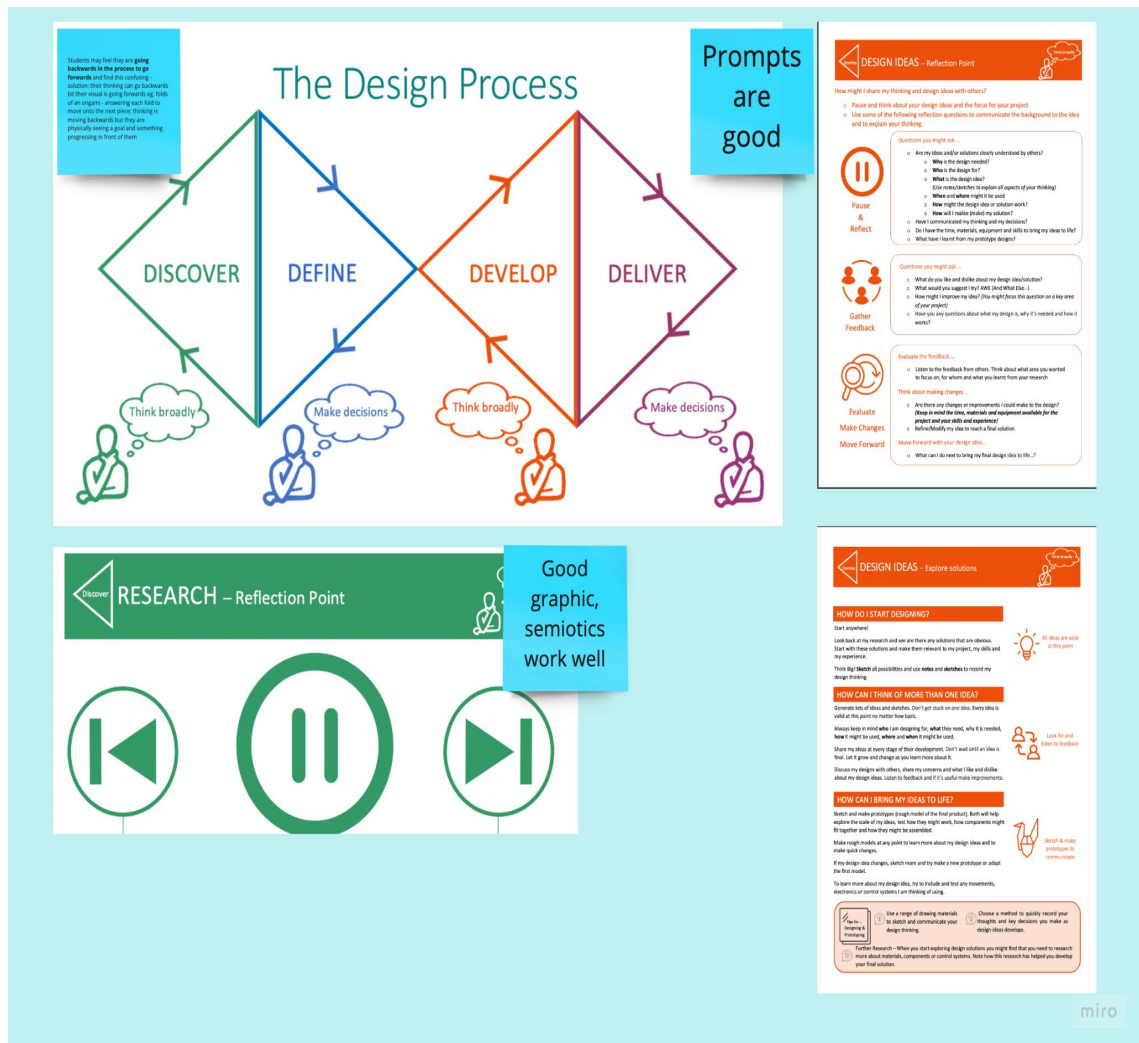
Figure 5: An image showing the collaborative analysis of the JCT My Design Guide resource.

- Maynooth University developed the Arrive Process Model, a design Innovation Framework with corresponding Arrive Method Cards. The acronym Arrive represents six stages of the design process; Audit, Research, Reframe, Ideate, Validate and Execute. The cards are physical cards which are A5 in size and ring bound. There is a supplementary PDF and a graphic to support their use and an understanding of the process. The target audience is Further Education and as such the language and depth of treatment through stages is not fully applicable to a second level audience. The development of the Arrive acronym supports students' understanding of the process and engagement phases. This approach could be applied to the naming of the TBI Creativity Card Kit resource.
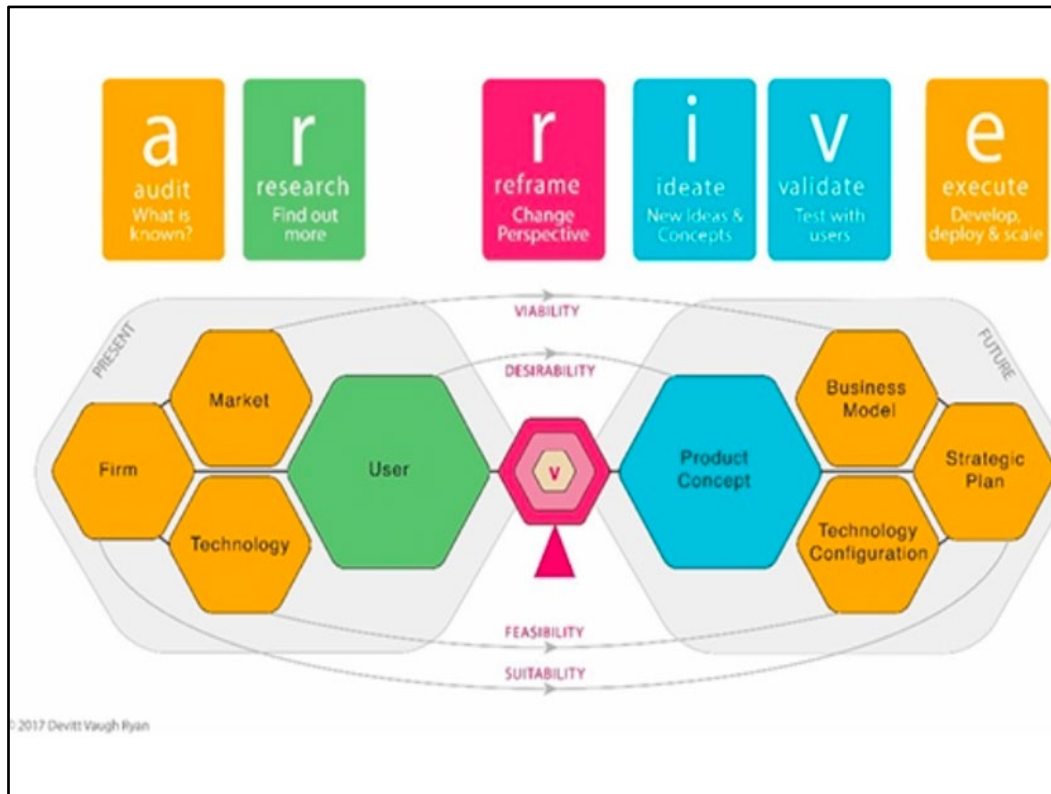
Figure 6: An image showing the Maynooth University Arrive Process Model resource.

- The Interaction Design Foundation are market leaders in online design education and UX CPD, creating specialized design-oriented courses and resources. On analysis, it was evident that many user experience methods used in digital product design were applicable to the learning needed for a successful tangible product to be designed. Their resources reference the process stages as 'modes' in the Double Diamond. It was discussed that referring to 'stages' might give the impression of a linear rather than iterative process or a defined finish line; a guarantee of success if you tick the boxes. 'Modes' implies to the student that they have agency to move back and forth between phases.

- NCCA Being Creative: This reference resource developed by the NCCA supports teachers through the Being Creative Key Skills of Junior Cycle. It includes a rationale for creativity in the second level classroom, guiding creative methodologies and how to create a culture to foster creativity. The guide contains valuable insights and research for teachers but is limited in presenting a range of creative exercises for a diverse student audience. This resource could be improved if each method contained flexibility for engaging with the methods individually or as a group. The introduction of self-reflection is highly successful here in its language. The image below shows the collaborative research and analysis of the NCCA Being Creative resource.
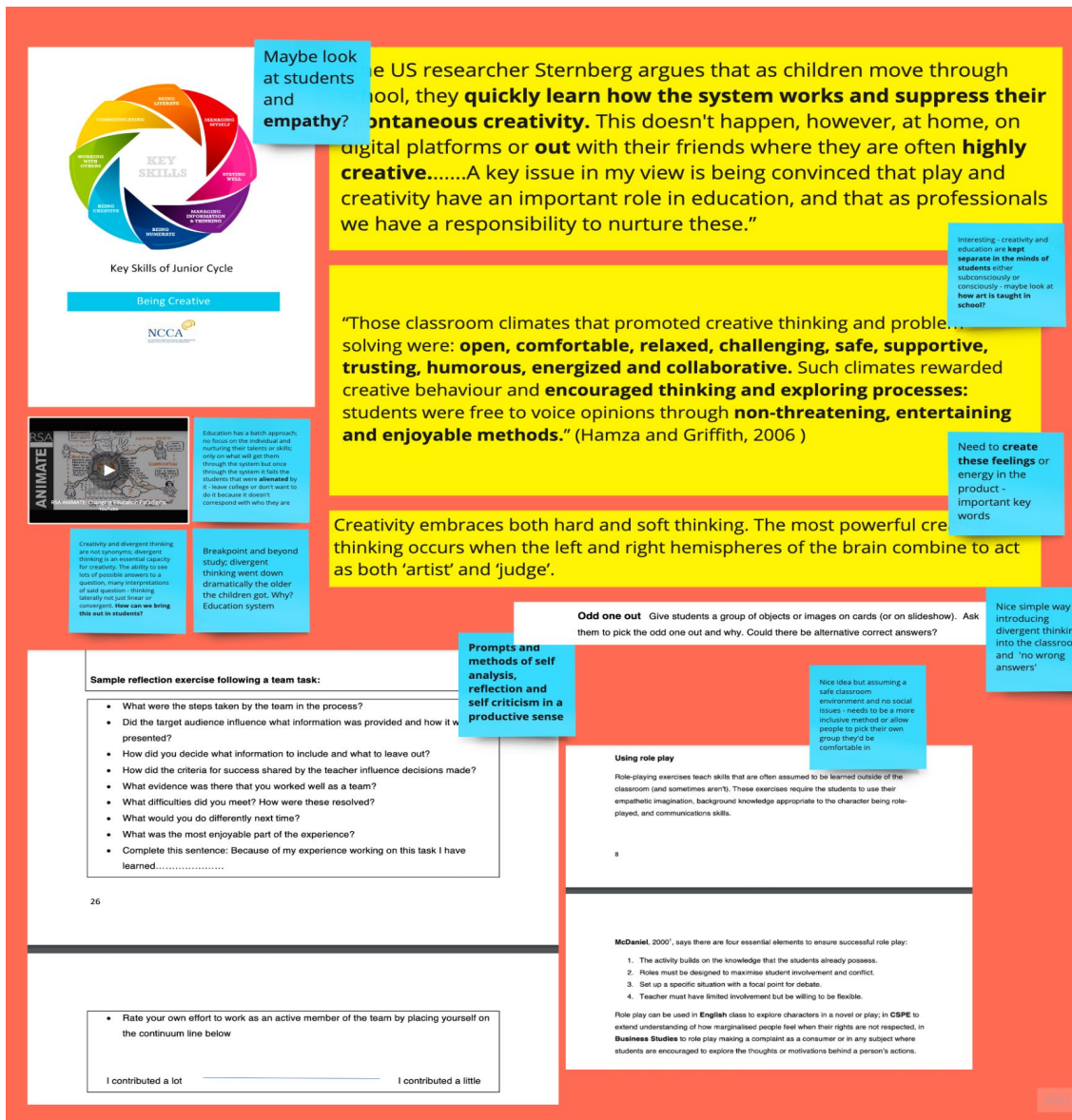
Figure 7: An image showing the collaborative analysis of the NCCA Being Creative resource.

- The NCCA Focus on Learning (2015) resource includes reference to The Five Whys investigative questioning strategy to support students' development of critical thinking. Developed by Toyota, the strategy of; Who?, What?, When?, Where?, Why? and How? provides teachers and students with a scaffolded structure to think about their approach to learning or problem solving. The resource also encourages collaboration between students by guiding reflective discussion between divergent and convergent thinking. Applied in context to TBI problem and solution space, this strategy, adapted to a TY student context could help students to clarify their thinking and justify their design direction.

WP1: Research & define UD Principles and Guidelines with respect to the design and development of print and web teaching and learning resources.

While researching the integration of UD Principles and Guidelines in the existing programme it was evident that there were additional opportunities to build on the depth and integration of UD. Feedback from students and teachers from the 2021 programme indicated that the language utilised to communicate UD was over complex for a second-level student and that additional focus was required in addressing the accessibility of the 2021 UD resources. The feedback also suggested the incorporation of UD best practice examples through the programme.

On analysis of the 2021 programme and student and teacher feedback the following lessons present opportunities for modification: Wk. 2 Empathy, Wk. 3 Personas, Wk. 8 Advanced Prototyping and Flex Week 1 and Flex week 2. Feedback also reported that students responded well to the 2021 CEUD Case Studies with Each & Other and Design Partners concluding that both should be included in the 2022 modified programme. Research indicated that extension activities to the Case Studies could build on students' understanding of the creative process and deepen students' understanding of UD Principles and Guidelines in practice. The above indicates a need to create the TBI Creativity Card Kit to scaffold students' immersion of UD through the creative process. To further develop TBI team's understanding of UD the CEUD Webinar, A Universal Design Approach for All was referenced and key learnings indicated a link to the Liz Sanders Generative Design Method Cards and a link to the Sustainable Development Goals which are referenced in other sections of TBI programme.

WP1: Capture, analyse and present feedback and research findings of Work Package 1.

Through research it was evident that there is a strong need for a supportive process tool to guide students to progress an idea from concept to realisation which implicitly integrates UD and UDL through modes or process stages. The tool should support student autonomy to navigate between process modes as opposed to focusing purely on ideation, which is a singular approach and not reflective of teacher and student feedback.

Students often feel unsure of how to proceed in certain areas of the Double Diamond process such as the ideation stage. To combat this, it is evident that a physical device explaining the stage, the aim and methodology for each mode is required. The solution needs to indicate to students where they are in the process and provide them with clear goals and strategies.

