

Exploring Learning Experiences of Business Undergraduates in Strategic Design Module

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The paper explores the delivery of a strategic design module within an undergraduate business education in UK. In light of the recent discourses to promote change in design education (Friedman, 2001; Cassim, 2013; Norman and Klemmer, 2014; Souleles, 2013), the learner's journey and their decision-making process undertaken in the strategic design module are being investigated to highlight the potential of design process in contributing to business and management education. The paper follows participatory action research and draws on observations of learners' engagement in a design process substantiated by insights from staff delivering on the module. The aim is to understand the nature of decisions the learners undertake in order to generate more effective learning and teaching strategies highlighting the value of strategic design. The insights gained illuminate learners recognition of the value of decisions grounded in empathy in addressing contemporary organisational challenges, whilst highlighting their avoidance of risk in decision-making and lack of perceived interconnectedness of those decisions. Thus, it is argued that the resulting awareness around decision-making can become a very useful tool in helping learners conceptualise what strategic design requires and understand their own learning experience.

Keywords: *design thinking, strategic thinking, decision-making process, Strategy Dynamics, design management, business management education*

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Introduction

Norman and Klemmer (2014) argue that design education must change. They arrive at this conclusion from the belief that design taught as a craft does not prepare design practitioners for involvement in 'creating, challenging, and advancing practical theory' (Norman and Klemmer, 2014). On the other hand, Herriot (2004) (cited in Souleles, 2013) argues that design curriculum should include subjects such as '... psychology (cognitive theory, perceptual processes, human interaction, problem solving, strategic thinking) ... [and] marketing and business (identification of an audience, the creation of a message, environmental factors, budget and scheduling) ...' to prepare design learners to respond to the complexity and uncertainty of the current working environments. Moreover, Curedale (2012) argues that although '[t]raditional design education has cast a designer as a type of artist who essentially works alone and places personal self expression above all else...' in reality, design methods and processes are very much part of the complexity of the projects they contribute to. 'The methods stress design as a collaborative activity where designers respect and have empathy for the other development team members and where design is informed by an understanding of the perspectives of the people who will eventually use the finished design' (Curedale, 2012).

Within the UK higher education landscape, the undergraduate design management curriculum, which is the focus of this paper, tends to be firmly nested within the design school environment. However, there are exceptions to this, for instance where a business school offers an undergraduate management degree with a pathway in global business and design management. Such a decision is being driven by the premise that the curriculum should prepare its graduates for employment opportunities by positioning design as an important factor in strategic management of businesses organisations. Moreover, in an on-going recognition of the potential of design methods in contributing to business management education, the authors argue for the value of applying design processes to management challenges leading to innovative thinking.

To investigate the impact of this environment on the learning experiences of the business management learners, the authors explore the delivery of an undergraduate third year elective module enabling learners to immerse themselves in the innovation process infused with designing and strategic thinking. Throughout the module learners are asked to engage with not only creating a particular solution (feasibility) but also to ensure that it meets the needs of the customer (desirability) as well satisfies

business needs (viability). However, most importantly the purpose of the module is to enable learners to develop working processes that combine decision-making and divergent thinking as a means to respond to a given problem by exploring its complexity within an uncertain broader context.

The paper draws on observations of learners' engagement in the process of innovation substantiated by insights from staff delivering on the module. The aim of the paper is to understand the nature of decisions the learners undertake while immersing themselves in the process of design, in order to generate more effective learning and teaching strategies for business management learners, whilst exposing the value of strategic design. The paper is located in participatory action research methodology to ensure its academic rigour.

Reason and Bradbury (2001) define participatory action research as '... a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes' (p. 1) Thus, it is a systematic approach that seeks knowledge for social action (Fals-Borda and Rahman, 1991). 'Action researchers reject the theory/practice divide and believe that applied research can both build theories and solve problems' (Brinberg and Hirschman, 1986). Ozanne and Saatioglu (2008) argue that '... action research is demanding because researchers are expected to both develop knowledge and work toward social change' (p. 424). It is an appropriate methodological choice as the investigation focuses on solving a practical problem, namely helping learners to gain confidence from decision-making process involved in developing innovative business proposals. It also contributes to the development of knowledge around the integration of design and strategic thinking into a business education curriculum. The research pursues '... a spiral [of] self-contained cycles of planning, acting and observing, and reflecting' (Kemmis & McTaggart, 2000, p. 595), which aligns with the participatory action research design. This research design is applied through reflection on module delivery to delve into issues identified in teaching. The analysis and insights are then fed back into the next round of teaching, followed by further post-teaching reflection. This investigation started in summer 2009 and has been an on-going process of observations, evaluations, actions and reflections year on year this module has been delivered. The resulting analysis has lead the authors to gain important insights as to the nature of learners journey and their decision-making processes, which are discussed below.

