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Editorial to the conference issue

The subject of research methods in business continues to exhibit an extra-ordinary level of activity and innovation, and this conference (the 13th European Conference on Research Methods in Business and Management) reflected this. Several issues have emerged over the last few years of such importance as to command a separate minitrack within the conference including; Researching Project management, Researching personal experience and teaching research methods

The final selection of papers was made by the editor of the Journal, who is grateful for the help provided by the guest reviewers. The papers selected were chosen for their quality of writing, their relevance to the Journal’s objective of publishing papers that offer new insights or practical help in the application of research methods in business research.

The chosen Papers

The first three papers offer some intriguing ideas for managing a key step in using qualitative research methods – the interview. Hilary Drew describes the special barriers posed by interviewing business elites and proposes a technique for offering the lead role in the interview to the respondent while retaining control of the issues to be discussed. The case used to illustrate the approach, is illuminating and the method itself of potential value to interviews of all types of interviewees. The second paper (Mojtahed, Nunes, Martins and Peng) is concerned with the meaning that interviewer and interviewee place on the questions and answers that interviews elicit. This paper presents an instrument, decision making maps, that offers a way for interviewer and interviewee to collaborate in establishing a deeper understanding of the topics under discussion. The last paper on interviews (Ali Rostron) offers an insight into the important role that our self identity plays when we make our responses to questions in a typical semi structured interview.

The minitrack on teaching research methods has been of increasing importance at the last few conferences both in terms of quality and numbers of papers contributed. We include three papers from this minitrack. Frank Bezzina and Mark Saunders offer us an eye-opening revelation as to the depth and range of misunderstandings of statistics displayed by a representative sample of expert teachers of research methods. The second paper (Zelma Bone) explains how effective the application of a learning contract to the teaching of research methods can be within one subject module (leadership issues) - with a wealth of positive comments from students who had experienced this approach. Finally Martin Rich introduces an important and developing idea in education – that of personalised learning. He concludes that personalised learning does in principle offer some attractive possibilities for research training.
Researching software project management is an extra-ordinarily complex subject. Software projects always present complex new problems and have a history of missing cost and time targets, hence researching the subject is bound to involve a number of disparate factors. The paper by Zana Ahmedshareef, Robert Hughes and Miltos Petridis explains that ‘A challenge confronting software project management research and practice alike is producing practical solutions based on empirical data’. Their solution is appropriately complex and demanding! They propose the use of Actor Network theory (ANT) to create an overview of a whole project and its interconnections. They combine this with software metrics to establish where the problems lie and Grounded Theory for analysing the interview material that may be able to show why the problems occurred. They include a fascinating case example which has been researched using these methods.

The final paper by Sally Eaves seeks to harness the realm of personal experience in qualitative research. The paper is a dense exploration of the philosophy of arts-based methods to benefit research, practice and pedagogy. The case examples show how effective these methods can be in bringing the researcher and researched together in a shared exploration of meaning.
Overcoming Barriers: Qualitative Interviews With German Elites

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Abstract: Despite the fact that qualitative interviews are reputed to be an effective method of obtaining data from organizational elites, studies are concurrent on a number of obstacles which surround the interviewing of senior management. Problem areas flagged by the literature include issues of access and suspicion towards the interviewer as an outsider. This paper presents experiences with interviewing senior-level HR managers in German organizations. The author attempted to overcome some of the established barriers to interviewing internationals and organizational elites. However, as the paper argues, unique working experience collected in Germany gave the researcher insights into how to interact with senior German managers. In particular, the researcher drew on a previous role as a language trainer to create a method of engaging managers. The semi-structured interviews that followed were free from barriers and resulted in the gathering of rich data which enabled the researcher to better understand processes, networks and relationships.

Keywords: qualitative interviews, organizational elites, cross-cultural research, business management research

1. Introduction

Individuals in “positions of power within social or organizational systems” (Kezar, 2003:395), or organizational elites, are, therefore, often gatekeepers of information and potential sources of rich data for researchers. Yet, as the literature testifies, this group is difficult to access. Despite the fact that authors (see Morris, 2009) agree that qualitative interviews provide an effective means of obtaining data from organizational elites because of the scope of qualitative research collect detail and to explore nuances (Mason, 2002; Welch et al, 2002), studies are concurrent on the obstacles which surround the interviewing of elites. The problem may be further compounded if the organizational elites to be interviewed are from diverse cultural backgrounds, leading to issues including cross-cultural differences and language barriers (Herod, 2012; Mikecz, 2012).

A growing, but still limited, body of literature on interviewing elites exists (Morris, 2009), with recent studies focusing on elites from such diverse backgrounds such as sport (Moore and Stokes, 2012), healthcare (Goldman and Swayze, 2012), employment relations (Herod, 2012) and politics (Mikecz, 2012). For the field of business management, however, little has been documented, beyond issues of access (see, for example, Laurila, 1997; Leblanc and Schwartz, 2007) on the challenges of interviewing senior managers and this is surprising considering the breadth of literature within this domain where the key respondents have been managers. A key article is that of Welch et al. (2002), which makes some interesting recommendations for interviewing management. In regards to interviewing across borders, there is a varied body of literature that deals with cultural barriers but, as with the elite interviewing literature, there are few studies which are pertinent to business management interviewing exclusively.

Developments in global business have led to an increase in cross-border research (Welch and Piekkari, 2006), and, at the same time, there has been a gradual internationalization of higher education, with a substantial increase in the number of international students conducting postgraduate and doctoral research outside their home countries (Altbach and Knight, 2007). With this plethora of interest in international research, it may be argued that there is a need for more literature which deals explicitly with the challenges of interviewing international business elites and how to overcome these. This paper attempts to do just this.

Whilst the overarching objective of the paper is to add to both the interviewing elites and cross-cultural interviewing literature, it is positioned specifically at filling a gap in business management research around interviewing senior managers from different cultures. The paper is based on the experiences of interviewing German organizational elites by a British researcher. Having engaged with the literature on interviewing internationals and organizational elites, the author attempted to overcome some of the established barriers when interviewing senior-level HR managers in German organizations, by drawing on past work experiences, including as a foreign language trainer. The semi-structured interview approach used was free from barriers
and resulted in the gathering of rich data which enabled the researcher to better understand processes, networks and relationships.

The paper is structured as follows: the next section draws upon the academic literature, in order to discuss the barriers to the qualitative interviewing organizational elites and cross-cultural research, as well as recommendations to overcoming these hurdles. Section three describes provides an overview of the author’s background, sets out the methodology of the author’s research and explores the results of the author’s methodology. Section four presents a discussion around the extent to which the researcher’s method was effective in overcoming the expected limitations to senior management interviews. The final section draws this paper to a conclusion.

2. Barriers to interviewing business elites and suggested responses to close gaps between the researcher and the researched

Qualitative interviewing provides an effective method of collecting data from business elites because it allows for rich, in-depth conversations (Welch et al, 2002; Yeung, 1995). In senior management interviews, this level of detail can be useful, for example, because it allows for a consideration of how management perspectives have shaped the organization, particularly if management interviews are followed by interviews with other organizational members.

Yet, according to the literature, elite interviews present challenges in the form of barriers to access, imbalances in the power relationship between the researcher and the researched and reluctance on the part of the respondent to speak openly. Where hurdles exist, suggested responses are made by various authors. This section explores these issues in more detail.

2.1 Power dynamics, insiders and outsiders

If exchange relationships are based on unequal distributions of power, then the interview relationship is no exception. The relationship of the researcher and the researched must be carefully considered; yet, as Kvale (2006) indicates, the question of power is frequently omitted within the literature on qualitative research. The power dynamics inherent in the interview process need to be examined from both sides because the balance of power can easily be greater on one side than the other. To a certain extent this distribution of power depends upon the identities of the researcher and the respondent (Welch et al, 2002).

Interviewers should be aware of the risk of dominating the interview and leading the respondent to answer in a particular way that does not necessarily correspond to their true feelings. The social desirability effect may cause respondents to provide answers which, instead of reflecting the interviewee’s true perspective, relate to what they think the interviewer would want to hear and/or would place them in a positive light (Bryman and Bell, 2003).

Burman (1997) suggests that interviewers may utilise their status to gain trust and to display an empathy with the respondent, suggesting that interviewers have the capacity to exploit their position in an interview and dominate the process, or, as Mauthner et al (2002) refer to it, to fake friendships. Elsewhere in the literature, there is a discussion of the researcher as an insider or an outsider (Morris, 2009), and all discussion of power dynamics within interviews and the extent to which managers may speak candidly depend on the extent to which the interviewer is perceived as an insider.

Some interviewees may be intimidated by being interviewed by an academic (Welch et al, 2002); yet, organizational elites hold power themselves and, therefore, are different to other respondent groups discussed in the research methods literature. Organizational elites may be dominant from the outset, when the researcher struggles to gain access to the person because of their position (Welch et al, 2002). Gaining access to elites, who will already have busy schedules, may be a time-consuming and arduous process and these individuals may be reluctant to make time for appointment (Yeung, 1995). Moreover, the researcher may deliberately hold back on any problematic and potentially sensitive questions in order to keep the interview going (Cochrane, 1998). Since interviews usually take place on the territory of the interviewees, an elite might use their own space to present themselves in a position of dominance (Fitz and Halpin, 1995). Interviewees may believe themselves to have superior knowledge and dominate the interviews, challenging
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the research and the actions of the researcher (Welch et al., 2002). This may have the effect of interrupting the interview to such an extent that little useful data can be collected. This idea of dominance through physical spaces has been documented in other literature (see for example, Ornstein, 2013), as well as tying in with wider literature around organizational culture (especially in the work of Schein, 2010).

Welch et al. (2002) posit that age difference can also affect the power locus within the interviewing relationship. In their research, older managerial respondents were sometimes found to adopt paternal behaviour towards younger researchers; others showed irritation at being asked what they perceived to be irrelevant questions (Welch et al., 2002).

The above observations share a common theme; that regardless of where power is held, the researcher must engage in what Morris (2009: 213) refers to as “duplicitous” strategies in order to uncover the real story. Authors offer different advice around how the researcher should present him or herself to the respondent and there is some consensus in the literature around expectations of the interviewee as being dishonest and deliberately trying to hide the truth (Morris, 2009).

For business management researchers, Welch et al. (2002) make some useful recommendations. Beginning with the initial stage of gaining access, they suggest that the researcher needs to present him or herself as a professional, in order to reduce any potential gaps between the academic and the business world (Welch et al., 2002). Whilst academic and linguistic competencies may figure largely in terms of gaining access, Welch et al. (2002) argue that it is the narrowing of the gap between academics and manager that requires attention.

How, then, may this gap between academic and manager be addressed? Welch et al. (2002) posit that academic researchers possess an advantage in elite interviews because of their knowledge about the sector, its policies and practices. This may be welcomed by senior managers who cherish the opportunity to discuss organizational problems with an informed third party, as well as a chance to familiarize themselves with new developments in their field. The researcher, thus, becomes a vehicle for the discussion and clarification of ideas managers might have for the organization and this endows the researcher with a greater insider status. In other words, the researcher becomes a critical friend. However, Welch et al. (2002) also recommend that the interviewer exerts caution, as being too well-informed carries a risk of managers feeling threatened and, consequently, reluctant to reveal information in case it leads to their organization being reported in a negative light. The researcher, therefore, becomes an outsider once more.

2.2 Culture and Language

Wider literature presents further concerns for the business management researcher. A primary consideration lies in the extent to which cultural differences impact upon international business (Welch et al., 2002). Hofstede’s (1980, 2001) cultural dimension framework is useful in helping the business management researcher to grasp how culture impacts on organizations in various ways as a result of diverse perspectives on status and hierarchy, attitudes to risk, collectivism and paternalism versus individualism, as well as masculine and feminine society and social structures. These cultural variations shape national institutions, which for business management researchers are of interest due to their impact on labour markets, corporate governance, employment practices and training (Hall and Soskice, 2001). Hence, the researcher needs to aware of, and familiar with, these differences within organizational policies and practices, as well as varying attitudes to work and work organization.

One significant area related to culture is the issue of stereotypes which figures largely within the corporate world, as elsewhere in society (Cooper and Kirkauldy, 1995). In the case of German managers, Cooper and Kirkauldy’s (1995:4) study of managerial stereotypes indicated that “German managers were perceived by their British counterparts to be more hardworking, that is, more industrious, meticulous, structured and workaholic”. Avoiding stereotypes is part of the researcher’s remit in avoiding bias.

Inextricably linked with culture, is the issue of language which may represent a further barrier to effective interviewing, as native language may be important in gaining access to respondents and to establishing trust (Andrews 1995; Tsang, 1998). Being interviewed in a foreign language can have a negative impact on the ability of the interviewee to express him or himself fully, as well as to feel comfortable and to open up to the researcher (Tsang, 1998). Andrews (1995) and Tsang (1998) recommend that, wherever possible, the native language of the interviewee should be used. If the researcher is able to demonstrate competency in the native
tongue of his or her research subject(s), being interviewed in the mother tongue may create a more conducive atmosphere to expression and the building up of rapport (Andrews 1995; Tsang, 1998). It may, in addition, prove beneficial in gaining access and creating trust between the researcher and the researched (Andrews, 1995).

If the researcher does not speak the native language of his or her respondents, then an interpreter may be engaged. Yet, the interpreter represents an outsider to the research process who “produces noise, artificiality and an absence of tempo” (Usunier, 1998: 92). Consequently, the addition of this third person may undermine the trust and rapport that the researcher must work hard to secure.

Researchers may also engage native speakers to transcribe, proofread or analyse interview recordings or notes (Welch and Piekkari, 2006). This could lead to questions about validity (Kapborg and Berterö, 2002), as well as issues surrounding who is the insider and who is the outsider (Welch and Piekkari, 2006). The interviewer might be perceived as an insider to the research and to the interview, whereas the translator might perceive him or herself to be the insider because their native speaker fluency allows them to pick up on nuances of expression, tone and body language which an outsider to the culture might overlook.

Despite being able to overcome any language barriers, linguistic competence on the part of the researcher cannot compensate for a lack of familiarity with the communicative norms of society (Briggs, 1986), which are underpinned by cultural differences. Researchers need to be aware of other forms of communication norms within interviews, including non-verbal communication, which may differ between cultures (Brislin and Yoshida, 1994; Samovar et al., 2011), and interviewing practices which may not be appropriate within cultures other than the interviewers’ own (Briggs, 1986). To remove or minimise cultural bias, interviews should be conducted neutrally (Holtstein and Gubrium, 1995). A pilot study is helpful in identifying initial problems and/or mistakes within interview questions.

This section has outlined the barriers which may exist between the researcher and the researched and has indicated some of the recommendations from the literature to close these barriers. Whilst much of the useful literature on interviewing elites comes from diverse fields, there is a clear consensus in these studies around the problems of power dynamics, language and culture. Recommendations by Welch et al. (2002) are especially pertinent for business management researchers and highlight how specialist knowledge held by the researcher may overcome initial barriers, especially access, which, as the generic business literature indicates, is the biggest documented obstacle for interviewers wishing to speak to senior managers and other high-level executives.

The next section introduces the researcher and outlines the research process and its data collection method, in order to present a successful case of interviewing senior managers qualitatively.

3. The qualitative interview process – background, methods and results

The aim of this section is to introduce an approach to interviewing elites which was successful in overcoming the challenges outlined in the section above. Firstly, some contextual information about the background of the author is presented, as this is important in demonstrating the insider/outside problem of access and power dynamics. The next step is to indicate how the researcher approached the data collection because the chosen method was able to further transcend barriers around power and interaction, as well as to engage and interest respondents and to encourage them to speak open and candidly.

3.1 Overcoming barriers to interaction

This subsection introduces the professional and academic backgrounds of the author. The importance of understanding culture has already been discussed and, as this subsection will demonstrate, the researcher had already developed an understanding of the target country, its culture and had some insider experience of German organizations. The outcomes of the researcher’s prior links with Germany correspond directly to debate within the literature around the extent to which culture and language are barriers to be overcome. In terms of academic affiliation, it is important to outline this as, firstly, it corresponds with Welch et al.’s (2002) recommendations on establishing oneself as an expert and, secondly, the author aligned herself with two research institutions in Germany which helped to gain access to senior managers.
3.1.1 Professional experience and linguistic competence

Whilst the importance of the researcher guarding him or herself against stereotypes has been highlighted, it is widely documented that German society places emphasis on punctuality, attention to detail and reliability (see, for example, Aspe, 2012; Berger, 2012). Within a business context, these cultural expectations are also to be noted. The researcher was already familiar with German social norms, having spent a considerable period of time in Germany and working in several positions across a period of fifteen years. One professional role had been a managerial post, which gave insights into German business protocol. Significantly, the researcher had achieved a high level of linguistic competence in German and was very comfortable in using German as a working language.

In and outside Germany, the researcher had amassed a decade’s worth of experience as an English as a Foreign Language (EFL) instructor. In this role, in Germany, she had mainly offered language tuition for German managers, especially those requiring preparation for international assignments. However, recommendations from past students, led to new requests from further managers to focus on preparing presentations in English, translating and updating curriculum vitae and other work on designing and translating company materials into English. Through this extensive work with managerial clients, the researcher developed some useful methods of breaking the ice with German managers, establishing her credentials, facilitating and eliciting. In other words, the researcher had already developed coping strategies to overcome issues which are akin to the barriers for qualitative researchers interviewing organizational elites.

3.1.2 Academic Affiliation

The case on which this paper is based centres around a research project focusing on how German companies manage ageing workforces. Hence, the study required interviewing senior Human Resource managers. In order to be better placed to access secondary source materials, as well as to conduct interviews, the researcher spent eight months in Germany. During fieldwork, she was based at two well-known research institutions, the Hans Böckler Foundation in Düsseldorf and the Max Planck Institute in Cologne. Due to the prestigious nature of these institutions, and their excellent links with local companies, the researcher profited from these affiliations during fieldwork.

