VALUE OF PARTICIPATORY ACTION RESEARCH METHODOLOGY IN INVESTIGATING DESIGN PROCESS WITHIN UNDERGRADUATE MANAGEMENT EDUCATION

THE VALUE OF DESIGN RESEARCH

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ABSTRACT

The paper evaluates the effectiveness of participatory action research (PAR) methodology utilised in a study investigating the delivery of design management module within the context of undergraduate management education. The paper presents the benefits and challenges of PAR as methodological choice for conducting research into a design management curriculum delivery. It draws on six research cycles between 2009 and 2014 to offer its critical analysis by comparing the key implemented changes to the curriculum delivery resulting from each cycle with formal disseminations of research findings, as points of self-refection following each cycle. Authors draw on Cunningham (2008), who asserts that '… action research 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). Thus, the authors argue that in the case of the undertaken research, the PAR methodology enabled them to conduct a self-reflective inquiry into design management module delivery in order to improve the quality and effectiveness of their own teaching practices, their understanding of those practices, and the classroom situations and experiences such practices engendered. The underlying aim of the paper is to explore the potential of PAR methodology in design research, whilst offering contribution to recent broader debates shaping design and management education.

Keywords: participatory action research, design process, management education, design research

1 INTRODUCTION

Mindful of current debates in design research and practice (Cross, 2007; Dorst, 2008; Friedman, 2003; Niedderer, 2013; at al), the authors have been conducting research project evaluating the delivery of a design management module to undergraduate business management learners, where the focus has been on the learning experiences of all module participants: learners and staff. It is important to note that the research project was designed and supported by participatory action research (PAR) methodology, which has proven to be an insightful choice in itself and is the focus of this paper. Here, the authors discuss the benefits and challenges of PAR as methodological choice for conducting research into a design management curriculum delivery. The underlying aim of the paper is to explore the potential of PAR methodology in design research, whilst offering contribution to recent broader debates shaping design education in particular (Norman and Klemmer, 2014).

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The choice of PAR as the methodology to support the ongoing research process stemmed from the need to implement an approach which allowed the authors to reflect upon their teaching and improve their delivery of curriculum by crossing the disciplinary boundaries to bring design process and thinking into management education. The use of PAR has also enabled the authors to review the effectiveness of some of the more traditional delivery modes still evident in business and management higher education. From the onset of following the PAR methodology, its cyclical nature has enabled the authors to pursue iterative cycles of research which have fed back into and changed what subsequently happened in the classroom. The implementation of PAR has also meant an active involvement of learners as participants and shapers of the outcomes, and has led to changes in authors' practice as educators, moving towards a significantly more facilitative style of curriculum delivery.

As will be seen from what follows, PAR can be used at a variety of levels and contexts, from that of individual practitioners/educators/researchers to society as a whole. Indeed some of the proponents of PAR would say that it is only truly worthy of its name if it addresses these wider societal challenges. However, the authors argue that PAR can also be as effective and as meaningful in small research projects, as it is ideal for an investigation focused on solving a practical problem, namely helping undergraduate learners to gain confidence from decision-making involved in design processes. It also enables the development of knowledge around the integration of design and strategic thinking into a business and management undergraduate curriculum. Thus, the paper draws on six research cycles between 2009 and 2014 to offer its critical analysis, by comparing the key implemented changes to the curriculum delivery resulting from each cycle with formal disseminations of research findings, as points of self-refection following each cycle.

2 BACKGROUND

PAR is defined by Reason and Bradbury (2001) as 'a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes' (p. 1). It is a type of research where the researchers and participants collaborate in defining the research problem, choosing an appropriate methodology and way of doing data analysis and disseminating the findings, with a view of co-constructing knowledge (Savoie-Zajc & Descamps-Bednarz, 2007). Participatory methodologies focus on the involvement and participation of the various role players in a given research project, where researchers and practitioners are regarded as being equally involved in the research process, and take equal responsibility for the outcome of a given project (De Vos at al, 2005). According to Cunningham (2008) the characteristics that commonly define PAR include the following:

— 'The researcher's practice is the subject of the research.
— It is intended to achieve both action (in the form of data-driven change) and research (to develop an understanding that prompts ongoing change or improvement, and to add to what is known).
— It is cyclic, with later cycles used to challenge and refine the results of earlier cycles.
— It tends to be qualitative and participative.
— It requires critical self-reflection.

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— The researcher regularly and systematically critiques what he or she is doing during the research process, leading to refined questions, action plans, and methods, as well as new understanding' (p. 3).