- The TBI Creativity Card Kit and supporting learning resources should implicitly incorporate the 7 UD Principles and Guidelines through the prompt reflective questions and methodologies.
- It was deemed important to create a product that addressed all modes of the Double Diamond process instead of just ideation. While ideation may most

- commonly be the area students find difficulty with it would be incorrect to assume that is the only area where issues arise.
- The Double Diamond process should be referred to as modes instead of stages to increase students' understanding of the iterative process of design and to support a non-linear navigation through the process.
- Each mode of the Double Diamond should be clearly colour coded and should clearly indicate to the student the mode they are in and suggest accessible engagement opportunities.
- Labels are needed throughout the design to promote student autonomy and agency.
- The TBI Creativity Card Kit should promote iteration and allow students to feel they are consistently progressing and moving towards a final idea.
- Scalability is a key point to note in the product's final output. The product must be a size that is easy to handle and engage with - the student should not need a dedicated space to use it.
- The use of acronyms would add to user experience as it is shown students respond well to short and fun ways of remembering rather than reciting off a laborious learning exercise.
- The TBI Creativity Card Kit should include the parameter for highly effective teaching and learning and support Reflection-in-Action and Reflection-on-Action.

The image below shows a wide shot of a collaborative Miro board. There are four different headings written in four separate yellow bars: Investigating Research, Investigating Decision Making, Investigating Ideation and Investigating Proposals. Each section contains important screenshots from reference material alongside notes referring to the important points. The collaborative research included a summative analysis of the strengths and weaknesses of quantitative and qualitative research and works through sample explorative analysis questions that could be used for the Creativity Card kit. The sample questions are represented under the subheadings of; Why, What, When, Where, Who and How.

- Observe
- Ask
- Qualitative research
- What are people doing already? Benchmarking
- Analyse what people are already doing and how it can be improved - mark pros and cons
- Ask people to diary track

WHY
- Why does the problem exist?
- Why is a solution needed?
- Why has it not been solved already?
- Why is it designed and made in this way?

WHAT
- What do you need to know more about?
- What is it used for? What problems exist?
- What other solutions exist? Are they effective?
- What materials and components are currently used?

WHEN
- When is it used?
- Can it be used at different times for a different purpose?

WHERE
- Where is it used?
- Can it be used at a different location, for a different purpose?
- Where can I look for more information? Are there other sources?

WHO
- Who uses this product, service or system and what are their needs?
- Are there reasons why more people can't use it or interact with it?
- Are users happy with it? If so how, if not why?

HOW
- How does it work? How is it made? How is it controlled?
- Are there other materials, componenets and processes which could be used to create a solution?
- How might I create a better solution?

TIPS FOR BETTER RESEARCH
- Ask Questions.
- Be curious.
- Be open to new ideas.
- Test and experiment with new ideas.
- Sketch any ideas or solutions that come to mind all the way through your project, no matter how basic.
- Look at people and notice how they use and access the spaces and products in the world around them.
- Think broadly.
- Use a broad range of primary and secondary sources. Reference your sources and question whether they are reliable sources

- Make comparisons
- Read secondary sources
- Think of how people interact with something both mentally and physically; what senses do they use?
- Develop character profiles; your target audience

RESEARCH – Reflection Point

Looking back …
What did I already know about this topic / problem / challenge?
What did I think about this topic / problem / challenge?

Pause and reflect
What do I know now…? What have I learned from my research?
Has my opinion changed? If so, how and why?
What conclusions can I draw from my research?
Is the information I have gathered reliable and of high quality?

What next…
What research is important for my project?
How might I share my research with others?
How can I move my project/idea forward?

Use a learning log to sketch and record any design ideas, thoughts, conversations with your teacher and others about your project and possible solutions.
Capture everything, no matter how basic! Some of the best ideas come when you are least expecting, and all ideas can be tried and tested later.
Remember the following quotation through your research, design and in completing your project:
"Ever tried. Ever failed. No matter. Try again. Fail again. Fail better." Samuel Beckett.

- Surveys
- Interviews
- Focus groups
- Experiments
- Secondary data/ archival study
- Mixed methods of the above

Qualitative data and quantitive data are different - short answer with numbers to prove a point and gain an insight or long answers with insights built in and actual feedback being given

Qualitative   Quantitative

Strengths of Quantitative Research Methodology:
- Quantitative methods provide precision as it uses reliable measurement.
- It controls through design and sampling of data.
- It can generate causal statements by controlled experiments.
- Quantitative methods use statistical techniques that help in sophisticated analyses.

Limitations of Quantitative Research Methodology:
- The human experience is absent in this Methodology, so it loses control over all variables.
- Quantification sees no beginning in itself.
- It does not take people's unique ability into consideration; constructs their meanings and applies it.
- It creates an assumption for facts to be accurate, and it remains the same for all people.
- Due to controlled variables, Quantitative Research produces trivial findings of little situations.
- The Researcher takes involvement in choosing the problem significant for investigation subjectively. So, it is not objective.

What do I do?
- Benchmark
- Read reliable sources on the topic
- Extract information and insights
- Keep a list of problems identified that you can address
- Your research has threads that go in different directions but they all lead back to the spool they began from; its okay to do more indepth research on one particular thing that came up as interesting
- If an idea comes to you write it down and move on, don't get stuck on it as you're still researching
- Get your own primary source - surveying, interviews, conversations with people in the space
- Benchmark; list pros and cons of each and areas of improvement
- Lots and lots of reading

Figure 8: An image showing the collaborative analysis of the key research findings using a Miro mapping board.

WP1: Define at least five opportunities to embed learning resource in the Big Idea programme.

- Lesson mapping to be added to illustrate integration of the resource
- A brainstorming session considered how we might draw attention to the TBI Creativity Card Kit as an integral resource throughout the programme. It was decided to design an icon that would be included at the bottom of the TBI lessons presentation slides that would act as a visual prompt to refer students to the device.
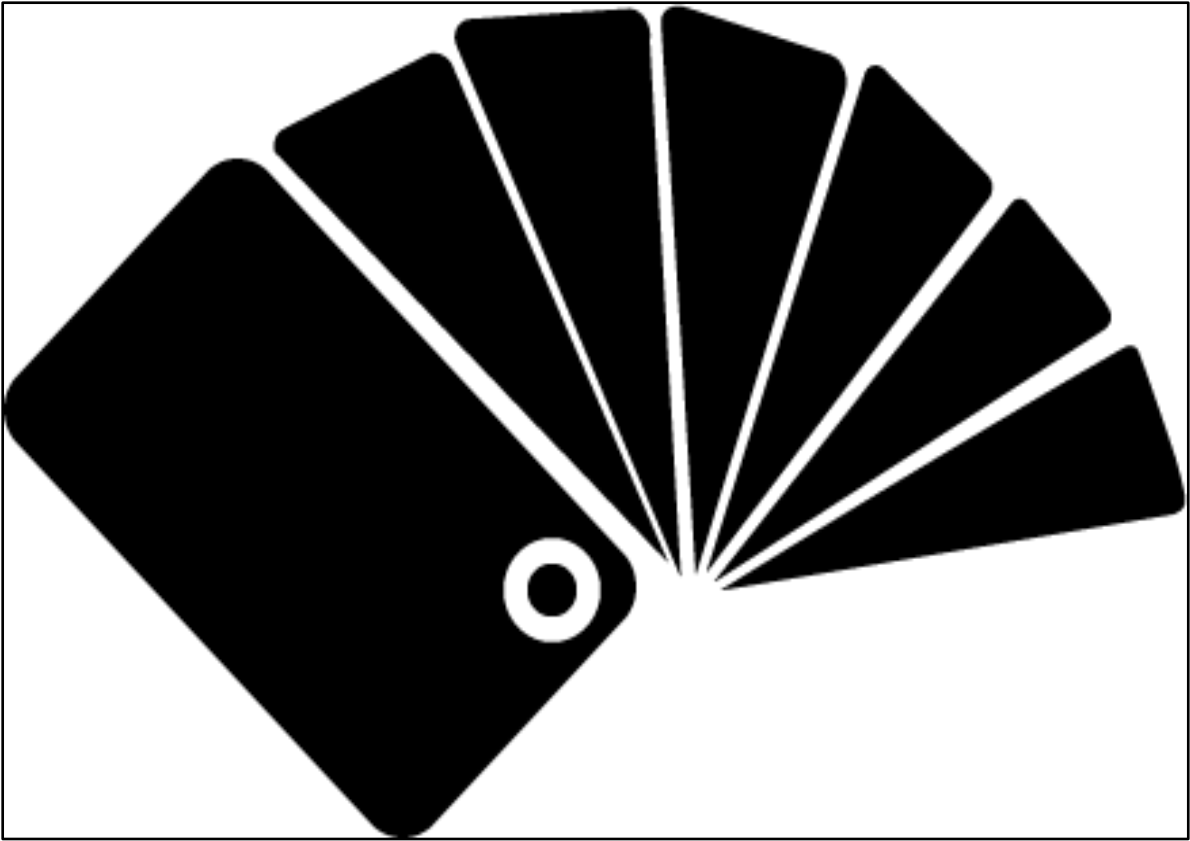
Figure 9: An image showing a prototype of the Creativity Card Kit icon.

Work Package 2 (WP2): Mapping Alignment of Learning

Building on the CEUD and Big Idea content mapping from Year 1 and Year 2 the following areas identify either learning experiences where there is an opportunity to further develop depth and scope of content or an opportunity to introduce new learning experiences. The following identifies the presence and/or depth of treatment of the TBI Creativity Card Kit in the 2023 programme. This section outlines oversight alignment and learning opportunities to improve equity, accessibility and to promote an understanding of UD Principles and Guidelines through immersive, autonomous engagement through the creative process.

WP2: Map the learning opportunities for this TBI Creativity Card Kit to impact students' experience and support the development of JC and SC key skills and associated subject curriculum learning outcomes.

- The TBI Creativity Card Kit offers teaching and learning opportunities that encourage and embed critical creative thinking to support the development of JC and SC key skills and associated subject curriculum learning outcomes. The following outline oversight engagement opportunities with more in-depth correlation to be identified post design development, rollout, and impact.

    o Junior Cycle (JC)

      - JC Key Skills: Managing Information and Thinking, Managing Myself, Communicating, Being Creative, Staying Well, Working with Others
      - JC Indicators of Wellbeing: Aware, Responsible, Connected, Resilient
      - JC Subject Learning Outcomes: Geography - 2.6, English - OL1, OL 2, OL4, OL7, R 1, RE - 3.2, 3.6, 3.9, Science - NoS 5, NoS 6, NoS 10, Business Studies - 2.2, 2.7, 3.10, Visual Art - 3.1, 3.4, Applied Technology - 1.2, 1.5, 1.7, 3.3, 3.6, Engineering - 1.5, 2.2, 2.4, Home Economics 2.5, 2.3

    o Transition Year (TY)

      - TY Modules: *Creativity, Local & Global Citizenship and Social, Moral and Personal modules*
      - TY Key Skills: Information Processing, Critical and Creative Thinking, Working with Others, Communicating, Being Personally Effective
      - TY Aims Incorporated: 1, 2 & 3

    o Senior Cycle (SC)

- SC Key Skills: Information Processing, Critical and Creative Thinking, Working with Others, Communicating, Being Personally Effective
- Leaving Certificate Established Subject' Alignment: Art, Technology, Engineering, DCG, Construction Studies, Geography, Home Economics, Politics and Society, Computer Science.
- Leaving Certificate Applied (LCA): Social Education Learning Outcomes: 1.1, 2.1, 2.2, 3.1, 3.2, Vocational Preparation Learning Outcomes: 1.1, 1.2, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.8, 2.10

WP2: Visually map and position the feasibility of the TBI Creativity Card Kit and associated learning resources in alignment with National Education, Government, and Industry Policy.

- SDG Goal Alignment: The development of the TBI Creativity Card Kit supports SDG 4 Quality Education, which calls for an 'inclusive and equitable quality education that promotes lifelong learning opportunities for all. The TBI Creativity Card Kit supports 'equitable access' through the inclusion of practical and accessible methodologies and that it is provided for every student on the programme. To promote lifelong learning opportunities the application of the TBI Ideation resource beyond TBI is also showcased at different intervals through the programme, encouraging students to use the resource beyond TBI programme, into Senior Cycle and across subject disciplines to navigate through a complex problem. The Creativity Card Kit also activates the SC key skills of Being Personally Effective through guiding prompt questions to activate global citizenship and equitable access to quality education.

- SDG Quality Education Goal 4, Target 4A calls for the development of 'Relevant Adapted materials including learning materials and assistive products that enable students and teachers with disabilities/functioning limitations to access learning and to participate fully in the school environment'. The TBI Creativity Card Kit is designed to support students to take ownership of their learning at a pace which suits their individual learning style. The resource is accessible and instructional in its design with text and images presented in a 'simplified format' as referenced in the target subtext.

- The STEM Education Policy Statement 2017-2026 calls for the creation of learning experiences which help students 'become engaged, creative and critical thinkers, global citizens and active resilient learners in a changing learning environment', (The STEM Education Policy Statement, 2017-2026, p. 21). The Creativity Card Kit activates the key skills of Critical and Creative Thinking and Communicating, echoing the objectives of the STEM Education Policy Statement through guiding prompt questions to activate global citizenship.

- TBI aligns with how the Junior Cycle programme compliments the Action Plan for Education (2019) promoting Creativity and Innovation as one of the eight Junior Cycle Principles. This recognition of creativity as both an approach to teaching and learning and a key competency is echoed in depth and breadth across Junior Cycle.

- Further Education and Training (FET), Equality, Diversity and Inclusion (EDI) Policy alignment. TBI programme promotes a focus on both human centred and public centred decision making and design considerations. (Ref. Future FET: Transforming Learning. The National Further Education and Training Strategy 2020-2024)

WP2: Map the opportunities to integrate the principles of UD and UDL in integrating the TBI Creativity Card Kit through the Big Idea programme and learning interfaces.