3.2 Conducting the qualitative interviews

This section sets out how the interviews were conducted and emphasises the extent to which the professional and academic backgrounds of the researcher were inextricably linked with the success of the interviews.

3.2.1 Initial contact

The first contact with managers was through two letters were sent out on headed paper from the research institution. The first letter was composed by the researcher and outlined her academic qualifications, as well as the aims of the project and the topics to be discussed in the interviews. The second letter was from the research institution; not only did this vouch for the credentials of the researcher, but also exhorted managers to participate in the study. The preliminary contact was followed by a telephone call, which had several important functions. Firstly, this confirmed the content of letter and allowed for any necessary clarification around participation; secondly as potential respondents were contacted only a few days after the letter was sent, a timely telephone call helped to create a first impression of professionalism, as well as gave the researcher the opportunity to indicate respect for the time managers would need to set aside for the interviews; finally, speaking on the telephone in German confirmed the linguistic competence of the researcher. Fifty companies were contacted and, eventually, thirty-five interviews were conducted.

3.2.2 Interview process

The strategy for organizing the semi-structured interviews was based on techniques developed by the researcher throughout her experience as an EFL instructor. As a language teacher, the researcher set up oral exercises with her students, engaging them through words or phrases printed on cue cards. This approach minimised the input of the trainer, whilst increasing the output of the students. The researcher made a decision to follow a similar approach in the interviews because this gave the respondent the lead role in the interview and encouraged them to speak freely, and to reach the depth and detail within their responses which is associated with qualitative interviewing.
Interviews typically began rather formally, with the researcher conscious of power metaphors (room layout, distance between interviewer and interviewee as seen in Ornstein, 2012 and Schein, 2010). Initial small talk assured the respondents that the interviewer was capable of conducting the interview in the German language. This was integral to building up rapport (Oakley, 1981). After this, a series of cards were laid out upon the table.

Each interview consisted of twelve themes and these themes for discussion were presented to the interviewees via the card placed on the table. As see Figure 1 demonstrates, the cards were made from red cardboard. By placing the interview themes on the table at the beginning of the interview, respondents could immediately see the selected topics for the interviews with the understanding that nothing was hidden from them, including how the session would proceed.

![Figure 1: Example of how topic cards were presented to the respondents](image)

After the cards had been laid out, the interviewer summarised the themes and indicated to the respondents it was acceptable to omit any topics with they wished not to engage, such as any not pertinent to the organization.

The participants were then encouraged to sort through the cards and to direct the flow and emphasis of the interview themselves by prioritising the topics. In the next step, the manager was invited to comment on why he or she had placed this card at the head of the pile and why this issue was of the greatest significance for the organization. In this way, the interviewer only needed to speak when it was time to move to a new topic and/or to ask for clarification. The ratio of participation within these interviewer/manager dialogues was 25/75.

Interviews ended when respondents had worked through all the topics on the cards. The respondent posed a final open question: “do you have anything to add? Something that we haven’t discussed but you think is important?” In a few cases, this final question led to the recording device being switched off because the respondent wanted to speak confidentially. After the interviews, the data was transcribed in German. Pertinent passages from the interviewers were later translated into English to be used as quotations when the research was written up.

3.3 Results of the qualitative interviewing method used

Having described the method of conducting the qualitative interviews, this final subsection presents the outcomes of the process. As it will be explained, bringing classroom techniques into the interview room were helpful in reassuring elites about the interview and, once underway, the majority became engaged in the activity. However, this subsections also reiterates what has been emphasised in the first subsection, namely, that the professional and academic background of the researcher also helped to overcome some of the
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documented barriers related to interviewing elites, such as power relations, cultural difference and a lack of responsiveness from interview participants.

The first observation to make is that many managers were initially uneasy about being interviewed; this was evident in their speech and in their body language and several had even brought the original letters of contact with them, with accompanying notes jotted on the page as a form of preparation. However, once the topic cards were presented and they were able to see the topics in front of them, most managers relaxed visibly.

Not until the researcher felt that managers had lost some initial reservations, did she encourage them to handle the cards and to prioritise the themes. From the layout of the cards, the extent to which some issues were more important than others could be recognised, as well as how one issue impacted upon another. All respondents used the relevant cards to create structure to their interview and used each subsequent card as a signpost to mark the beginning of one topic and the ending of another.

In many cases, the interviewees engaged very quickly with cards and began to place the cards at right angles to another on the table. In this way, the respondents made connections between the topics identified corresponding issues. The incorporation of language classroom techniques, designed to elicit information and encourage dialogue, were, therefore, successfully employed, in order to encourage interviewees to speak freely and candidly, without the need for constant reinforcement from the interviewer. In particular, the success of the strategy seemed to mirror the effects of using cue cards in the language classroom; the cards broke down some of the barriers which occur naturally within an interview when the researcher and the researched meet for the first time. If a respondent felt uncomfortable with a particular topic, he or she could move on immediately to the next one.

Furthermore, physically handling the topics seemed to facilitate the thought process. Having their hands occupied, appeared to enable the participants to become more deeply engaged with the interview process and disengaged from their workplace environment. Some managers rearranged the cards to form a kind of map, which outlined the casual patterns of change within the company (see Figure 2 for an example). They drew on this map to discuss change and continuity within their organization and to orient themselves through the process.

Figure 2: Example of how respondents interacted with topic cards

Interviews were intended to last about forty-five minutes, but the majority lasted between one and a half hours and three hours. This suggests that managers reacted positively to the interview process. But more significantly, a quarter of the respondents, themselves, remarked favourably on the interview strategy. Comments from the participants included that they had found the interview to be well-structured, interviewee-friendly and enjoyable. This feedback was especially surprising given the negative picture surrounding the interviewing of organizational elites presented by the literature.

This section has presented an interesting case of a research study, whereby the researcher drew on her own personal background to design a method of qualitative interviewing which was successful in leading to the collection of rich data from senior managers. The next section will revisit the academic literature discussed in section two and compare the outcomes of the case and the methodology of the author with the barriers and challenges outlined in the literature.
3.4 Discussion: approach, contextual factors and their roles in surmounting obstacles to research

Despite the literature identifying issues including access to elites, inequality in power relationship, candidness of response, as well as linguistic and cultural barriers, these did not pose problems in this case. As section three has delineated, the particular personal circumstances of the researcher were largely responsible for driving the data collection process. Interestingly, some of the techniques adopted by the researcher to eliminate those barriers in qualitative research were similar to those highlighted in the literature, including linguistic competency, the use of interpreters. This section will discuss where obstacles to interviewing organizational elites were overcome and focus on how this was done and the extent to which the approach mirrored suggestions made by the literature.

As the literature demonstrates, gaining access to the right person is an initial hurdle (Welch et al., 2002). Through the researcher’s affiliation with two prestigious research institutes, the first contact was made easily and directly and, through a carefully and correctly worded letter, followed by a telephone call. This demonstrated an appreciation and understanding of German business culture, where networks are important and contact is formal, as well as established competence in the German language and showed respect for the time of the managers (Yeung, 1995).

The telephone conversation also, arguably, represented a first step in addressing power dynamics as it established academic credentials on the part of the researcher, as well as demonstrating that she had knowledge and experience of working in Germany. Hence, the gap between academia and managers identified by Welch et al. (2002) was narrowed.

The follow-up telephone call developed the contact by establishing a personal connection, which had important repercussions for all stages of the research process, not only the initial access phase. Here, the researcher aimed to create an insider identity and this was achieved through a brief self-introduction, leading to many potential interviewees asked the researcher where she had learned to speak German. As Briggs (1996) argues, an ability to speak the language cannot compensate for not being able to pick up on other norms related to communication; hence, the researcher also discussed her professional experiences in the country.

The insider/outsider problem of the positioning of the researcher within interviewing has been alluded to in section two and this section has already been emphasised that the attempt to present the researcher as an insider began at the pre-interview stage. Breaking the ice at the first stages of the interview was an important further step to continue presenting the interviewer as an insider. This helped to create trust and commitment and there was, therefore, no need to engage in some of so-called ‘clever’ strategies summarised by Morris (2009) which researchers have used to engage interviewees.

As discussed in section two, in the interviews, there was a short initial period of discomfort for many respondents and some had drafted out pre-emptive responses, in order to be prepared. Thus, the several minutes spent at the outset to outline the aims of the study, discuss ethical considerations and to explain how the interview would be structured. Later, as established, the cue cards were partly responsible for creating an environment conducive to collecting rich data.

The use of cue cards in qualitative interviewing is well documented (see, for example, Block and Erskine 2012; Willis, 2005). Visual aids make it easier for respondents to express or understand ideas. However, the design of the interviews was innovative as the researcher borrowed ideas from the language classroom and used them to interview elites. Whilst it may be suggested that the researcher had an advantage, having used these techniques previously, the method could be adopted and used successfully in other elite interviewing, as the outcomes were favourable.

Red cardboard was chosen deliberately for making the topic cards and was based on the researcher’s own classroom experiences that, when faced with a choice of different coloured cards, students (both male and female and of all ages) tended to choose red cards over cards of any other colour. This is backed up, to some extent, by research into adult learning environments and the impact of colour on the learning experience. According to this research, adult learners are encouraged to be more engaged with an activity if warm colours, such as red, are used (see, for example. Burrus, 2001). Consequently, the researcher decided that, based on research by Hawkins (1991, cited in Burrus, 2001) into the role of colour in stimulating adults, as well as her
own past experience of using red cardboard, bringing themes printed on to red card into the interview-setting might enhance the willingness of the respondents to engage with the task.

The classroom techniques were effective because they combined aspects which addressed the issues of power dynamics, openness and the need for clarification, whilst creating a non-threatening and, eventually, pleasant atmosphere. The secondary effect of the cue cards becoming vehicles for expressing cause and effect allowed for a hands-on approach for recipients which, again, broke down barriers.

As the literature indicates, addressing and strengthening the relationship between the researcher and the researched and identifying and overcoming barriers to interviewing requires attention and the process begins early on. Moreover, there needs to be a consideration of contextual factors. In this case, it is clear that special conditions existed that enabled barriers in qualitative research to be surmounted. The researcher’s background meant that she had a good understanding of German cultural norms, as well as a professional grasp of the language which enabled her to transcend the many of the barriers faced by an outsider. These include being able to gain access, to understand how to approach German senior management, which linguistic conventions to be used, the ability to interview in the native tongue and, finally, drawing on the experiences of language teaching, how to elicit and facilitate.

4. Conclusion

This paper has attempted to outline how one case of qualitative data collection transcended some of the barriers which the literature posits surrounding the interviewing of organizational elites. There are a number of excellent recommendations made by the academic literature which should be useful in overcoming hindrances. Section two presented an overview of the obstacles to interviewing which appear in the literature and proposed solutions. Key themes are around culture, power and the extent to which researchers may need to present themselves in a certain way not only, in the first instance to gain access, but also to establish credibility and trust. Much of the literature, as Morris (2009) indicates, suggests that researchers may employ underhanded or duplicitous tactics in order to draw the interviewee and to create trust.

This paper has shown that barriers to interviewing elites may be surmounted through the way in which the researcher appears to the researched and, therefore, concurrent with other studies that for academic researchers, organizational elites are more likely to agree to be interviewed if they perceive the interviewer to have knowledge of the sector and the business, as well as offer themselves as a critical friend. There was no need to implement any of the ‘clever’ strategies suggested by the literature. The researcher was able to demonstrate professional and academic credentials, which were also related to the business culture of German, thereby overcoming a further barrier of cultural difference. Moreover, the researcher brought a unique combination of professional and personal background, as well as linguistic competence, that were instrumental in the success of the research.

What is perhaps most worthy of note in this case is that the data collected was rich, as interviews were relatively long and managers spoke candidly. Whilst, to some extent the openness of interviews was related to the good rapport which had been created prior to discussing the interview themes, the way in which the qualitative interviews were designed and structured were the main drivers of success. The researcher used techniques from the language classroom to encourage communication and keep the interviews well placed. Therefore, this paper goes some way to adding to the literature on interviewing elites by offering a further perspective on how to engage interviewees and how to broach subjects about which elites may be reluctant to speak openly. Having said this, it may be argued that the technique for interviewing managers may not work in all circumstances, especially as the personal circumstances of the researcher drove the process and it is, thus, necessary to test this method with further groups of elites and with other interviewers.

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Equipping the Constructivist Researcher: The Combined use of Semi-Structured Interviews and Decision-Making maps

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Abstract: An interview is a technique used by qualitative researchers to elicit facts and knowledge about the phenomenon under investigation using a series of interview questions. Nonetheless, the establishment of conversation and negotiation of meaning during the interview process is still challenging for those who conduct interviews, no matter how skilled or experienced researchers are with the process. It is felt in particular that researchers would benefit from the use of an instrument that, in the course of semi-structured interviews, would foster an environment where the ideas and meanings conveyed by informants could be developed and further discussed in order to achieve a deeper understanding of the phenomenon under investigation. Therefore, this paper attempts to develop and introduce decision-making maps as a new instrument to be used during the process of conducting semi-structured interviews. This newly proposed instrument is inspired by the concept and practice of perceptual mapping. The paper discusses the rationale for proposing the development and application of decision-making map in the context of semi-structured interviews, and reflects on the range of implications for the researcher, for participants, and for the practice of qualitative research that claims affiliation with constructivism.

Keywords: inductive research, constructivism, qualitative interview, perceptual mapping, decision-making map

1. Introduction

Cohen & Manion (1994, p.36) described the constructivist approach to research as being based on understanding the world of human experiences. This world of experiences is continuously shaped through the human interaction with objects and other subjects. In order to access and achieve an understanding about human perceptions, one of the main requirements of the constructivist approach is the establishment of a reciprocal and communicational ground between the research project participants and researchers in the co-construction of meaning. Eventually this would lead to building a theory that is based on the experiences of researchers and that of research participants (Mills et al. 2006).

Several authors have discussed the use of constructivist epistemological principles in inductive research. The constructivist paradigm traditionally follows qualitative research methods, although quantitative methods may also be used in support of qualitative data (Mackenzie & Knipe 2006). Since constructivist researchers tend to rely on participants' viewpoints about the situations under investigation (Creswell 2003, p.8), the vast majority of inductive research remains interview-based and interpretivist in nature. Accordingly, the use of interviews as a data collection method in inductive research is justified by its affinity with daily-life conversations and the centrality of interactions, exchanges, and negotiation of meaning between two parties (Kvale & Brinkmann 2009), which corresponds to constructivist approaches to research.

There are different approaches to carry out an interview, although the dominant characterisation of interviews is based on the dichotomy between structured and unstructured interviews (Collins 1998). However, more varieties of interview styles have been recognised by researchers (e.g. May 2003, p.121), such as semi-structured interview, group interview and focus group interview. Each one of these types follows their own approach to conduct an interview and to collect the research data. A clear sign of the differences between each type of interview styles is the way the interview questions are formulated and the amount of freedom given to interviewees in their replies to each interview question (e.g. Bryman 2012). Nonetheless, the
Whether the researcher applies a semi-structured or unstructured interview, there is an unconditional principle that researchers need to adhere to during the interview process, which is the capacity of maintaining social negotiation of meanings between the interviewee and interviewer. This component is somehow missing or underachieved during the operationalization of research that claims a constructivist affiliation. In addition, most of the tenets of modern inductive approaches such as thematic analysis, grounded theory or even phenomenography are predicated in listening to informants’ perceptions of the social world around them, interpreting them and producing a theory that attempts to generate a context-bound understanding. This process contains an inherent artificiality since researchers are trying to understand social worlds by interpreting informants’ perceptions without any feedback loop that enables negotiation and validation of the adequacy of the interpretation.

To address the challenge of researchers’ exclusive reliance on the interpretation of interview evidence to construct their studies, this paper proposes the introduction of a methodological innovation in semi-structured interview design: the use of decision-making maps that help both the researcher and the informant negotiate meaning, define data and advance interpretations in a collaborative fashion.

This is particularly important in the context of qualitative research that is aligned with a constructivist conceptualisation of knowledge – one that asserts that researchers must rely upon the "participants' views of the situation study" (Creswell 2003, p.8). The difficulty in constructivist research is exactly demonstrating that the participants’ view of the situation as reported in research findings is not simply the result of researchers’ interpretive whim, and that negotiation of meaning has in fact occurred. This is intimately related to what Denzin and Lincoln (2005) describe as constructivism’s subjectivist epistemology, in the sense that knower and respondent are co-creators of understandings (Denzin and Lincoln 2005). The use of decision-making maps in conjunction with semi-structured interviews, as advocated in this paper, enhances and materialises the opportunities for co-creation of understandings between researcher and participant, at the moment of data collection.

Further explanation of this process and its main stages are advanced in the following sections. A detailed description of the rationale and process of decision-making maps is provided in Section 2. Section 3 discusses the stages, difficulties (and how they were overcome) and implications of applying the instrument to an empirical context: a single case study of a UK local city council’s decision-making process concerning new IS projects. The paper closes with a recommendation to use decision-making maps in the process of semi-structured interviews to promote interaction with informants, to foster goal-oriented thinking, and to operationalise social negotiation and co-production of knowledge.

2. A description of the development of decision-making map

“Researching a problem is a matter of using the skills and techniques appropriate to do the job required within practical limits: a matter of finely judging the ability of a particular research tool to provide the data required and itself a skill” (Hughes & Sharrock 2006, p.12).

This section describes the process of developing decision-making maps as a data collection instrument to be used in conjunction with semi-structured interviews. A review of perceptual mapping and its uses in Marketing research is provided, since the idea to design decision-making maps for interpretive, interview-based research stemmed from this field. This is followed by a detailed explanation of the structure and process of the proposed data collection instrument.

