An Impact-Centred Tool for Developing Design Students’ Capacity for Sustainable Transformation

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Abstract At their course’s final years, both undergraduate and postgraduate design students are often presented with a pool of topics that they can select from to work on their major/final project. Some students struggle first with making this choice, and then, after the work is submitted, marked and the degree is completed, they have to deal with the frustration of leaving such projects behind and totally inconsequential. This may happen because the student is not oriented towards reflecting on how each of the possible topics to choose from can become a more or less impactful project 1) during the remainder of their studies, 2) for their professional development and future employability, and 3) in terms of supporting/helping a wider community, by solving a problem common to many.

After analysing 35 generative boards/canvases retrieved from a diversity of professional sources, a taxonomy for the design of this kind of visual tools was optimised and a visual board—the Impact Plan—is proposed. It aims at obviating the lack of reflection on the moment of choosing a project, providing students with a matching process between their interpretation of the available or most interesting projects from said pool, and their motivations, capacities, ambitions, levels of altruism and perception of value. A low-fidelity prototype was designed and tested with academics and careers/placements officers. The tool triggered immediate interest, for which reason it is currently being implemented as alternative assessment (due to the recent COVID-19 disruptions) in a postgraduate academic context.

Keywords Impact · Design students · Canvas · Purpose · Project-based learning

1 Introduction

Paying more attention to design students’ employability responds to their main motivations for enrolling into Higher Education (HE) courses—motivations which are, supposedly, instructed by a self-understanding of the skills, qualities, culture and
ideology of an intended job (Jackson 2016). Students increasingly see the need to add value to their academic achievements, in order to gain an advantage in the job market. Hence, by requiring students to find solutions for a real-world problem, a tool that provides them with guidance towards meaningful and impact-led projects may well be a way to help them build their agency and authority in a specific wicked problem of their concern and/or of concern to many. This configures as a design exercise since design is often focused on anticipating a future that does not yet exist, solving problems for multiple stakeholders in a complex changing world.

Therefore, from an educational perspective, it seems relevant to systematically enhance the notion of impact of design projects, reminding students that the more impactful their contribution is, the higher their currency will be, either to become a valuable employee or to embark with confidence into self-employment.

It is HE design lecturers’ job, as learning facilitators, to not just provide students with greater awareness in relation to the macro and micro contexts we (and will) live in, but to accompany the design process of their projects in a way that allows them to anticipate not only their career ambitions, but also to prepare, with that in mind, a meaningful, relevant, sustainability-led and transformational output.

The intended outcome of this research is a humanity impact-based/-led tool to connect HE design students’ reflective practice with their pre-professional identity, aiming at anticipating (and speculating on) the short, medium and long-term outcomes their design projects will have in their lives (as students and, then, as professionals) and in the lives of others. It aims at providing final years’ design students with a structure for reflecting, planning and prioritising their experiences for heightened employability, guiding them through the main contexts in which their design projects can trigger or build on some sort of impact.

2 Literature Review

Personal Development Planning (PDP) draws on two main theoretical grounds: the Experiential Learning Cycle, developed by Kolb (1984), and the constructivist theories of Reflexive Identity Formation, which defend that reflexivity is deeply linked to the reinvention of the self (Giddens 1991; Beck 1992). Although PDP can be approached within a learning frame (which is the most common), the latter theories have been having an increased influence in the field of career development by encouraging people to identify issues, constructs or themes that inform their future actions (Ward and Watts 2009, p. 9), potentially leading to outcomes for self-presentation purposes, such as meaningful and real-life informed portfolios. Hence, supporting PDP is increasingly relevant to students’ employability.

According to Jackson (2016), paying more attention to students’ employability responds to their main motivations for enrolling into HE courses. The expectation is for the students to have a self-understanding of the skills, qualities, culture and ideology of an intended job, which work as the fuel to pursue their studies, responding
to the need to add value to their academic achievements, in order to gain an advantage in the job market (Leman, 2018; Berger and Wild 2017; Lindley and Machin 2016).

