Measuring the impact of strategic design learning experience long after the classroom delivery

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Abstract: This paper seeks to examine the transformational impact of a final year strategic design module on learners some years after its completion. A subset of learners, who completed the module between two and ten years, were surveyed using a semi-structured questionnaire around Fink's (2003) taxonomy of learning. We researched how much learners still make the connections between what they have learned in the module and their current circumstances. While potentially humbling to find out how little of the detailed content is retained, particularly five to ten years after the event, we argue that the impact of the module on learners developing their creative skill-set and effectiveness in navigating team dynamics has indeed been transformative. We suggest that educators could do more to embed this longer term transformational focus by explicitly raising the future in the classroom and enabling learners to build linkages to the development of their own future selves.

Keywords: design education, strategic design, measuring learning impact, transformational learning, learning gain

1. Introduction

Between 2008 and 2017, we have been delivering a 12-week final year elective module entitled 'Managing Strategic Design' to learners undertaking a BA (Hons) in Global Management at Regent's University London. The degree benefitted from an innovative approach to curriculum design where business management learners studied strategic design as an elective alongside other more traditional management, finance and marketing subjects. Moreover, the degree offered a pathway in design management which is not a norm for management degrees in UK business schools. This context enabled us to create our module that challenged these learners to develop truly innovative business opportunities, drawing on design and strategic thinking.

From its inception, the module was delivered once a year in Spring semester, focusing on one 12-week project broken up into four stages: project brief, the pitch, design implementation and business model.Through the process of questioning the learning experience, we developed a metaphor of a journey as a tool to help learners to grapple with the conceptual complexity of the challenge posed by the curriculum (Sadowska & Laffy, 2011).

In the module's first delivery, the learners began their innovation process by defining a possible offering and then moved on to identifying the customers. However, this approach was not very successful as learners struggled with very abstract customers and over-focused on the offering. In response, we adjusted the delivery, requiring the learners to define their customer first and only then identify a need to shape their proposal. This led to two pedagogical approaches: (1) learners were given free rein to choose who the customer was, and (2) learners were given a broad archetype to offer as starting point for their development. The first approach was implemented 2009-2013, whereas the second approach was in use from Spring 2014 onwards.

To develop our teaching, we instigated a research project in 2009 to enable us to better understand and respond to our learners needs. As our nine-year longitudinal study into this module comes to an end, we wish to assess the impact of the learning experience some years after learners took it. Educational literature outlines that the focus on transformational learning takes place during the curriculum delivery (Cohen, et al. 2015, Odom, et al. 2017). However, we argue that it can only be fully assessed after the initial experience of learning, leading to the current focus within our broader study.

We asked our learners to recall their module learning experiences and reflect on current resonance for them. The analysis of responses helped us to measure what impact the learning experience had short- and long-term on our learners and the extent it has shaped their transformative learning beyond their undergraduate degree. We turned to Fink's (2003) taxonomy mapping how learning takes place, to examine how well learners recall concepts and how they express them in their own terms after some time has elapsed. This approach helped us to investigate how much learners still make the connections between what they have learned in the module and their current circumstances. We aim to identify whether the learning experience has helped elements such as critical self-reflection, resilience, adaptability, and self-motivation which Fink (2013) sees as key qualities in transformative learning. During the module delivery, we had already observed that these processes have taken place as evidenced in learners' reflective writing reports. However, we argue that assessing the impact of the learning experience, and learners' recognition of this beyond the module delivery, should be even more insightful in mapping the learning gain.