2.1 What is the perceptual map?

Within Marketing research perceptual maps have been known as a powerful technique which is used for designing new products, advertising, determining good retail locations and developing several other marketing solutions and applications (Hauser & Koppelman 1979). Examples of the use perceptual mapping in Marketing research include Kim’s (1996) perceptual mapping of hotel food and beverages’ attributes and preferences,
Wen and Yeh’s (2010) investigation of customers’ perceptions and expectations concerning international air passenger carriers, or Maltz et al.’s (2011) investigation of sourcing managers’ perceptions of low cost regions.

In general terms, perceptual mapping techniques help organisations understanding how their products are perceived by consumers in relation to the different products in the marketplace. Perceptual mapping techniques aim at producing a diagrammatic representation of that perceptual space occupied by organisations (Kholi and Leuthesser, 1993). A typical perceptual map will feature the following characteristics: pair-wise distances between product alternatives that indicate how closely related products are according to customers’ understanding; a vector on the map that “geometrically denote[s] attributes of the perceptual map”; and axes that suggest “the underlying dimensions that best characterise how customers differentiate between alternatives” (Lilien and Rangaswamy, 2004:119). Perceptual maps’ dominant approach to collect and analyse data on consumers’ perceptions of products is objectivist, developing in most cases via attribute based methods (factor analysis) or similarity based methods (multi-dimensional scaling).

2.2 A qualitative design of decision-making map

A central claim advanced in this paper is that some features of perceptual mapping techniques can be developed in qualitative research designs, in conjunction with semi-structured interviews, provided that the researchers take into account the particularities of “verbatim conversation” that occurs between interviewee and interviewer as the way to find answers for questions such as “how” and “why” (McNeill & Chapman 2005, p.22).

Unlike the perceptual mapping techniques used in Marketing research, the priority is not extracting meaning from numerical approaches and statistical analysis of the social facts, or applying multidimensional scaling and factor analysis to construct a perceptual map.

Furthermore, the perceptual map as used in Marketing research is the outcome of a technique consisting of detailed procedures, whereas the qualitative decision-making map proposed in this paper consists of an instrument designed to collect information during the semi-structured interview.

The perceptual map as used in Marketing research includes three characteristics. Firstly, it has pair-wise distances between product alternatives that specify how close or far the products are in the mind of customers. Secondly, it has a vector on the map that indicates magnitude and direction in the geographical space of map. Finally, it displays axes of the map that show the underlying dimensions that characterise how alternatives are differentiated by customers.

Based on these fundamental characteristics, we developed the decision-making map as a data collection instrument. The details pertaining to the operationalization of the proposed instrument are advanced in the following sections. An empirical application of the instrument is discussed in section 3.

2.2.1 The processes of decision-making map

Departing from the core principles of perceptual mapping, we have designed a new instrument, which should be used during the semi-structured interview process. In practical terms, it requires both interviewee’s and interviewer’s engagement in producing a diagram on a sheet of paper (e.g. A3 size) provided by the researcher.

Although consisting mostly of blank space where the informant is expected to jot down concepts and ideas, the diagram provides quadrants organised according to dominant research perspectives that will be used as the bases for discussion and conversation between informant and researcher. The selection of dominant perspectives is informed by the review of literature in the substantive area of research study and by earlier observations of the phenomenon under study. The literature review helps the researcher identify sensitising concepts and points of departure – not strict perspectives that could detract the researcher’s attention from emergent data. Accordingly and in a similar perspective to that advocated by Charmaz (2006), the literature review helps to demonstrate grasp of relevant concepts. Furthermore, should research participants want to make contributions beyond the conceptual terms suggested by the diagram, an additional and entirely blank map was to be made available for use during the interviews.
Table 1: Two principals of decision-making map

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<tr>
<td>1</td>
<td>Identifying related perspectives of the research topic under investigation</td>
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<tr>
<td>2</td>
<td>Filling the spaces in the decision-making map</td>
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Also drawing from the original use of perceptual mapping in Marketing research, the proposed decision-making map instrument includes different axes that operate as borders to the dominant research perspectives extracted from the literature and earlier observations of the phenomenon. However, the position in the diagram where the informant decides to jot down ideas and concepts (i.e. under which quadrant or section, and how distant/close to the different axis) is not subject to quantification or measurement.

For instance, if after conducting the literature review we are able to identify three dominant perspectives related to the phenomenon under investigation, the diagram to be completed by the informant during the interview process would resemble what is depicted in Figure 1.

This proposed instrument involves the informant in the process of writing key terms which are related to the phenomenon of research investigation based on the informant’s perceptions in terms of where those key terms should be placed.

It is expected that the process of filling the decision-making map is completed through a series of questions being asked by researcher that set the conversation in motion, stimulating the negotiation of key terms that are advanced by the informant and recorded in the decision-making map.

This practice can lead to a deeper understanding of how different dimensions affect the unfolding understanding of the substantive research problem, facilitating the identification of key themes and the process of theory-building. Furthermore, the process empowers the interviewer to ask more precise questions concerning the series of elements identified and written-down by the informant. There are also increased opportunities for comparison across elements and dimensions identified in each diagram.

![Figure 1: A sample of decision making map](image)

More significantly this practice provides an opportunity for informant and interviewer to establish discussion and social negotiations of meaning over the subjects under investigation. We believe that this approach enables the visualisation of facts that emerge as influential themes according to the informants’ perceptions.
Finally, this approach can enhance the process of data analysis and theory building, by enabling the production and mapping of informant-led theoretical abstractions in the form of themes and keywords that are positioned in the diagram.

3. A use of decision-making map in information system research

To illustrate the use of the decision-making map, this section describes the use of this instrument in the context of an Information Systems (IS) research project. It includes explanations about how the data collection process developed, what kinds of challenges during the application of the instrument were experienced, and what kinds of techniques have been applied to mitigate the difficulties encountered. The presentation of this case includes an overview of project’s objectives, use of the decision-making map and challenges of applying the tool. The project sought to identify which elements influence public sector (UK local councils) administrators’ decision-making when executing e-Government projects.

3.1 Objectives of research project

The development and implementation of electronic government (e-Government) have been studied since the early introduction of the concept of e-Government to public sector organisations. Various models and approaches have been suggested to follow by public sector administrators and researchers to investigate and monitor the trends of providing new e-Government services to the public. Different numbers of advantages and complexities have been listed during practitioners’ engagement with the process of e-Government development and implementation. Nonetheless, after more than a decade of e-Government development and advancement, recent e-Government studies indicate that the public sector organisations in both developed and developing countries have mostly achieved the preliminary stages of the models (e.g. United Nations 2012). This finding leads us to question what issues or elements have hindered the process of developing and implementing e-Government services. To better understand this issue from an IS perspective, we recognised that the process of IS investment decision-making by public sector administrators to provide new e-Government services had to be studied. The existing literature displays very general knowledge about this area of study, since most of the currently available explanations on IS project pertain mainly to private sector organisations (Gauld 2007).

Due to the exploratory nature of this research, the selection of an interpretative case study was deemed appropriate (Walsham 1995). In addition, based on Yin’s guidelines, if the research questions are categorised into “how”, “what” and “why” questions, the focus of research is on contemporary event and the researcher has less control over events, the use of case study is the best approach (Yin 2009). Furthermore, the use of case study helps to obtain a holistic and in-depth knowledge in regard to the phenomenon under investigation (Pickard 2007, p.86).

In order to operationalise the objectives of this study, a local city council in South Yorkshire - Sheffield local council - agreed to participate in this research project as a case study. In total 17 interviews (corresponding to 1040 minutes) took place with key stakeholders (i.e. senior, middle and front line managers) in the process of e-Government development and implementation decision-making. The interview guide was designed to ask interviewees to reflect on which actions they considered as necessary and critical when deciding to provide a new e-Government service. Furthermore, the informants were asked to highlight elements that have impacted on their decision making or the decision-making of their colleagues when new services have been developed. The semi-structured interview guides have been used in conjunction with the decision making map as data collection instruments. After completing the data collection process, thematic analysis was used to code and interpret data.

3.2 Application of decision-making map

Following the principles described in section 2, we have first initiated the process of preparing for conducting interviews and designing decision-making maps with a sensitising review of the literature. The process of reviewing the literature in the substantive area of e-Government development and implementation led us into the identification of 13 models of e-Government development and implementation. Interestingly, among the identified e-Government development models, 8 out of 13 models have been developed between 2000 and
2002. Some discussion of e-Government development models and structures is inevitable, but nevertheless useful to adequately deliver the objectives of this paper.

Since the phenomenon of e-Government development and implementation was the subject of interest, the most prominent models of e-Government development and implementation were carefully studied and the way e-Government can transform public sector organisation was highlighted. As the result of reviewing e-Government literature, four categories of changes in the public sector organisation were identified when the e-Government development and implementation is a matter. We named those categories of changes as organisational, operational, technological and socio-environmental changes. This means that we identified four perspectives that could be migrated into in the decision-making map to facilitate data collection during interviews.

The interview transcript was organised into three sections. The first section included questions that asked informants to describe the past and current e-Government development and implementation in the local city council. The second section was centred around the decision-making map, and included questions that broadly covered the four perspectives identified for the elaboration of the decision-making map. Finally, the last series of questions focused on determining how appropriate the perspectives were to the specific context.

Therefore, the decision-making map was prepared based on four perspectives, giving place to four quadrants (each allocated to one perspective). In order to complete the decision-making, informants were prompted to reflect on the range of organisational, operational, socio-environmental and technological perspectives that affect local city council’s decision-making to provide new e-Government services.

In case participants felt that that they wanted to contribute key terms that could not be allocated into any of the proposed quadrants, an additional and entirely blank map was also available for use during the interviews.

After informants jotted down which elements they perceived to be influential in the process of decision-making, the researcher prompted discussion and further elaboration on each of the concepts recorded by informants on the diagram, using interrogations such as: “could you explain the identified terms and elements?”; “Why do you think these elements are important?”; “Why did you put this element under this perspective?”; “Does this element impact on or applies to other perspectives?”.

Discussion, negotiation and co-construction of meaning developed until both the researcher and the informant felt that there were no further concepts or ideas to discuss. Figure 2 illustrates one of the resulting decision-making maps. As can be observed in the figure, the participant identified a range of factors (e.g. financial factors, business requirements, corporate strategy, customer experience), inter-relations between them (represented by arrows), and a set of stakeholders – written down in green - that were perceived to be engaged in the decision-making process (e.g. councillors, central government, senior management).

Following a process of inductive thematic data analysis, a set of themes has been identified, representing participants’ views on the range of factors that impact the process of e-Government development and implementation decision-making in Sheffield City Council. In broad terms, the emergent factors can be grouped in four major themes – organisational management factors, government policy factors, financial factors, and technological factors - with underlying sub-themes displaying a multi-layered configuration, as illustrated by the table presented in Appendix 1.

### 3.3 Challenges of using decision-making map

During the course of the 17 interviews during which the decision-making map was used the researchers were not faced with strenuous difficulties. However, filling the map was challenging for some informants. The most significant challenge was the time required by some participants to familiarise themselves with the diagram. This challenge was easily solved by having the researchers explain the purpose of the diagram, the process of recording terms or themes, or providing assistance with filling the map.
Informants were seldom more willing to engage in the conversation than to record their ideas in more abstract terms with the help of the diagram. In these cases the researchers were aware of the need to respect informants’ preferred way of expressing their thoughts. The recommended course of action for these cases would be for the researcher to start writing notes about key terms mentioned by the interviewees and later on discuss the highlighted materials, and inquiry about their location on the map. It is important to note that this implied making sure that the recording of terms and concepts and their interpretation had been a true reflection of informants’ discourse.

The positioning of elements and factors on the map may also distract the informants’ cognitive process because they may be excessively concerned about where the elements need to be assigned. However, this issue can be easily avoided by asking participants to highlight the aspects or factors that they perceive as relevant and then begin the process of negotiation to allocate them into one of the quadrants.

Another issue may be the occurrence of informants who are so deeply immersed in the process of identifying factors that they forget to determine their location in the quadrants. If the researchers interrupt them at that moment, they may feel intimidated and this may interfere with the thought flow process. In these circumstances the advice would be to first let the informant complete the identification of terms and elements for all perspectives contained in the map, and subsequently prompt discussion about their location and internal relationships within and across the quadrants.

However, since the location of terms on the diagram is important to the interpretation of data, the researchers must avoid providing subjective suggestions to the informant. This can be achieved with the use of laddering interview techniques (Reynolds & Gutman 2001), more specifically the use of ‘why’ questions that address the reasons for their term choice and location preferences.

A possible limitation associated with the use of decision-making maps may be the researchers feeling that it is at times difficult to establish positive rapport with informants when they are being asked to complete a task. However it can be counter-argued that the instrumental potentialities of the decision-making map are empowering of interviewees’ ability to uncover root concepts, and that empathy may be generated in the process of negotiation to allocate terms into quadrants.

Figure 2: Example of a decision making map where one participant recorded perceived factors of e-government service development
Another drawback is the potential difficulty in managing the "essential tension in interviews" (Rapley, 2001), that of balancing the need to collect data with a genuine commitment to interactional involvement. This can be minimised through using the map as an opportunity to engage in the collaborative construction of a deep, textured picture. The map is not a deterministic tool, but it can certainly operate as a topic initiator and/or as an effective producer of follow-up questions.

Finally, informants’ disabilities may impede the process of completing the diagram. Should this occur, the researchers can assist the informant in the process of completing the diagram through creating opportunities to maximise discussion around key terms and their location in the diagram.

4. Conclusion

In this paper, the need for methodological innovation along the lines of the constructivist research paradigm is emphasised. The novel methodological instrument outlined is a decision-making map, in which a semi-structured perceptual map - organised around literature review-informed axis and quadrants - is used by the investigators to promote interaction with informants in an interview situation, to foster goal-oriented thinking, and to operationalise social negotiation and co-production of knowledge. By engaging the informant in the identification of major perceptual themes this process gives the informant the steer, which can prove extremely helpful in improving the validity of qualitative research that claims affiliation with constructivist ontology. In practical terms, the decision-making map operationalises an important tenet of constructivist research — that of social negotiation of meaning — by operating as an instrument for co-creation of understandings between researcher and participant, at the moment of data collection. It creates moments for discussion and it allows the recording of the concepts that participants chose as the best descriptors for their perceptions. In so doing, it reverses the typical accountability relations that develop in an interview encounter and it increases the plausibility of analytical theorisations that are not a monopoly of the researcher’s interpretive capabilities.

Acknowledgement

The authors would like to thank the Sheffield City Council for their participation in the study reported in this paper.

References


**Appendix 1 –**

Emergent themes representing participants’ views on the range of factors that impact the process of e-Government development and implementation decision-making in Sheffield City Council.
The Long, Brown Path Before me’: Story Elicitation and Analysis in Identity Studies

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Abstract: This paper makes a renewed case for the value of the interview as a method for investigating the workplace identities of organisational actors. In particular it addresses interpretivist criticism that interviews merely tell us how the actor would like to be seen, rather than how they behave in practice. Adopting a narrative approach, the method combines story elicitation with analysis based on Levi-Strauss’ concept of mythical thought, in which stories are analysed to not only reveal individual self-narratives but an underpinning social landscape constructed of selected oppositions within which the individual positions themselves. The paper illustrates the method and its potential by presenting the detailed analysis of one team leader’s elicited story. It demonstrates how the method allows not only insight into the team leader’s self-identity but insight into ongoing processes of identity work, by revealing the social landscapes that they construct, the discursive resources they select, reject, challenge and struggle with, and how they position themselves in relation to those resources through narrative. The revealed social landscape and narrative positioning also generates new insight into the particular organisational position of the team leader and the tensions inherent in their position between staff and the organisation.

Keywords: narrative, mythic thought, interviews, identity, discourse, managers

Afoot and light-hearted I take to the open road,
Healthy, free, the world before me,
The long brown path before me leading wherever I choose.

Song of the Open Road, Walt Whitman (1871)

1. Introduction

This paper is concerned with the value of interviews as a qualitative method for investigating identity. Recent research into identity has suggested an over-reliance on interviews based on a natural inclination to understand people’s view of themselves (Coupland and Brown, 2012) and a failure to engage with the ways in which identity is accomplished through social interactions, by ‘displaying’ one’s identity and gaining verification from others (Down and Reveley, 2009; Goffman, 1959) or through positioning oneself in relation to others (McInnes and Corlett, 2012). Informing this call is an increasingly cogent interpretivist critique of the interview, which is not ‘a pipeline to the interiors of interviewees or the exteriors of social reality’ (Alvesson, 2003: 30). Interviews are a particular form of social interaction and nothing more (Czarniawska, 2004): they are a ‘contrivance’ (Silverman, 2006), a particular occasion for a particular form of talk instigated by the researcher (Kelly, 2008) which creates its own social reality (Holstein and Gubrium, 1997). As a method of investigating identity the interview is therefore problematic: in speaking of themselves in the context of an interview, interviewees may present themselves in different ways according to their expectations of the interview process, the interviewer and the interview questions (Czarniawska, 2004; Mishler, 1986; Silverman, 2006). They focus on ‘perspectives of action’ rather than ‘perspectives in action’ (Snow and Anderson, 1987: 1343). Calls for additional and complementary research into ‘naturally occurring’ (Down and Reveley, 2009) or ‘everyday’ (McInnes and Corlett, 2012) talk and action can therefore be seen as a necessary rebalancing of attention from identity as self-narration to identity as daily inter-action (Clifton, 2014).