The teaching and learning context of the strategic design module

Teaching

To date the teaching supporting the module has been informed by concepts such as ‘comfort zone’ as a teaching and learning metaphor (Brown, 2008)¹, the design thinking model (Brown, 2009), Blue Ocean thinking (Kim & Mauborgne, 2005), Strategy Dynamics (Warren, 2008), the Applied Empathy Framework (Knemeyer, 2006) and emotional design (Norman, 2004).

Originally, Luckner and Nadler (1997) argued that, ‘[t]hrough involvement in experiences that are beyond one’s comfort zone, individuals are forced to move into an area that feels uncomfortable and unfamiliar – the groan zone. By overcoming these anxious feelings and thoughts of self-doubt while simultaneously sampling success, individuals move from the groan zone to the growth zone’ (p. 20). Panicucci (2007) further elaborates: ‘[e]xperience has shown that learning occurs when people are in their stretch zone. Intellectual development and personal growth do not occur if there is no disequilibrium in a person’s current thinking or feeling’ (p. 39). However, Brown (2008)¹ argues for the notion of comfort zone to represent a metaphor of ‘... how we might think about learning and growth’ (p. 11). He maintains that it is through emotional safety, security and stability rather than emphasis on increasing risk that students learn the most. Brown’s (2008)¹ argument offers a very useful lens through which to understand the context, process, and participants’ learning experiences on this module, suggesting a far more constructive approach to zones of discomfort that learners traverse when immersing themselves in design process.

Brown (2008)² defines design thinking as ‘... a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity’ (p. 86). In particular Brown’s (2009) insistence on a harmonious balance of desirability, feasibility and viability is of interest to the teaching as it provides learners with a solid framework for reviewing and reflecting upon their proposals. It is also a very useful tool in prompting learners to acknowledge the complexity of a given challenge as part of the decision-making process.

Blue Ocean thinking (Kim & Mauborgne, 2005) and Strategy Dynamics championed by Warren (2008) provide an overall business platform for this elective module. Kim and Mauborgne (2005) introduce a practical range of

tools and techniques such as the Strategy Canvas to highlight what is important to current and potential customers and the Four Actions Framework to help them identify such opportunities. A Strategy Dynamics approach fosters the mapping of interaction between organisational resources. It explains how business performance has developed up to the current date, and how to develop and implement strategies to improve future performance. The approach emphasises building and sustaining the resources and capabilities needed to succeed. As part of the module learners have to customise a centrally defined model constructed in Sysdea – software that enables the resources mapping. They amend this model to meet their own context, whilst exploring their strategic decision-making process.

An Applied Empathy Framework (Knemeyer, 2006) engages ‘... customers through very thoughtful and intentional design that deeply considers the needs and desires of people—independently of the business and strategic goals that usually define the products we design’. This theorising is further expanded by the work of Norman (2004) focusing on emotional design. Norman argues that ‘[b]usiness has come to be ruled by logical, rational decision makers, by business models and accountants, with no room for emotion’ (p. 10). This is often evident in the nature of business education. In the context of this module, the emotional design prompts learners to engage with visceral, behavioural, and reflective design (Norman, 2004) bringing the emotional dimension into the design process. In turn, such understanding enables learners to begin developing linkages between the emotional and analytical aspects and their impact on the decision-making process.

The use of the above theoretical frameworks in teaching of this module is critical in the way it supports learners in developing and testing their innovative propositions as well as how they respond to the project brief.

Learning

From its inception, the module in question has been based on a single project, which is broken up into four stages: the brief, the initial proposal, the design mock-up and the business case. However, through the process of questioning the curriculum and resulting learning experience, a metaphor of a journey was developed as a tool to help learners grapple with the conceptual complexity of the assessment. Therefore, learners are expected to respond to this brief by starting on a journey consisting of a number of decision-making moments and their own reflections on these decisions.