Kurt Lewin is seen by some as the founder of action research (Gillis & Jackson, 2002). He maintained '… that people would be more motivated about their work if they were involved in the decision-making about how the workplace was run' (Lewin, 1944 in McNiff & Whitehead, 2006, p. 36). He also introduced the term 'action research' as a tactic to studying a social system while attempting to impart changes at the same time, and emphasizing the importance of client-orientated attempts at solving particular social problems (Gillis & Jackson, 2002). Such an approach carries the hallmarks of PAR as defined above. On the other hand, Paulo Freire (1970) was concerned with empowering the poor and marginalised members of society about issues pertaining to literacy, land reform analysis, and the community. He believed that critical reflection was crucial for personal and social change (Maguire, 1987 and McIntyre, 2002). Thus, the critical dimension of the action research again reflects what has become one of the key characteristics of PAR methodology.

PAR has developed from a range of sources for over a century, predominantly featuring as methodology in fields of international development, the social science communities, and adult education. Two different schools emerged during this time (1) the social welfare tradition (tending towards social change) and (2) the British tradition, associated with education and focused on improving the practice of educating students (Cunningham, 2008). Bogden and Biklen (1992) outline the social welfare tradition using action research to gather evidence to support various causes and proposing changes. The second of these, the British tradition, sees action research as simply a form of self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out (Carr & Kemmis, 1986). PAR has also been utilized by researchers who share a vision of society free of domination (Maguire, 1987) as well as, it has been effectively applied in investigating gender relations prompted by feminist research (Gatenby & Humphries, 2000; Reid, Tom & Frisby, 2006; Reid, Tom, & Frisby, 2008). Other notable contributors to the field include Orlando Fals-Borda who was interested in developing and applying participatory action research to popular struggles for social justice, a critique of power-relations, dominance and class oppression with a focus on self-empowerment of the people in the face of subjugation (Fals-Borda & Rahman, 1991).

2.1 LINKAGES TO EDUCATIONAL CONTEXT

PAR has been used to explore educational issues at both school level and college/university level, in support of research into issues in the classroom, or the wider side of the education systems themselves. It has also been notably applied in after-school enrichment and youth development programmes (Hutzel, 2007). According to Cunningham (2008) '… action research 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).

A key feature of PAR is the use of theory to stimulate inquiry into practice and the assimilation of research findings into pedagogy (Cochrane-Smith & Lytle,

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2001). Moreover, it is believed that PAR influences or can change both the participants in the research and the researchers themselves. For instance Ball (2009) includes verbatim comments from academics who had taken part in a study to see the effects of annotated comments on students as part of the assessment process. This ability to reflect upon and refine assessments and ones role within them has formed the central thrust of Singh's (2008) argument and is another example of effective use of PAR within education research.

Other appropriate uses of PAR in the educational context include its application to improve student engagement, where teachers address the unique characteristics of their particular classroom and use resulting evidence-based approaches to improve the engagement of students and consequently their grades (Strambler & McKown, 2013). The empowering effect of evidence-based action research methodology and the ability to share ideas both with academic colleagues as well as students themselves is further explored by Colucci-Gray, et al (2013). Improvement of the classroom environment was also the focus of Cunningham's (2008) study, exploring the boredom and inactivity of some students in order to devise strategies to address it.

The literature review reveals PAR as methodology that can be effective at many levels: from reflecting on the classroom itself, with the impact on faculty and students alike, through to programme or institutional level, through to entire national education systems (Mpofu et al, 2014). Kemmis (2006) argues that at whatever level it is conducted, PAR methodology when used to research educational contexts should enable questioning of the wider societal impacts of research, being ready to surface bad news or confront the various powers-that-be.

3 INSIGHTS SHAPING THE CURRICULUM DELIVERY DERIVED FROM PAR DRIVEN RESEARCH PROCESS

In the case of the current research project, the authors utilised PAR methodology to investigate learners' engagement with design process in generating truly innovative business propositions. Here, learners participated in a single project, taking place over the duration of 12 weeks of module delivery. The project was broken up into four stages: the brief, the initial proposal, the design mock-up, and the business case. This format broadly followed a design process of formulating, representing, moving, evaluating and reflecting (Nelson & Stolterman, 2003; Cross, 2006; and Lawson 2006). Moreover, it was also acknowledged 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). Through the use of the analogy of a journey, learners recognised the general direction and four points of reference. They were also aware that this journey will be a challenge, but at the same time they could not predict the precise nature of the experience nor what is awaiting them along the road they will travel. The only way to know was to undertake the journey.