This paper takes up the challenge posed by such identity studies to make a renewed case for the value of interviews. The paper proceeds as follows. First the paper elaborates the theoretical background and conceptualises identity as an ongoing dynamic between self-identity and the regulatory effects of social
practices through identity work. Second, the paper presents an interview method which adopts a narrative approach in combining story elicitation with analysis based on a Levi-Straussian concept of mythic thought. This method enables insight not only into the self-presentation of the interviewee, but also insight into ongoing processes of identity work by revealing the social landscapes which they construct from available discursive resources, and how they position themselves in relation to those resources through narrative. Thirdly the method is demonstrated through the detailed presentation and analysis of the elicited story of a team leader working in a UK Registered Provider of Social Housing. Finally the value of the method is discussed both as a means of insight into processes of identity and into the experience and position of a frontline manager, and proposes how the method might be further used and developed.

2. Identity: the self and the social

Identity may be understood as the means by which individuals (and collectives) understand and organise their place in the world: Who am I/we, and how should I/we act? Alvesson and Willmott’s (2002) model provides an insightful starting point for understanding these processes of identity, in which identity is conceptualised as a continual dynamic interaction between the self and social context. Self-Identity is the self as reflexively understood at any point in time (Giddens, 1991); Identity Regulation describes the effects of social practices on self-identity; while Identity Work is the continual process of constructing, repairing and maintaining self-identity in response to identity regulation.

Identity is thus conceived as an ongoing iteration between self-definition and social definitions (Ybema et al., 2009) in which self-identity is as much a reality as social effects; and this acknowledgement of the role of both self-identity and social effects suggests two particular aspects of identity which inform this paper and the presented method. First, and in contrast to some post-structuralist perspectives (e.g. Gergen, 2000) identity is not wholly constructed in the moment-by-moment interactions with others. One may interact with others, but may spend as much or more time (mis)remembering, reflecting on, interpreting, talking about and reimagining those interactions; and there is much evidence to suggest that individuals are able to hold enduring self-conceptions, and then act to acquire support for those self-views through the situations and relationships they choose, the identities they communicate and the responses from others that they attend to and remember (Burke, 2006; Sibley and Swann Jr., 2007). Nevertheless, self-identity remains provisional and open to contestation and challenge from institutional practices (Phillips et al., 2004) and discursive ‘regimes of truth’ (Kornberger and Brown, 2006: 500), from the expectations of others (McInnes and Corlett, 2012) and their responses to self-presentation (Down and Reveley, 2009; Goffman, 1959). Second, and relatedly, identity is not essentialist but multiple. Individuals occupy numerous subject positions and identities in response to different social roles and contexts (Brown, 2006; Collinson, 2003; Stryker and Burke, 2000). The processes of identity work between self-identity and social practice are ongoing through each particular occasion of social interaction (Kelly, 2008).

Researchers in identity have increasingly called for attention to be paid to ‘naturally occurring’ (McInnes and Corlett, 2012) or ‘everyday’ (Down and Reveley, 2009) talk and action. Such calls imply that what happens in interviews may be contrived, unnatural or uncommon, and that participants provide retrospective accounts coloured by reflection and selective disclosure (Clifton, 2014). However, by conceptualising identity as a continual dynamic between self-identity and social practices, the interview may be considered not as a difficulty in getting past self-presentation, but as a means of gaining insight into identity through self-presentation. By acknowledging the interview as a particular occasion for constructing a particular social reality (Kelly, 2008) it is possible to investigate the processes by which that social reality is produced. The ways in which interviewees make sense of and represent themselves and their experiences tell us much about how they wish to account for themselves and their actions (Czarniawska, 2004), their cultural and tacit assumptions (Mishler, 1986) and the processes of selecting, interpreting and transforming events (Holstein and Gubrium, 1997). Although interview talk may be partial and contextual it draws on resources available to the participant and with which they are familiar and concerned: it is ‘cut from the same kind of cloth as the lives they tell about’ (Denzin, 1989: 86). Our concern need not be with trying to establish the ‘real’ or ‘external’ nature of the practice that is being described, but with the description itself (Miller and Glassner, 2010): the way someone sees themselves and wishes to be seen. In other words, the interview as a particular social interaction is another occasion for identity work, in which the interviewee responds to the discursive resources available to them and subjectivities impinging upon them, and seeks to make sense of themselves in relation to them.
3. Identity, self-narrative and myth

In this section the paper sets out an interview method and its theoretical underpinnings, which enables both insight into the self-identities of social actors, and insight into their identity work in response to social and discursive practice. One important way in which individuals make continuing sense of themselves within their social worlds is through narrative. Narrative may be understood as a way of organising and making sense of scattered events. Narrative is more than simply stringing episodes together; it is the process of ‘constructing meaningful totalities’ (Ricoeur, 1981: 279) by selecting and constituting them in particular ways as functions of narrative (Bruner, 1991). It is an active process of conceptual framing (Hawkins and Saleem, 2012) and a particular way of constructing social realities (Cunliffe et al., 2004) by selectively distilling disparate and often contradictory events and experiences into a coherent whole (Boje, 1991; Boje, 2001). Individuals use narrative forms to understand and make sense of their own selves by constructing life-stories or self-narratives which provide an account of an individual’s life in terms of unity and purpose (McAdams, 1985; Watson, 2009).

Narrative selves are not essentialist: like any story they require the imposition of a ‘counterfeit coherence’ (Boje, 2001: 2) through the selection, rejection, arranging and sequencing of events, and individuals may tell multiple stories about themselves.

The role of self-narratives can be further developed through the Levi-Straussian concept of mythical thought. From his studies of South American tribes Levi-Strauss argues that myths are surface-level stories derived from ‘deep structures’ (Levi-Strauss, 1963; Levi-Strauss, 1983) based on oppositions such as the fresh and the decayed, or the cosmic and the earthly, and that myths describe mediating positions between these oppositions (Levi-Strauss, 1983). The significance of mythic thought is that it is ‘a phenomenon of the imagination, resulting from the attempt at interpretation’ (Levi-Strauss, 1983: 5) which seeks to intuitively and temporarily integrate different realms. Narrative is the means by which deep abstract oppositions are mediated and the narrator’s position in relation to these oppositions is constructed: paradigmatic (oppositional) meaning establishes spatial positioning while syntagmatic (narrative) meaning establishes an order and direction through time (Gregg, 2006). In other words the apparently simple and superficial stories we tell about ourselves and others are both founded on, and trace a mediating path through a selected and limited number of oppositions with which we construct both a social world and our position within it.

Building on the concept of self-narrative and stories as tracing a mediating path through a selected social landscape, this paper argues that interviews may insightfully contribute to identity studies through story elicitation: that is, inviting participants to choose and narrate stories about themselves which have meaning for them, and which they feel reflect themselves and their social role(s). Inviting participant stories and self-narratives has a number of advantages. First, it offers a large degree of independence to the interviewee to tell their story – and to present themselves – as they wish, without the conversation being prematurely framed by the researcher (Flick, 2009). Second, it enables the interviewee to present themselves across past, present and future rather than simply as a snapshot (Mallett and Wapshott, 2012). Third, stories can reveal some of the resources and interpretative repertoires which individuals draw on in their construction of themselves and their social worlds: the discourses which are drawn on and which are not (Dick, 2004; Hollway, 2001); and the cultural resources such as dominant story genres (Gergen, 2001), socially contextual cultural stereotypes (Davies and Harre, 2001) and the locally prescribed forms of particular communities (Gubrium and Holstein, 2001). Inviting self-narratives therefore allows the opportunity to investigate the self-as-hero at the centre of a social world: to explore the choice of story, its form and its telling; the role adopted by the narrator and the roles ascribed to others; the selected features of the social landscape which they construct; and their chosen path through that landscape.

4. Methodology – using story elicitation interviews to research manager identity

The research presented here derives from an investigation into manager identity and particularly the ways in which managers make sense of their organisational positions between the demands and expectations of those they manage and those they are managed by. The research strategy adopted was a case study carried out at ‘Panorama Housing’, a Registered Provider of Social Housing in the North West of England. Panorama was formed in 2006 in order to take over the housing stock of a local authority, although existing local authority housing staff were transferred to Panorama under TUPE. Panorama now employs over 240 staff and manages approximately 11,500 properties. Twenty one out of twenty two managers were included in the study, ranging across three hierarchical levels.

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Data collection took place over a six month period. The primary data collection method was interviews with each of the managers studied, but data was also collected through work shadowing of individual managers, observations of team and other organisational meetings, extensive collection of internal and external documents and artefacts, and interviews with the Chief Executive and selected Directors. The purpose of this wider data collection was to build a rich picture of the organisational and discursive context in which the managers worked.

The focal point of the interview invited the participating manager to narrate a workplace incident or event which captured their own understanding of their organisational role. Participants were given this question and some broad guidelines ahead of the interview to enable them to reflect on their organisational role and to choose a story which was representative of their experience and the meanings they attached to their role, rather than having to think of a story ‘on the spot’. The interviews followed three stages. In the first stage participants were asked a small number of background questions such as how long they had worked for the organisation and how they were appointed to their current role. In the second stage the manager was invited to narrate their story, during which the researcher listened carefully and only offered minimal prompts to encourage the storytelling (Wengraf, 2001). The third stage explored the story and its meanings with the manager, drawing selectively on a set of possible follow-up questions in response to the story and themes described by the manager. However, the use of any question and the order was dependent on the story told by the participant to avoid detracting from the participant’s own meaning-making framework (Hollway and Jefferson, 2000; Wengraf, 2001). Interviews averaged just over an hour in length.

The paper focuses on the initial structural analysis of each interview text. Analysis followed the method demonstrated by Gregg (2006) which combines syntagmatic (narrative) and paradigmatic analysis based on the concept of Levi-Straussian mythical thought. Interviews were transcribed verbatim and uploaded to NVivo. Syntagmatic analysis was undertaken using Propp’s (1968) categorisation of narrative functions to establish an underlying narrative structure both of the chosen story(s) and other elicited stories, and of the interview text as a whole. Paradigmatic analysis was undertaken based on identifying oppositions within the interview text and the participant’s positioning of themselves in relation to these oppositions. Following King and Horrocks (2010) the interview transcript was initially read through to gain an overall familiarity with its content, with comments added using NVivo memos to capture early thoughts and impressions. Descriptive codes were then developed to categorise relevant perceptions and experiences within the texts. Subsequently, interpretative codes were developed by looking for relations between descriptive codes to form clusters, and overarching themes derived from interpretative codes to identify the abstract oppositions contained within the text.

5. Findings

Interviews with twenty one managers generated a wide range of stories ranging from the routine to the extraordinary, including managing the staff rota, a service-area redundancy process and dealing with an emergency flood in a high-rise block. However, the particular interest of the generated stories is the personal meanings for the narrating managers, and their exploration within the wider interview. The paper therefore presents the analysis of one interview with a team leader, Gemma, in some detail in order to illustrate the method and its potential for rich findings. It begins by briefly outlining the discursive organisational context in which she works.

Thematic analysis (King and Horrocks, 2010) of observational and documentary data and interviews with the Chief Executive and Directors identified three discourses which were consistently prominent. The first is one of change and improvement, which derives especially from the organisation’s origins as former local authority housing stock. As the Chief Executive explains, Panorama was created to improve services to tenants, and this necessitated a change from the old council ways: as an independent social business ‘we stand or fall by our performance’. The second is a discourse of transformational managers. The Chief Executive is explicit about the qualities managers should have: ‘I’m not looking for supervisors. Supervisors are people who get things done, but managers are responsible for...getting the best out of people’. Managers should innovate, challenge and develop their staff and should be ‘the authors’ of the organisational message, not just its deliverers. A third discourse is staff engagement. The Chief Executive and Directors all talk about staff as the most important organisational resource and this is underpinned by initiatives such as participation in national and international engagement accreditations and awards, implementing staff ideas such as an in-house bistro and a quarterly staff forum chaired by the Chief Executive.
5.1 Gemma’s story

Gemma is one of eleven team leaders in Panorama. Along with another team leader she line-manages twenty four customer service advisers (CSAs) in Panorama’s Customer Service Centre, dealing with all in-bound customer telephone calls. Aged in her twenties she is the youngest of the interviewed managers; she has worked for Panorama for six years and been in her current role for two years. Gemma’s story is a useful example because it initially appears very limited and she begins by saying that ‘I haven’t really got one’. Certainly other interviewees told richer and more detailed stories and were more skilled in narrative turn and style. Nevertheless Gemma establishes a simple but compelling narrative which is added to, developed and reiterated during the interview; and she establishes a paradigmatic landscape which reinforces that narrative.

Gemma’s story is as follows:

‘I mean really I haven’t got any, like, specific example of anything but I would really, you know if I see my role being (pause) that I developed from the bottom upwards so, you know, I haven’t come into the role that I’m doing now not knowing (pause) about how the everyday (pause) erm (pause) tasks are dealt with of being a customer service adviser so I know the issues that they face, I know the difficulties, I know the challenges and I (p) can (p) hopefully then use that experience to put, erm, things in place to make it easier, make it better. So really I’ve seen it from the beginning, it’s grown, you know, as - and I’ve been a part of that change, erm, both in the Service Centre and like the whole organisation’s developed a lot which, you know, I think to be made to feel part of that change, erm, is important and that. You know, I obviously see myself as contributing towards that. Erm. (Pause) And now (pause) in terms of the story it’s, it’s just the everyday management of (pause) the Customer Service Centre and supporting the advisers, you know, whether it’s personal issues or (pause) things to do with work. You know, I’m not just there to say, you know, ‘Can you get that call, can you get that call’, there’s a lot more to, you know, managing a team. (Pause) I don’t really know what else I was going to say. (Pause) Is there anything specific you wanted out of it? Or...’

5.1.1 Syntagmatic structure

In this initial telling of the story Gemma establishes its core: ‘I developed from the bottom upwards’. In other words it is a recognisable plot of ‘rags to riches’ or the ‘rise from the shop floor’. Read mythically, and in terms of Propp’s (1968) story functions, Gemma also establishes a mythic origin story line – which Propp characterises as a ‘Preparatory’ function – by explicitly linking her own story of development with that of Panorama: ‘I’ve seen it from the beginning, it’s grown... and I’ve been a part of that change’. In fact Gemma had already introduced this early in the interview before being invited to tell her story:

‘I mean when I joined there was four other customer service advisers so I was the fifth customer service adviser to join. And now like, we’ve got a team of what eighteen, twenty people so it was very small. I’ve seen it from the beginning.’

Gemma’s identification with Panorama’s story of progress supports and reinforces her construction of her current role as a team leader who ‘knows’ the challenges faced by her team, because she has been there. Her identification with the organisation is also reinforced by the subsequent elements of her story hinted here and developed during the interview. She ‘wanted to progress my career’ (a ‘Lack’) and gained considerable support and encouragement from her line manager Carl who acts as the ‘Helper’ who assists the hero, giving her additional responsibilities and helping her with her application.

Gemma’s successful promotion to Team Leader leads to a second phase of the story which develops during the interview. Promotion meant leaving her role in the team (‘Departure’) and having to re-establish a new relationship and to be recognised as a team leader (‘Unrecognised Arrival’): ‘you’re having to manage people who you were once before’. For Gemma her age was a particular challenge:

‘It’s obviously been slightly more difficult for me with, erm (p) longstanding members of staff who had maybe worked at the Council beforehand, erm, and obviously they’ve got slightly different opinions (p) of how things (pause) of how things should be developed, you know. And obviously because them members of staff were quite older than myself (pause) that did, you know, age proved a bit of a (p) a barrier (p) in that way.’

She describes two examples of implementing changes with the team in which she successfully dealt with initial resistance through listening to staff concerns and persuading them of the benefits of the changes, which she
alludes to in her original story: ‘there’s a lot more to, you know, managing a team’. Through the successful completion of these ‘Difficult Tasks’ she is able to establish a new relationship which is ‘productive’ and based on ‘respect’ (‘Recognition of the Hero’). Her story, as she originally presents it, ends on a note of completion and contentment (‘Wedding’): she has achieved her new role and is comfortable with ‘just the everyday management’.

5.1.2 Paradigmatic structure

Gemma’s self-narrative is reinforced and developed by establishing a paradigmatic landscape of selected oppositions, through which she traces a mediating path and constructs a unique position within her personal social landscape. Perhaps unsurprisingly, given her organisational role, Gemma’s paradigmatic landscape can be broadly categorised as being based on opposition between the team she manages and the wider organisation, but this opposition is based on three inter-related dimensions.

The most prominent dimension relates to experience and expertise. Syntagmatic analysis has revealed how Gemma draws on her history as a customer service adviser (CSA) in order to construct her role as a team leader who ‘knows’ the nature and challenges of the CSA role and who can utilise that knowledge to make improvements. She contrasts herself and her ‘hands-on’ experience with that of her manager, whose role is ‘strategic’ and ‘political’: ‘Carl’s obviously come in at a different level and he will come to us to find some information for him, whereas I fully understand (pause) in a working environment.’ Gemma further extends this to include other senior managers who demonstrate their lack of hand-on experience by occasional unrealistic requests of the service; and she critiques a training course she attended as being too theory based and which ‘doesn’t help you in your everyday work’. However, Gemma also faced the challenge of managing older and more experienced CSAs; and part of her response to this challenge is to contrast herself against their resistance to change and improvements. In describing how she implemented a new telephone script she explains:

‘We were like trying to embed a bit of a, like, a, a structure to the call and (pause) you know, certain ways of doing (pause) you know certain ways of dealing with certain queries and they were sometimes like “that’s the way we’ve always done it”. But, you know, that’s not how we’re looking to go forward and we’re trying to improve it and progress it so if you can try it this way it might be easier.’

Gemma constructs herself as one who blends knowledge and experience with an openness to learn and develop through her practice. She positions herself as distinct both from her manager, who lacks her practical experience, and from her team who rely on past experience before Panorama and ‘the way we’ve always done it’. This position between oppositions reflects her self-narrative of one whose personal story is linked to that of the organisation and its growth and development: she has experienced the organisation from the beginning and remains committed to its development and being ‘part of that change’.