This format broadly follows a design process as defined by seminal works of Nelson & Stolterman (2003), Cross (2006) and Lawson (2006) of formulating, representing, moving, evaluating and reflecting. Moreover, it also acknowledges that this ‘... process consists of distinct yet interacting mental acts in which [learners] establish relationships with the real world with a view to creating ... [particular] outcomes (Cassim, 2013). Thus, through the analogy of a journey, learners are asked to imagine they are the equivalent of settlers traveling from ‘New York’ to ‘California’. They have the general direction and four points of reference. They are aware that this journey will be a challenge, but at the same time they cannot predict the precise nature of the experience nor what is awaiting them along the road they will travel. The only way to know is to undertake the journey.

In the initial iterations of the module, learners embark on the journey by commencing with defining of a possible offering and then moving onto defining the customers. However, this approach has not proven very successful, hence it has been adjusted, where learners have been required to define their customer first and then identify a need to shape their proposal. Following this format, two pedagogical approaches were explored: (1) learners were not provided with a customer archetype, but rather were given free reign to choose who the customer was and (2) learners were given a broad archetype to offer a starting point for their development. The first approach provided learners with the ability to make their own choice and five cohorts have used it as a means to embark on their learning journey. However, over the five separate deliveries, this process of developing the customers has always caused most difficulties and has been the most trying part of the learning. As a result the second approach has been developed and trialled in the 2014 module delivery. In this case learners have been provided with a starting point of who the customer could be. The below analysis focuses on the observations and lessons learned from the most recent delivery of Spring 2014, as compared to the previous five iterations.

The challenges of the decision-making whilst undertaking the project journey

In order to explore the decision-making processes that shape learners experiences throughout the module, this section begins with a brief overview of each of the four stages learners need to progress through on their journey. The remainder of the section offers account of the challenges

learners face and grapple with as they go through the process of decision-making.

Over the years the observations of the learning and the way learners make their decisions while going through the journey, have led to an in-depth analysis of not only the outcomes of the journey, but also the process between each outcome stage. In addition, the investigation of the process has identified three broad domains where learners make majority of their decisions while on this journey. These are: formulating who their customers is, utilising the Brown (2009) design thinking model and applying Strategy Dynamics to finalise their business case. Thus, the section utilises these broad domains as an investigative lens to unpack the challenges learners face as well as to put forward an argument of the value in exploring new ways of engaging other disciplines in strategic design education.

The brief

The challenge here lies in what appears to be a rather minimalist set of guidelines. The more prescriptive environment in some other modules can discourage learners from taking full ownership of project brief, and developing confidence in their own interpretation. The learners often see the perceived lack of constraints as a ‘problem’ as they have potentially so much ‘space’ to play with (compared to their normally more constrained and directional management briefs). This can lead them to jump to a particular solution as a way of reducing the uncertainty, and it can be very difficult to free them up from this initial ‘anchoring’. It is important however to note, that the brief set is more aligned with briefs these learners would encounter within professional practice, rather the more directional briefs often associated with the educational contexts.

Formulating who the customer is

The brief not only introduces learners to the parameters of the project, but also sets the tone as to how they perceive their future customer. When learners in the past would spend a certain amount of time focusing on who the customer could be and what problem should be addressed, the introduction of the archetype has helped reduce this time, and created space for delving into the formulating of the need. However, that has also resulted in anchoring of the definition of the customer where the archetype seems to be all encompassing and hampers learners to add to its description.

The time between the introduction of the brief and the presentation of the initial proposals thus focuses on decisions around identifying the customer and forming some sort of affinity for them. However, as the customer is still seen as ‘moving picture’ of research information, assumptions, stereotypes and abstract definitions drawn from previous knowledge, often learners stay away from concrete decisions in favour of more broad approach to managing the risk of not getting it right. As a result, at this early stage, the emotional investment into the project is low making the ‘what if’ types of decisions much more difficult.

Utilising the Desirability, Feasibility and Viability model

Main focus at this stage is on desirability in terms of trying to flesh out the customer and what appeals to him or her. Thus, the decision making process tends to focus on one aspect rather than shift between the detailed view and the helicopter view of trying to achieve the balance between all three aspects. Moreover, the challenges in the decision-making process at this stage can include projection of themselves onto the customer, or conversely not getting ‘under the skin’ of the customer. There can be a reluctance to engage with the customer’s reality, preferring to distance themselves from this by research statistics and demographics rather than engaging in an ethnographic research to better engage with them.