- The TBI Creativity Card Kit is designed to integrate the principles of UD and UDL implicitly through student and teacher engagement with the TBI Creativity Card Kit. The seven UD principles and 29 guidelines are implicitly integrated in the 'Ask' and 'Reflect' sections of the process support tool. Guidelines are interspersed as short instructional questions to inspire design thinking and to direct decision making that is both human and public centred. For example: Principle 1: Equitable Use, Guideline 1a. Provide the same means of use for all users: identical whenever possible; equivalent when not, is demonstrated in the 'Ask' Section of the TBI Creativity Card Kit through a series of prompt questions to ignite thinking: Why does the problem exist? Why is a solution needed? What other solutions exist? Who uses this product, service or system and what are their needs? Who can't use it or interact with it? What are the barriers for them? This is demonstrated in the image below which shows a Reflect card layout in the Ideation Phase.
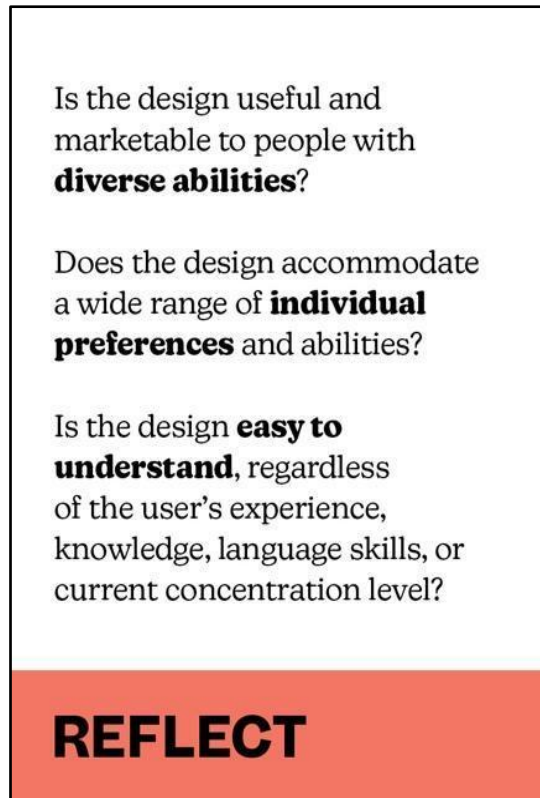
Figure 10: An image showing a prototype design for the Reflect card layout in the Ideation Phase, (Approximate full-scale image of the size of the cards).

- A TBI Ideation/ UD visual icon will be developed to direct students to reference the Universal Design Student resource and associated learning material developed and integrated into the TBI programme in 2022.

Work Package 3 (WP3): Design and Development of TBI Creativity Card Kit

WP3: Design and develop TBI Creativity Card Kit to scaffold learners through the ideation stage of the creative process

- In response to insight research, a process of collaborative ideation and mind mapping produced a wide range of concept solutions throughout the design and development process. Each concept was tested against the key findings of Work Package 1 and Work Package 2. The key insights acted as headings for the ideation process, to ensure all guiding parameters and UD Principles were addressed. The images below show some screen captures from this collaborative design and development process and an analysis of a selection of research and analysis methodologies from The Six Hats Analysis, IDEO analysis methodologies, and an Affinity Map for analysis of the barriers to creation.

Figure 11: An image showing a screen capture from the collaborative design and development process including concept sketches and system thinking concepts.
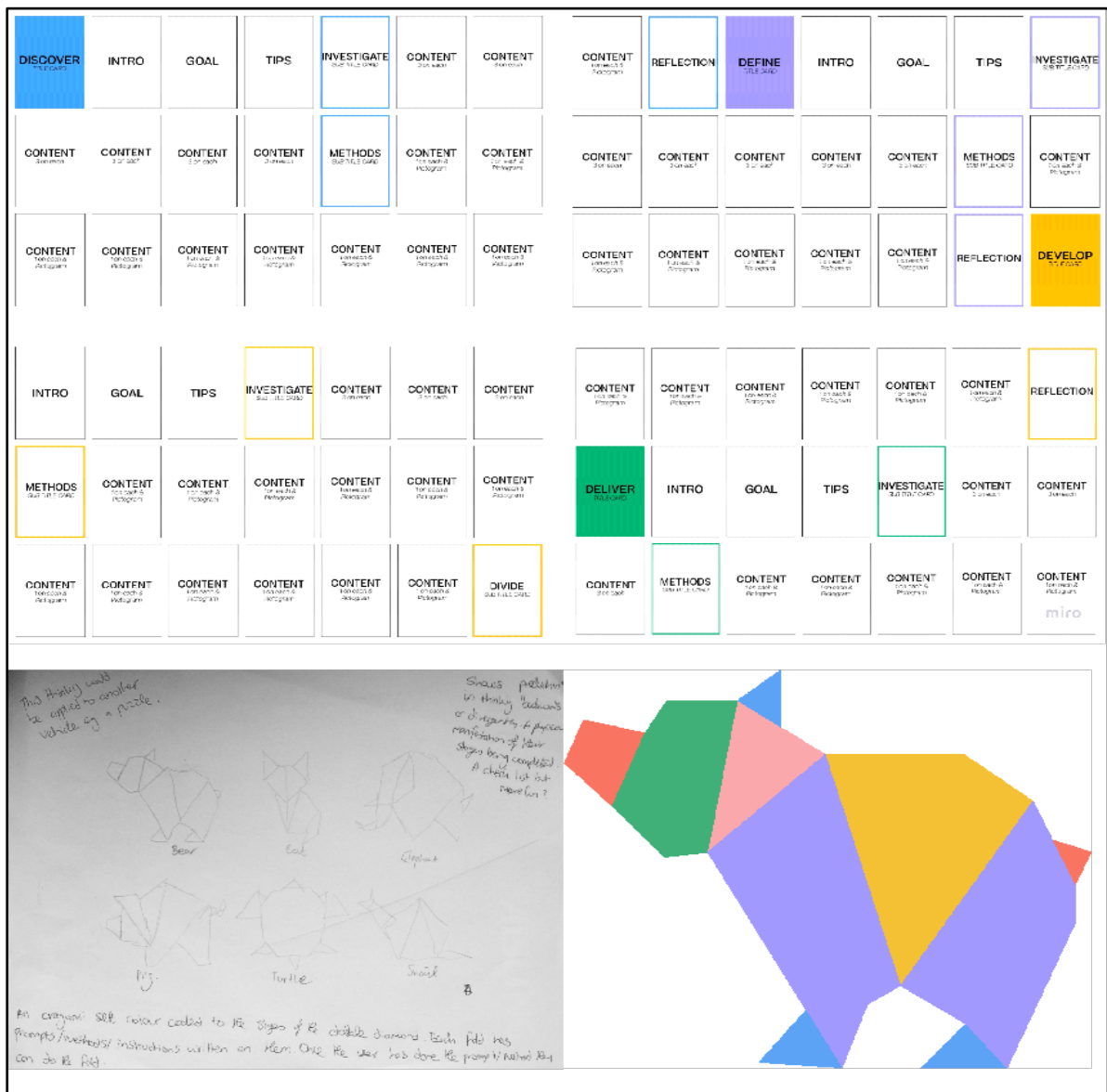
Figure 12: An image showing a screen capture from the collaborative design and development process including concept sketches and system thinking concepts.

WP3: Design and develop programme teaching and learning activities to maximize student and teacher engagement with the TBI Creativity Card Kit through the programme.

Good Design V's Poor Design Activity
In order to emphasise the importance of the UD Principles, a spot the difference activity of everyday public areas was created. Research was undertaken to analyse design elements used in public that improve user experience and align with the UD Principles.
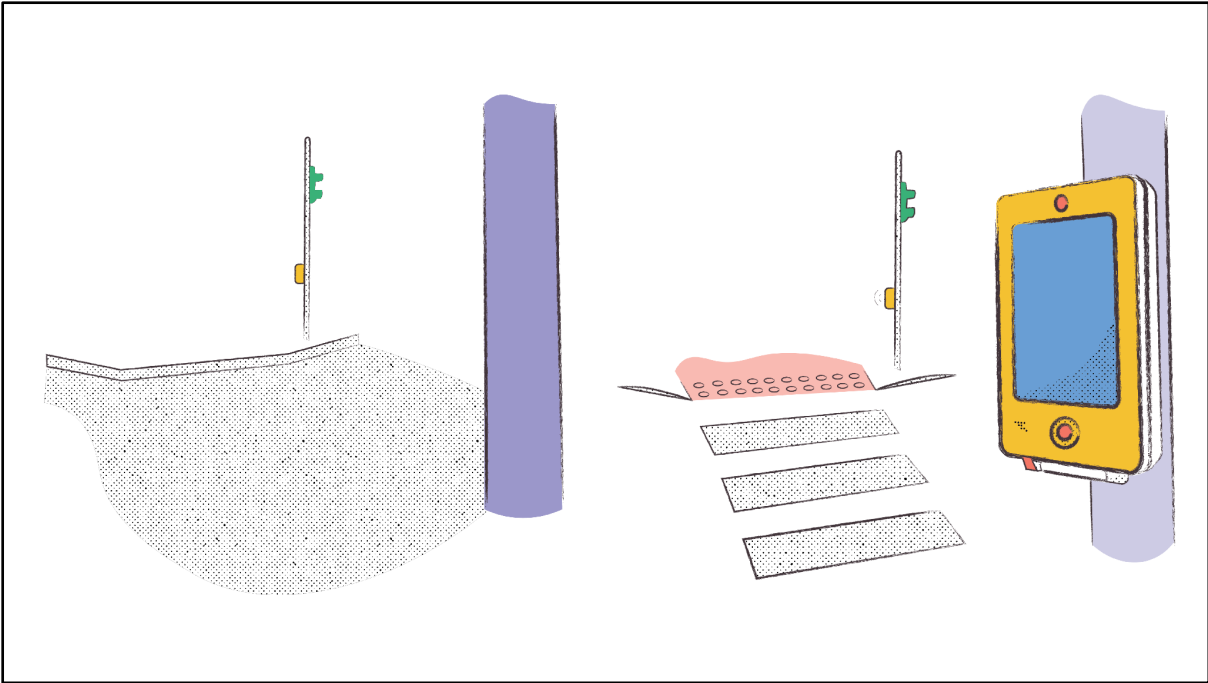
Figure 13: An image showing a screen capture from the Spot the Difference lesson activity. The image shows two road crossings, with the image on the right designed with UD Principles and Guidelines considered.

An area of a street that could be used as a crossing was illustrated with the UD Principles in mind. These good design elements included: a button to activate pedestrian crossing lights with braille included, a pedestrian crossing, a kerb dish ramp from pavement to road, showing a tactile pavement and a beeping signal connected to the traffic light use. In contrast the poorly designed crossing with no consideration to UD Principles included: no button for pedestrian use, no marked crossing, a full height pavement curb with no ramp leading to a steep step down, no tactile pavement usage and no beeping signals.
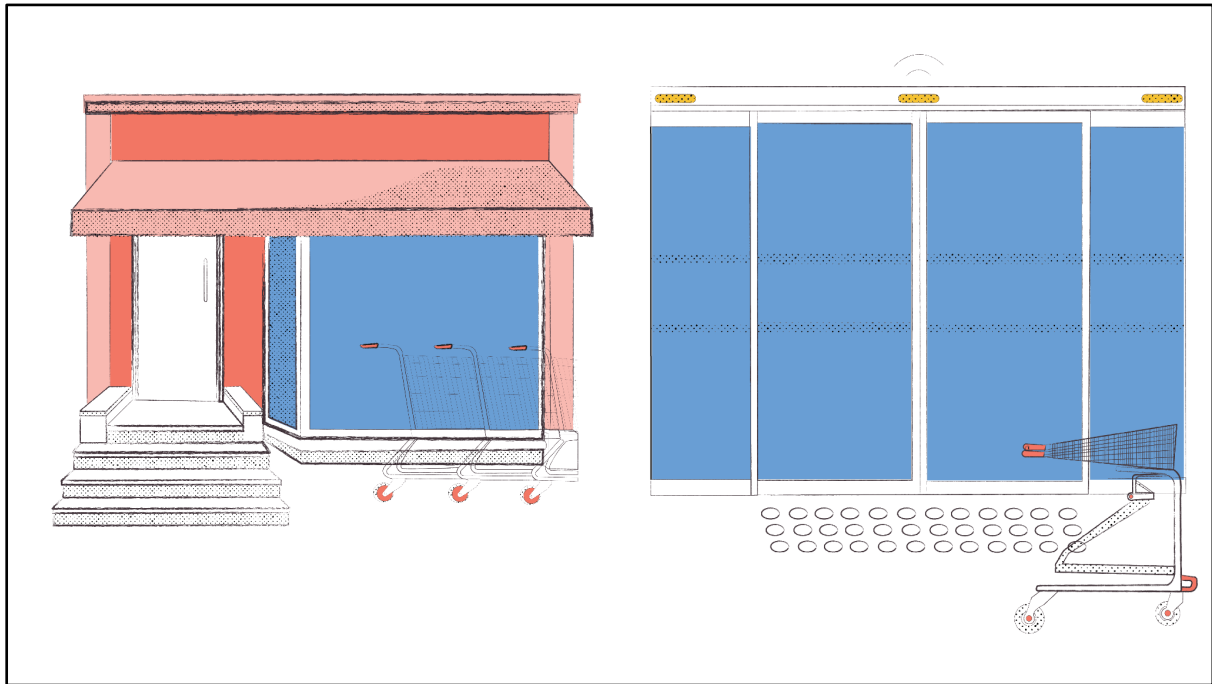
Figure 14: An image showing a screen capture from the Spot the Difference lesson activity. The image shows shop fronts, with the image on the right designed with UD Principles and Guidelines considered.

The second set of drawings for the activity focused on the entrance to a shop. The poor access point included: steps leading up to the door, a manual door and one type of trolley for customer use. The good design illustration created with UD Principles in mind contained: tactile pavement entrance, a wheelchair accessible trolley, an automatic door activated by motion, a beeping alarm system when the door activates, and a visible textured vinyl strip installed on the glass of the door.

WP3: Integrate the principles of UD and UDL through the design and development of the TBI Creativity Card Kit and associated support learning content and interfaces.