2. Context

We turn to Mezirow's (1996) Transformative Learning Theory (TLT), outlining "… [l]earning … as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience in order to guide future action" (p. 162). Mezirow was influenced in his early theoretical approach by Kuhn's (1962) paradigm, Freire's (1970) conscientization and Habermas's (1984) domains of learning. In 1985 Mezirow revised his theory of learning building on Habermas's (1971) work to create: 1) instrumental learning [learners ask how best they could learn the information], 2) dialogic learning [when/where this learning could best take place] and 3) self-reflective learning [why they are learning the information]. TLT "… transforms problematic frames of reference to make them more inclusive, discriminating, reflective, open, and emotionally able to change" (Mezirow, 2009, p. 22) and through "critical reflection of our assumptions … make them more dependable when the beliefs and understandings they generate become problematic" (p. 30). These processes often manifest themselves through intense classroom experiences, which "… provoke meaning making among the participants …" (Taylor, 2009, p. 7). Thus, Cohen, et al. (2015) argue that "… [t]hrough direct interaction with others, whose beliefs and values are different from their own, the learner may have a more holistic learning experience" (p. 187-188) leading to opportunities for transformative learning lasting beyond the classroom experience.

It is important to recognise that TLT is not without its critics, as Cranton (1996) critiques the potentially artificial nature of some of the transformation phases, or transformation happening without critical reflection or too much focus on the individual who cannot make true change happen apart from society. Kucukaydin and Cranton (2013) take issue with the subjectivity of transformative learning inherent in its practical nature, whereas Taylor (2001) questions whether learners engage in critical reflection, with most learners trusting their assumptions and projecting critique at the situation rather than themselves. Slavich & Zimbardo (2012) recognise transformational teaching as an overarching approach involving learner's mastery of key concepts enhancing their learning-related attitudes, values, beliefs and skills, but they question the coherency, utility and validity of transformational teaching.

The single project which the learners undertook, followed a design process consisting of formulating, representing, moving, evaluating and reflecting as defined by seminal works of Nelson & Stolterman (2003), Cross (2006) and Lawson (2006). In particular, the infusion of design thinking and making with typical management education process is what we believe led to the opportunity for transformative learning. Within design education, Raein (2003) argues that "[i]nformation is transferred into knowledge only through the experience of making, "happy accidents and all" " (in Lyon, 2016, p. 80). Moreover, Quave and Meister (2017) argue that "[o]bject-based, active, and experiential learning increases knowledge and memory retention, yields emotional impacts, can be used to leverage greater interaction and discussion among students in the classroom, and provides opportunities for lateral thinking" (p. 5).

Thus, the TLT aligned with 'learning by doing' helps to theorise the focus on the impact of module's learning experience. It has also led us to adopt the evidence-based learning taxonomy from Fink (2003) to gain insights into the nature of this impact the module has had some time after the learners have completed their studies.

2.1 Research Process

The broader study framing this paper draws on participatory action research (PAR) methodology. Reason and Bradbury (2001) define it as "… a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes" (p. 1). Cunningham (2008) observes that PAR "… gives us an iterative, systematic, analytic way to reflect on what we are doing in class, to evaluate our success at achieving our classroom goals, and to chart the direction of future classroom strategies based on what we have learned" (p. 1). The research design is implemented through reflection on module delivery followed by analysis and insights, which are fed back into the next round of teaching, followed by further post-teaching reflection.

The process of data collection for this phase of our longitudinal study utilised an online questionnaire consisting of eighteen semi-structured questions. The questionnaire was designed utilising the six domains from Fink's (2003) taxonomy, generating six sets of three questions each. Within each set, the first question is a direct interpretation of the module content in relation to the relevant domain. The second prompts respondents to look at the content positioned within the domain as it currently applies to respondents' circumstances. The third asks for a reflection on the experience of the module in relation to the domain from the perspective of time. The consent questions were also added at the start and demographic questions at the end.

Careful thought went into selecting respondents, who were no longer current students at authors' affiliation institution but rather graduates, where our ability to establish contact with the whole cohort was limited. To comply with research ethics and General Data Protection Regulation Act, we used Linked-In and Facebook to reach out to 37 participants out of the 154 students who undertook

the module over the ten year period. Importantly, all these participants were pre-existing contacts of ours via one of the two platforms prior to the research for this paper, where we deliberately set out to get representation from each of the ten years between 2008 and 2017.