Successive presentations and exercises in class, along with on-going feedback from lecturers encourage learners to both challenge their own stereotypes and push beyond ‘one-size fits all’ decision compromises to come up with a coherent view of the customer. However, particularly for those groups given an archetype, sticking too close to the initial ‘skeleton’ seems to be an additional challenge. Rather than using this as a jumping off point to iterate an evolving picture of the essence of the customer, learners use the archetype as the fixed set of rules to comply with when making their decisions. The very freedom given to experiment (in contrast to most other briefs they experience) seems to encourage relatively small iterations rather than big leaps of faith.

In some instances, learners also have the viability aspect of the model in the back of their minds, so they contrive views of the customer that would lead to larger (and hence more viable from a monetary point of view) customer groupings but this tends to lead to rather amorphous meta-sets of customer characteristics, which are not very helpful in development of creative solutions.

Applying Strategy Dynamics

Although the majority of focus at this stage is about developing a picture of the customer, a key question from the point of Strategy Dynamics, is how many customers are there. Learners are encouraged to make explicit assumptions rooted in their research, as to how many individuals would meet the criteria they are developing. Learners often fear that if they define their customer too tightly they will not have enough 'numbers' to make the project viable downstream. This process of decision-making, whilst being weary of the impact on the future aspects of the project tends to stifle the innovative aspects of the process as often learners trade off the creative detail for 'safer' fits all solutions. Although they are encouraged to avoid compromise views, and go down one route or the other and live with the implications of that choice, learners perceive such approach as high risk and only note its value within the reflective stage of the project.

The initial proposal

In developing the initial proposal, learners often tend to settle for the first idea to deal with the uncertainty of the starting point. Often they rely on their own perceptions of what is new, thus attempt to bring already existing concepts with which they are personally familiar into what they believe is a new environment. The challenge is to push a lot further to identify truly new opportunities. It has been observed that learners who have pushed their own boundaries and developed ideas beyond the familiar have a much better chance to succeed in the later stages of the journey. It is the learners who best 'get under the skin' of potential customers who do best at this stage, and indeed the project as a whole.

Formulating who the customer is

The benefit of the initial proposal stage comes from drawing the line and forcing the learners to make a commitment to their customer choices. This is done in a non-threatening environment of formative feedback to help reflect upon progression to date. Thus, they are aware that their view of the customer can still change. At this stage the key is the feedback they receive and ways in which this will prompt their development and understanding of the customers. This particular stage is also a first reference point in terms of their progression in the learning process, which allows learners to reflect on where the opportunities are and how to capitalise on them. However the reality is, that they hedge their bets as they are trained within business education to be risk averse. Thus, it is at this point; they often fall back into

their more abstract approaches modelled through overall business management education than their design thinking approaches introduced to them in the module.

Moving on from the initial proposal stage to the design mock-up stage, learners tend to particularly struggle, as they need to traverse from the world of business to the world of design as noted in Figure 1. Hence move from a comfort zone through the 'no-man's land' and into the world of design that they are familiar with but not as fluent in. In most cases, this process enables learners to redefine their customer and to become more creative about interpreting their needs and desires.

Utilising the Desirability, Feasibility and Viability model

For the initial proposal learners are asked to utilise the Desirability, Feasibility and Viability model as a point of reflection. They are asked to note which are the key driving aspects and how they will develop their approach from this point onwards. The lecturers' feedback reveals that there can be a number of different outcomes at this stage. It highlights that there can be a lack of sufficient coherence in the view of the customer, and/or the offering, or in the linkages between the two. Alternatively groups can have a reasonably coherent 'first stab' and then need to be encouraged to develop even further, fleshing out the customer and concept.

After the initial proposal submission, the process of having to construct a physical 3-dimensional mock-up is useful as it encourages different ways of thinking about the customer and the offering. The trade-offs in the decision-making at this stage tend to include both desirability and feasibility as key elements, where learners try and decide what needs to be in the physical space to appeal to potential customers, while seeing what is practicable in this space.