- The 7 UD principles are integrated at each stage of the Double Diamond through relatable and accessible prompt questions at the reflection stage. For example, in the Define phase there is a question on the reflection card asking the student to consider 'Is the design easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level?'
- The principles of UD and UDL are integrated through the design and development of the TBI Creativity Card Kit and associated support for learning content and interfaces. In line with Principle 1: Equitable use and associated guidelines, the TBI Creativity Card Kit is designed so it is simple and intuitive to use and accessible to people with diverse abilities through its considered materials, colours, typography and the language utilised. The proposed layout is presented in the image below.
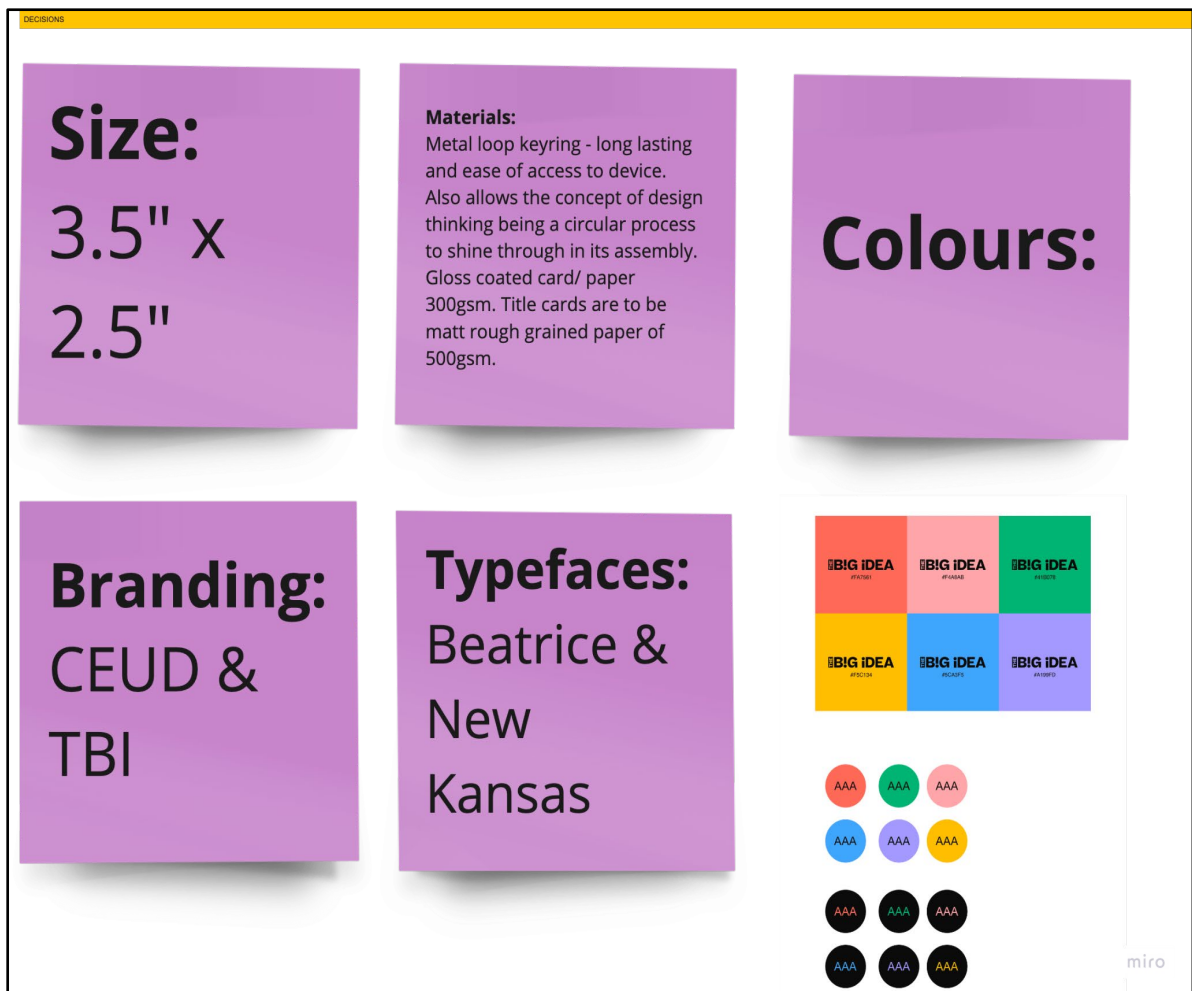
Figure 15: An image showing a screen capture of the collaborative prototyping process to explore possible colours, typography, and language for the Creativity Card Kit.

- A different textured material is utilised for heading cards at the beginning of each section: Discover, Define, Develop and Deliver. This ensures a different sensory experience for students and supports an understanding of the four modes within the process.
- As a physical learning resource, which students move and interact with, the design of the cards fall into the category of nondisruptive toys or objects with sensory appeal. ADHD expert Sydney Zentall explains that sensory resources like this improve the classroom experience supporting students to focus on a primary task.
- The New Kansas typography is used in the design in all instances where it has a Triple-A conformance rating.
- The colours used throughout the full design are also Triple-A rated. These colours make the design more accessible and increase usability for students with dyslexia and other specific learning difficulties. Figure 15 shows an image of the Creativity Card Kit being used by a student during a Big Idea lesson.

Figure 16: An image showing the final Creativity Card Kit being used by a student during a Big Idea lesson.

Digital Creativity Card Kit
A digital version of the Creativity Card Kit was created for ease of accessibility. The solution came in the form of an interactive PDF. A PDF was chosen as it is a widely accessible file type that does not require a specific software package or type to open the document. The following images show iterations of the digital version.

The first digital design only considered desktop users. While this would be appropriate for teachers, it is not suitable for students as the most popular devices available to our age groups would be mobile phones.

Figure 17: An image showing a screen capture of the table of contents with colour coded modes.

The original table of contents included hover states to show the colour coded modes. It didn't include the number of cards in each mode nor did it have clear navigation.
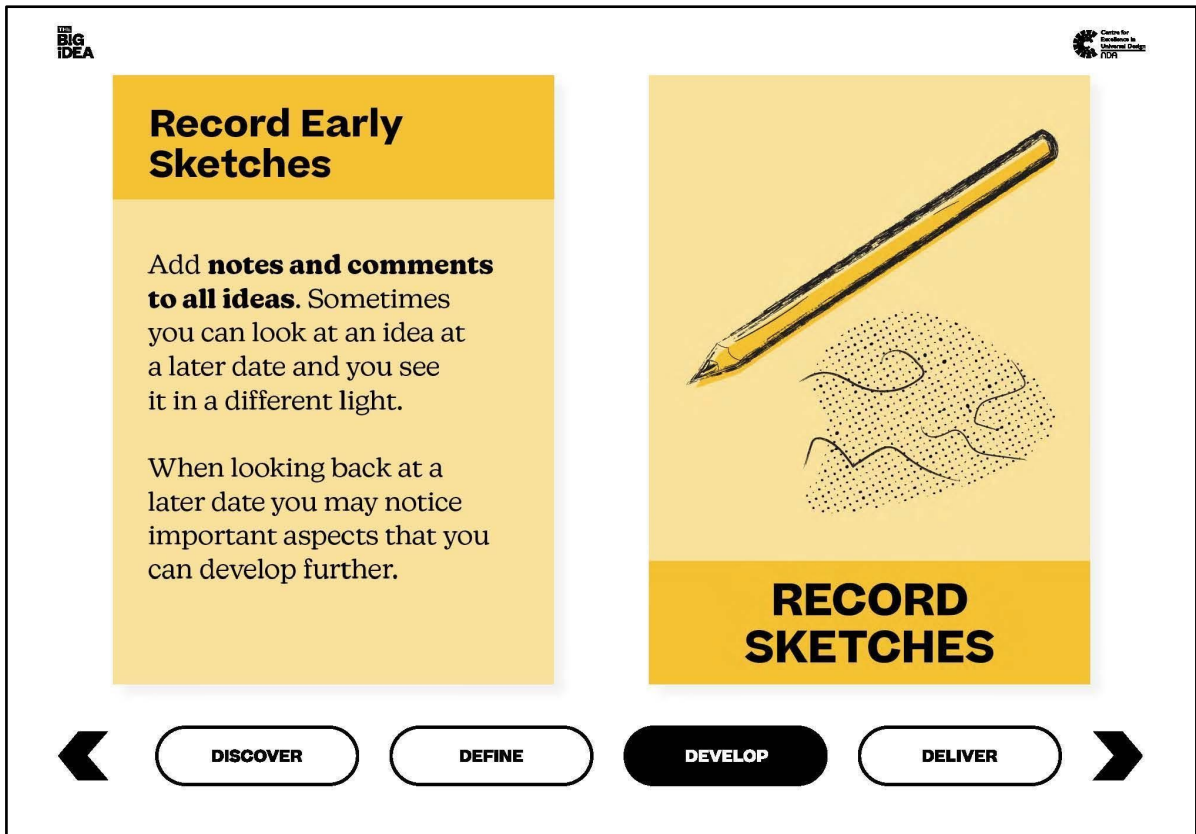
Figure 18: An image showing a screen capture of the digital Creativity Cards with a navigation bar at the bottom for each of the four modes.

The original design contained a navigation bar at the bottom of each page to allow emphasis on the cards. However, the navigation bar showing movement from left to right would be confusing to the user as PDF documents move up and down, not left to right. The navigation bar did not utilize colour coding or give the user an inclination of card numbers or amounts. The front of each card had the small title in the bottom right corner removed in consideration for screen reader technology.
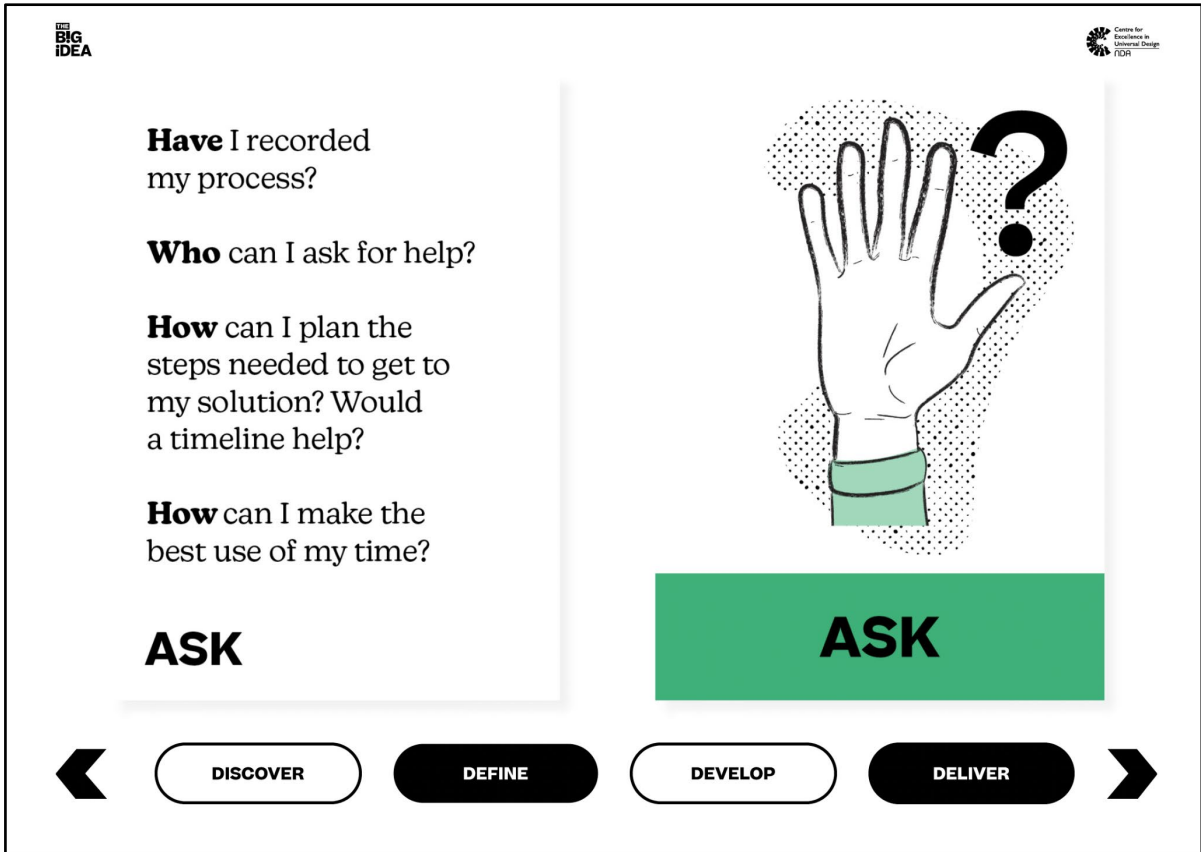
Figure 19: An image showing a screen capture of two digital Creativity Cards with a navigation bar at the bottom for each of the four modes.

The navigation bar utilised hover states for user experience however hover states are not present on mobile devices which made this system non-transferable.
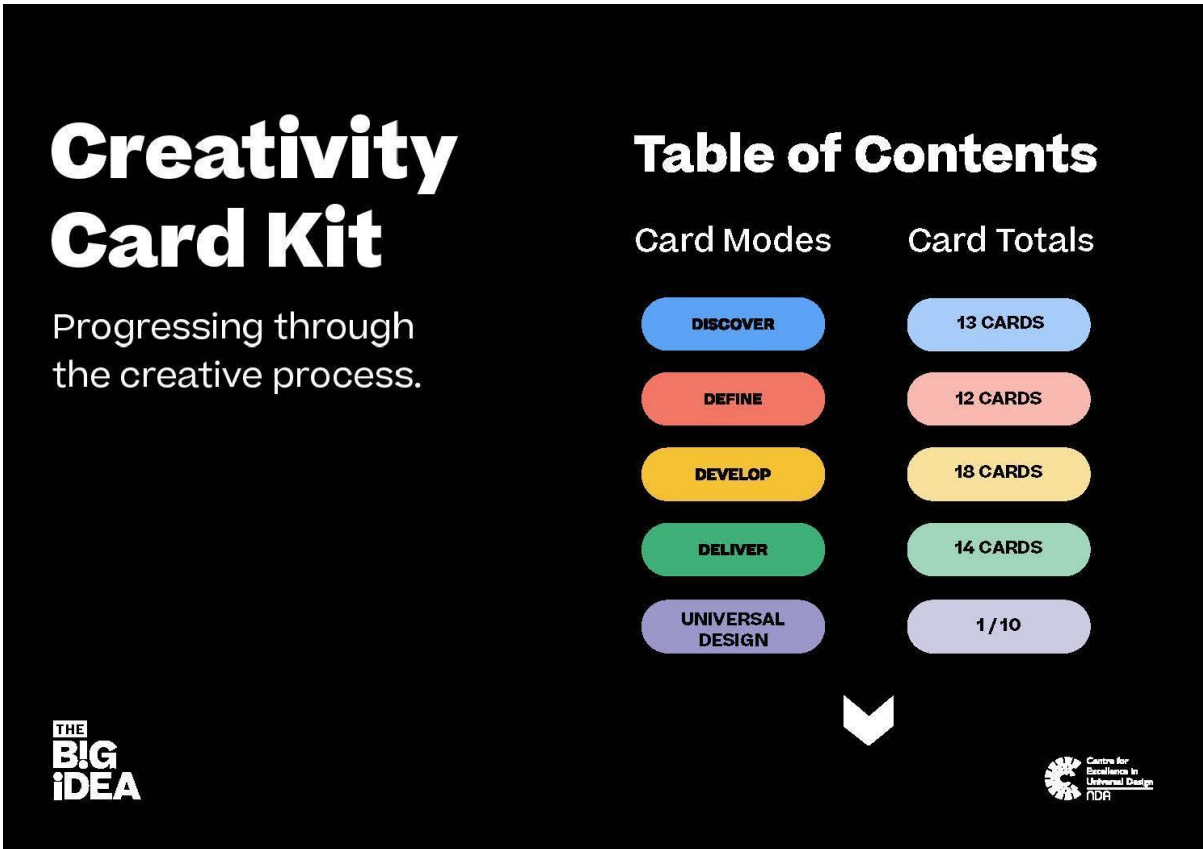
Figure 20: An image showing a screen capture of a revised Table of Contents prototype for the digital Creativity Card Kit.