It is important to note that the research project was structured around four constant elements for each cycle, which were: (1) the aforementioned four stages of the assessment project; (2) the same timing of module delivery within the academic cycle (Spring term); (3) the same team delivering the module in each cycle; and (4) the same learners' assessment challenge to develop truly innovative business proposals utilising design and strategic thinking. Following

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PAR methodology, the project pursued '... a spiral [of] self-contained cycles of planning, acting and observing, and reflecting' (Kemmis & McTaggart, 2000, p. 595), where the four elements act as an underlying framework for the investigated relationships and reflections. Moreover, this framework within the research cycles ensured a consistent and rigorous research process, enabling comparability from cycle to cycle. In addition, the framework reminded the authors of the very situated nature of their research project, whilst highlighting the blurred boundaries between theory and practice, a particular epistemological characteristic of the PAR methodology (Brinberg and Hirschman, 1986).

Thus, in the case of the undertaken research, the PAR methodology enabled the authors to conduct a self-reflective inquiry into module delivery [social situation] in order to improve the quality and effectiveness of their own teaching practices [rationality and justice (Carr and Kemmis, 1986)], their understanding of those practices, and the classroom situations and experiences such practices engendered. The review of the research process has revealed an emergence of elements that evolved/changed as a result of the study, which the authors have labelled as influencers. These elements have offered new perspectives/learning points about the actual module delivery to both authors. The following section, thus, offers a discussion of the influencers and the benefits or challenges in utilising PAR methodology within the study.

3.1 INFLUENCERS

The paper explores three key influencers that have lead to change in the delivery of the module. They are: (1) development of the journey metaphor; (2) understanding how students navigate the 'zones of discomfort' (Brown, 2008) and 'what if' scenarios of the design process in order to enable their learning; (3) critically redefining elements of the design brief. The three influencers have lead to most pronounced changes within the module delivery, and are presented here in chronological order of their emergence within the research cycles.

3.1.1 *Development of the journey metaphor*

The process of unpacking how learners engage with the delivery of the module has resulted in the development of the metaphor of a journey. The metaphor emerged from observing learner's ability to engage with the four stages of the assessed project as described above. Through the observation year on year, it emerged that learners struggled with the ambiguity of only having four named points of reference while progressing through their 12-week project. This aspect in particular has been a strong influence in how management learners perceive and learn about the design process in comparison to their other management modules where problem solving processes follow a much more straightforward path with outlined targets and goals. Thus, to support the process of managing this uncertainty, the metaphor of a journey has been developed (2010 cycle). The impact of the metaphor has meant that learners still need to engage with the challenge of the ambiguity that the design process entails, but at the same time there is a reference point they can utilise to make this process more meaningful or understandable and familiar. In this case, the application of PAR has been critical in identifying what is needed (journey metaphor), shaping the nature of the proposed practice, and reflecting upon its implementation from cycle to cycle allowing for further refinement and reflection.

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3.1.2 *Understanding how students navigate the 'zones of discomfort' and 'what if' scenarios of the design process in order to enable their learning*

The research project overarching aim has always been to better understand learners' experiences on the module to prompt deeper learning. This has meant that authors had to investigate how learners navigate the different stages of their assessment supported by the design process (2011 and 2012 cycle), how they utilise design techniques such as 3D mock-up prototyping to innovate (2013 cycle) and how they go through the process of decision-making (2014 cycle). These foci have been reflected upon throughout the research project, making it possible for the authors to map out the module participants learning and to understand how it evolves during the 12-week period. The ability to compare one cycle to another and focusing on enabling learning behaviour change, as supported by PAR methodology, has resulted in insights on how management learners who are exposed to design processes are able to engage with them and to conceptualize them as part of their learning experience. These insights have enabled the authors to change their pedagogical approach to module delivery.

In particular, the iterative teaching and research process shaped by the PAR methodology has prompted reflection and questioning whether the initially established curriculum delivery was appropriate way to support learners. Here, the PAR methodology enabled exploration of how learners utilised the design process to understand and respond to 'zones of discomfort' (Brown, 2008), and 'what if' scenarios. These reflections have altered the focus of the module from provision of tools learners need to know (in order to negotiate the process and successfully respond to the assessment brief), to understanding the aforementioned learning journey and facilitating the acquisition of decision-making confidence.