Applying Strategy Dynamics

Although the focus is on the development of the design mock-up, learners are still being asked to work through some of the key numbers implicit in their project, in order not to lose sight of the ultimate need to build the business case. The questions prompted by Strategy Dynamics approach reveal either they have too few customers to be viable at the projected revenue per customer, or they have potentially too many. Critical elements from this stage for the later modelling in the Sysdea software include a refined view of the customer, how many of them there are (total market size), what they will do in the created space, and the maximum

capacity (a key element of the business model). It also helps imply the cost structure to support the offering, as sometimes the cost structure learners develop may over burden the business. So the decision-making process involved in creating the design mock-up offers an alternative route to help resolve some of these contradictions, which in turn will feed back into the development of the upcoming business case submission.

However, learners are often tempted to dilute the purity of the view of the customer in an effort to get larger numbers, but this is strongly discouraged. The focus should be on what drives their customer, and even if this is a smaller group, money can still be made if the offering is compelling. Thus, decisions made should reflect this thinking helping learners combine the design process with strategic business thinking.

Design Mock-up

The process of design implementation of the proposal often gives the project a second wind. As this stage is deeply rooted in creative processes, learners are able to rethink their proposal from a different perspective and develop their ideas even further. As the outcomes are based on a process of developing a physical mock-up, this set of activities generates challenges of its own around actual designing of a 3-dimensional outcome. However, the nature of the engagement provides learners with embodied tool to deal with uncertainty offering potential for alternative interpretations.

Formulating who the customer is

The requirement of producing a design mock-up also means that learners need to embody their ideas through a different communication medium enabling them to gain new insights into their customers. However, this process is not always successful. The authors have observed that where learners chose their customers, this process enabled them to focus on who the customer is and how they can meet their needs. It often meant learning something about the customers that challenged learners' perceptions. This process of challenging the perceptions enabled learners to understand their possibilities and open up their understanding of what is actually doable and how far they can push their projects and how much more scope they have to play with. However, the introduction of the archetype has resulted in learners losing sight of how they have defined their customer. There have also been cases where learners managed to focus their proposals but again the customer has become more abstract. Hence at this stage, learners have been enabled to decide what the needs are and how to refine their

propositions, but the customer has become much more part of the background.

In the time between the design mock-up and the final submission, learners embark on a narrowing down process where they must engage in some very practical choices around their customers in order to formulate their final business case for the proposal. This focuses a lot more on numbers and use of Sysdea modelling software (Figure 2) to map the business characteristics. This is a stage where learners reacquaint themselves with their customers. The process forces them to actually get to know their customers because they have to make those very concrete decisions around the size of the market, how to convert their unaware potential customers into real customers, or what are the costs of running the business and how revenue is actually going to be generated.

Utilising the Desirability, Feasibility and Viability model

For many learners, the design mock-up and resulting feedback is an opportunity to re-engage with the project and the customer/offering mix, particularly if they were seen to be wide of the mark with the initial business proposal. At this stage, in particular, they rely on the balance between desirability and feasibility as a point of reflection in their decision-making process as they review their embodied ideas in the design mock-up. Moreover, for those learners that had done well at the initial stage, the mock-up generally offers the opportunity to take their view of the customer and offering to the next level. It often proves to be the 'A-ha' moment of the project, where the mock-up crystallises what the offering is, and precisely what about it appeals to the customer. Although it may have meant some re-jigging of the key facets of the customer and/or elements of the offering, to rebalance the relationship between desirability and feasibility, now with the preparation for the business case, viability comes to the fore.

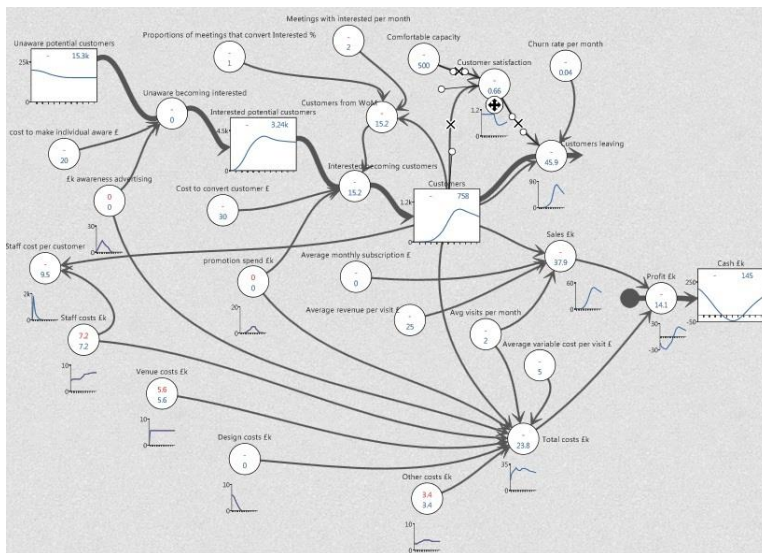
At the same time, there is a danger at this stage that if anything the 'numbers' take too much of a hold on the decision-making process, and there can be a temptation to go for bland views of customers. Such decisions are often made in an effort to make the 'numbers' work rather than keep the distinctive view of the customer. Moreover, learners have to deal with the practical issues relating to how to reach customers (advertising/promotion and word of mouth) and how to construct a business model capable of satisfying their needs profitably. So they tend to have to iterate between viability and desirability, with feasibility a rather