2.1 Experiential Learning and Reinventing the Self Towards a Career

According to Kieslinger et al. (2009), motivation is one of the key factors for successful adult involvement in learning and knowledge sharing activities. Duckworth et al. (2007) performed a study on grit, which is defined as perseverance and passion for long-term goals, suggesting that the achievement of difficult objectives associated to complex, wicked problems entails not only talent, but also its application over time and in a sustained and focused manner. Maslow (1943) argues that while individuals have basic needs that must be considered, they also have needs for socialisation, esteem, and self-actualisation; it is quite clear to this author that the goal of each individual is to do their best with their potential in order to be personally fulfilled. Gough (1998) defends that one of the basic human needs is to recognise oneself as a distinct and independent individual. The author argues that it is through learning and education that individuals develop to achieve that.

Experience is as much grounded in constructivist, social, and situational thinking as it is deeply related to humanistic and motivational theories because of its core of social interaction. According to psychologist Carl Rogers (1983), experiential learning (as opposed to memorisation in cognitive learning) meets the learner’s needs and includes feelings and emotions. Several studies show that a good learning experience must involve novelty, change and emotions in order to be memorable. Csikszentmihalyi (1990) proposes the Theory of Optimal Experience, well-grounded in the literature on human motivation, arguing that individuals achieve their best performance when they reach a level of excitement considered “optimal”, somewhere in between super-stimulation and monotony. Csikszentmihalyi’s optimal experience, also known as flow, describes a state in which the individual is completely engaged in an activity that must be both challenging and attainable, i.e. the activity provides an optimal level of arousal, being flow the perfect match between skills and opportunities.

Thus, experiential learning promotes and is promoted by goal-oriented motivational opportunities that can lead individuals to ideal learning situations where their abilities can confront, in a balanced manner, the challenge they face. And while Csikszentmihalyi’s theory of flow may seem somewhat individualistic and egocentric, in design education the learning contexts in which students can achieve ideal experiences always provide social interactions and moments, especially in classes in which students are involved in meaningful experiences strongly related to the societal problems they identify, they (re)define, they research, develop, prototype and test, towards an ethically sound and sustainable solution.
Solution-oriented behaviours are central to this kind of methodology, extensively explored in the context of Design Thinking (DT) and, lately, by the educational community in general. Being the main motto its human-centeredness, DT explores the development of active listening skills, agile thinking and design skills, in a continuous fail-and-learn-fast style (Curedale 2013). DT has obvious links to Problem-Based Learning (PBL) and to the Real World Classroom teaching model which is based on decision-theory learning (Choi and Lee 2008), where students are encouraged to work in teams to solve complex and real problems, assuming that learning is an active and constructive process, permeable to social and situational conditions (Barrows 1996; Gijselaers 1996). The opportunity to address and solve perverse and/or complex dilemmas that arise in wicked real-life problems helps students develop contextual knowledge and content, as well as reasoning, communication, and self-assessment skills. Thus, such a practical approach allows them to maintain levels of interest and motivation because they easily understand the transferability of these skills into any other real situation they may encounter in their future area of expertise.

Under the umbrella of Reflexive Identity Formation, reflexivity provides a framework to explicate how students negotiate ethical decision-making throughout the course of the design process (Corple et al. 2018), providing them with an augmented level of agency. Reflexivity includes moments in which the individual understands “…something that is already in plain view” (Wittgenstein, 1953, p. 89) and, consequently, the impact such new understanding can bring to ones’ lives (Cunliffe 2002, p. 57). It should be noted that reflexivity differs from reflection: according to Rennie (1992), reflection involves self-awareness, while reflexivity involves reflection plus agency within such self-awareness. Thus, as suggested by Savickas (2016), “reflexivity fosters a self-awareness that flows into intention” (p. 84).

2.2 Speculation Tools and Humanity-Centred Design

By requiring students to find solutions for a real-world problem, a designerly tool that provides them with guidance towards self-awareness and the subsequent construction of design career intentions—that could guide meaningful and impact-led projects—may well be a way to help them build their agency and authority in a specific wicked problem of their concern and/or of concern to many.