A second dimension to Gemma’s paradigmatic landscape is a tension between contrasting management styles and responsibilities. Within her original story Gemma positions herself against those who see management as simply authoritarian and directive – ‘Can you get that call, can you get that call’ – and with no consideration for the need to support staff in their work and with any ‘personal issues’; and she subsequently describes how she sells changes to staff by explaining the reasons for it and by offering them the opportunity to give feedback and make suggestions. However, Gemma’s text suggests that she has established what she feels is an appropriate professional distance from the team. She believes she is respected but she is no longer a team member and that the team have accepted “what my role was going to be”. She carefully distinguishes between going out with the team on official work nights out, but not socialising with them at other times. She is prepared to enforce decisions and changes where necessary: “You know, sometimes that is the way it is and we’ve just got to, you know we’ve decided it, it’s the fairest we believe, you know, so we do enforce it.”

Gemma again seeks to mediate between these two management responsibilities through her own openness to change and learning:

‘It’s explaining to people the rationale behind it and give them the opportunity to suggest any ways because nothing says that the way you’re suggesting is the best. People might come up with a different idea to do something. (pause) So it’s just you being open to change and them being able to change as well.’
She presents herself as an example for the team: she is herself open to learning and change, as a loyal member of the organisation, and this also means she is open to ideas and challenge from the team; but in return they must first be open themselves.

Gemma constructs a third paradigmatic dimension around different the perceptions and interests of her staff and the organisation. These differences apply directly to her own role: staff see her role as managing their work environment and sorting out their problems – ‘what I can do for them’ – whereas Gemma’s line manager and Gemma herself see her role as managing the Customer Service Centre and delivering on targets and quality. Similarly, staff do not always recognise the need to change practices or the organisation’s vision of continual improvement. Here, Gemma positions herself as a representative of the organisation whose role is to bring the team towards the organisational vision and values, which is supported by her consciously creating an appropriate professional relationship with her team. However, despite a generally strong identification, Gemma also establishes some distance between her and the organisation. Senior managers do not always realise the work involved to fulfil requests they make, and the impact on the management of the team. Here Gemma draws on her operational background and expertise to critique the organisation. She herself does not wish to progress any higher up, and distinguishes between being committed to her responsibilities and incorporating her role into her wider identity:

‘Work is not everything...I don’t, I’m not, the title of it or anything like that doesn’t really bother me. I’m just more concerned about the work that I do and to do it well.’

6. Discussion

This paper has argued for the continuing value of interviews within identity studies, and presented and illustrated a particular method of eliciting and analysing stories or self-narratives. In this section the syntagmatic and paradigmatic analysis of Gemma’s interview text is extended and developed to consider: what this method can tell us about Gemma’s workplace identity and her identity work in constructing and sustaining it; what this method can tell us more generally about the organisational position and experience of managers and especially team leaders; and some wider implications of the method and how it might benefit organisations.

Building on the concept that individuals not only construct narratives to make sense of themselves over time, but to establish a path through a personally constructed social landscape of selected oppositions, the method actively invites individuals to tell a story about themselves which reflects their experience and personal meaning of their organisational role. Analysis of Gemma’s story has demonstrated how Gemma uses a simple story of joining the organisation and becoming a successful team leader in a personal way, to support her construction of herself as a particular kind of manager in a particular organisational context. Prior to telling the story and in its initial telling she repeatedly frames her story as one of mythic origins, reiterating how she was there ‘from the beginning’ and explicitly linking her own story of development and change with that of Panorama’s. Her knowledge and experience, derived from her shared origins with Panorama, establish her new role with the team as one who ‘knows’ the nature of the work they do, and distinguishes her from her own manager as one who is ‘hands-on’ and understands the ‘working environment’ rather than being distant and strategic. But her origin also distinguishes her from her team, and particularly older members who rely on the ‘old’ ways before Panorama began and who are reluctant to change and develop with the organisation; and this positioning of herself as one who has grown up with the organisation also forms the basis for her mediation between her potentially competing management responsibilities. When balancing the need to enforce change and to engage staff with it, Gemma offers herself as an example of being open to learn and to be challenged, inviting staff feedback which she promises will be listened to and possibly acted on. But in order to earn that right to be listened to, staff have to demonstrate openness themselves and try out the change first. Similarly Gemma positions herself as a representative of the organisation in terms of bringing staff closer towards its vision of continuous improvement, but also as one who gains the trust and respect of staff through her experience and expertise which enables her to meet their immediate needs and concerns. Her narrative supports this: she has grown out of the team and into the wider organisation, and now seeks to bring others with her; but she is not a copy of her own manager. She brings her own essential expertise and fulfils a role neither he nor her team are able to do, based on a new form of operational management expertise.
The method offers opportunity to investigate processes of Gemma’s identity work within the particular context of the interview (Kelly, 2008). Syntagmatic and paradigmatic analysis of Gemma’s story illustrates how Gemma imaginatively constructs a self-identity through careful selection, distillation and synthesis of discursive and cultural resources which are available to her (Denzin, 1989; Hollway, 2001; Miller and Glassner, 2010). First, it is notable that Gemma draws on all three prominent organisational discourses of continuous change and improvement, transformational managers and staff engagement. Conversely, and in contrast to certain other team leaders interviewed as part of the research, she does not significantly draw on or utilise staff discourses, such as organisational failures to fulfil staff needs and interests, or identification with staff activity and practice. Her construction of her workplace identity therefore relies strongly on organisational constructions of her role and on fulfilling organisational expectations of that role – which might be expected, given her experience of having been promoted from within the team. However, Gemma also utilises the organisational discourse of continuous improvement in specific and personal ways in order to support and frame her own workplace identity and role meaning. Her personal narrative of progress ‘from the bottom’ reflects her commitment to organisational values; but it also allows her to construct a role in which she is distinguished from her own manager as well as from her staff, based on her operational experience and knowledge. Similarly Gemma utilises a discourse of experience and expertise in specific and personal ways. Although she uses her operational experience to distinguish herself from her line manager she does not use it to separate herself from the organisation by constructing an ‘epistemologically privileged position’ (Thomas and Davies, 2005: 700) in order to challenge organisational discourse. Instead she mobilises it in order to construct and support her organisational position as a team leader who uniquely blends managerial responsibilities of staff engagement and organisational loyalty with operational knowledge. Whereas some other team leaders used discourses of expertise to construct practitioner positions as an alternative to management ones, Gemma uses it to demonstrate how practitioner expertise makes her a better manager.

The particular narrative structure of Gemma’s text also reveals further insights into her workplace identity. Using Propp’s (1968) story functions, Gemma’s story of setting out to fulfil a ‘Lack’ by seeking to progress her career, and then fulfilling ‘Difficult Tasks’ in order to achieve recognition in her new role can be categorised as one in which Gemma adopts the role of the ‘Searcher-Hero’. Unlike a ‘Victim-Hero’, who finds themselves at the mercy of malignant events, Gemma as a ‘Searcher-Hero’ claims agency in her own story, in which she successfully fulfils her own personal challenge. Syntagmatic analysis also reveals that her line manager fulfilled the narrative role of Helper, who assists the Hero to achieve their goal, by encouraging her, giving her experience of more managerial tasks and giving practical assistance with her application. Gemma’s text alludes to her own role now involving helping staff, and how twenty-two CSAs have been helped to gain promotions within the wider organisation; but she does not include any specific details or examples of this. Whereas some other team leaders switch between Hero roles and that of Helper to others, typically their staff, Gemma can be seen as currently adopting talk of a Helper role rather than having incorporated it into her own sensemaking. As a relatively new team leader her story remains one of establishing herself. Linked to this, Gemma also utilises a familiar story genre (Gergen, 2001). By saying that she ‘developed from the bottom upwards’ she alludes to the story genre of ‘rags-to-riches’ and invites the listener to associate her with the qualities of the hero of such a story: talent, hard work and deserved success, all of which support both her own story and her personal interpretation of her organisational role in the paradigmatic landscape she constructs.

Whilst it would be premature to claim any firm conclusions in respect of the wider organisational position of managers and team leaders from a single case, Gemma’s text does raise some particular issues which are likely to be common to other managers and particularly team leaders, and suggests that the method allows some insight into different manager responses. First, Gemma’s text highlights the tensions of being ‘in-between’ the staff she manages and the organisation. Notwithstanding her construction of a role which mediates between the two, her text reveals that she recognises the potential opposition. First level managers in particular are the immediate face of the organisation to their staff (Coupland et al., 2005; Seijts and Roberts, 2011) and therefore likely to be especially subject to such tensions between staff and organisational interests; and this method of story elicitation and analysis offers a way of exploring different manager responses to these tensions. Second, Gemma reveals the challenge faced by managers who have been promoted from within their teams, and their need to establish new relationships, roles and identities (Warhurst, 2011), particularly where they have been promoted ahead of older and more experienced staff. Third, Gemma’s text suggests that managers may need to be able to construct a role in which they are able to differentiate themselves – and therefore justify their particular role in the organisation – from those they manage and those who they are managed by.
These points also suggest a potential benefit of the method to organisations. The method draws attention to the multiple discursive resources, demands and tensions impinging on managers, and their very individual responses to such resources in order to construct personal workplace identities. The method therefore offers organisations a way of making sense of different manager behaviours as different but legitimate responses to available resources and tensions, rather than constructing managers as ‘good’ or ‘bad’. It further offers organisations insight into how organisations might support and encourage different manager behaviours through making certain discourses more attractive or easier to access and utilise. A possible development of the method and analysis of multiple manager stories would be to develop an organisational ‘toolkit’ or conceptual framework which would assist organisations in interpreting manager behaviours in terms of identity work and suggest appropriate strategies to develop managers within the organisation.

7. Conclusions and future directions

Interviews have been increasingly criticised for focusing on identity as a self-narrated rather than a social accomplishment (Down and Reveley, 2009; McInnes and Corlett, 2012) which produce retrospective, reflective and selective accounts of social actors (Clifton, 2014; Snow and Anderson, 1987) rather than in-situ talk and action. Whilst the limitation of the interview as a self-narrated account is acknowledged, this paper has argued that by recognising interviews as a particular form of social interaction, they can still generate insight not only into the self-identities of social actors but into the personal social worlds which they construct and the ways that they position themselves within it. Story elicitation enables interviewees to present themselves in ways that are personally meaningful and which represent how they see themselves and how they would like to be seen by others. However, by considering these presented stories in the context of Levi-Straussian mythical thought, and by applying both syntagmatic and paradigmatic analysis, the method also reveals some of the ongoing processes of identity work undertaken by the interviewee: the ‘deep structures’ of the social worlds that they construct through the selection, rejection and struggle with discursive resources, and the ways in which, through the surface level stories, they trace a mediating path through these ‘deep structures’. Although Gemma’s self-presentation is understood as particular to the context of a research interview into manager identity and it cannot be claimed that she would construct an identical identity to different audiences and in different contexts, neither is her presented workplace identity solely constructed for this interview. She draws on the resources available to her: her personal experiences and concerns, the people she works with and the organisational and discursive context (Denzin, 1989). The method therefore offers insight not only into a contextual self-presentation but into the issues, tensions and experiences of the social actors.

There are some particular ways in which the method might be utilised to further develop understanding of identity. By considering identity through the lens of self-identity rather than through identity work or regulatory social practices, the method suggests potential insights into the role of individual agency in the context of regulatory discourses and the effects on organisational practices and outcomes. One profitable research strategy might be an organisational single unit embedded case study (Yin, 2003) in which the method would enable analysis of the personal self-constructions of multiple organisational actors, and investigation into how shared organisational discursive resources are variously selected, rejected, utilised and struggled with. A second might be a longitudinal study of selected individuals to explore how individual self-constructions and identity work fluctuate and change over time, and in different contexts in response to different social regulation. Thirdly, the method offers a theoretical framework for investigating actor responses and positionings in relation to specific organisational tensions such as organisational and staff interests, discourses of public service and private enterprise, or stability and change. In each research area the method offers potential new insight by revealing the ways in which social actors imaginatively respond to and make sense of social and discursive practices, and construct new social realities.

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The Pervasiveness and Implications of Statistical Misconceptions Among Academics with a Special Interest in Business Research Methods

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Abstract: Statistics play a very important role in business research, particularly in studies that choose to use quantitative or mixed methods. Alongside statistical analysis, aspects related to research design (such as sampling, reliability and validity issues) require a good grounding in statistical concepts reinforced by careful practice to avoid potential mistakes arising from statistical misconceptions. Although quite a considerable number of published studies have focused on students’ faulty thinking regarding statistical concepts, little research explores the extent to which these are also held by academics who are their instructors. This empirical study addresses this by answering the following questions: First, are statistical misconceptions pervasive among academics with a special interest in business research methods? If so, second, is there an association between the pervasiveness of statistical misconceptions and the preferred research tradition (qualitative, quantitative, mixed methods)? Data were collected via a web questionnaire from a purposive sample of academics with an expressed interest in business research methods. The questionnaire comprised 30 categorical statements (agree, disagree, don’t know) focusing on statistical misconceptions (and conceptions) relating to descriptive statistics, design strategies, inferential statistics and regression, and five demographic questions. We targeted a critical case purposive sample of 679 potential respondents. Although 166 consented to take part, only 80 completed the questionnaire and their responses form the basis of the statistical analysis, a response rate of 11.8 %. The study provides empirical evidence of both an absence of knowledge and a high pervasiveness of faulty notions that have infected the thinking of academics relating to both research design and the use of statistics. This is particularly so for academics who prefer quantitative methods, those preferring qualitative methods being more likely to admit that they do not know. The study argues that such lack of knowledge and misconceptions reduce the true utility of statistics in research. Recommendations are offered regarding the teaching of statistics within business research methods.

Keywords: research methods, misconceptions, conceptions, statistics, academics, research practice

1. Introduction

Statistical misconceptions are argued to hinder meaningful learning, impede research progress and interfere with decision making (Huck, 2009). For students, such misconceptions may be generated by poor understanding reinforced by statements uttered or written by one’s mentors (Huck, 2009). The study seeks to determine whether academics with a special interest in business research methods hold mainstream statistical misconceptions, thereby extending a recent study that investigated the prevalence of research methods mis/conceptions with the same target group (Bezzina & Saunders, 2013). To date, limited research has examined the pervasiveness of statistical misconceptions among academics; the studies we reviewed focused on either identifying students’ statistical misconceptions (e.g., Bezzina, 2004; Huck, Cross & Clark, 1986; Mevarech, 1983) or statistical flaws made by authors in published articles, reports and textbooks (e.g. Huck, 2009; Lance, 2011; von Hippel, 2005). Consequently, this research enables academics to determine whether faulty thinking has infected academics’ notions about mainstream statistical concepts and considers the impact of these on their students. In addition, in the light of the findings that emerge, this paper provides some important suggestions for the teaching of business research methods, particularly on what the state of practice should be.

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2. The nature of misconceptions and the role of academics

Misconceptions are “views or opinions that are incorrect due to faulty thinking or misunderstanding” (Bezzina & Saunders, 2013, p. 41), representing deviations from widely accepted norms and conventions. In some cases, the practices themselves are not intrinsically faulty but rather, it is the reasoning why or rationalisation used to justify the practices that is questionable (Lance & Vandenberg, 2009).

Misconceptions arise from prior learning or from interacting with the social/physical world and interfere with learning concepts (Smith, diSessa & Roschelle, 1993). Some are grounded in human intuition that leads to faulty thinking, while others are generated by inconsistencies in textbooks and oral presentations in classrooms (Huck, 2009). Garfield (1995, p.32) highlights that misconceptions are often so strong and resilient that “they are slow to change even when students are confronted with evidence that their beliefs are incorrect”. Similarly, Mevareck (1983) argues that when statistical misconceptions become deeply engrained in the underlying knowledge base of the individual, mere exposure to more advanced courses is not sufficient to overcome them. However, Brown and Clement (1989) note that successful instructional confrontation can replace faulty misconceptions with new expert knowledge in a short period of time while Smith, diSessa and Roschelle (1993) advise that the emphasis should be on knowledge refinement and reorganisation rather than replacement. Given that faulty thinking is such a pervasive phenomenon, it is important that academics as instructors are aware of their own misconceptions and the impact of these upon their students (Bezzina & Saunders, 2013).

3. Statistical data analysis and statistical misconceptions

Statistical data analysis is the process by which data are transformed with the aim of extracting useful information and facilitating conclusions. Each statistical technique has underlying conceptual and statistical assumptions that must be met if the results are to be valid (Gel, Miao & Gastwirth, 2005). Various structured-model building approaches and step-by-step guides are available to facilitate this process of data analysis. The scope behind them is to provide researchers with “a broader base of model development, estimation and interpretation” (Hair et al., 1998. p. 25) not a rigid set of procedures to follow. Structured approaches do not come without criticism. Conflicting viewpoints arise on various aspects such as the required sample size, the statistical model to analyse the data, and the quality of the input data.

The statistical mis/conceptions addressed in this study are grouped under following headings: descriptive statistics, design strategies, inferential statistics and regression. Sentences presented in italics represent actual statements used in the research.

3.1 Descriptive Statistics

“A crucial human skill is to be selective about the data we choose to analyse and, where possible, to summarise the information as briefly and usefully as possible” (Graham, 1994, p.64). A concise way of summarising a data set is to use an appropriate measure of central tendency (a value that indicates where the centre of the distribution lies) accompanied by a measure of spread (a statistic that determines how clustered or scattered the data are). The type of measure chosen ultimately depends on the scale of measurement being used and the shape of underlying the distribution (Graham, 1994). A common reported misconception in textbooks and published research reports is that if a set of scores forms a positively skewed distribution, the mean is greater than the median, which is greater than the mode; and similarly, if a distribution of scores is negatively skewed, the mean is less than the median which is less than the mode. This rule is imperfect and most commonly fails in discrete distributions where the areas to the left and right of the median are not equal (von Hippel, 2005). Applying this misconception could allow researchers to make wrong judgements on the distributional shape by assessing lack of symmetry of a distribution via measures of central tendency rather than by means of a numerical index of skewness (Huck, 2009). Another misconception related to the shape of the distribution is that standard scores such as z-scores are normally distributed. This incorrect generalisation occurs where researchers are unaware that no finite distribution is exactly normal (Huck, Cross & Clark, 1986), and can result in inaccuracies when z-scores are converted to percentiles (Huck, 2009).