Of the 37 participants approached, 24 agreed to take part in this research, securing an agreement to undertake the questionnaire from at least two participants from each of the ten years. However, the actual response rate when it came to questionnaire completion was not as high as the agreement rate, with no responses from the years between 2010 and 2012. In total, we received eleven responses from the 24 who initially agreed to take part in the research (a 46% response rate). We believe that the collected data still offers an opportunity to measure the impact of the module leading to transformational learning in relation to time. The generated data set allows us to compare responses gathered from those who undertook the module recently as well as those who undertook it as far back as ten years ago giving us a useful time frame to work with.

3. Measuring the impact of strategic design learning experience

Fink's (2013) taxonomy "… is not hierarchical but interactive and relational in nature, resulting in a synergistic approach to learning" (in Odom, et al, 2017, p. 70). It includes six domains: *foundational knowledge, application, integration, human dimension, caring*, and *learning how to learn* (Fink, 2013), that can help understand how learning takes place. Our paper utilises these six domains as a means of categorising how the learners are able to recall their learning experiences of our module and how they perceive the impact of their learning short and long term. In particular, we wish to explore the differences in responses from those who undertook the module quite some time ago and those who have completed it only recently. The remainder of this section follows Fink's (2003) domains as structured through the three question sets.

3.1 Foundational Knowledge

The questions investigating Fink's (2003) domain of foundational knowledge examined participants recall of the module's key concepts, the potential use of those concepts in their current circumstances, and their ability to recall any themes they particularly valued. The responses varied from participants acknowledging that they either did not remember the particulars of the module concepts: "To be honest, I do recognise the concepts by name, however, I don't remember their meaning" (P1). Alternatively, they offered more detailed descriptions of what they recalled: "Methods of strategically clarifying what to focus on in the business and how to separate from competitors" (P7). Thus, demonstrating that a certain amount of fundamental knowledge remained even with the passing of time. However, none of the responses offered any formal definitions of the concepts they spend twelve weeks studying.

What is more revealing, is the participants' current use of the key tools introduced in the module. Only three out of eleven responses indicate some use of the key tools and their application: "I have recently started my own creative consultancy and throughout the development of the business itself as well as within our daily operations we are using the strategic canvas" (P2). Regarding the remaining responses, they vary from 1) explaining lack of relevance to the participants' current circumstances, 2) not really recalling learning the tool, to 3) reflecting on the possible application, given the opportunity.

For the final question in this set, only two participants did not recall any useful knowledge they have taken away from the module. The remaining nine indicate that they valued 1) creativity skills, 2) learning about the relationship between the theoretical and practical application prompted by the focus on creative process, and 3) innovation and problem-solving skills. Examples such as: "The most useful element was the way it taught me to look at things … I learned to be more creative" (P1) or "Combining academic frameworks with real-world applications…" (P2), and "Innovative ideas and implementing them into my professional work" (P6).

3.2 Application

The application domain "… allows other kinds of learning to become useful… " (Fink, 2003, in Odom et al, 2017, p. 70). Participants were asked to recall the implementation of design thinking models in module projects, consider the use of the design thinking in their current circumstances, and comment on how the module fostered their creative skills. For those whose experience of the module was a while back, tended to either not recall the project or offer more generic responses. However, those who completed the module within the last four years recalled the details more clearly and could still reflect on the outcomes of using design thinking by detailing how they achieved balance in their project between desirability, viability and feasibility. Participant 5 reflects "I think that our proposal was decent, we were our own business' target audience so we approached it from a "solve our own issues" kind of angle. If you have a look at what we proposed and where the industry is now, I think you will clearly see that the industry is moving in that direction".

Although participants did not recall well their use of design thinking tools, all respondents acknowledge the current value of creativity. As participant 5 summarises "All the time. We run a boutique spirits company so innovation is something that has to be done all of the time. We were working on launching our own bar and shops which require a lot of creativity". Participants highlight how creative thinking and process enable them to manage across all areas of their responsibility, as participant 11 explains: "Yes, I have set up within an organisation a new department which has allowed me to think creatively in terms of how we operate, how we utilise our time etc.". What is evident is how participants currently utilise creativity as a process to resolve concrete projects or specific business objectives, suggesting the design thinking mindset has become useful to these participants long term even if they might not recall the detail of particular tools.