This configures as a speculative design exercise, when design is a field inherently interdisciplinary, often focused on anticipating a future that does not yet exist, solving problems for multiple stakeholders in a complex changing world (Tharp and Tharp 2018). Design Fiction is a design method based on narrative (storytelling, predictions, prototypes, etc.) which aims at challenging normality and the status quo with speculative designs that outline and provoke ideas and conceptualisations for the development of new products, processes, systems, principles and services. According
to Spacey (2018), most design fiction narratives operate at the design concept level, “… a foundational idea that gives a design its depth, meaning and direction”. The author lists 14 design concepts as the most common: functions, features, quality, form, style, emotions, usability, technical, nature, experience, community, culture, risk and sustainability.

Hence, design courses should be guiding students toward the design of solutions that, as designer and Artefact’s co-founder Rob Girling (2020) mentions, “have minimum negative impact, create and sustain equity, and build on technological advances without disrupting the foundations of society. We have the responsibility to evolve from human-centered design thinkers to humanity-centered designers by changing our perspective, our timeline and our methodology”. He adds that constructs such as authentic corporate social responsibility and triple bottom line are gaining mindshare, making all kinds of large, medium and even small organisations declaring their commitment towards sustainable positive social impact. Design students need the experiential and reflexivity-led tools that allow them to develop and prepare as humanity-centered designers, without underestimating their fundamental wellbeing, essential to achieving such Self-Other high level of commitment.

This leads to the insight that all designers should actually be altruism-aware individuals. Zwick and Fletcher (2011) suggest eight levels of altruism that they group into two main areas: the predominantly biological realm, and the predominantly cultural realm. At the bottom of their scale, the first level of pre-altruism is Self-Interest, explained as “The foundation of action for others is action for oneself”, whilst at the top the authors suggest the levels Life Altruism and Being Altruism, which look into biospheric sustainability and looking after all sorts of existence (living and non-living) in the planet. At the middle of this scale one would find Group Altruism defined as “group solidarity—is very important in human society, and occurs at multiple levels, ranging from small groups, organisations, communities, ethnic groups, nations, followers of the same religion, etc.”. Hence, the two main groups seem to relate with, respectively, the Self and its networks, and the Other. The latter is a greater group that would include not only other human beings, but also all remaining living and non-living beings that are part of our planet-wide ecosystem.

However, no literature nor tool was found on the anticipation of impact of students’ projects or its practical relationship with 1) employability and 2) humanity and sustainability in general. Nonetheless, in order to better define action plans and clarify processes for work, a variety of tools and visual artifacts has been developed in the last few years to support such kinds of activities (Lundmark et al. 2017). In the past couple of decades, several design and innovation canvas-based tools have been created, and most have been made freely available on the web; only a few allow reflexivity at design fiction level and no tool was identified establishing the link between reflexivity and speculation with HE students’ careers and its implications at heart.

In a moment when many design students increasingly develop research skills that are being more and more requested by the creative industries where, expectedly, they will find their future jobs, and also when academics are being asked for clear statements on the influence of their research, it seems relevant to systematically
enhance the notion of impact, reminding design students that the more impactful their contribution is, the higher their currency will be, either to become a valuable employee or to embark with confidence into self-employment. Furthermore, having students concerned with the impact of their projects will work as a pull mechanism for lecturers, leading them to better relate the curriculum to the practice world beyond HE (ERiC 2010; QAA 2009).

3 Methodological Approach

This research is rooted in Hermeneutics and the Theory of Change, and its qualitative nature is being greatly informed by inductive and abductive reasoning.

After a literature review and a benchmark exercise on the existing employability-led tools and the canvas-based activities to support design and innovation, decision-making, speculation and impact-centred thinking, a conceptual model was conceived, leading to the design of a low-fidelity prototype representing a draft version of a designerly tool which was discussed via informal unstructured interviews with two design academics, two careers/placements officers and one HE pedagogy specialist. This approach resulted in collecting the data that allowed answering the question that guides this research:

How can design students’ final projects be guided by humanity- and impact-centred thinking?

The benchmark exercise developed from a selection of 35 project-related tools out of 312 canvases, boards, diagrams and other generative activities, collected from seven different sources and retrieved from either agencies/practitioners’ online publications (official websites, blogs, wikis), monographies and scientifically developed resources, published in academic journals. The selection criteria were the presence of elements that would frame the activity under design and innovation, decision-making, speculation and impact-centred thinking, and the presence of triggers, actions or components that would relate to categories “personal and professional development”, “project outcomes or effects” and “sustainable future”.