In summarising bivariate relationships, the correlation coefficient is generally used (e.g., Pearson’s r, Spearman’s ρ, and correlation ratio (eta). However, checks need to be made to see if the data are appropriate
(e.g. whether or not the relationship is linear and whether outliers are present). A widely reported misconception is that a single outlier will not greatly influence the value of Pearson’s $r$, especially when $N$ is large. However, a single outlier can distort the nature and strength of $r$ even when $N$ is large. Consequently, Huck (2009) highlights the importance of conducting a visual or statistical check to see if any outliers are present. Another misconception is that correlation never implies causation. Huck (2009, p. 48) provides evidence that when a correlational study involves a manipulated variable and there are no plausible threats to internal validity, then “the correlation coefficient, $r$, speaks to the issue of cause and effect”. He adds (2009, p.45) that data can be analysed in different ways and still give the same results; thus the warning ‘correlation ≠ cause’ “functions to keep the logical and mathematical equivalence of certain statistical procedures hidden from view”.

4. Design Strategies

4.1 Sampling

An important step in planning of a statistical investigation is sample selection. This requires careful thinking (Lenth, 2000). A small sample is likely to produce a statistic of inadequate precision and makes the statistical test insensitive due to ‘low’ statistical power. Although an increase in sample size leads to an increase in precision, a very large sample makes the statistical test overtly sensitive (i.e. the identification of an effect relatively easy) due to ‘too much’ statistical power. Thus, the researcher must strike a balance between the level of statistical error and resulting power (Hair et al., 1998).

Sampling methods are generally classified into probability methods (utilizing some form of random selection) and non-probability methods (Saunders, Lewis & Thornhill, 2012). In this study, we focus on the random aspect of probability sampling, where each element of the population has a known, but possibly non-equal chance of being included in the sample. Within probability sampling, the sample size determines precision, the selection process determines accuracy. The following are the questionnaire items related to sampling:

1. A random sample is a miniature replica of the population. Statistical representativeness is generally achieved through random sampling (Thomas, 2004). However, a representative sample does yield a miniature replica (or exact replica) of the population. This is because the characteristics of a random sample are not error-free estimates of the population necessitating the specification of confidence intervals (Huck, 2009; Krzywinski & Altman, 2013). Every sample (even if generated in a random fashion) possesses sampling error, provided the population is not totally homogeneous or the sample size is equal to the population size. Huck (2009) argues that persons holding this misconception make various inferential mistakes.

2. Similarly, a sample of individuals drawn from a finite population deserves to be called a random sample so long as (i) everyone in the population has an equal chance of receiving an invitation to participate in the study and (ii) random replacements are found for any of the initial invitees who decline to be involved. This statement is also a misconception because those who choose not to participate are often different from those who participate. The probability of a person responding depends on factors such as age, level of education, interest in the topic being studied and free-time available. If replacements are made, those who are not willing or able to participate are replaced by willing and able respondents. Hence, only a subsection of the population is actually represented and “any sample-to-population inferences will be distorted” (Huck, 2009, p. 129).

3. The statement larger populations call for larger samples sizes and hence the ratio of sample size to population needs to be considered when determining sample size is also a misconception. By definition, the precision of a sample depends on the sampling error and the larger sample, the smaller the sampling error, the greater the precision. However, the standard error formula shows that when $N$ is much larger than $n$, the ratio of $n$ to $N$ does not influence the standard error to great extent. The precision of sample size is more influenced by $n$. Those who hold this misconception would wrongly dismiss the findings of a study if they believe that the sample was too small when compared to the size of the population (Huck, 2009).

4. Finally, the statement a large sample does not guarantee validity is correct. The common misconception is that the size of the sample guarantees validity. However, there is more strength (lack of bias) in fewer but well-chosen numbers (van Belle, 2008).
4.2 Reliability and Validity

Errors play a key role in degrading the quality of measurements. Two key issues related to the quality of measurements are reliability and validity (Murphy & Davidshofer, 2004). Reliability refers to the extent to which measures are repeatable and consistent. Validity is the degree to which measures accurately represent what they are supposed to conceptually measure. This study addresses the following mis/conceptions related to reliability and validity:

1. The statement statistical indices of reliability and validity document important attributes of an instrument (e.g., test or questionnaire) is incorrect. These indices of reliability and validity document important properties about the scores obtained from the instrument for a particular sample. If a person thinks that these are attributes of the test, then “a researcher may end up selecting what seems to be a good test for his or her study when in fact the selected test produces low-quality data” (Huck, 2009, p. 68).

2. The statement a high value of Cronbach’s alpha indicates that a measuring instrument’s items are highly interrelated, thus justifying the claim that the instrument is uni-dimensional in what it measures, is also flawed. Cronbach’s alpha is a measure of internal consistency. Consequently, a high value of Cronbach’s alpha does not indicate that the variables used are uni-dimensional (Hair et al., 1998). Even multidimensional instruments often yield high values of Cronbach’s alpha. The resultant problem from this misconception is that the total score will not be interpreted correctly. As Huck (2009, p. 78) notes “high or low scores may be attributed to one thing when they are actually the result of something else”. Rather, other specific techniques such as multitrait-multimethod matrix (MTMM), factor analysis (EFA or CFA), structural equation modelling (SEM) and related statistical procedures (see Westen & Rosenthal, 2003) need to be used to determine the dimensionality.

3. Different procedures for estimating inter-rater reliability yield approximately the same reliability coefficients and so it does not make much difference which procedure is used is flawed because various factors can affect inter-rater reliability. These include (i) whether or not chance agreement is considered, (ii) whether or not a dichotomy is imposed on the continuum, and (iii) whether or not the raters are considered a random sample from a larger population. The implication of this misconception is that a person using a particular procedure might think that raters are in close agreement with each other when in fact this is not the case when a different and more appropriate perspective is used (Huck, 2009).

4. A common misconception is that if Pearson’s r is used to determine the predictive validity, range restriction will cause r to underestimate the strength of the relationship between the predictor and criterion variables. However, it is possible to ‘correct’ for range restriction when the data are linear and homoscedastic. Data collected in real validity studies are not usually very symmetric, and correlations that are corrected for restriction are more likely to exaggerate rather than underestimate \( r_{nx} \). Consequently, persons holding this misconception are likely to use a formula to “correct” for range restriction which inflates Pearson’s r, thus making them think that predictive validity is higher than what the original coefficient suggested (Huck, 2009).

4.3 Handling missing data

Although there are misconceptions concerning the need for high response rates, Newman (2009) provides evidence that low response rates (e.g., below 20%) need not invalidate study results but systematic (non-random) non-response will generally lead to bias in parameter estimates. Since almost any research has the potential for missing data, van Belle (2008) highlights that in a research study it is important to plan for missing data and to develop strategies to account for them prior to the initiation of the study. Furthermore, when the reasons for missing data are not identified, it is not possible to make statistical adjustments. However, sensitivity analyses are purposely designed to explore a reasonable range of explanations in order to test the robustness of the results. Various creative statistical approaches have been developed to deal with missing data (see Cole, 2008).
4.4 Testing of statistical assumptions

Statistical methods rely on a variety of assumptions about the nature of underlying data. When the assumptions are not met, the results are often not valid (Gel, Miao & Gastwirth., 2005). This is crucial as those who are not aware of the related assumptions for a particular test may erroneously assume results are significant. A violation of the statistical assumptions affects the significance level of a test as well as the power of the test (Box & Tiao, 1964).

5. Inferential statistics

Inferential procedures are used to derive conclusions about a population. Both estimation and hypothesis testing are concerned with a parameter \( \theta \) (theta) and may be considered as two sides of a coin. In estimation, a statistic is an estimator of the true population parameter \( \theta \) if its intention is to be close to the unknown value of \( \theta \). Optimal estimators are derived according to criteria such as unbiasedness, equivariance and minimaxity (see Lehmann & Casella, 1998, for more details). A confidence interval is constructed to give[s] an estimated range of values around the statistic that are believed to contain with a certain probability (e.g., 95%) the unknown population parameter (Field, 2009). Hypothesis testing is a procedure that involves (i) setting up a null and alternative hypotheses, (ii) defining the test procedure including the levels of significance and power, (iii) calculating the test statistics and the p-value and (iv) making a decision on whether to retain or reject the null hypothesis. In the process, researchers are required to consider two types of statistical error. The Type I error (a) [alpha] refers to the probability that one mistakenly rejects a true null hypothesis (i.e. a “false positive”). The Type II error (B) [beta] refers to the probability that one mistakenly retains a false null hypothesis. The statistical power of a test is the probability of not making a Type II error and represents the odds that you will observe a treatment effect when it occurs. As power is increased, the chance of finding an effect if it’s there increases; but this also increases the chance of making a Type 1 error. Since researchers aim for high power (e.g., 0.80) and low alpha (e.g., 0.05), and these do not add up to 1, there is an in-built tension here (Trostchim, 2000). As alpha decreases, power decreases as well. So in determining power, the researcher must consider three factors simultaneously – alpha, sample size and effect size (Hair et al., 1998). The p-value is the probability of obtaining sample data that deviates as much or even more than the actual data observed, provided the null hypothesis is true (Huck, 2009). When the p-value is less than or equal to the probability of a Type I error, the null hypothesis is rejected and a statistically significant finding is reported. A statistically significant finding is not necessarily practically significant. Practical significance or effect size is the magnitude of the effect of interest in the population and is focused on the study’s possible impact on the work of practitioners or other researchers (Hair et al., 1998). Thus, while it is incorrect to attach adjectives blindly (e.g., strong or weak) on the basis of p<0.05, Cortina and Landis (2009) argue that it is even incorrect to attach adjectives blindly on the basis of Cohen’s d. They (2009, p. 306) add that one is likely to choose the appropriate language for effect sizes when “one takes into account sample size...considers the measures involved, the nature of manipulation and the nature of the phenomenon in question”.

The following is the list of misconceptions related to inferential statistics used in our study:

1. The p-value is the probability that the null hypothesis \( H_0 \) is true is clearly a misconception. The p-value is a random variable that varies from sample to sample and it is not the same as alpha (Good & Hardin, 2009). It is a conditional probability and hence should not be confused with alpha (Hubbard, 2004). According to Huck (2009), such faulty thinking produces errors when a null hypothesis is evaluated and in making everyday decisions based on probabilities.

2. The statement when the whole population is used, no inferential statistics are required since the statistical summary of the data represents a parameter rather than a statistic is flawed because inferential statistics do not require the population to have finite size. According to Fisher (1922), the goal of inferential statistics is to construct “a hypothetical infinite population” and the actual data collected is regarded as constituting a random sample (see Hacking (1979) and Seidenfeld (1979) for some interesting discussions). Thus, the true population of interest extends from the present into the future or into geographical areas not represented in the study and so persons holding this misconception wrongly assume that when data is collected from all N members of a population, a statistical summary of the data (e.g., a measure of central tendency or a percentage) produces a parameter not a statistic (Huck, 2009).

3. Similarly the statement statistically significant results signify strong relationships between variables or big differences between comparison groups is wrong. Effect size is concerned with the actual

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magnitude of the effect of interest and not statistical significance. Results which are statistically significant might not be practically meaningful while results which are not statistically significant might have a noteworthy effect size. Ellis (2010) warns that failure to distinguish between statistical and practical significance leads to Type 1 and Type 2 errors, wasted resources and potentially misleads future research on the topic.

4. Likewise, the statement a non-directional alternative hypothesis always leads to a two-tailed test whereas a directional alternative hypothesis always brings about a one-tailed test is faulty. With certain statistical tests, the nature of the alternative hypothesis depends on the sampling distribution of the test statistic. For instance, in the Chi-squared ($\chi^2$) test and the ANOVA F-test, non-directional alternative hypotheses do not lead to two tails (split critical regions), as in the case of the t-test. Huck (2009) argued that persons holding this misconception will not be able to interpret properly the data-based p-value associated with the particular test used.

5.1 Regression

Regression is one of the most widely used statistical techniques and this is not limited to business and management research. It is used to predict the likelihood or magnitude of the outcome of interest and to explore relationships and assess contributions. Various types of regression models exist (e.g., linear regression, non-linear regression, multiple regression, logistic regression, etc.). In this study, we address the following four misconceptions concerning multiple regression analysis.

1. The statement when multiple regression is used to predict scores on a criterion variable, the worth of a particular variable is indicated by the variable’s beta weight (i.e., its standardized beta coefficient) is faulty. In multiple regression, any statistical relationship between two variables may be altered by additional variables (Meyers, Gamst & Guarino, 2005). When a new predictor is introduced in the model, variables can take a new level of importance within the expanded model, depending on the predictors included in the model and the degree of overlap between variables (Tolmie, Muijs & McAteer, 2011). The implication of this is that an estimated beta coefficient is not the true value of a given predictor variable. As Huck (2009) explained, double the dose of chilli powder in a recipe and the impact of the other ingredients such as onions and beans (which previously played a prominent role) is significantly reduced. Hence it is important that when researchers interpret the beta weight, they do so relative to the specific model that produced it.

2. Likewise the statement in multiple regression, an independent variable that is uncorrelated with the dependent variable ought to be left out of the model because its inclusion won’t help to make the coefficient of determination ($R^2$) larger is incorrect. Sometimes some variables which are uncorrelated with the dependent variable help to reduce the error variance in the other predictors; their inclusion better explains the variability in the criterion variable. Researchers holding this misconception are likely to eliminate such “suppressor” variables and hence they would end up with a model that falls short of its potential (Huck, 2009).

3. Finally the statement regression analysis is superior to correlational analysis is misconceived. This statement runs counter to the assertion that there is no universally superior research design (Bryman, 2012) and that the research question is more important than either the method or the paradigm that underlines the method (Shavelson & Towne, 2004; Teddlie & Tashakkori, 2010). All statistical techniques have their strengths and weakness; some are simple while others are complex, but often very specific for certain purposes. Each statistical technique is a tool not an aim and hence the statistical technique chosen ultimately depends on (or is dictated by) the research question being investigated, not vice-versa.

5.2 Research Paradigms

In the social sciences, research is very often divided into the qualitative camp and the quantitative camp. There has been an on-going debate on the distinction between the two. There are those who claimed that the distinction between the two is by no means clear (Bryman & Bell, 2011; Lincoln & Guba, 1985) while others argued that quantitative and qualitative traditions are so different in their epistemological and ontological
assumptions as to be incompatible (Hammersley, 1992; Robson, 2011). According to Eby Hurst and Butts (2009), the proponents of qualitative research make strong claims that their approach has greater ecological validity, that it provides richer and more descriptive accounts of real-world events and has a greater ability to uncover processes and mechanisms in natural settings, while the proponents of quantitative research emphasise their approach is advantageous due to strengths in the precision of measurement, experimental control and generalizability. Alongside the qualitative versus quantitative debate, there has been growing recognition of mixed-methods, which combine the qualitative and quantitative traditions (Bryman, 2006). In mixed methods, both deductive and inductive techniques may be selected and integrated to answer the research question or solve the problem be it theory testing or theory generation (Teddlie & Tashakkori, 2010).

6. Method

6.1 Research Questions

This study considers the following two research questions empirically:

1. Are statistical misconceptions pervasive among academics with a special interest in business research methods?

2. If so, is there an association between the pervasiveness of statistical misconceptions and the preferred research method (qualitative, quantitative, mixed methods)?

6.2 Procedure

The target population consisted of academics who are members of the Research Methodology Special Interest Groups (RM SIGs) of either the British Academy of Management (BAM) or the European Academy of Management (EURAM) (540 people), or have attended the European Conference on Research Methodology (ECRM) at least once in the past three years (139), an estimated total of 679 potential respondents after accounting for multiple list membership. A questionnaire was created using the Survey Monkey online tool. The front page provided respondents with information regarding the research, requested their consent, and assured them of anonymity. The main questionnaire consisted of 30 randomly ordered categorical statements representing statistical mis/conceptions. Respondents were requested to tick one from ‘agree’, ‘disagree’ or ‘don’t know’, the latter being included to avoid forcing the respondents to provide a response when they did not have such knowledge. The statements are presented in Table 1, the majority being adapted from Huck (2009) while the remainder were adapted from Box and Tiao (1964), Field (2009), Good and Hardin (2009), Hair et al. (2008), van Belle (2008) and von Hippel (2005). The final section requested demographic information about the respondents. Respondents were able to amend their responses until the questionnaire was submitted, while the software restricted one respondent per work station to prevent multiple completions. The e-mail with weblink targeted 679 potential respondents. 166 questionnaires were returned (24.4%), but 86 respondents although consenting to take part, reported that they ‘don’t do quants’ or the questionnaire was too ‘complex’, ‘confusing’ or ‘tricky’. This resulted in 80 complete returns (a response rate of 11.8%) that formed the basis of the statistical analysis. The questionnaire took approximately 10 minutes to complete. The preferred research method of the respondents was qualitative (47.5%), followed by mixed methods (27.5%) and quantitative (25.0%). The single largest groups were male (51.2%), those in possession of a doctoral degree (70.0%), those based in the United Kingdom (53.8%), and those involved in research methods as project or dissertation supervisors for taught Master’s degree programmes (47.5%). Since the respondents were principally academics with a documented interest in research methodology and methods, they can be considered to be a purposive sample comprising critical cases. It seems likely that if misconceptions are prevalent with this sample, other academics are also likely to hold them (Patton, 2002).