User experience was considered with a contents page showing the different card modes in their colour coordinated sections for the final version of the digital Creativity Card Kit. A corresponding column was created with card totals letting the user know how many cards are in each mode to avoid confusion between sections. An interactive arrow button was included for mobile users.
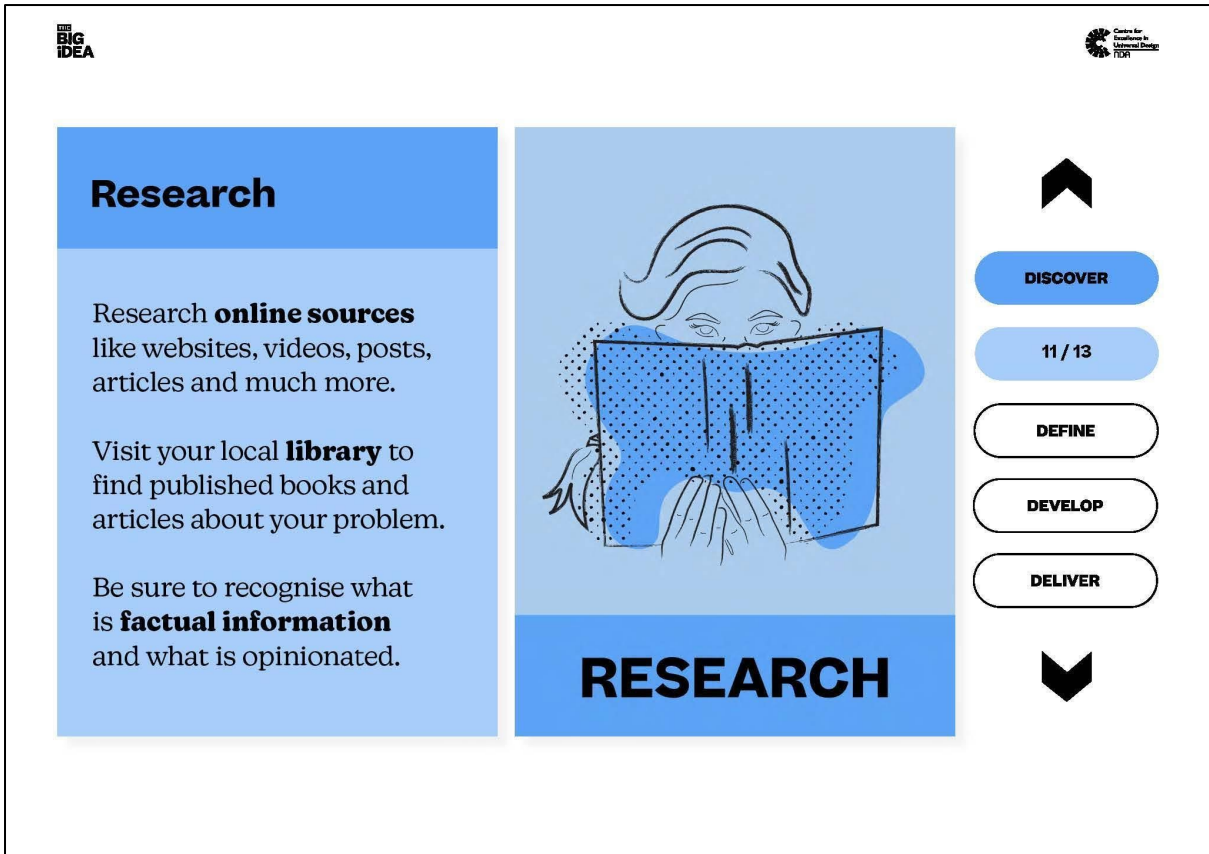
Figure 21: An image showing a screen capture of two digital Creativity Cards with a side navigation for each of the four modes.

Fronts and backs of each card were laid out on a dedicated page, one page per card. A navigation bar was devised to the right-hand side of the cards with an up and down arrow to enable the user to click between cards quickly and efficiently. Each mode is surrounded by a component shape, an empty button with a stroke. Depending on which mode is being explored the button is coloured in. For example, in the image above the Discover component is filled in with the corresponding blue colour selected for that mode. Underneath the button of the active section is the number of the card being viewed and the total number of cards in that mode. This is to avoid user confusion.

Work Package 4 (WP4): Pilot Testing and Modification of TBI Creativity Card Kit & Interim Project Report

The TBI Creativity Card Kit was piloted with a class of 24 TY students and their teachers in the Pobalscoil in Dingle, Co Kerry. A summary of the pilot feedback and findings is listed as bullet points below. The TBI Creativity Card Kit was further modified in response to this feedback and the final design developments are presented in this final report.

- Accompanying visuals are required for each mode to improve user experience and to facilitate the communication of key learning.
- Text is not clear enough and requires modification.
- Photography should not be used for these visuals.
- Accompanying visuals should be clear and concise illustrations or pictograms.
- There are too many cards, and the content needs to be reduced.
- Teacher feedback is to add Reflect questions after each stage and to remind students to record their thinking and design decisions.

Through testing it was noted students would prefer the inclusion of accompanying visuals for each mode to improve user experience and to facilitate the communication of key learning. Through research and analysis, it was determined photography would not be suitable for this device. Photography ages, it can affect users with biases and can disrupt the aesthetics of a design. By using illustration there is the additional bonus of being appealing to our target audience. It was decided that an illustration style like the previous CEUD/TBI designed UD Principles poster would be adapted for the artifact. Using pencil textures appeals to our audience, the halftone texture adds depth to the illustration.
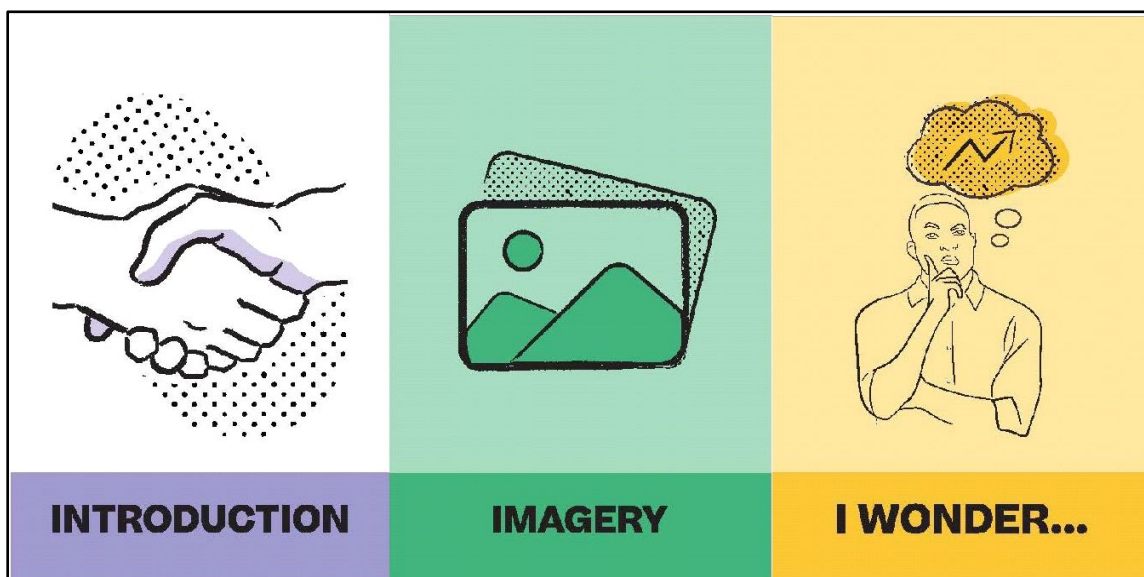

Figure 22: An image showing a revised design for two sample Creativity Cards with pencil textures and halftone texture applied to the illustration.

The teachers suggested the addition of reflection questions after each mode. This will remind students to record their thinking and design decisions. These reflection questions would also aid students in their reflection chart. Some examples of reflection questions included: Is my information reliable and from good sources? What research is relevant to my problem? How can I capture the story of my design and its impact? How can my research help me move forward?

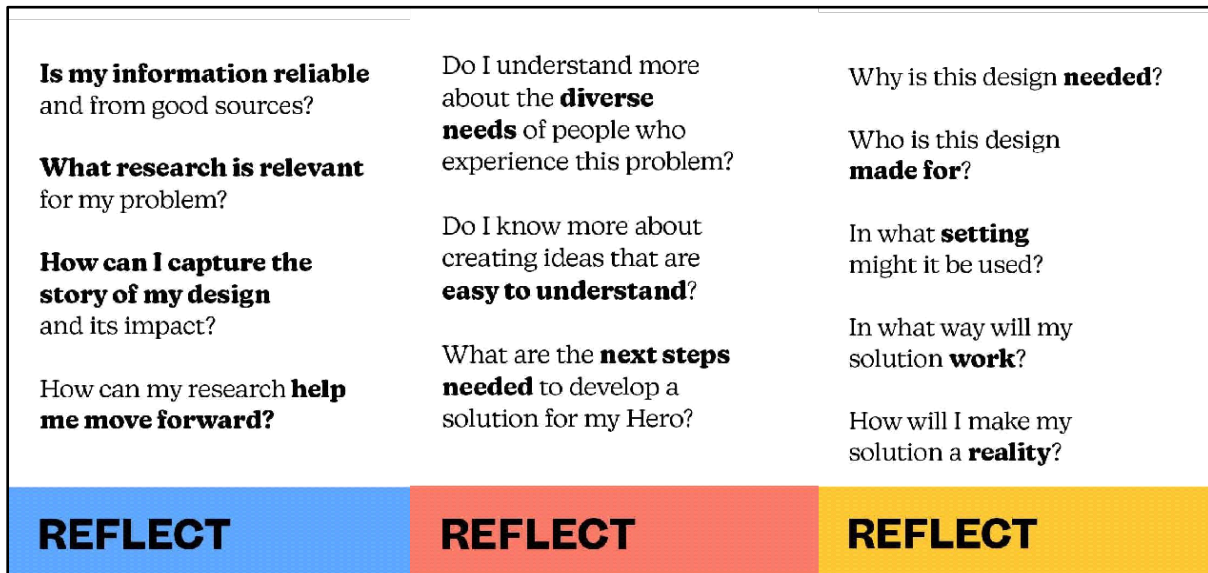|		
Is my information reliable and from good sources? **What research is relevant** for my problem? **How can I capture the story of my design** and its impact? How can my research **help me move forward?**	Do I understand more about the **diverse needs** of people who experience this problem? Do I know more about creating ideas that are **easy to understand**? What are the **next steps needed** to develop a solution for my Hero?	Why is this design **needed**? Who is this design **made for**? In what **setting** might it be used? In what way will my solution **work**? How will I make my solution a **reality**?
REFLECT	**REFLECT**	**REFLECT**

Figure 23: An image showing a revised design for three sample Creativity Cards with question prompts reminding students to record their thinking and design decisions.

Work Package 5 (WP5): Manufacturing, Distribution and Promotion

WP5: Manufacturing and Distribution

TBI Creativity Card Kit and associated teaching and learning resources were distributed to circa 4000 students nationally branded with TBI and CEUD branding. The manufacturing process included sourcing a manufacturer who could deliver the finished product efficiently and effectively within our time limits to a professional standard. Through communication with the manufacturing team, it was suggested we change the size from 3.5" x 2.5" to 62mm x 95mm. They explained the keyring hole could only be placed in the top centre of the card kit, not in the left corner which was envisioned. This was due to the moulds they had available in the factory. The manufacturing company offered us the option of colourful plastic rings as keyring loops which we turned down in favour of a metal hoop ring. This decision was made for two reasons. First, the plastic ring looked too childish and immature for our audience. Second, the plastic ring would not be as long lasting as a metal ring. It was also important we provided a print ready document with high quality illustrations. We ensured the integrity of the illustrations remained through printing by using AI and SVGs of the illustrations.

Figure 24: An image showing the final Creativity Card Kit in use during a Big Idea lesson.

WP5: Promotion of TBI Creativity Card Kit

In addition to embedding TBI Creativity Card Kit throughout TBI programme, TBI Creativity Card Kit was promoted at events such as the Dublin Tech Summit, TBI Showcase and will be used going forward at future events such as the TY Show and Mentor Meetups. An article highlighting the principles of UD, UDL and TBI Creativity Card Kit is due to be published in the summer edition of the National Association of Principals and Deputy Principals (NAPD) Leader publication which is disseminated to all members. In addition, TBI was referenced in the OECD2023 'Supporting Students to Thinking Creatively – What Education Policy Can Do' report for its work to promote creative thinking skills in formal education and as part of Ireland's strategy to reduce the negative impact of student assessment regimes on the practice of creative thinking.

Work Package 6 (WP6): Programme Outputs and Integration

The 2023 programme incorporates best practice approaches to the design, delivery and accessibility of learning materials and interfaces in accordance with UD and UDL guidelines. The learning journey highlights the practical applications of UDL in education, through the design of learning material, and by the sharing of accessible and flexible learning goals and learning intentions with students from the outset. The programme includes UD components to increase students' understanding of the practical application of Universal Design. The 2023 programme includes and explicitly references (explainer video in Week 2 of programme) the previously developed

outputs of the UD Principles and Guidelines Student Reference Resource and UD Case Studies (Flex Week 1 of programme) that showcase best practice UD in Architecture, UX Design and Product Design in addition to the Creativity Card Kit and associated activities.
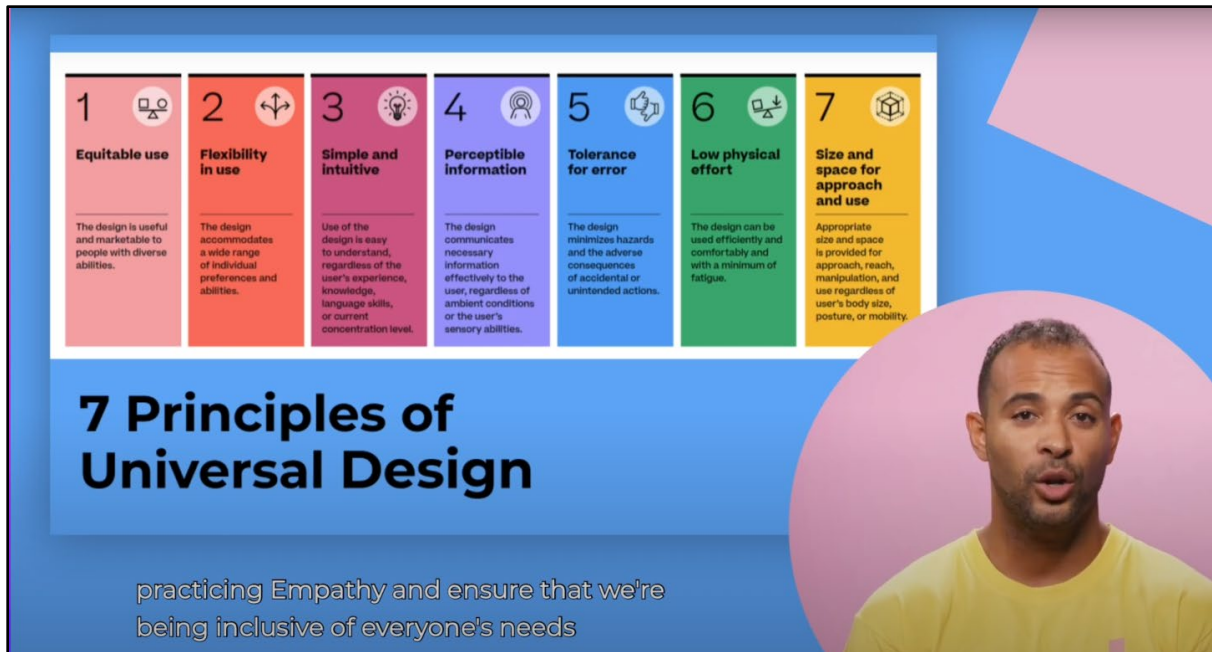

Figure 25: An image showing the UD Principles and Guidelines Student Resource referenced in a Big Idea lesson presentation.