The analysis resorted on an optimised framework for analysis of generative tools which was crafted for this project (Lelis 2020) by combining some of the dimensions of the meta-taxonomy for diagram research by Blackwell and Engelhardt (2002) and the categories for Design Space of Innovation Canvases suggested by Thoring et al. (2019).

4 Benchmark of Project-Related Tools

As Thoring et al. (2019) suggest, a designerly (innovation) tool guides its users towards the creation of something new, is presented and framed in a graphical way, usually decomposing a complex topic or task into simplified activities, and facilitates
interactions with different stakeholders. Canvases, games and diagrams are usually among the most popular tools of such kind. The same authors define a canvas “as a two-dimensional, poster-based tool that (…) provides blank areas to be filled by the users, in order to invite co-creation activities and teamwork” (p. 594).

Most of the analysed visual tools are presented as an offline “… one-page, poster-based canvas with several graphical boxes and prompts to be filled with specific information…” (idem, p. 594). The majority is structured as a map or suggesting a linear process, relying on literal verbal elements as prompts for activities that can be executed in writing or sketching, with instructions attached to the tool, normally overleaf. Very few include other sorts of board features and interaction—such as cards, in which case they tend to look and feel like gamified activities. The analysed tools are mostly intended for collaborative teamwork (only three are supposed to be completed individually), instilling cognitive processes such as judging and problem-solving through definition or assessment-based activities. Only two of the analysed tools are designed to include speculative exercises.

Out of the 35 selected tools/canvases, 10 were highlighted as significantly relevant and influential on the definition of a humanity and impact-centred tool: Theory of Change, Networking Canvas, Research to Impact Canvas, Life Model Canvas, Future Scan, Social Impact Wheel, Future Impact Wheel, Personal Performance Model, Value Design Canvas and The Thing from the Future. Three other tools contained interesting features (mostly evaluation-related) that were also considered: Problem Definition Canvas, Evaluation Criteria and How-Now-Wow Matrix.

In summary, no tool/canvas was identified as a resource that would support design students in choosing their projects (proposed briefs or self-negotiated ones) by speculatively creating outcome scenarios associated to said possible activities and assessing their impact at a pre-altruistic stage, and then at a group/community and life altruistic levels.

5 Conceptual Model

According to Kronsbein and Mueller (2019), “the abductive reasoning pattern is going from the aspired result (Value) back to the possible reasons (Artifacts). Dorst (2011) explains abduction as a process of reasoning that can be broken down into two forms: Abduction-1, in which both the working principle and the value/purpose are known but not the solution, and Abduction-2, in which both HOW and WHAT are unknown: only the value/purpose, represented by outcomes and impact one wants to achieve, is clear. The latter is the level of abductive reasoning that the intended tool answering the proposed research question will instil in design students, following an ontology based on speculation. In addition to that, and inspired by the approach followed by Kronsbein and Mueller (2019), the development of the tool considers two design principles:
• **Principle 1**—To the student, the Value is the best-known variable. Hence, it needs to be represented to the best extent, in order to, subsequently, inform both the HOW and the WHAT.

• **Principle 2**—The Value describes the purpose (the intended impact), informs the rationale for taking up the project/activity, and must be at the centre of the student’s speculative process.

### 5.1 Defining the Conceptual Model

Under this methodological framework, Value will be broken down into three types, linked to different stages of outcomes (short, medium and long-term), and considering the most common values to human nature and to the requirements of societal and professional functioning (Persson et al. 2001; Schwartz 2006):

• **Self- and instant reward.** This value dimension focuses on immediate rewards (short-term outcomes) that are inherent in the experience of performing a certain activity. In a self- and instant-reward task the student chooses certain aspects regarding the completion of a project (e.g. self-negotiated brief, method to be implemented, paths to creativity and exploration, etc.) because he or she enjoys them. Thus, according to Persson et al. (2001), enjoyment is an essential characteristic of this dimension and, in some cases, when the activity provides an intense challenge to the student while matching his or her skills, the student can enter Csikszentmihalyi’s state of flow (1990).
  - This would be understood as a level of impact on the Self that would relate to the students’ academic projects and, considering Maslow’s hierarchy of needs, would be at a motivational level oriented by the achievement of certain competencies and establishing/maintaining wellbeing thresholds.