In the analysis, we generated frequency tables and computed the proportion of respondents that hold the misconception ($p$) together with the standard error of sample proportion ($SE(p)$). In computing $p$ and $SE(p)$, the ‘don’t know’ responses were not considered to represent misconceptions, but highlight absence of statistical knowledge. To test the null hypothesis that the response (agree, disagree, don’t know) was independent of the preferred research method (qualitative, quantitative, mixed methods), the Chi-squared ($\chi^2$) test was used. Due to the presence of ‘cells with expected counts less than 5’, the assumptions of the asymptotic method could not be met. So, we used the exact significance since “the exact calculation always produces a reliable result,
regardless of size, distribution, sparseness, or balance of data (Mehta & Patel, 2010, p. 3). As a measure of effect size, we used Cramer’s V.

7. Findings

Table 1 provides a summary of the responses for each of the 30 items addressed in this study. It is clear that statistical misconceptions are pervasive among academics with a special interest in business research methods. In fact, the proportion of respondents that hold particular statistical misconceptions reached a 76.0% ($SE(p) = 0.05$) for the statement ‘Statistical indices of reliability and validity document important attributes of an instrument (e.g. test or questionnaire)’.

**Table 1: Academics’ mis/conceptions regarding statistical thinking**

<table>
<thead>
<tr>
<th>Survey items pertaining to statistical mis/conceptions</th>
<th>A</th>
<th>D</th>
<th>DK</th>
<th>p</th>
<th>SE(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Statistics</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A concise way of summarising a data set is to use an appropriate measure of central tendency accompanied by a measure of spread (Q11)</td>
<td>52</td>
<td>7</td>
<td>21</td>
<td>0.09</td>
<td>0.03</td>
</tr>
<tr>
<td>If a set of scores forms a positively skewed distribution, the mean is greater than the median which is greater than the mode. On the other hand if a distribution of scores is negatively skewed, the mean is less than the median which is less than the mode (Q25)</td>
<td>32</td>
<td>12</td>
<td>36</td>
<td>0.40</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Standard scores such as z-scores are normally distributed (Q2)</strong></td>
<td>35</td>
<td>17</td>
<td>28</td>
<td>0.44</td>
<td>0.06</td>
</tr>
<tr>
<td>A single outlier will not greatly influence the value of Pearson’s r, especially when N is large (Q26)</td>
<td>33</td>
<td>16</td>
<td>31</td>
<td>0.41</td>
<td>0.05</td>
</tr>
<tr>
<td>Correlation never implies causation (Q9)</td>
<td>49</td>
<td>24</td>
<td>7</td>
<td>0.61</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Design Strategies</strong></td>
<td></td>
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<tr>
<td><strong>Sampling</strong></td>
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</tr>
<tr>
<td>Every sample possesses sampling error provided the population is not totally homogeneous or the sample size is equal to the population size (Q18)</td>
<td>58</td>
<td>11</td>
<td>11</td>
<td>0.14</td>
<td>0.04</td>
</tr>
<tr>
<td>A random sample is a miniature replica of the population (Q1)</td>
<td>44</td>
<td>34</td>
<td>2</td>
<td>0.55</td>
<td>0.06</td>
</tr>
<tr>
<td>Larger populations call for larger samples sizes and hence the ratio of sample size to population needs to be considered when determining sample size (Q3)</td>
<td>41</td>
<td>35</td>
<td>4</td>
<td>0.51</td>
<td>0.06</td>
</tr>
</tbody>
</table>
A sample of individuals drawn from a finite population deserves to be called a random sample so long as (i) everyone in the population has an equal chance of receiving an invitation to participate in the study and (ii) random replacements are found for any of the initial invitees who decline to be involved (Q14)

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Validity</th>
<th>Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A large sample does not guarantee validity (Q16)</td>
<td>74 3</td>
<td>0.04 0.02</td>
</tr>
<tr>
<td>Sample size determines precision not accuracy. The selection process determines accuracy (Q21)</td>
<td>52 12 16</td>
<td>0.15 0.04</td>
</tr>
</tbody>
</table>

### Reliability and Validity

A high value of Cronbach’s alpha indicates that a measuring instrument’s items are highly interrelated, thus justifying the claim that the instrument is uni-dimensional in what it measures (Q5)

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Validity</th>
<th>Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different procedures for estimating inter-rater reliability yield approximately the same reliability coefficients and so it does not make much difference which procedure is used (Q10)</td>
<td>8 32 40</td>
<td>0.10 0.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Validity</th>
<th>Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistical indices of reliability and validity document important attributes of an instrument (e.g. test or questionnaire) (Q27)</td>
<td>61 4 15</td>
<td>0.76 0.05</td>
</tr>
<tr>
<td>If Pearson’s r is used to determine the predictive validity, range restriction will cause r to underestimate the strength of the relationship between the predictor and criterion variables (Q29)</td>
<td>13 4 63</td>
<td>0.16 0.04</td>
</tr>
</tbody>
</table>

### Missing Data

It is important to plan for missing data and to develop strategies to account for them (Q19)

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Validity</th>
<th>Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity analyses are designed to explore a reasonable range of explanations in order to test the robustness of the results (Q30)</td>
<td>43 6 31</td>
<td>0.08 0.03</td>
</tr>
</tbody>
</table>

### Statistical Assumptions

A violation of the statistical assumptions affects the significance level of a test (Q4)

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>Validity</th>
<th>Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferential Statistics</td>
<td>A statistic is an estimate of a true population parameter (Q15)</td>
<td>41 17 21</td>
</tr>
<tr>
<td>Statement</td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
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<tr>
<td>A confidence interval is a statement about the unknown population parameter (Q17)</td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>A Type I error (α) represents the probability that one mistakenly rejects a true null hypothesis (i.e. “a false positive”) (Q28)</td>
<td>37</td>
<td>7</td>
</tr>
<tr>
<td>Practical significance is focused on the study’s possible impact on the work of practitioners or other researchers (Q7)</td>
<td>47</td>
<td>13</td>
</tr>
<tr>
<td>The p-value is the probability that the null hypothesis $H_0$ is true (Q6)</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>When the whole population is used, no inferential statistics are required since the statistical summary of the data represents a parameter rather than a statistic (Q12)</td>
<td>33</td>
<td>22</td>
</tr>
<tr>
<td>Statistically significant results signify strong relationships between variables or big differences between comparison groups (Q13)</td>
<td>42</td>
<td>28</td>
</tr>
<tr>
<td>A non-directional alternative hypothesis always leads to a two-tailed test whereas a directional alternative hypothesis always brings about a one-tailed test (Q24)</td>
<td>28</td>
<td>13</td>
</tr>
<tr>
<td>Regression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In multiple regression, any statistical relationship between two variables may be altered by additional variables (Q20)</td>
<td>55</td>
<td>15</td>
</tr>
<tr>
<td>When multiple regression is used to predict scores on a criterion variable, the worth of a particular variable is indicated by the variable’s beta weight (i.e., its standardized beta coefficient) (Q23)</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>In multiple regression, an independent variable that is uncorrelated with the dependent variable ought to be left out of the model because its inclusion won’t help to make the coefficient of determination ($R^2$) larger (Q22)</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Regression analysis is superior to correlational analysis (Q8)</td>
<td>21</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: A = Agree, D = Disagree, DK = Don’t Know, p = pervasiveness of misconception as %, SE (p) = standard error of sample proportion; underlined scores represent faulty thinking; underlined statements represent misconceptions.

In investigating whether the responses varied as a function of the preferred research method of respondents, we found that a significant association occurred in only 15 out of the 30 items presented. Three of these statements represented statistical conceptions, namely 'a concise way of summarising a quantitative data set
is to use an appropriate measure of central tendency together with a measure of dispersion (spread) \( [\chi^2(4) = 9.97, p = 0.037, V = 0.25] \), ‘the confidence interval is a statement about the unknown parameter’ \( [\chi^2(4) = 11.11, p = 0.023, V = 0.26] \) and ‘a Type 1 error represents the probability that a true null hypothesis is rejected (i.e. ‘a false positive’)’ \( [\chi^2(4) = 25.58, p < 0.001, V = 0.40] \). As one would expect, the respondents who prefer quantitative research were the most knowledgeable about these statistical conceptions, followed by those who prefer mixed methods and qualitative methods respectively. The other 11 statements represented statistical misconceptions but here different patterns emerged:

a) For the statement ‘different procedures for estimating inter-rater reliability yield approximately the same reliability coefficients. Therefore it does not make much difference which procedure is used’ \( [\chi^2(4) = 15.62, p = 0.003, V = 0.31] \), respondents who prefer quantitative research were more likely to disagree with this faulty statement; those who prefer qualitative and mixed methods were more likely to admit that they don’t know.

b) For the two statements ‘larger populations call for larger sample sizes and hence the ratio of sample size to population needs to be considered when determining sample size’ \( [\chi^2(4) = 9.33, \text{exact sig.} = 0.044, V = 0.24] \) and ‘statistically significant results signify strong relationships between variables or big differences between comparison groups’ \( [\chi^2(4) = 12.79, p = 0.011, V = 0.28] \), those who prefer qualitative and mixed methods were more likely to hold these misconceptions while quantitative researchers were more likely to disagree.

c) For the statement ‘Statistical indices of reliability and validity document important attributes of an instrument (e.g. test or questionnaire’ \( [\chi^2(4) = 10.79, p = 0.024, V = 0.26] \), those who prefer quantitative research were the most likely to hold this misconception, followed by those who prefer mixed methods and qualitative research respectively.

d) For the remaining eight statements - ‘standard scores such as z-scores are normally distributed’ \( [\chi^2(4) = 20.81, p < 0.001, V = 0.36] \), ‘a high value of Cronbach’s alpha indicates that a measuring instrument’s items are highly interrelated, thus justifying the claim that the instrument is unidimensional in what is measures’ \( [\chi^2(4) = 20.95, p < 0.001, V = 0.36] \), ‘the p-value is the probability that the null hypothesis H0 is true’ \( [\chi^2(4) = 18.97, p = 0.001, V = 0.34] \), ‘in multiple regression, an independent variable that is uncorrelated with the dependent variable ought to be left out of the model because its inclusion won’t help to make the correlation of determination (\( R^2 \))’ larger’ \( [\chi^2(4) = 25.69, p < 0.001, V = 0.40] \), ‘when multiple regression is used to predict scores on a criterion variable, the worth of a particular predictor is indicated by the variable’s estimated beta weight (i.e. its standardized regression coefficient’ \( [\chi^2(4) = 21.82, p < 0.001, V = 0.37] \), ‘a non-directional alternative hypothesis always leads to a two-tailed test whereas a directional alternative hypothesis always brings about a one-tailed test’ \( [\chi^2(4) = 17.46, p = 0.001, V = 0.33] \), ‘if a set of scores forms a positively skewed distribution, the mean is greater than the median which is greater than the mode.’’ \( [\chi^2(4) = 27.76, p < 0.001, V = 0.42] \) and ‘a single outlier will not greatly influence the value of Pearson’s r, especially when N is large’ \( [\chi^2(4) = 18.71, p = 0.001, V = 0.34] \) - the respondents who were most likely to hold the misconceptions were those who prefer quantitative research methods, followed by those who prefer mixed methods and qualitative methods respectively. This unexpected result might be explained by the fact those who prefer qualitative research methods were more likely to admit they ‘don’t’ know’, with those who prefer mixed methods doing so at a lesser extent.

8. Discussion

The findings of this study suggest both a lack of knowledge and a high pervasiveness of statistical misconceptions among academics with a special interest in business research methods. However, we do not want to convey the message that the misconceptions we have reported here are pandemically distributed to the field of business and management as that would, unfairly, discredit the work of competent researchers.
academics who are not so conversant with statistical concepts (evidenced by those who opted for “don’t know” or withdrew from the survey) might prefer to take a qualitative stance in their research study rather than incorporate in it statistical thinking. The consequence could be that rather than answering the question that they think is the important question, the research question fits the convenient design (Shavelson & Towne, 2004). We believe that this issue warrants attention in the teaching of business research methods.

A second major finding in this study is that in half of statements addressed, the pervasiveness of the misconceptions was not associated with the preferred research method. However, where a significant association was found, in most cases quantitative researchers were more likely to endorse the misconception. This could be attributed to the fact that a number of ‘statistical rules of thumb’ endorsed by these academics are flawed and, unlike qualitative researchers, they are less likely to be aware of their own lack of knowledge; represented by ‘don’t know’ responses. We hope that this research will help such academics to identify misconceptions and to understand the impact of these on their students. Today, various books and interactive Internet activities are available to help those interested to ‘undo’ misconceptions, although the strategies suggested for addressing such statistical and methodological misconceptions might themselves require evaluation in future studies.

There are some limitations to our findings that should be noted. First, we used a critical case purposive sample. Consequently it could be argued that this sample is suited more to the logical than the statistical generalisations we have made. Second, the findings of this study are based on a relatively small sample, despite follow-ups to potential respondents restating the web-link and re-emphasizing the deadline. This, combined with the high withdrawal rate might have biased to some extent parameter estimates. Third, the concepts addressed in this study are not exhaustive. Fourth, although we asked respondents to highlight their preferred research method, we believe that the choice of method should be dependent upon the question being answered (Saunders, Lewis & Thornhill, 2012).

9. Concluding comments

The teaching of statistics is often seen as an initiation into rules and procedures which might be seen as attractive and powerful by instructors, yet meaningless by pupils (Bezzina, 2004). Easy practices tend to take the short route by by-passing the detailed study necessary to get it right (Lenth, 2000), As Good and Harding (2009, p. xi) argued, the availability of statistical software packages and high-speed computers “will no more make one a statistician than a scalpel will turn one into a neurosurgeon”. Allowing these tools to do our thinking will obscure the true value of statistics when applied correctly in research.

To develop a thorough understanding of the statistical foundations requires careful practice sustained by sound rationale and justification that goes beyond simply applying rules and procedures. To enable this, statistics need to be taught by instructors who, through their expertise are fully aware of and can explain prevalent misconceptions. Where instructors are not statistical experts it is important that, as was the case in for many of our ‘qualitative’ respondents, as well as at least some of those who withdrew, they recognise their lack of knowledge. We believe that students are more likely to benefit in quantitative research methods classes and courses if they are given the opportunity (i) to get involved in the struggle with the statistical concepts, (ii) to get involved in dialogue and (iii) to focus on formulating reasonable solutions that are timely, accurate, flexible, economical, reliable and easy to understand and use, rather than just applying procedures.

Acknowledgement

Both authors contributed equally to this paper.

References


Using a Learning Contract to Introduce Undergraduates to Research Projects

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Abstract: Many undergraduate Business programs aim to orient students to the research through a single-subject focused on research design and conceptualisation. The focus of this paper is to case study a learning contract as it guides undergraduate students through a research project in a non-research methods subject and to determine the value of this process. The learning contract is a negotiated process between the learner and the academic supervisor. It is often the student’s first foray into research so the staged guidelines provide supportive ‘training wheels’ and a detailed ‘recipe’ to follow. The process can be challenging for both parties as it is a scaffolded assessment with close monitoring and regular feedback. The contract has three distinct stages. The contract proposal is the first step and is where the student can choose their focus for project by articulating a learning goal and justifying why this goal is important. This is followed by the second stage of the contract which includes a literature review, reflections on readings and a detailed methodology. The final component is the learning in action (describing what they did), analysis and evaluation of their findings and a reflection on their learning. The many advantages of this assessment are it can be used in a variety of situations and with a diversity of learners; puts the students into the centre of the learning process; students can choose a learning goal that is relevant to their situation; and it can stimulate deep approaches to learning. The learning contract approach to completing a research project also develops the student’s abilities in aspects of (mainly) qualitative research design and reflective practice. This paper draws on the author’s 20 year experience of introducing students to research by using an assessment method that has gained positive feedback, strong student performance and high student progression.

Keywords: Learning Contracts, Methodologies, Reflection, Assessment and Evaluation

1. Introduction

The aim of this paper is to assess the value of a learning contract in the teaching of research skills and methods to undergraduates in a Business faculty. Undergraduate students in higher education are often introduced to research skills and methods in specifically designed methods subjects. These methods subjects can often be the most difficult to teach, especially if there is little connection to the students’ degree (Denham 2003). Garner, Wagner and Kawulich (2009) found the disadvantages of these types of methods teaching to be academics working in isolation, no pedagogical debate around key issues, and often little guidance given to new teaching staff. Several other studies have argued that research methods are best taught throughout the curricula by creating real-world context for research methods, promoting collaborative and collegial practice through team-based research and using research to anchor the discipline (Shostak, Girouard, Cunningham & Cadge 2010; Kain, Buchanan & Mack 2001; Singleton 2007). The latter studies reflected the approach taken in this case study, that is, of embedding the development of research skills within a discipline subject.

A capstone subject in the Bachelor of Business (Management) at Charles Sturt University had a core subject in Leadership Issues that utilised a learning contract to guide a research project as the main form of assessment. As most students of the students enrolled in the subject were novices in the research area the learning contract guidelines were prescriptive and staged to avoid students making mistakes and/or digressing from their main goal. The learning contract allowed for goals to be visible and procedures clear and this meant less anxiety. The learning contract provided possibilities for the students to plan their learning experiences and allowed a mutual undertaking between the learner and the academic (Fedeli, Giampaolo & Coryell 2013).
A learning contract is about learning through action. In this case study it meant students could learn about something which was relevant to their current needs – within a specific discipline area and at the same time learn the basics of a research project. This paper details the learning contract process and reports on its value in the teaching of research skills and procedures.

2. What is a learning contract?

A typical learning contract as used in higher education is a formal written agreement between the learner and a supervisor which details what is to be learnt, the resources and strategies available to assist in learning it, what will be produced as evidence of the learning having occurred, how that product will be assessed and within what timeframe the learning will take place (Knowles 1975; 1986). Knowles is largely contributed with being an early user and supporter of learning contracts to encourage adult learners to take more responsibility for their own learning. Anderson, Boud and Sampson (1998) identified learning contracts as one example of negotiated learning, a program of study that is jointly determined by staff and students.