When participants commented on how useful the module has been in developing their creative problem solving, the responses varied between 1) participants acknowledging that they do not recall that level of detail, 2) they did not feel it was the particular module that had an impact, or 3) they acknowledge particular module content developing their creative problem-solving. As exemplified by: "To be honest, I couldn't remember anything about the module, and when I looked at my old notes it didn't jog any memories" (P9), or "Largely. I felt I had a high learning curve, and it opened my head in terms of how to tackle tasks in many areas of life" (P7). When comparing the responses between this set of three questions, participants clearly recognised the value of creative thinking and process in relation to their current circumstances. But when asked to recall the impact of the module in developing these skills, they offer mixed responses with clear variations in detail. Here the impact of time seems to play a greater role in the process of recall, however, not always in relation to recognising the value of the learned know-how.

3.3 Integration

This domain refers to the learning experience prompting broader connections. "The act of making these new connections gives learners a new form of power, "especially intellectual power" " (Fink,

2003, in Odom et al, 2017, p. 70). The questions prompted participants to comment on how well the module enabled them to connect strategic opportunities, creative choices, financial decisions and management principles. The responses rarely seem to comment on these links, with only one direct answer. The prevalent responses tended to focus on more random answers showing participants attempting to interpret the possible meaning of the question rather than considering what type of learning the module prompted. Responses such as: "find it quite relatable in certain context" (P10) exemplified this. However, participants' reflection on their ability to apply strategic thinking: "I think that the main thing that I learnt from the module was how to communicate with sceptics rather than actually develop better skills in strategy" (P5) is more evident.

Participants were asked to comment on how they currently develop opportunities to apply creative problem-solving, with nine of out eleven offering examples in response. Participants related creative problem-solving with notions of innovation, arriving at 'better' solutions or process of research. Their responses captured quite a number of applications, as exemplified by participant 7 "By thinking long-term, with multiple outcomes and solutions for each outcome, rather than a single outcome as I often would before".

We also wanted to identify whether the anecdotal 'the penny drops once the module is over' effect can actually be observed as an example of learning enabling broader connection but in time. The gathered responses highlight the importance of time when it comes to this effect. Eight respondents either noted that this didn't apply or simply didn't answer the question. We note that participants who undertook the module in the last four years tended to respond to the question by giving more detail "The various models and [theories], in general, I try to use on a daily basis. But now I kind of create my own models for work" (P5). Those who completed the module between four and ten years ago did not seem to engage with the question, pointing to a possible challenge for the content to remain relevant or unaffected by further experiences or new knowledge.

3.4 Human dimension

The data captured for this domain centred on teamwork. In the module, teamwork was a key to how learners experienced their learning so in this set of the three questions we investigated how the module supported connections with others. The responses show that taking part in the teamwork has led to a more lasting memory than some of the other aspects of the module. Ten out of eleven respondents commented on the quality of their contribution to the team to develop their projects, with five offering a qualitative comment about the nature of that contribution. Interestingly these responses are quite reflective, such as:

> I do believe that I was an effective team player. And I did enjoy working on a team, however, it is a problem sometimes when I found it difficult to explain my actual thoughts and I just quickly jumped into other being frustrated or just wanting to do it myself. However, I do believe that I do contribute highly when in a team and I did and do always strive for the best possible outcome (P1).

Participants also described their relationship to the other team members: "Yes, I was an effective team player because I used to see the pieces of the other members and try to connect it with mine and see the differences or see how the member sees it" (P6). Their teamwork experience has been one of the key elements in the way participants perceived their learning experience on the module and even with the passage of time, it appears that they were still able to recall the impact these experiences had on their perception of learning.

We asked respondents to evaluate their strengths and areas of development in their current teamwork. Out of eleven participants, six mention creativity as a strength. This is of particular

interest coming from participants who formally studied management degree which might not position creativity as key skill-sets. This focus is captured as follows: "When it happens that I work in a team I think my main strength is the creative thinking, and the ability to think in a financial cost-cutting perspective, however, I do need to develop my ability to look at problems from other peoples' perspectives even if at first they don't make sense to me" (P1). The responses also resonate with the transferable skills embedded in the module curriculum, such as confidence in decision-making, motivating others to contribute effectively, and the need to adapt to the different circumstances as the learning journey progresses.