• **Independence outcome.** This dimension is about the concrete features of a student’s career intentions. It is characterised by a medium-term looking ahead, anticipating the impact that the design activity/project may have on improving or acquiring capacities and skills the student will need in order to follow a specific career path. Such reflexive exercise will allow students to become aware of their future situation and needs, possibly nudging them towards understanding their interests, preferences, passions, and also the problems they face and would like to solve.
  - This level of impact would relate to the students’ careers and professional ambitions and would be driven by motivational grounds related to achieving expertise recognition.

• **Humanity-centred impact.** Grounded on Universalism values that contribute to positive social relations, this long-term outcome is driven by the others and by the planet, with sustainability at its core and as defined by the 2030 Agenda commitment in achieving development in sustainability’s three dimensions: economic,
social and environmental. Hence, as a design concept, sustainability does not have a mere environmental focus, as in Spacey’s design fiction narratives (2018), but is the foundational and meta design concept that underpins any of the other 13 design concepts for speculative design exercises. The student will, this way, realise that his or her performance and engagement with the design project will potentially lead to a concrete solution that is of value not just to them but also to someone else.

- This would be seen as a level of impact on humanity and planet sustainability by influence of the students’ academic projects and career expectations and would be inspired by higher level altruistic motivations related to achieving a solution to a wider problem.

Hence, Value is the nucleus of the proposition, ranging from short to long-term outcomes, and defined by both different levels of motivation and altruism (Fig. 1).

6 The Impact Plan

The prototype followed a low-fidelity approach, based on rapid sketches in standard A4 sheets of paper (but with larger scales in mind). It was crafted following the optimised taxonomy developed for this research (Lelis 2020), which defined the prototype’s particular features and conditions (Fig. 2). Structured as a map of Value, it will resort on a printable board/canvas and a deck of cards with several prompts for speculation and rationale-led narratives to emerge. The context of use would promote
the cognitive process of judging contexts (personal, professional, social, economic, environmental) that may influence the solving of a problem associated to a brief the student is considering as part of their coursework. The tool has been designed to reduce possible levels of abstraction, by organising its components in a logic manner and by using verbal and figurative elements when necessary, associated to literal and iconic interpretation. It has the student, as a reflective individual, as its user in mind.

The cards, which are framed within the three levels of outcome and Value, would allow students to assess the anticipated impact of a project they might consider as part of their course activities, using a scale ranging from $-2$ (for Negative Impact) to $2$ (for Positive Impact). The board would be used to register, primarily, quantitative final scores that would be the sum of partial impact scores brought from the relevant cards (relevant to each student and to each project). It would also allow students to note down the impact prompts they assessed in the cards in order to draw and visualise the possible interconnections between the three levels of impact. Rapidly and informally, the adopted name for the tool was *Impact Plan*.

There is no specific order on how the canvas ought to be used. Ultimately, it is meant to be a scoring device to, firstly, back up the student in choosing the most impactful and personally relevant project/activity (in case he or she needs to choose one from a pool of many, either proposed by teachers or self-negotiated). For that, the student will have to, necessarily and informally, engage in a speculative exercise about future scenarios 1) in which he/she would be involved given the particularities of each project, 2) that would have implications on his/her live and, 3) ultimately, in the lives of many other.

By anticipating and speculating on the Value of each project/activity while, simultaneously, acknowledging his/her own preferences, capacities, limitations, needs and wills, the student will be able to identify the set of cards that will prompt him/her towards scoring the impact each possible project/activity may have at three different impact stages and Value levels (Fig. 3):

- **STUDIES**—At this stage the student will anticipate the impact the project (each possible project under consideration) will have on their academic journey at two
distinct life categories: Developmental and Wellbeing. Hence, on the former, the student scores the competencies/skills that he/she expects to be influenced (positively or negatively) by choosing and responding to the brief. Examples of developmental categories are Creativity, Information Literacy, Strategic Thinking, among others. On the latter, the student scores the aspects related to the state of being comfortable, healthy or happy that he/she expects to be influenced (positively or negatively) by choosing and responding to the brief, looking into the wellbeing categories Loved Ones & Privacy, Personal Activities and Expenses & Risks.