This approach is rather different in that many modules that these learners undertake tend to concentrate on providing them with knowledge and skills, but not necessarily fostering their ability to utilise that knowledge or skills as a decision-making tool. Understanding this difference in the teaching and learning approach needed to support the learners in navigating the 'zones of discomfort' (Brown, 2008), has meant that the role of the 'teacher' had to be redefined and become that of 'facilitator of learning'. This process of redefinition was a crucial step in enabling understanding of how learners learn in the module as well as placing them at the centre of the learning experience (2011 and 2012 cycle). Thus, the PAR methodology and the resulting insights have prompted the recognition of the more participatory nature of learning and enabled a more reflective learning experience to emerge.

3.1.3 *Critically redefining elements of the design brief*

In the initial iterations of the module, learners embarked on the journey by commencing with definition of a possible offering and then moving onto defining the customers (2009 cycle). However, this approach has not proven to be 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 (2010 cycle onwards). 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 (2010, 2011, 2012 and 2013 cycles); and (2) learners were given a broad archetype to offer a starting

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point for their development (2014 cycle). The first approach provided learners with the ability to make their own choice and four cohorts have used it as a means to embark on their learning journey. However, over the four separate deliveries, this process of developing the customers has always caused most difficulties and has been the most trying part of the learning. Although the reflection at the end of each of the initial four cycles highlighted this challenge, in the first two cycles (2010 and 2011) the review of learners' reflections and submission pointed to a successful experience and deep learning, thus not resulting in any action. However, the learning experiences in the following two cycles (2012 and 2013) indicated a more significant problem, prompting the rethinking of the customer/offering elements of the design brief.

As a result of the emerging challenges with the approach in the later cycles (2012 and 2013) a 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 most recent analysis and reflection cycle has revealed the following insights resulting from critical reformulation of the design brief elements: (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 authors argue that these insights in particular have emerged through the research process supported by PAR methodology. Thus, the systematic and iterative process of reflection, evaluation and future strategizing based on what has been already learned of the PAR methodology (Cunningham, 2008), has been the most effective way in recognising the impact of the design brief elements on the learners experience and to implement change within this situated context.

In review, conducting participatory action research to investigate the delivery of this design management module has been a very effective way to question not only the dynamics of the classroom delivery, but also has prompted the authors to position and reflect upon their own practice as educators.

4 INSIGHTS GAINED AND CONCLUSIONS

The review of the effectiveness of PAR methodology in investigating design process within the context of management education has been and insightful process in itself. In summary, the authors argue that the methodology has positive impact in enabling a situated analysis and self-reflection with a goal of improvement of teaching and learning practice in context. The positioning of researchers and participants within the study as shapers of the research agenda has also been a useful tool to investigate an immersive learning experience. On the other hand, although the cyclical nature of PAR fits well within the academic cycles of undergraduate degree delivery, the need to have longer time periods to undertake research where the research framework can remain constant, can become challenging. Moreover, time is required to implement the research process of observing, acting and reflecting if one wishes to have a more meaningful development of change strategies. There is also the challenge of maintaining the research validity and not introducing a bias through the process of self-reflection, but recognising the particular situated standpoints of the researchers. Hence, the authors assert that it is crucial to understand the

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nuances of the PAR methodology in order to ensure its benefits and to manage the arising challenges.

Moreover going beyond this very focused study, both authors have now identified the impact the study has had on their overall approach to teaching and learning practice that goes beyond a single module delivery. Their long-standing participation in PAR methodology and its particular approach to research has meant that both authors have become far more attuned to the immersive learning environments a module delivery is and are much better at collaborative shaping of these environments across all their teaching and learning commitments that go beyond this single module. Thus, the authors recognise the potential of PAR methodology as a far more transformational approach, enabling the research participants to move beyond the research constraints to shape their own practices and influence others.

Sevaldson (2010) highlights that the current debates in design research form '… a diverse landscape of possible concepts and positions…' (p. 30) when it comes to production of design knowledge, whilst acknowledging the inherent nature of design practice. Moreover he maintains '…that exactly in design research this divide [between theory and practice] is creating difficulties…' where he advocates a move away from such an approach. This is where the authors perceive particular value of PAR in design research, since PAR '…researchers reject the theory/practice divide and believe that applied research can both build theories and solve problems' (Brinberg and Hirschman, 1986). Thus, the paper concludes with an assertion that the nature of PAR methodology, with its practice-focused opportunity for change as well as systematic and reflective generation of knowledge, can be very effective within design research. This is precisely because it can offer a research process which recognises the situated nature of design practice and its potential for practical problem solving, whilst generating rigorously investigated design knowledge that contributes to wider understanding of design as tool for social change.

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