Fink (2003) explains, as students learn something new or important about themselves or others, they become prepared to function and interact with others more effectively (in Odom et al, 2017). The question that asked participants to reflect upon what they learned about themselves as team members during the module offered confirmation of Fink's focus on the importance of learning something new about themselves. What is also insightful is that despite the varying time lag of two to ten years since taking the module, in all cases but one, the responses offer personal reflections such as "That I'm more creative than I thought and that I have an eye for detail and choosing creative, trendy things" (P4). Responses also captured discourse on how participants conceptualised teamwork in general as the result of the module learning: "I have discovered that leading a team is not always very easy because one or the other will not work" (P3)

3.5 Caring

Fink (2003) outlines "[s]ometimes an outcome of learning is a change in the degree to which a student cares about or finds significance in a matter, resulting in new formed feelings, interests, or values" (in Odom et al, 2017). Here, we focused on participants' relation to creative and strategic thinking, helping us observe the change that Fink refers to. For the nine significant responses, participants were quite clear what elements of the learning have prompted the change of their attitude. It also appears that time was not a strong factor for participants to recall the detail that prompted the change. The responses varied from identifying the teamwork as the prompt ("Yes, of course, the in-class group activities mainly" (P1)); to the new skills they have developed ("Yes. I learnt to think in other ways, out of the box" (P4)); to broader understanding as to the purpose of their practice ("there is so much more to a business than just making profit" (P10)). Thus, the data reveals participants' view of the learning experience giving them the opportunity to change their attitude as to the significance of creative and strategic thinking, which went beyond the completion of the course.

To test the extent the change in attitude is still evident for our participants today, we asked them to share their current thoughts on the value of strategic design to business organisations. All eleven respondents agreed, qualifying it as follows: "it is very important because ideas always change, trends always change therefore thinking of constant strategic design processes is vital" (P3). The responses highlight the different perspectives that participants used to justify their answers. These were: 1) value to innovation; 2) driving organisational processes or 3) echoed by other educational experiences. The responses suggest that the learning experience provided by the module has prompted a change in attitude to the value of creative and design thinking in particular. There is also evidence that this change has withstood the test of time irrespective how long ago respondents have undertaken the module.

When participants have been asked to what extent the module has prompted them to recognise the value of creativity and design in management education, their responses illuminated how the module differed from other learning experiences on their degree: "It did to a large extent, it was the

only course where we as business students were taught to think differently" (P11). Participant 7 comments "Largely. I never saw myself as a creative person, and the creative classes before this one never linked it to business management in a clear manner, but after this module, I realised how important and helpful it can be, and that I am in fact a creative person" capturing how the module enabled learners to redefine their perceptions of their own creative capabilities.

3.6 Learning How to Learn

Fink's (2003) final domain acknowledges "... as students actively participate in the learning process in their individual studies, they gain insight and understanding into the various aspects of learning and how they learn; or in other words, they are *learning how to learn* for themselves" (in Odom et al, 2017, p. 71). Thus, we asked participants to comment on the impact the module's delivery had on their 'learning how to learn'. Nine out of eleven respondents confirmed that the module shaped their understanding of how they learned, and the value of that process, as highlighted here: "It has definitely had an impact on how I learn, and it has taught me that the learning processes can be different, but different is always better and the value of it at the end is much higher than you could expect" (P1). As Participant 5 suggests "I really enjoyed the fact that we were asked to actually do something, to actually make a business plan/proposal to be more active. I think active ways of learning are always better than passive methods" suggesting that the module by creating an active learning environment provided a platform for that transformative process.

We note emergent links with the earlier domain of integration, where participants responded negatively when asked whether they ever found that something they have learned during the module resonated with them later on. We argue that not making the process of 'learning how to learn' more explicit at the original time of module delivery could have impacted how participants are now able to see the relevance of the module and its learning experience.