- **CAREER**—On this component the student will anticipate the impact each project is expected to have on their future career intentions and, as in Studies, the scoring process may occur at the two categories Developmental and Wellbeing. Similarly, under Developmental, the student scores the competencies/skills that he/she expects to be influenced (positively or negatively) by choosing and responding to each one of the briefs. Examples of developmental categories are Entrepreneurship, Influence & Legitimacy, Promotion & Salary, among others. Under Wellbeing the student scores the aspects related to being comfortable, healthy or happy as a professional and that he/she expects to be influenced (positively or negatively) by finding design solutions for the different available briefs; in this case, the assessment takes place via looking mostly into Self & Loved Ones.

- **SUSTAINABILITY**—Broken down into Social, Environmental and Economic, the student will anticipate the impact each available project may have on the future of humanity and planet Earth. For this impact stage to be fully anticipated, it is relevant the student is aware of who the main target of each project is expected to be.

The low fidelity prototype evolved through different iterations and the final version (Fig. 4), despite notoriously crafty, was used to collect initial feedback.
6.1 Feedback on the Low-Fidelity Prototype

The prototype was presented and discussed via informal unstructured interviews with two design academics, two careers/placements officers and one HE pedagogy specialist. All individuals reacted very positively to the tool. Both academics (at professorship level) and the HE specialist evidenced some genuine enthusiasm, asking when would it be possible to have the tool ready for implementation:

... a really interesting area—reflective learning and how much of what has been taught/learnt has stuck with the student. Do keep me posted. Have you managed to get your Quality & Enhancement team to approve it yet? It’s probable that, in the current circumstances [COVID-19 outbreak], they will be championing your approach! [Research Professor in Design, Falmouth University, UK]

I was wondering—for the courses in my school—if one started from the premise of an assessment evidence, mapping the Impact could be the grand unified holistic assessment proposition across the whole Design courses delivery. [Invited Professor in Design for Science, University of the Arts London and Invited Research Professor at the London School of Economics, UK]

The current COVID-19 outbreak is a context that has greatly mobilised the design community worldwide and which may justify the fact that both professors were so interested in learning more about the tool. The careers/placement officers had a much more instrumental reaction; despite acknowledging the potential of the tool, for them it was not fully clear the need to make the students focus on the WHY
(Value-Purpose-Impact) if not simultaneously on the HOW and WHAT. One of them verbalised:

*I think this is great, but it misses the pointers on how to achieve each stage’s descriptors. So, if a student, in assessing Expenses & Risks (under Studies), allocates a high impact score to “Attending Complementary Workshops or Trainings”, how can we, as an institution, help them on achieving that? Maybe via the Students Union Societies or through our volunteering scheme. But the student needs these pointers, for each and every line of impact on this tool*

[Careers Officer, University of West London, UK]

When the fundamental stance of stimulating speculative narratives that would abductively start with the WHY (Sinek et al. 2017) and only then allowing room for the exploration of HOWs and WHATs was explained to the latter participants, both became more interested, nevertheless insisting in pragmatic queries such as “How long would a student need to complete this impact assessment?” or “When you say several iterations, how many could we be talking about?”.

7 Discussion

This paper provides a craft and ongoing version of a visual canvas following a reflexivity and speculation-based ontology. The Impact Plan has not been fully tested (namely with the main target, the students), but its low-fidelity prototype seems to have been helpful in confirming its basic premises, via qualitative interviews with the professionals that would most likely be involved in supporting the students using the tool.

Since a discursive design agenda is centred on reflexivity and its instrumentality is communicative, the proposed tool is of potential benefit for students at the final years of their courses, where major projects need to be carefully selected, as these may open avenues for success after the completion of their degrees. The Impact Plan helps students to sharpen their perspective on the challenges they may face and to come up with a more holistic view on how relevant and impactful their solutions may be at Self-Now, Self-Tomorrow and Other levels.