subordinated consideration as they progress from the design mock-up to the business case stage.

Applying Strategy Dynamics

As the design mock-up often crystallises the view of both customer and offering, the Strategy Dynamics comes to the fore to iterate a business model that works with these insights, tweaking them if required to end up with a workable compromise. Up until this point learners have in effect been refining views of key elements of the model without exposure to the model itself. They are now shown the centrally designed Sysdea model (Figure 1) and how to customise it, and then invited to populate the model with the numbers they have been generating thus far in the project.

Figure 1: Sysdea modelling software



*Figure 1 Screenshot example of Strategy Dynamics approach modelling organisational resources for the final submission.
Source: Laffy (2014), applying Sysdea software (www.sysdea.com)*

There are two main elements to the model that learners need to engage with: the customer pipeline and the associated revenues and costs (Figure

3). In the first instance learners have to ‘translate’ what they have decided so far about their customers and the offering into a workable customer pipeline. Once the pipeline is broadly set, learners need to decide on the associated revenues and costs to see whether the resulting strategic architecture makes sense from a business perspective. Learners can iterate and refine their decision by varying various parameters (e.g. advertising spend, revenue per visit etc.) and experiment with the effect on the business provided that they always follow the logic resulting from the decision-making process.

The Business Case

The final stage of the project requires learners to develop a convincing business case that not only presents a truly innovative idea, but also meets business criteria. The challenge here is not only to learn new software Sysdea that allows such modelling (Figure 1), but to also demonstrate confidence in the proposal and in making decisions around issues of business viability.

Business case submission is a point at which learners come to an end of the journey and the module. In effect it is their goal, but at the same time it is not an end of their learning process. The nature of the process tends to extend beyond this point as often these experiences only begin to make sense once they have been completed or applied in future contexts. At this stage, learners have finalised their decision-making in defining their customers and arrived at a level of confidence as to who they wish to target and what needs and desires they wish to address. When making their business case for the offering, understandably viability seems the key element coming across in the learners’ decision processes – but this is only coherent and sustainable if they have given appropriate attention to desirability and feasibility along the way to get here. Figure 2 is an example of the complexity of the interrelation of these elements that learners need to tackle for the business case submission.

Figure 2: Customer pipeline and the associated revenues and costs

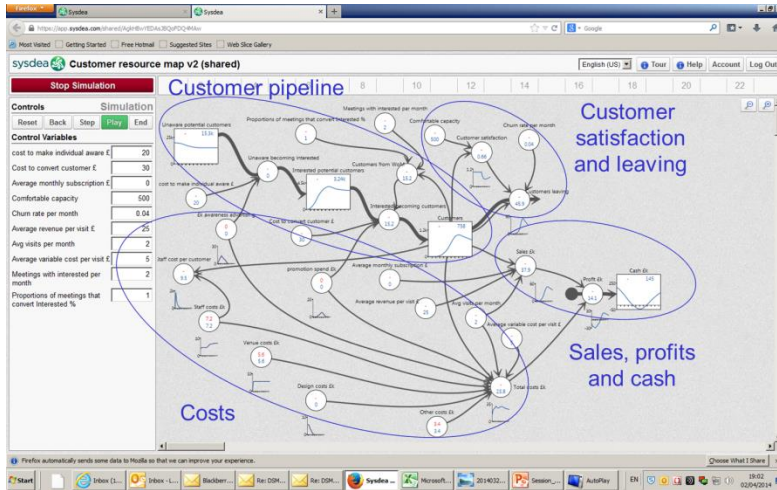


Figure 2 Screenshot example of one of the projects as represented by Sysdea software.