Figure 26: An image showing the UD Case Study Resource referenced in a Big Idea lesson presentation.

Figure 27: An image showing the UD Case Study Activity referenced in a Big Idea lesson presentation.

The 2023 Lesson Template Slide Deck is designed with accessibility and UDL components incorporated. All student-facing content was also modified to address readability, using the Flesch Reading Ease and the Flesch-Kincaid Grade Level readability tools. Content includes real-time video captioning, alt text, screen readers, and readability checks across the learning resources. The 2023 programme used the 2022 Big Idea Brand and Accessibility Guidelines which ensured side decks, lesson resources and education content development aligned with accessibility requirements.

What's Next?

In the next workshop you will apply your learning and understanding of empathy to create your team's Empathy Map.

Remember! We're the 'discover mode' and the aim is to keep an open mind and find out as much as possible about your chosen project brief and the people experiencing the problem.

Figure 28: An image showing a slide from the UD Case Study Activity referenced in a Big Idea lesson presentation.

The Creativity Card Kit is explicitly introduced and explained in Flex Week 1, this week was developed so that it can be embedded at any stage throughout the programme. Giving the teacher the autonomy to use their professional judgement and decide when best to introduce the Creativity Card Kit to their students based on their learning capacity and needs. Flex Week 1 workshop prompts students and teachers to utilise, discuss and explore TBI Creativity Card Kit, which can be used at any stage throughout the creative process.

Creativity Card Kit

The cards help guide you through each mode of the creative process - Discover, Define, Develop & Deliver
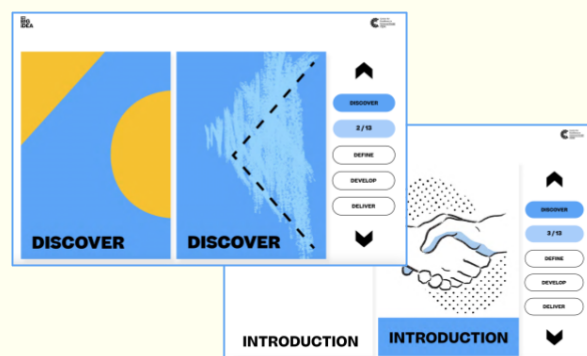
Figure 29: An image showing a slide from the UD Case Study highlighting the

Creativity Card Kit referenced in a Big Idea lesson presentation.

Figure 30: An image showing a slide from the UD Case Study highlighting the Creativity Card Kit referenced in a Big Idea lesson presentation.

The Creativity Card Kit icon is embedded (see sample of icon integrated in a slide in Figure 31) at relevant stages in the slide decks each week. The Creativity Card Kit icon acts as a visual reminder for students and teachers to reference their digital or physical Creativity Card Kit at any stage throughout the creative process.
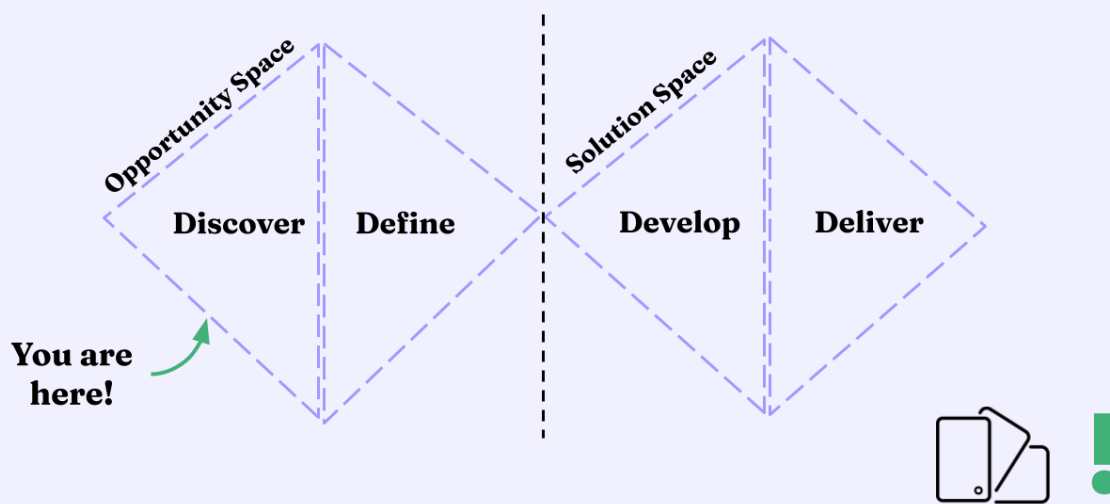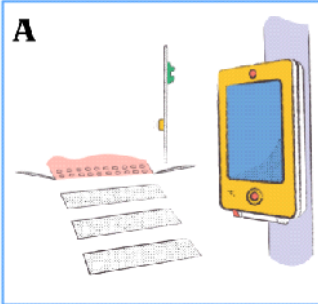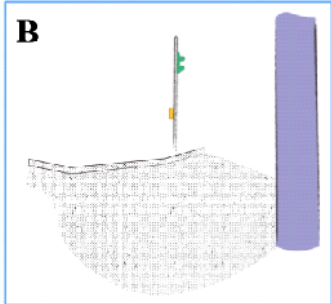
Figure 31: An image showing a slide from TBI programme demonstrating integration of the Creativity Card Kit icon in a Big Idea lesson presentation.

The principles of UD and UDL are embedded throughout the 2022 and 2023 TBI programme. The 2023 programme was further developed to include two activities that explore these principles and provide students with an opportunity to apply their understanding and experience UD in action utilising the Creativity Card Kit. The Spot the Difference Activity and Reimagined Classroom Challenge (Flex Week 1) offer an opportunity to students to use their Creativity Card Kit to explore and apply their understanding of UD.

Figure 32: An image showing two slides from the Spot the Difference Activity referenced in TBI lesson presentation.
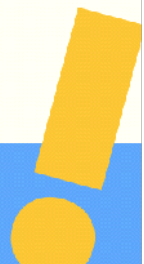
Figure 33: An image showing two slides from the Create your Space Activity referenced in TBI lesson presentation.

Conclusions and Recommendations

Conclusions

This collaborative project between TBI, IDI and CEUD was designed to scaffold Big Idea students through the ideation stage of the creative process and to implicitly integrate the Principles of UD and UDL. The Creativity Card Kit was developed and integrated through TBI TY and LCA programmes in second level schools. A suite of associated teaching and learning resources was also developed to support the integration of The Creativity Card Kit throughout TBI lessons. In January 2023, 4000 students nationally participated in a modified 14-week programme, including students from LCA and two schools in Northern Ireland (NI). The Creativity Card Kit was disseminated to all students.

Recommendations

Going forward it would be recommended to gather more impact data on The Creativity Card Kit. To further expand and capitalise on the impact of the Creativity Card Kit to date, a review of the design and content is suggested to improve and modify the cards. Refer to Appendix D for further expansion on these recommendations.

In addition, TBI has identified an emerging opportunity to create a structured pathway for an immersive creative thinking micro-credential, CPD or digital badge for Mentors, Teachers and adult learners. This could be delivered in collaboration with education centres nationally and third level teacher training. Refer to Appendix E for further expansion on these recommendations.

Appendix A: Overview of the 2023 project partners and The Big Idea Team

About the National Disability Authority (NDA) and the Centre for Excellence in Universal Design (CEUD)

The National Disability Authority (NDA), as the independent statutory body, provides information and advice to the Government on policy and practice relevant to the lives of persons with disabilities. Its functions include research, developing and collaborating on the development of relevant statistics; assisting in the development of standards; developing codes of practice and monitoring the implementation of standards, codes, and employment of persons with disabilities in the public service.

The NDA provides research and evidence-based advice to government officials to inform policy decisions. The NDA also has a role to provide data and statistics to government officials and to the Irish Human Rights and Equality Commission as required, to inform reports made to the UN Monitoring Committee on Ireland's progress under the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).

The NDA's Centre for Excellence in Universal Design promotes the Universal Design of the built environment, products, services and information and communication technologies so they can be easily accessed, understood and used by all people regardless of their age, size, ability or disability. The NDA-CEUD has maintained a continuous Corporate Partnership with the IDI since 2012 for promoting Universal Design nationally.

About Universal Design Curriculum

The NDA/CEUD conducted projects to develop curriculum for use at 2nd Level education in Ireland. The latest output of these projects is a full set of curriculum materials titled Creating Designs for our Tomorrows referred to in this report as the Universal Design Short Course (UDSC). It comprises 70 lessons across four strands as depicted in Figure 34. See a report about the curriculum materials at: http://universaldesign.ie/Awards/Education/Second%20level%20education/

Figure 34: A diagram showing the four strands in the Junior Cycle Short course for Universal Design (excerpt from brochure for teachers and schools).

About The Institute of Designers in Ireland (IDI)

The Institute of Designers in Ireland (IDI) is the largest professional body of designers working across disciplines nationally, with thousands of members north and south of the border. The Government, clients and other professional bodies recognise the IDI as being the national and regional representative body and voice of designers working professionally in the industry.

The IDI focuses on where it can make a difference: influencing policy, providing a national platform for our members, building a more successful creative community through knowledge sharing, establishing professional standards, public initiatives, awards, events, and training.

About The Big Idea

TBI is a post-primary Transition Year (TY) education programme centred on introducing students to innovation, Universal Design, critical thinking, and problem solving, while increasing the school and societal impact beyond the classroom. In January - May 2023, 4000 students nationally participated in a modified 14-week creative programme, including students from Leaving Certificate Applied (LCA) and two schools in Northern Ireland (NI). The creative programme was facilitated by teachers of every subject discipline over one double lesson or two single lessons each week. The programme is free to schools and students with all teaching and learning resources and equipment for lesson activities provided. Equitable access to

the programme materials and reducing the barriers to creativity is a fundamental objective of TBI.

Over the 14-week duration the programme guides students and their teachers through the creative process, demonstrating practical applications of creative thinking in solving problems with a real-world context. Before commencing the programme, students are surveyed and asked to identify the social problems that are most concerning to them. Their responses are used to shape the five challenges that are presented to them during the programme. In 2023, the five challenges or categories identified were Hidden Poverty, Climate Change, Mental Health, Diversity and Inclusion, and Displaced People.

Industry professionals contribute and support the programme by [mentoring students](), sharing their insights and experience and offering students constructive feedback at key milestones in the development of their Big Idea. TBI process culminates with a [Showcase Event]()celebrating students' creative skills and their Big Idea journeys. Students are recognised and their ideas awarded, with a winning team in each category and an overall Big Idea team winner.

The Big Idea Showcase event also features inspiring interviews with mentors and creative leaders sharing their industry experience and the impacts of creative thinking. All student work is celebrated and recognised through an online interactive exhibition. Three components from each participating team are exhibited: A process poster documenting the team's learning journey, a project proposal poster explaining their Big Idea and a team video highlighting their experience and insights. The [online Exhibition]() remains available for incoming students to view and analyse previous project outcomes.

The Big Idea Team

TBI team project roles and responsibilities are as follows:

- Kim Mackenzie Doyle (KMD) - Creative Lead, Logistic and Operational support
- Fiona Byrne (FB) - Head of Education
- Niamh Cooney (NC) - Head of Development and Sustainability
- Janine Leahy (JL) - Digital Designer
- Mairead Mulhern (MM) - Funding Manager
- Patrick Freeley (PF) - Multimedia Manager
- Allison Gillespie Blake (AGB) - Copywriter and Editor
- Christine Tobin - Communications Manager
- Niamh Murray (NM) - Programme Development and Project Manager

Appendix B: The Big Idea Year 1, 2 and 3 Outcomes and Outputs

The Big Idea Year 1 Outcomes

Impact measurements from Year 1 (January - May 2021) show that 100% of the 500 students involved in the programme learned or developed their skills in problem solving, creative thinking, communication and researching. An increase in student's confidence is identified as a key attribute of the programme together with an increase in student's sense of connectedness to their community. This is reflected by 90% of students who complete TBI experience feeling motivated to volunteer within their community. Despite launching in Level-5 Covid-19 restrictions and with schools engaged in remote learning, TBI achieved a 92% satisfaction rate from teachers with regards to the quality of learning materials and teaching support provided. Teacher and student feedback identified that further development of the programme should include more examples of good design practice and teaching and learning strategies in relation to the principles and practices of creative thinking.

THE B!G iDEA

Our impact in numbers

The B!G Impact

Students were surveyed on their experience of The B!G Idea 2021. 500 students from 8 schools around Ireland participated in this year's programme. Schools from across the education sector were represented from rural and urban schools to Voluntary Secondary, ETB and DEIS schools.

100% Answered **Yes** when asked: Do you have a deeper understanding of creativity now than before The B!G Idea?

100% Answered **Yes** when asked: Did you feel you learned new skills through The B!G Idea?

98.5% Answered **Yes** when asked: Do you feel more confident in using creative thinking in the future to address challenges you might encounter?

Please select the skills you feel you have developed:

Creative thinking 92.5% **Problem solving** 65.6% **Working in a team** 86.5%

90% Answered **Yes** when asked: From your experience in The B!G Idea do you feel motivated to volunteer in the future?

Research 67.1% **Communication** 68.6%

97% Answered **Yes** when asked: Did you enjoy The B!G Idea programme?