Although the careers/placements officers were the most resistant participants, interviewing them was of great value since it enacted a clearer image that this tool seems to be just the beginning of something bigger: a great deal of further developments, namely in transforming it into a less bidimensional canvas and more into a multidimensional multi-layered map, for other sorts of reasoning to happen—therefore leading to HOW and WHAT related cognitive processes. This would help students in crafting a reflexive project workbook where *purpose* plays a vital role.
8 Limitations

The COVID-19 outbreak brought huge constraints across the world and this research was equally impacted by it. If on one hand, from a methodological perspective, the continuation of this project has been negatively affected by the pandemic (the next steps would involve participatory design workshops with students from final years of both UG and PG provision, which could no longer happen), on the other, the course leadership teams have been asked to identify alternative assessments completely remote-based and this tool was found as a complementary element of alternative assessment in the context of a Media and Design School in the UK. The design research approach had to be redefined into a much more experimental one and a mid-fidelity prototype will have to be designed in the very short-term, before the end of the online taught academic year.

Moreover, one of the common limitations that needs to be addressed is the subjective bias of the researcher and in this project a large part of the analysis is based on the researcher’s interpretation and observations.

9 Future Work

The Impact Plan works not only as a selective device for users to choose from different projectual topics (when more than one is available), but also as a triggering instrument for subsequent reflective practice, speculation, definition, ideation, planning, prototyping, testing and decision-making—activities that are expected to happen in the course of a selected project. It is suitable to be used as the very first board or tool, before any of the many other visual canvases available and that have been designed to support the aforementioned other stages of problem-solving. This canvas will orient users towards picking the most purposeful and meaningful (motivation-oriented and value-led) project/activity in order to, successfully, concretise an impactful outcome.

Given the current physical distancing limitation brought by the pandemic and since the tool is ready to be tested by its actual users, a digital prototype will soon be developed in order to mitigate the printing constraints which may be greatly imposed by a remote-based approach and its associated challenges.

However, in order to create a sound experience by which students can go beyond the purpose (WHY) of actively engaging with a certain project, further auxiliary materials/accessories need to be developed so users can move on onto the working principle (HOW) and the ideation and development of possible outputs or solutions (WHAT), all interconnected. It is anticipated that such complex exercise would most successfully be achieved with the visual collaboration powered by AI technology that, algorithmically, gauges and matches the student’s preferences, needs, passions, limitations, competencies and ambitions with his/her inputs in all the impact scoring on the canvas and cards. For that, the Impact Plan would have to be conceived as a completely digital and interactive tool, potentially integrating gamification aspects,
versions of iterations and extending the matching process into the integration of data, not just about one individual but from a few that could, in this context, constitute a creative team of students with similar interests—and, from that point of view, less prone to conflict.

References

Barrows HS (1996) Problem-based learning in medicine and beyond: a brief overview. In: Wilkerson L, Gijselaers WH (eds) Bringing problem-based learning to higher education: theory and practice. Jossey-Bass, San Francisco, pp 3–12
Beck U (1992) Risk society: towards a new modernity. Sage, London
Berger D, Wild C (2017) Enhancing student performance and employability through the use of authentic assessment techniques in extra and co-curricular activities (ECCAs). Law Teach 51(4):428–439. https://doi.org/10.1080/03069400.2016.1201745
Blackwell AF, Engelhardt Y (2002) A meta-taxonomy for diagram research. In: Anderson M, Meyer B, Olivier P (eds) Diagrammatic representation and reasoning. Springer, London, pp 47–64
Choi I, Lee K (2008) A case-based learning environment design for real-world classroom management problem solving. TechTrends 52(3):26–31
Corple D, Torres DH, Zoltowski CB, Miller KE, Feister MK, Buzzanell PM (2018). Understanding ethical reasoning in design through the lens of reflexive principism. Presented at 2018 ASEE annual conference & exposition, american society for engineering education, 24–27 June 2018, Salt Lake City
Csikszentmihalyi M (1990) Flow: the psychology of optimal experience. Harper Collins Publishers, New York
Cunliffe A (2002) Reflexive dialogical practice in management learning. Manag Learn 33(1):35–61
Curedale R (2013) Design thinking: process and methods manual. Design Community College, Topanga
Dorst K (2011) The core of ‘design thinking’ and its application. Des Stud 32(6):521–532
Duckworth AL, Matthews MD, Kelly DR, Peterson C (2007) Grit: perseverance and passion for long-term goals. J Pers Soc Psychol 92(6):1087–1101. https://doi.org/10.1037/0022-3514.92.6.1087
ERiC (2010) Evaluating the societal relevance of academic research: a guide. Delft University of Technology, Delft
Giddens A (1991) Modernity and self-identity: self and society in the late modern age. Polity Press, Cambridge
Gijselaers WH (1996) Connecting problem-based practices with educational theory. In: Wilkerson L, Gijselaers WH (eds) Bringing problem-based learning to higher education: theory and practice. Jossey-Bass, San Francisco, pp 13–21
Girling R (2020) What’s next for design: towards humanity-centered design. https://www.artefactgroup.com/ideas/towards-humanity-centered-design/. Accessed 24 Mar 2020
Gough I (1998) What are human needs? In: Franklin J (ed) Social policy and social justice: the IPPR reader. Polity Press, Cambridge
Lelis C (2020) Optimised taxonomy for the analysis and design of canvas-based tools. In: DIGICOM, 4th international conference on digital design and communication, 5–7 November 2020, Barcelos, Portugal
Jackson D (2016) Re-conceptualising graduate employability: the importance of pre-professional identity. High Educ Res Dev 35(5):925–939. https://doi.org/10.1080/07294360.2016.1139551
Kieslinger B, Pata K, Fabian CM (2009) A participatory design approach for the support of collaborative learning and knowledge building in networked organizations. Int J Adv Corp Learn 2:34–38
Kolb D (1984) Experiential learning: experience as the source of learning and development. Prentice Hall, New Jersey