Source: Laffy (2014), applying Sysdea software (www.sysdea.com)

In terms of Strategy Dynamics, the business case brings together all the elements of the model. Often learners can over invest in the Sysdea element of the proposal rather than other elements of the required presentation. Also a number of groups seem to delegate the working of the Sysdea model to one or two members (generally the ones more comfortable with 'the numbers'). While this tends to give the model itself an internal coherence it can lead to a slight disconnect with the insights gained from the previous stages in the project, or from the insights of the rest of the team.

In summary, the above discussion on the journey learners undertake highlights not only the development process of their proposals, but also the starting point of the brief and its impact on the development process as well as myriad of decisions learners undertake. The narrative points to the initial brief and its bearing on the capacity for decision-making, empathy and resilience of concept in later stages of a design development process. The

analysis illuminates that as the learners do not engage in the process of questioning the meaning of the information contained in the brief, they often end up anchoring to its meaning and limit their innovation opportunities. In addition, the discussion illuminates the key areas where learners are prompted to make those decisions to complete the project, which are: formulating who the customer is, the use of the desirability, feasibility and viability model and application of Strategy Dynamics to build a business case. Moreover, the narrative also indicates how the decision-making focus shifts between these areas depending on the particular needs learners are required to respond to in a given moment of the journey. The narrative also highlights the interconnectedness of the domains of decision-making exposing a rather complex network of decisions and the links between them that populate the design process. The resulting awareness around decision-making process can become a very useful tool in helping learners conceptualise what strategic design requires and understand their own learning experience.

Insights gained and conclusions

It is clear from the analysis of the learners' journey on this module that in the short space of a twelve week semester, mixed groups of business students engage in a complex series of decision-making process that enable them to develop strategic approaches not only to design outcomes, but also in creating viable business proposals. Through the investigation of this process, the authors have observed linkages between decisions made about both the customer and the offering. In effect learners are being encouraged to construct decision trees in these separate, but linked, dimensions, so that decisions about the customer (needs, demographics etc.) interact with the decisions about the offering (size, costs, activities etc.). Depending on the context and the timescale of these decisions in the overall project, learners may choose to keep one relatively fixed while they flex the other (for instance stick with a particular customer and flex options around the offering or vice versa). However, due to a reluctance to fully fix the decisions made in either dimension, this choice leads to more iterations between both, and complicates the overall design process. As a result of this interplay, the authors have identified the following insights: (1) learners begin to recognise the value of decisions grounded in empathy (customer) in addressing contemporary organisational challenges (offering); (2) learners are risk averse in their decision-making in particular when required to follow

'what if' scenarios; and (3) learners often do not explicitly perceive the interconnectedness of their decisions and the resulting flow of logic.

The practical import of the above insights is liable to vary across the different context within the higher education landscape. Nonetheless, in particular educators would benefit from exploring the impact of the brief on the ways it sets up the context of the whole learning experience. The paper suggest that management learners who are used to more clear directives on how to commence their projects and what is expected of them, benefit from more vague briefs of design process where the call is for more innovative outcomes. This study indicates that combination of the two enables more creative outcomes, yet allowing learners to manage the perceived risk of business viability. Furthermore, the authors argue, where learners have truly engaged with the decision-making process as a tool of managing the uncertainty of their journey, this process has always led to new discoveries and insights enriching their learning experience and pushing those proposals beyond obvious solutions. Their involvement in acknowledging of the decisions-making process can also lead to increased level of ownership of their learning experience and a much better understanding of the role design can play in developing strategic solutions. Thus the authors argue for the importance of this acknowledgement to become explicit within the learning and teaching strategies and frameworks.

Souleles (2013) argues that '[t]he intellectual tools of the knowledge economy are the tools of scientific enquiry, and the distinction between 'doing' and 'knowing' is not applicable, for designers need to know both' (p. 253). Moreover, Friedman (2001) maintains '... what designers must know is that giving physical shape to an object is a small part of the design process... [and inclusion of] skills for leading, understanding of the human world, knowledge of the artefact and ability to embrace the ever-changing environment' is vital for the contemporary design education to address the complexities of modern world (cited in Souleles, 2013, p. 253). However, the authors argue that embedding management of design process, as part of business management education is just as crucial. It demonstrates how established techniques from design education can be used as a means of educating future business managers the value of strategic design management, thus enabling them to recognise the broader value of design in contributing to contemporary organisations.

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