Results based on a survey from 67 teams who submitted projects in the 2021 programme.
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Figure 35: A diagram showing the impact in numbers of TBI Year 1 on student skill development.

The Big Idea Year 2 Outcomes

TBI programme in 2022 worked with 42 schools in 22 counties across Ireland, with 89 teachers from varying subject disciplines. This was in response to a waiting list of over 10,000 students from the 2021 programme expressing a national appetite for creative education. The 2022 programme accommodated an increased number of schools in the DEIS (Delivering Equality of opportunity In Schools) category. Four

hundred industry mentors supported students at key intervals through the programme, bridging the gap between industry and education and increasing the visibility of applied creative thinking across industry sectors.

The impact data from 2022 demonstrated that 100% of teachers enjoyed delivering TBI programme. 100% of teachers reported a deepened understanding of creativity and of the application of creative thinking in solving problems with 84% agreeing that the experience will support their students as they move into senior cycle and beyond. Additionally, at the end of the 2022 programme 100% of students reported having a deeper understanding of Creative Thinking and 94% felt confident following TBI experience to tackle challenges in their life and within their community.

100% Answered **Yes** when asked:
Did you feel you learned new skills through The B!G Idea?

100% Answered **Yes** when asked:
Do you have a deeper understanding of creativity now than before The B!G Idea?

98.5% Answered **Yes** when asked:
Do you feel more confident in using creative thinking in the future to address challenges you might encounter?

97% Answered **Yes** when asked:
Did you enjoy The B!G Idea programme?

94% Answered **Yes** when asked:
Do you feel more confident in using Creative Thinking in the future to address challenges you might encounter?

Skills learned by our students:

Creative thinking

Problem solving

Working in a team

Research

Communication

Figure 36: A diagram showing the impact in numbers of The Big Idea Year 2 on student skill development.

The Big Idea Year 3 Outcomes

Year 3 of TBI was launched in January 2023, introducing approximately 4000 students and their teachers from over 84 urban and rural schools nationally to the

programme. This is an expansion on the nearly 2000 students in 42 schools that participated in the programme in 2022. The programme was further expanded to include Leaving Certificate Applied students and two pilot schools in Northern Ireland. Industry mentors supported students at key intervals during the programme. In addition, 4 schools successfully piloted a mentor-student working session where students and mentors had the opportunity to interact, discuss the students' experiences of the creative process to date and explore where the students should focus their attention next.

After completing the creative programme 91% of students agreed or strongly agreed with the following statement 'I am creative', this is in comparison to only 56% of students agreeing or strongly agreeing with the statement before commencing the programme. Additionally, 70% of students agreed or strongly agreed with the statement 'I feel empowered and believe that I have the creative skills needed to solve problems in society' post-programme compared to 37% of students' pre-programme. Moreover, 100% of students agreed that the programme and associated suite of physical and digital resources contributed to developing the following skills and competencies:

- creative skills and knowledge,
- overall wellbeing,
- confidence and sense of empowerment,
- ability to communicate and work well in a team,
- ability to work independently, research and investigation skills and
- ability to learn from failure.

The Big Idea Year 3 Outputs

In addition to incorporating best practice approaches to the design, delivery and accessibility of learning materials, more interfaces with UD and UDL guidelines were added. TBI 2023 programme included and built on the previously developed outputs such as the Lesson Template Slide Deck, real-time video captioning, alt text, screen readers, readability checks across learning resources, the UD Principles and Guidelines Student Reference Resource and UD Case Studies. Five outputs were developed to embed TBI Creativity Card Kit across The Big Idea programme. These outputs included:

- Introduction and explanation of the Creativity Card Kit (Flex Wk 1)
- Creativity Card Kit icon (Throughout Programme)
- Spot the Difference Activity - UD in Action (Flex Wk 1)
- Reimagined Classroom Challenge - UD in Action (Flex Wk 1)
- UD Principles and Guidelines video (Wk 2)

The Creativity Card Kit is explicitly introduced and explained in Flex Week 1, this week was developed so that it can be embedded at any stage throughout the programme. Giving the teacher the autonomy to use their professional judgement and decide when best to introduce the Creativity Card Kit to their students based on their learning capacity and needs. Flex Week 1 workshop prompts students and

teachers to utilise, discuss and explore TBI Creativity Card Kit, which can be used at any stage throughout the creative process.

The Creativity Card Kit icon is embedded at relevant stages in the slide decks each week. The Creativity Card Kit icon acts as a visual reminder for students and teachers to reference their digital or physical Creativity Card Kit at any stage throughout the creative process.

The principles of UD and UDL are embedded throughout the 2023 TBI programme. The 2023 programme was further developed to include two activities that explore these principles and provide students with an opportunity to apply their understanding and experience of UD in action by utilising the Creativity Card Kit. The Spot the Difference Activity and Reimagined Classroom Challenge (Flex Week 1) offer an opportunity to students to use their Creativity Card Kit to explore and apply their understanding of UD.

The 2023 programme has an explainer video that was developed, produced and, embedded into Week 2 of the programme to outline and introduce the UD Principles and Guidelines to provide context and insight into the Creativity Card Kit.

The Big Idea - Academic and Industry Accreditation

TBI TY programme curriculum was endorsed by the National Council for Curriculum and Assessment (NCCA) in June 2021 and now features as a suggested [Transition Year Curriculum component](#) on the NCCA website alongside other accredited programmes. To meet the specified criteria a programme must support students in meeting the five key skills of Transition Year as identified in the NCCA TY Curriculum: Critical and creative thinking, Working with others, Being personally effective, Communicating, and Information processing.

TBI was the winner in the 2021 Design Education and Research category and the 2021 Grand Prix prize winner at the annual The Institute of Designers in Ireland (IDI) awards held on the 11th of November 2021. TBI was also the 2021 winner in the IDI Design Education Research category. The category encourages students to look at the role design plays in our changed world and its responsibilities. The judges looked for entries that encourage engagement with the real world, demonstrating collaboration with industry, culture, and society, and for raising awareness of the value of design.

TBI was also awarded the IDI Grand Prix prize which recognises overarching impact across Industry and Academic. The Judges thoughts are captured on the IDI Award Winners website page describing TBI as "An outstanding initiative, superbly branded to engage its audience, backed by a visionary and dedicated team of design professionals and educators."

Reference: https://www.idiawards.ie/projects/the-bg-idea/
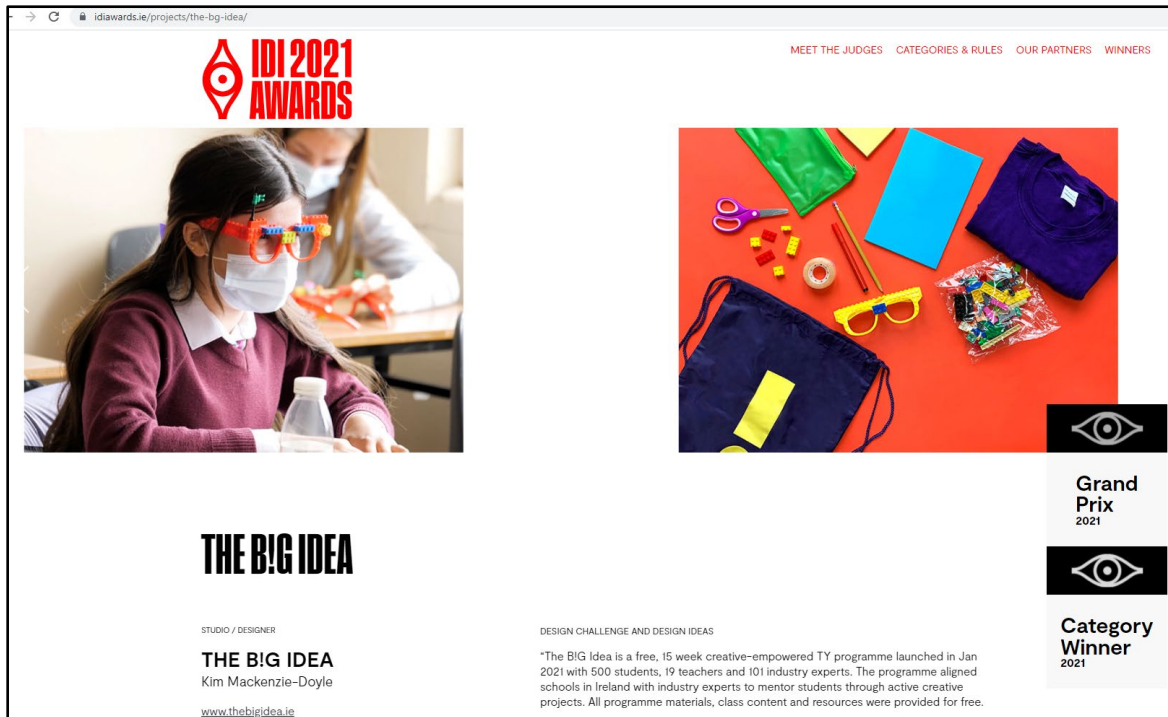
Figure 37: The images show a screen capture of the IDI 2021 Awards website featuring TBI Grand Prix and Design Education Research Category Winner.

TBI was shortlisted for the 2022 Think Global Awards for Education & e-Learning and Inclusivity & Accessibility. Equally recognised in business and enterprise sectors, TBI won 'The 2022 Best Start-up' at the National Enterprise Awards through the Carlow Local Enterprise Office and was also a winner at the Carlow Web Awards in association with the Sunday Business Post 'Public Choice' award. Additionally, TBI was shortlisted for The Irish Times Innovation Awards (New Frontiers category), the Diversity in Tech Awards (Social Impact Award) and Institute of Designers in Ireland Awards (Design Education and Research Award).

Thus far in 2023, TBI won the Think Global Awards (Education & eLearning category) and Carlow Digital Awards (People's Choice Award). In addition, TBI was shortlisted for The Irish Business Design Challenge, the National Enterprise Awards and the HundrED.org – global education innovators.

Appendix C: The Big Idea 2023 Programme Outline

TBI 2023 programme stages are represented in the figure below. The programme is delivered over 14-weeks from January to May. Students move through the creative process stages of Research, Ideation, Development and Delivery, engaging in the development of creative, critical thinking skills, through lesson activities each week. The programme finished in May 2023 with The Big Idea Showcase event to celebrate all students' progression through the programme and their Big Idea solutions.
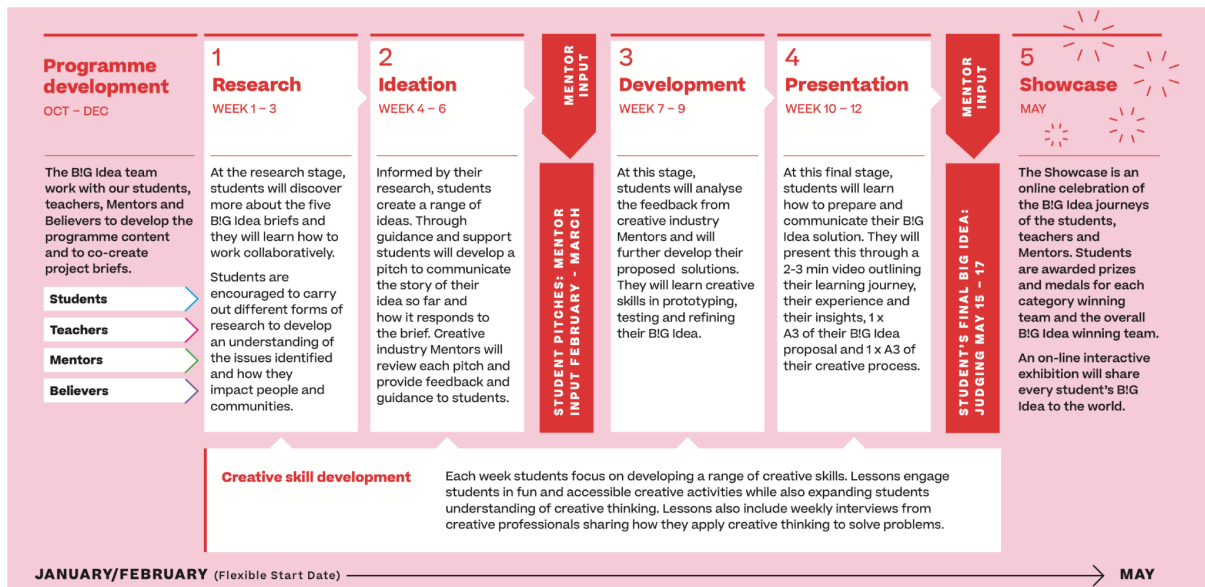
Figure 38: A visual overview of TBI 2023 programme, with key stages, key deliverables and creative skills outlined.

This image below shows a timeline of TBI 2023 programme, detailing the 14-week lesson content from 9th January to 12th May 2023. The timeline includes the Mentor Pitch phase, where mentors provide students with constructive feedback on the direction of TBI. The Mentors judged the students' Big idea projects in Week commencing the 8th of May. The timeline also includes two Flex weeks where schools have the opportunity to catch-up on core content and two weeks of Easter Holidays where students can use this time to further develop their solutions.

2023 Programme - Pathway A 10 core lessons + 2 Flex Lessons + 2 Reflection Lessons 14 weeks engagement		
Date	Week Number	Lesson Title
2nd Jan	Soft Launch	Creative Challenges Provided
9th Jan	Week 1	Programme launch - Introduction & Big Idea Project Briefs
16th Jan	Week 2	Empathy in the creative process
23rd Jan	Week 3	Creating Personas
30th Jan	Week 4	Research & Interviews
6th Feb	Week 5	Progress Check-In - Communicating your thinking
13th Feb	Midterm	February Midterm
20th Feb	Flex Week 1	Flex Week 1 - Creative Pathways
27th Feb	Week 6	The Mindset of a Changemaker & Feedback Loop
6th March	Week 7	Analysis and Synthesis
13th March	Week 8	Advanced Prototyping/App Development
20th March	Week 9	Journey Mapping & Communicating your Big Idea
27th March	Flex Week 2	Flex Week 2 - Creative thinking in Industry
3rd - 10th April	Easter Break	Easter Break
17th April	Week 10	Communicating Big Ideas & Submission of outputs
24th April	Outputs & Reflection	Learning Journey Reflection
1st May	Outputs & Evaluation	Mentor Final Feedback
8th May	Big Showcase Friday 12th May	Showcase Event Friday 12th May - Morning

Figure 39: This table shows a timeline of TBI 2023 programme, detailing each week from 9th January 2023 to 12th May 2023.

The Big Idea Policy Alignment

Endorsed in June 2021 by the National Council for Curriculum and Assessment (NCCA), TBI 2023 education programme supports the continued progression in student learning and skill development. Key skills and competencies from The Framework for Junior Cycle (2015) and The Junior Cycle Indicators for Wellbeing are activated through student engagement with TBI creative process.