Kronsbein T, Mueller RL (2019) Data thinking: a canvas for data-driven ideation workshops. In: Proceedings of the 52nd Hawaii international conference on system sciences 2019, 8–11 January 2019, Grand Wailea, Maui

Leman J (2018) Postgraduate taught experience survey 2018. Advance HE

Lindley J, Machin SJ (2016) The rising postgraduate wage premium. Economica 83(330):281–306. https://doi.org/10.1111/ecca.12184

Lundmark LW, Nickerson JA, Derrick D (2017) Wicked problem formulation: models of cognition in the design and selection of valuable strategies. Acad Manag Proc 1:17551

Maslow AH (1943) A theory of human motivation. Psychol Rev 50:370–396

Persson D, Erlandsson L-K, Eklund M, Iwarsson S (2001) Value dimensions, meaning, and complexity in human occupation—a tentative structure for analysis. Scand J Occup Ther 8:7–18

QAA (2009) Personal development planning: guidance for institutional policy and practice in higher education. https://www.qaa.ac.uk/docs/qaa/enhancement-and-development/pdp-guidance-for-institutional-policy-and-practice.pdf?sfvrsn=4145f581_8. Accessed 04 Nov 2019

Rennie DL (1992) Qualitative analysis of the client’s experience of psychotherapy: the unfolding of reflexivity. In: Toukmanian SG, Rennie DL (eds) Psychotherapy process research: paradigmatic and narrative approaches. Sage, Thousand Oaks, pp 211–233

Rogers CR (1983) Freedom to learn for the 80’s. Merrill, Columbus

Savickas ML (2016) Reflection and reflexivity during life-design interventions: comments on career construction counseling. J Vocat Behav 97:84–89

Schwartz SH (2006) Basic human values: theory, measurement, and applications. Rev Française Sociol 47(4):929

Sinek S, Mead D, Docker P (2017) Find your why: a practical guide for discovering purpose for you and your team. Portfolio Penguin, London

Spacey J (2018) 26 types of design fiction, simplicable. https://simplicable.com/new/design-fiction. Accessed 15 Mar 2020

Tharp BM, Tharp SM (2018) Discursive design: critical, speculative and alternative things. MIT Press, Cambridge

Thoring K, Mueller RM, Badke-Schaub P (2019) Exploring the design space of innovation canvases. In: Proceedings of the academy for design innovation management conference, 19–21 June 2019, London, pp 593–606

Ward R, Watts AG (2009) Personal development planning and employability, in personal development planning and employability. Learning and Employability Series. Higher Education Academy. https://www.heacademy.ac.uk/system/files/pdp_and_employability_jan_2009.pdf. Accessed 31 Jan 2020

Wittgenstein L. (1953) Philosophical investigations. Blackwell, Oxford

Zwick M, Fletcher JA (2011) Levels of altruism. Biol Theory 9:100–107