Fink (2003) maintains that the process of 'learning to learn' develops in students 'resilience, adaptability, and motivation' (in Odom et al, 2017). Here, responses centred around how participants were able to develop their teamwork and problem-solving skills which they linked to adaptability and motivation. Participant 7 refers to their improved ability to resolve given challenges: "Highly, I notice that the way I solve issues has changed, and that I am more motivated by the changes and alternatives that I am able to find". Interestingly any positive responses did not link to resilience but to adaptability and motivation. However, there have also been three responses which argued that they did not believe the module has had that significant impact. However, participant 11 notes "In truth, not sure it taught me about resilience or motivation more than other courses or what I have innately. However, it did very much encourage adaptability. I remember sitting with you both discussing my final project being challenged and forced to adapt".

In developing our questionnaire around Fink's (2003) taxonomy, we considered how participants might engage with the questions and whether they would find the domains of *foundational knowledge* and *application* easier to respond due to more direct links to key concepts they learned. We also wondered whether the more abstract domains around *human dimension*, *caring* and *learning to learn* would elicit less of a response due to their conceptual nature. Interestingly, the data analysis reveals that it is these latter domains that resonated far more with our participants. Upon reflection, we believe that this might have been expected, with basic knowledge either having been subsumed unconsciously or forgotten about, while more enduring features had been carried forward from the module and are still recognised as valuable in their current circumstances, revealing the influence of time on the resonance of the module's learning experience.

4. Insights and conclusions

Upon reflection, it seems that some participants were more transformed by the module, and this effect stood the course of time, whereas for other learners there was a short-term effect which decayed after a few years. We might have expected only those learners most impacted by the module to take the trouble to respond to quite a long questionnaire, with only eleven out of the 24 who agreed actually doing so. However, the variety of responses showed that not all of the respondents were ardent 'fans' of the module, and even amongst the ones who could be deduced as more positive; had varying levels of responses to the different categories of questions. But there was some commonality in issues such as the importance of creativity and ability to be an effective team member.

Mezirow (2004) argues our role as adult educators is to assist our learners to "… acquire the insight, ability and disposition to realise this … capacity for transformative learning…" (p. 69). Our participants recognised that the module both encouraged them to think about and embrace creativity differently and this transformative usage was valued in their current contexts, whatever the length of time since their completion of the module. This transformation included both the importance of creativity generally and their individual role in making it happen. This is interesting given that these were undergraduate business management learners more used to engaging with analytical thinking, avoiding uncertainty and focusing on problem-solving in a very linear fashion.

Working in teams is seldom valued by university students who tend to believe that their peers are rarely committed and put assessments at risk. However, fostering collaboration skills through teamwork is at the core of higher education degrees in the UK as one of the key transferable skills. Our participants' responses reveal that gaining the ability to manage team dynamics and being effective in this process has been a significant learning point they took away from the module. Moreover, our participants believe they are now able to be more effective when working in teams and draw on their creative, design and strategic thinking when navigating those team dynamics, attributing their learning to the module. This echoes Quave and Meister (2017) argument for classroom interaction as one of key prompts for learning.

The central argument of this paper is that we should encourage learners to focus on developing skills and abilities that will help them long after the relevant module or even the degree is over. Part of the problem with this is that they may have only a sketchy idea (if at all) of what 5-10+ years out will bring them, and what would be useful then. As the research confirmed, a focus on learning specific subject knowledge is liable to be less useful than encouraging the development of transferrable skills (such as teamwork and creativity) and the internalisation of these approaches in learners own individual terms as they develop on their journey towards a destination that may only become clear years after. However, the insights gained from this stage of the research can assist in shaping the design pedagogies for the future where the curriculum is generated with a far longer lasting impact in mind. For instance, teaching approaches favouring learning experiences that prompt creative response over simply gaining knowledge and making explicit team building within the learning journey, or designing reflective assessments focused not just on the 'now' but also on building for the future. Moreover, the increasing importance of facilitation around individualised journeys rather than delivery of material should help in making this future focus explicit in the classroom.

The insights captured here bring to an end our study, providing the final dimension pointing not just to the effectiveness of our strategic design curriculum delivery, but revealing the learning gain after the degree has been completed.

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