The programme learning outcomes also align with various national policies including Creative Ireland's Creative Youth Plan (Strategy 1: Supporting collaboration between formal and non-formal approaches to creativity in education; Strategy 2: Extending the range of creative activities for our young people; Strategy 3: Embedding the creative process) and The STEM Education Policy Statement 2017-2026.

TBI programme supports and complements the actions identified in The Department of Business Enterprise and Innovation [Together for Design: Digital, Product and Strategic Design Skills of the Future](#) (2019). This study examines the future demand for design skills over the years 2020-2025 and is published by the Expert Group for Future Skills Needs (EGFSN). The 2022 Big Idea programme features in the Together for Design Report Annual Review 2021-2022 as a key action project, summarising the programme's national reach and impact with Young People.

Expanding the Programme Pathways

In 2023, TBI further expanded the education programme welcoming students from Youthreach and Leaving Certificate Applied (LCA) through two successful pilot projects. Martina Haier, one of the coordinators participating on the Youthreach extended pilot programme identified positive engagement and meaningful interaction with the programme itself and supportive resources. *"We are only half way through our sessions for The Big Idea and already I can see the positive engagement from our learners in terms of group discussion and exploration… The layout of the sessions lends itself very effectively to meaningful interactions from the class, the materials are fantastic and… the resources are also excellent and the support from The Big Idea team is really helpful and positive",* (Ref: Martina Haier. Northside Youthreach, 2023).

TBI has also established strategic partners in NI including education and corporate partners and an academic partnership with The University of Ulster. The 2023 Big Idea programme was expanded to include two schools in Northern Ireland (NI) on a pilot basis. The feedback and insight gained from this pilot will be utilised to inform the expansion and development of TBI programme in NI in addition to further research and collaboration. Collaboration on this project has commenced with Big Motive and the University of Ulster. Students in NI successfully completed the pilot programme and experienced the creative processes through activities and creative resources designed specifically to support collaboration, wellbeing, teamwork, and creative thinking.

The SMART B!G Roadmap

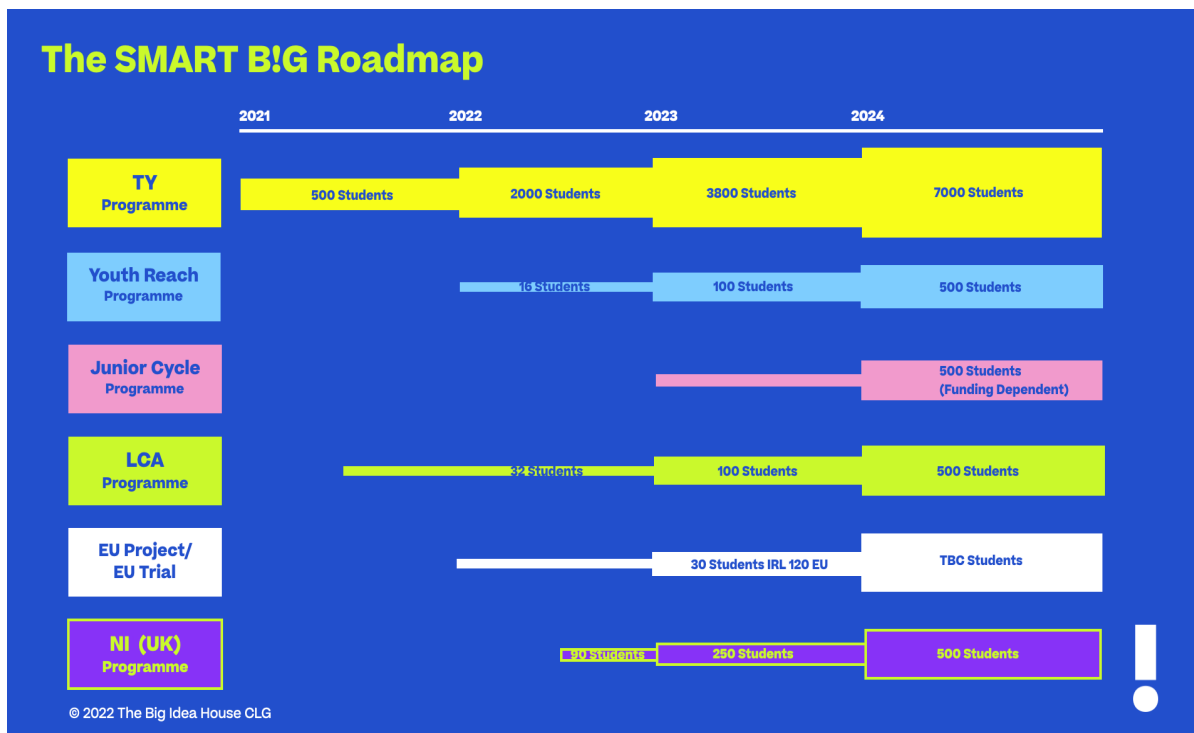|	2021	2022	2023	2024
TY Programme	500 Students	2000 Students	3800 Students	7000 Students
Youth Reach Programme		16 Students	100 Students	500 Students
Junior Cycle Programme				500 Students (Funding Dependent)
LCA Programme		32 Students	100 Students	500 Students
EU Project/ EU Trial			30 Students IRL 120 EU	TBC Students
NI (UK) Programme		90 Students	250 Students	500 Students

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Figure 40: A visual overview of TBI Programme Roadmap from 2021- 2024. A visual overview of TBI Programme Roadmap from 2021- 2024.

International Education Expansion

In 2023, TBI participated in an EU KA2 education project partnership with four other partners across Europe: Kaos Pilots (Denmark), Politecnico DI Milano (Italy), High School of Agrinio (Greece) and Secondary School of Agriculture and Forestry Vinkovci (Croatia). Moving forward, the objective is to map programme learning outcomes across National and International policy, Sustainable Development Goals (SGD), Junior and Senior cycle learning outcomes, Leaving Certificate Applied (LCA) module learning outcomes and Quality and Qualifications Ireland (QQI) Level 3 and Level 4 criteria.

Appendix D: The Big Idea 2023 Education Impact & Recommendations

2023 National Presence

TBI programme in 2023 worked with 82 schools in 21 counties in the Republic of Ireland and 2 schools in 2 counties in Northern Ireland. Additionally, the programme expanded to include students from Leaving Certificate Applied (LCA) in 4 schools. Four hundred industry mentors supported students at key intervals through the programme, bridging the gap between industry and education and increasing the visibility of applied creative thinking across industry sectors.

2023 Impact Testing and Communication

Evaluation of TBI programme like all things creative is an iterative process. Impact data is captured at key intervals through the programme from the design, delivery, and evaluation of the programme to subsequent modifications in response to feedback. The key stakeholders in the evaluation process are students, teachers and mentors with impact captured from each independently. Stakeholder experience throughout the programme is captured through quantitative and qualitative data and is analysed in line with programme outcomes and success criteria. The impact is monitored through short term goals and managed in-line with TBI growth projections. Impact is also shared with partners and TBI Board of Directors.

Creativity Card Kit Impact

Before commencing the programme over 50% of students asked for a practical tool to help them through the creative process. Students were supplied with a digital and physical copy of the Creativity Card Kit to support them through their creative learning journey. The Creativity Card Kit was designed as a stand-alone resource as well as a resource that is embedded into, and integral to the creative journey through TBI programme.

Figure 41: An image showing the final Creativity Card Kit being used by a student during a Big Idea lesson.

On completion of 2023 TBI programme students were surveyed to gather feedback and review impact of the TBI programme and resources. 87% of students responded that the creative resources (including the Creativity Card Kit) had a positive impact on their understanding of the creative process and 12% reported that the creative resources had a neutral impact on their understanding of the creative process. 66% of students used the physical creative resources while 65% used the digital creative resources as a support throughout the creative process. This finding highlights the importance of having a choice of both digital and physical resources available to students to empower them to learn in a manner that best suits their needs.

Figure 42: An image showing the final Creativity Card Kit being used by students during a Big Idea lesson.

In addition to the Creativity Card Kit positively impacting students' understanding of the creative process, 76% of students reported that the creative resources positively influenced their experience of the creative process and 24% of students stated that it had a neutral impact. The Creativity Card Kit contributed to students experiencing positive creative learning journeys and were better able to connect and apply the content and knowledge to their big ideas. Moreover, 100% of students agreed that the programme and associated suite of physical and digital resources contributed to developing the following skills and competencies, including:

- creative skills and knowledge
- overall wellbeing
- confidence and sense of empowerment
- ability to communicate and work well in a team
- ability to work independently, research and investigation skills and
- ability to learn from failure

Figure 43: An image showing the final Creativity Card Kit being used by students during a Big Idea lesson.

Creativity Card Kit recommendations

Going forward it would be recommended to gather insight into; how many students used the physical resources only, how many students used the digital resources only and how many students use both the digital and physical resources. To further expand and capitalise on the impact of the Creativity Card Kit to date, a review of the design and content is suggested to improve and modify the cards. This would be conducted with a view to manufacturing and distributing the Creativity Card Kit to all students participating in the 2024 programme (funding dependant).

Appendix E: The Big Idea 2023 Partner & Mentor Impact & Recommendations

2023 Mentor and Partner Reach

TBI attracted nearly 400 Industry and Academic professionals in 2023 from every sector nationally and internationally to support 4000 students through their learning journey. From CEOs to graduates, the mentors all engaged in reviewing student projects and providing constructive feedback to students at the pitch phase and the final submission stage. Mentors included Elena Rimeikaite, Head of Design at Kooba; Fiona D'Arcy, Non-Executive Director at Linesight; Ciaran Harris, Co-founder of Each&Other, to name but a few.

TBI's brand authority and mission attracted a wide network of corporate partners in 2023. These partnerships are vital to the growth and sustainable development of TBI and the relationships built with partners are highly valued by TBI team. Support from partners also ensures the programme remains free for students, thus democratising creativity. TBI values the continued partnership with the NDA/CEUD that has enabled the programme to expand since its inception. Award Partnerships include MSD, RIAI, Netwatch, LEO Carlow and Rethink Ireland. Programme partnerships include Design Partners, Linesight and EPAM. Sixteen Foundation Partnerships exist with partners from a wide variety of Industry sectors, bringing multiple experiences of creativity to the programme and to student projects.

TBI 2023 programme was also supported by academia, with six third level organisations committing academic mentors and paying a partnership fee to be involved in the programme. This includes Institute of UCC, MTU, Griffith College, TUD, TUS and Ulster University.

2023 Mentor and Partner Impact

In addition to providing valuable feedback to students at the team pitch phase and final judging phase, the 2023 Big Idea mentors also contributed to the development of the programme by sharing insights into the application of creative skills and the creative process in their workplace through Mentor Interviews. In addition, they contributed activities that supported students to explore the creative process. Mentors also shared relatable advice to students through weekly Tips & Tricks videos embedded into lessons and through the Instagram Live Big Five segment on social media.

Figure 44: An image showing the mentor interview embedded in a Big Idea lesson presentation.

For teachers, mentor engagement and communication with student teams at the pitch phase was a pivotal aspect of TBI process. This engagement is described by Christina, a teacher in a County Cork school: "They felt listened to, and proud of the positive feedback. The mentor feedback really helped with planning for the final outputs" – Christina (Ref: Christina, H., St. Bernadette School, 2023). For students, the visibility of mentors through various aspects of the programme contributed to a new understanding of industry sectors and career pathways which employ creative thinking.

Mentor Conclusions and Recommendations

Qualitative data from the programme in 2022 and 2023 indicates positive effects on mentors' creative mindset, work practices and relationships, with improvements in coaching, mentoring, and providing feedback skills. Employee skills in coaching, mentoring and providing feedback are being improved through participation in TBI second-level programme. TBI has identified an emerging opportunity to build on the Mentor appetite for learning events, CPD and for peer-to-peer engagement and learning.

A future project could look to amend current programme assets to create a structured pathway for an immersive creative thinking micro-credential, CPD or digital badge for Mentors, Teachers and adult learners. The programme could offer a semi-structured, hands-on, and flexible online learning module focused on creative problem solving (and potentially Coaching and Mentoring) for companies to provide to their employees or for teachers to complete professional CPD (which has the added value of marketing our Big Idea youth programme to schools and teachers). This could be delivered in collaboration with education centres nationally and third

level teacher training. The course would provide participants with recognition of learning and the opportunity to connect with like-minded professionals from various industries, fostering collaboration and innovation. Key elements of the course may include interactive modules, real-world case studies, practical exercises, social issues challenges and access to industry experts as mentors through events and meet-ups.

Appendix F: References

Project Policy References:

- Children's Rights Alliance Ireland (2010). Article 12 – Convention on the Rights of the Child, https://www.childrensrights.ie/sites/default/files/UNCRCEnglish.pdf

- Department of Education and Skills (2019) *Action Plan for Education* https://www.gov.ie/pdf/?file=https://assets.gov.ie/24356/56207ef5c4ea4a9896ca0c5caed10579.pdf#page=1

- Department of Education and Skills (2016). *Looking at Our School 2016: A Quality Framework for Post-Primary schools.* https://www.education.ie/en/Publications/Inspection-Reports-Publications/Evaluation-Reports-Guidelines/Looking-at-Our-School-2016-A-Quality-Framework-for-Post-Primary-schools.pdf

- National Council for Curriculum and Assessment (2021). *Transition Year Units,* https://ncca.ie/en/senior-cycle/programmes-and-key-skills/transition-year

- National Council for Curriculum and Assessment (2015). *Being Creative,* https://ncca.ie/media/1148/beingcreative_april_2015.pdf

- National Council for Curriculum and Assessment (2019). *Junior Cycle Wellbeing Guidelines,* https://ncca.ie/media/5062/updated-guidelines-2021_en.pdf

- National Disability Authority: Accessibility of Websites and Mobile Applications of Public Sector Bodies) Regulations 2020.

  http://nda.ie/publications/communications/eu-web-accessibility-directive/

  https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32016L2102

- The STEM Education Review Group November (2016). *A Report on Science, Technology, Engineering and Mathematics (STEM) Education Analysis and Recommendations* https://www.education.ie/en/Publications/Education-Reports/STEM-Education-in-the-Irish-School-

Additional References & Resources:

- Ahead: https://www.ahead.ie/creatingaccessibledocuments

- Ahead: https://www.ahead.ie/udlforfet-links

- Centre for Excellence in Universal Design: Universal Design in Education and Training – policy landscape in Ireland

- Centre for Excellence in Universal Design: Webinar - A Universal Design for All Approach: Methods for a Culture of Co-Design

- Liz Sanders - Generative Design Methods Cards: https://maketools.com/

- National Council for Special Education (NCSE): https://ncse.ie/teacher-post-primary-curriculum-support