Learning contracts can take many forms. They can range from being free forming to being largely prescriptive as in this study. A learning contract is used extensively in fieldwork and practice-based education situations (Alsop & Ryan 1996; Burrill, Hussain, Prescott, & Waywell 2010) where the focus is on the practical application of self-directed learning. Students can individualise their goals which reflect their own strengths and weaknesses. The learning contract used in this case study was a combination of a prescribed and detailed task on leadership issues in business but allowed for independent and self-directed learning activities. It was a plan to complete a research project for the self-directed learner but ‘it is developed within parameters, sometimes quite rigid, imposed by staff adviser and is constantly monitored by supervisor’ (Dixon 1991, 131).

3. Benefits and limitations

Studies have shown that embedding research methods within a discipline-based subject can alleviate anxiety and make the research more relevant to students (Beaty 1997; Callaghan 2005). Callaghan (2005), in teaching law subjects, demonstrated that teaching research skills in non-research method subjects had the dual benefit of bringing the subject to life while introducing and familiarising students with research methods. Examples and studies in sociology, law and business have shown the transference of research methods based exercises across courses, levels of courses and within the course discipline as well (Denham 2003; Frank & Scharf 2013; Gibbs 2009).

Brecko (2004, 267-268) identified the main advantages of the learning contract were:

- Learning is of interest, value or relevance to the learner
- Motivation of learners is high
- Freedom to choose the area for learning
- Learners can learn at their own pace
- The learning contract provides focus
- The learning contract respects differences in individuals
- Increased confidence and excitement in learning

Further benefits identified in other literature included:

- Value of creating a real world context for research methods (Shostak, Girouard, Cunningham & Cadge 2010).
- Strong mentoring partnership between academic and student (Leston-Bandeira 2013).
Opportunities for self-directed learning that fosters greater accountability, responsibility and commitment (Frank & Scharf 2013).

Develop independence in learning (Anderson, Boud & Sampson 1998)

The learning contract exposed the student to the entire research process (Anderson, Boud & Sampson 1998).

The learning contract can aid the development of employability skills such as objective setting, negotiation, review and evaluation of one’s work and acceptance of responsibility for outcomes (Lane 1988). Employers want students who understand problematic situations and can do something about them (Cameron 2007). The learning contract required the students to respond to questions such as ‘what might I do better next time?’ or ‘how would I do things differently?’ These are key phases in the research process. It is the ability to effect change that makes reflective practice so fundamental to higher education and to the graduates as they progress to the business world. What gets us from experience to understanding is reflection (Schon 1991; Kolb 1984). Boud, Keogh and Walker (1985, 19) described reflection in the context of learning as ‘a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciation’. As the students worked their way through the learning contract process for their research project they had the opportunity to develop these skills.

Business graduates need to learn about professional conduct and working with customers and clients in different situations and these require particular skills. Schon (1983) referred to the uncertainty, uniqueness and conflict inherent in professional practice. As the world is ever-changing standard procedures of analysis and action may not be applicable or appropriate in all situations. There is a need for alternative strategies. ‘Messy’ or ‘wicked’ problems need subjective processes of thinking about what you know and how to find solutions to problems. The stages of the learning contract introduced the students to ways of investigating ‘messy’ problems and how to deal with them. Learning contracts have been used by students in workplaces where autonomous learning is seen ‘as preparation for being-in-the-world-of-change’ (Gibbs 2009, 31).

The research methods utilised in the learning contract were largely limited to qualitative methods as these were appropriate to the discipline, the design and nature of the subject and, more specifically, the timeframe. Statistics were not taught within this subject. However, if the students had completed a research methods subject, for example most Bachelor of Marketing students had studied a Marketing Research subject, they could utilise statistical data analysis as part of their methodology.

Other limitations included the lack of familiarity with the learning contract approach may mean that it can take more time for students to be engaged (Brecko 2004) and the self directed nature of the learning contract may deter students who are used to traditional types of assessments. The role of the academic in introducing the learning contract process is paramount to its success (Anderson, Boud & Sampson 1998). Careful and timely instruction into the learning contract process was required.

4. Case study – The specific learning contract used in MGT367 Leadership Issues

A case study approach was used to detail the assessment process used in the subject MGT367 Leadership Issues, a final year subject in the Bachelor of Business (Management) at Charles Sturt University. The subject was offered to students in on-campus mode across several campuses as well as by distance education. Over the last 20 years approximately 100 students per year have completed the subject. This specific learning contract was introduced to the author by a colleague who came from Royal Melbourne Institute of Technology (RMIT) in the 1990s.

The subject, Leadership Issues introduced students to the concept of leadership and then allowed the students to choose an area from a restricted list for more in depth investigation. As the subject dealt with current issues facing leaders in the workplace the students had to collect a media file as one of their strategies in their
methodology. The issues vary but usually involved the role of the leader and the culture of organisations; ethics and social responsibility; and managing diversity.

Independent student evaluations of the subject have been collected and comments from student reflections have been collated to gain feedback on the delivery and teaching and learning methodologies involved with the subject.

4.1 The Learning Contract

The student, on undertaking the learning contract, had the responsibility to complete the contract proposal, send to and have approved by the subject coordinator; undertake the contract, record results and reflect on progress. The learning contract was presented in three stages: the proposal, Section 1 and then the final report containing section 1 and 2 (see Table 1). Each of the three staged submissions was marked, with detailed feedback, and returned to the students. Brookfield (1986, 81) noted that learning contracts were a great tool for self-directed learning but advised that ‘the ability to write contracts is a learned skill, and facilitators must spend considerable time helping students to focus on realistic and manageable activities’.

The learning contract proposal was prepared early in the semester to ensure students had eight or nine weeks to work on the action and reporting phases. The final report was submitted at the end of semester. In diagnosing their learning needs students identified the things they needed or wanted to know about (knowledge) and/or things they needed to be able to do (application) to enable them to be more effective in their current role or in a future role in business. Diagnosis was a critical first step.

Table 1: Assessment stages of the learning contract over the 13 week semester

<table>
<thead>
<tr>
<th>STAGES OF LEARNING CONTRACT</th>
<th>DESCRIPTION</th>
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<tr>
<td>Learning Contract Proposal (Due Week 3)</td>
<td>A brief written document (pro forma given to students) outlining what they want to learn within a specific topic; why they want to learn it; how they want to go about their learning; and how they intend to evaluate their learning. Approved or not approved with feedback to students. Examples of learning goals are given in paragraphs below.</td>
</tr>
<tr>
<td>Section 1 (Introduction; Literature Review; Reflections on Readings; Methodology; References) (Due Week 7)</td>
<td>Students do reading on their chosen leadership issue for their literature review. This gave them a strong knowledge base on the topic and informed their methodology. They are given the opportunity to reflect on their readings to identify what they have learned, what were the gaps in their knowledge etc. The Methodology must include a media file (e.g. newspaper clippings, television news reports, documentaries) and collecting data from primary (e.g. interview of a practising manager; case study of an organisation that have access to) and secondary sources. Section 1 was submitted for marking and feedback.</td>
</tr>
<tr>
<td>Section 2 (Learning in Action; Analysis and Evaluation; References; Reflections on Learning) (Completed in Week 12)</td>
<td>Students put strategies from their methodology into action; record their results and analyse their findings. Final task was a reflection on their learning as they progressed through each stage of the contract. Merged with Section 1 for Final Report.</td>
</tr>
<tr>
<td>Final Report (Due Week 13)</td>
<td>Compilation of Section 1 and Section 2 to make a complete final report which is marked and feedback is given to students on both the contract goal and the reflection on their learning.</td>
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An effective learning goal must tell exactly what is to be learned; indicate by when the learning will be achieved; represent new learning which is relevant to a problem they face at work and/or relevant to their professional development needs; be drawn from the diagnostic data; be measurable (the objective must allow for demonstrated movement from one existing level of knowledge and ability to a higher level).

Examples of specific learning goals that students have chosen included:

- By July, I will have investigated how gender issues affect the roles of women and men in my local rural community, and identified some strategies to increase gender equality in the community.
- By July, I will have investigated Model II leadership in current workplaces and assessed my skills as a Model II leader, and developed, implemented and evaluated some strategies to increase my leadership effectiveness.
- By July, I will have investigated the issue of managing diversity in organisations with a particular focus on why there are more female than male primary school teachers in New South Wales public education.
- By July, I will have investigated how workplace diversity influences intrinsic motivation, particularly age and experience, and develop a strategy utilising individual differences to increase the team’s overall performance.

Students nominated measures of achievement to indicate how they had reached their goal. A measure of achievement will clearly demonstrate to the student and to others the extent to which they have achieved their learning goal. The types of measures used will depend on the nature of the goal, however, some common suggestions were a written analysis of data collected during the implementation period; before and after measurements such as pre and post tests/surveys; their own reflections, observations, evaluation; and feedback from their peers, lecturers, managers etc. The final report was marked and returned to the students.

### 4.2 Managing and linking learning

Students were required to work on their contract over the full contracting period and they were warned not to ‘forget’ about their contract until that last couple of weeks before the report was due. It was critical that their learning flowed logically from their contract goal to their final analysis. What happened in one phase will determine what happened in the next. Therefore, the phases need to be interconnected and see the learning holistically, centred on their learning goal. That is, the different phases should form an interconnected whole. This would help keep learning focussed and meaningful for the students and would ensure that the final report flowed logically. The diagram below (Figure 1) outlines the connections between the different phases of the learning contract. These six phases must be planned for over the period of the semester. The learning goal (1) is the central driving force behind the contract. It is the focus. It will direct students to the literature (2) that will be reviewed. Students need to keep their learning goal in mind as they proceed through the contract. The literature review (2) in turn will influence what they write about in their reflections on their literature (3). These reflections need to show what they have learned in relation to their contract goal. Here they also need to assess where they stand in relation to what they have read. For example, if their goal was to understand business ethics they would assess their strengths and weaknesses against some of the ideas found in the literature.
Figure 1: Connections between the different phases of the learning contract

The methodology (4) should identify two to four strategies that will help the students move towards their learning goal. The strategies should in turn be based on ideas they have picked up from their reading and will usually be aimed at addressing some weaknesses or problems they have identified. For example, if they are working on business ethics, their strategies might be to collect media articles pertaining to ethical issues, to interview a manager about his/her understanding of the role of ethics in business, and to collect examples of professional codes of ethics. They will also need to identify how they will evaluate their learning in action.

The learning in action (5) is where the student implements the strategies they have identified in the methodology, monitor how they are working and make changes to them if needed as they go along. The learning in action phase would usually take at least four or five weeks. Students are strongly recommended to record their progress in a diary as these diary notes will assist in the writing of the final report.

Once they have finished their learning in action, it is time to analyse and evaluate the outcomes (6). They interpret the outcomes of their learning in action and think deeply about the implications of the outcomes. For each strategy or theme the students link their outcomes to the literature they have read, showing where there is agreement or disagreement. The ability to see links between the literature and their outcomes indicates that they can think critically about the outcomes and can see how theory and practice work together.

After the students have completed the report there is one last phase, reflecting on their learning. Here is where they can step back from the content and think about how they went about doing the learning. Experiential learning readings and the Kolb Learning Cycle (Kolb 1984) are used to assist the students in their reflections. The learning contract process pushed the students to plan, act, reflect and generate ideas from analysis, which is very similar to the finer points of the Kolb Cycle.

Reflective writing as well as the more traditional scientific/technical report writing is valued in the academic and business worlds (Cameron 2007) and students to need to be good at both:

Demonstrating development at different levels and talking about it retrospectively as well as taking it forward shows a management mentality prepared to keep learning as well as being able to constructively criticise the self (Cameron 2007, 16).
Duffy (2007) believed that reflective practice was an active process of critically examining practice where an individual is challenged and enabled to undertake the process of self-enquiry. Learning is derived from experience but it does not just happen (Schon 1991). By thinking about what you are doing and why you are doing it is what turns experiences into meaningful learning.

4.3 Value to the curriculum, the students and the academics

The value of using a learning contract to introduce undergraduates to research projects went beyond the initial objective. It was found that the academics became more engaged in the teaching process and that the curriculum benefited from this different pedagogical approach.

Many things can be learned from reflection, not just by the students but also by the teacher. For academics in higher education the most immediate benefit can come from various forms of feedback from students. Beaty (1997, 9) identified that it was important to gain feedback 'as a core process throughout the teaching and learning interaction and not simply something to be done at the end of a course'. The scaffolded nature of the learning contract allowed for feedback through written reflections at the various stages and also through the student comments and queries in the online learning environment. However, often the formal university student evaluation process only was held at the end of the semester.

The academics were able to monitor the approach to the subject through this formal evaluation process. The subject, MGT367 Leadership issues, over a period of several years, has consistently scored between 6 and 7 on a Likert scale of 0-7 with 7 being the highest student satisfaction rating. In 2013 the subject won a Faculty of Business Learning and Teaching Award for High Performance in Subject Evaluation. All cohorts on the various campuses and in the distance education mode scored greater than 6. The subject also had a strong progression rate of greater than 85% per offering.

Students, in the 2013 formal evaluations, stated many positive comments from using the learning contract. These included:

Thank you, I'm enjoying the structure of the subject you have brought to life.

After I got my head around the concept of a learning contract and setting my own learning guidelines, I really found this subject to be completely relevant to my own personal life and learning.

This project is the most complete, specific and prescriptive projects I have ever done. This assessment forced me to go further than most other assessments and thus I feel like I have a deeper understanding of the subject matter and the research process.

I found the final report highly beneficial in not merely understanding corporate social responsibility, but as a deeply fulfilling, all encompassing research and learning tool.

The actual holistic approach the report took will be applied to all future reports and projects that I will undertake ... as I have learned that one angle of investigation does not deliver a full picture.

The most comprehensive and in depth assignment I have ever undertaken. It has provided me with the greatest amount of reflection and improvement strategies I, as a learner, can hence forth utilise.
Perhaps the most effective piece of learning through this subject came through the opportunity to get out and do some actual hands on work, as opposed to simply regurgitating a textbook. Being able to actively engage in an area that we could determine was great, gives students good flexibility and a great opportunity.

I enjoyed doing a research project!

Students expressed satisfaction in being able to choose their topic for the learning goal. However, students also had some advice for future students. Their main points being ‘start early’ and ‘this is an assessment you cannot do at the last minute’. More than 90% of students who completed the online student experience survey in 2013 rated the subject between 6.3 and 6.5 out of 7 for the following statements:

I found this subject stimulated my learning.
I was given guidance on how to improve my work.
The quality of teaching in this subject assisted my learning.
I have developed my capacity to communicate my ideas/knowledge in this area more effectively.

The high scoring in the formal feedback demonstrated that students can become excited about the possibility of planning their own learning and, in this way, invest more energy in learning (Fedeli, Giampaolo & Coryell 2013; Knowles 1986).

The academics formed a close bond as a teaching team even though they were geographically dispersed. Regular meetings between the teaching staff and the sharing of resources created a collegial and consistent focus. The academics teaching on the subject held a review to reflect on the process and to link with tips to develop the delivery of the research process within the subject (see Table 2).

Table 2: Linking undergraduate research methods teaching and applying to MGT367 Leadership Issues (modified from Leston-Bandeira 2013)

<table>
<thead>
<tr>
<th>Tips to develop engaging undergraduate research methods teaching</th>
<th>How applied to the design and teaching of MGT367 Leadership Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on discipline</td>
<td>Embedding the teaching of research skills and methods in the discipline (leadership) subject. By choosing their learning goal, students engaged in the process because they were exploring an area of interest to them and was of relevance to their degree.</td>
</tr>
<tr>
<td>Focus on the process</td>
<td>Students conceptualised their own research question, planned its associated research design and then applied the project. The learning contract had a prescriptive process to follow.</td>
</tr>
<tr>
<td>Focus on the application</td>
<td>Methods are more exciting when they let students develop their own knowledge and understanding – so a key component of the learning contract was the Learning in Action.</td>
</tr>
<tr>
<td>Focus on the student</td>
<td>The learning contract was student centred. It was an active process rather than a passive one.</td>
</tr>
<tr>
<td>‘De-complexify’ it</td>
<td>And de-mystify the process by guiding the students step by step through the project. Shown examples of previous students’ work and discussed research ideas between students using online learning environment as well as in the classroom.</td>
</tr>
<tr>
<td>Design creative assessment</td>
<td>The learning contract was almost always ‘new’ to the students. Students engaged best if the teaching methods were focused on them and by applying the methods, the learning</td>
</tr>
</tbody>
</table>
The learning contract has been part of the assessment for this subject, or variations of the subject, for over 20 years. The contract, when introduced by our colleague, was a welcome alternative to the traditional methods of assessment. There had been a heavy reliance on essays and examinations. The learning contract not only engaged the students in the learning process but also kept the academics ‘interested’ as the marking of the individual contract reports were topical and refreshingly different. The scaffolded assessment meant for easier marking as each submission built on from the previous one. From an academic’s perspective the final contract report was very rewarding as it showcased the students’ interests and perspectives on various issues.

The learning contract also helped to strengthen the teaching-research nexus, i.e. the many ways which teaching informs research and research informs teaching (CHEQ, Monash University 2004). In this subject, academics talked about the latest research, as well as current affairs, during their class time and then the students were required to undertake a small research project. This way, academics provided updated course and subject materials to reflect current discipline knowledge in ‘leadership’ whilst the students engaged with research findings and literature. The learning contract allowed the students to discover and discuss new research topics and questions. Academics shared their interest and enthusiasm for research as part of their teaching. Also, the outcomes form some of their own research in the ‘leadership’ area.

The advantages far outweighed the disadvantages often cited, i.e. time, keeping track of the scaffolded submissions and concerns with students with lesser ability being able to complete the contract. In fact, students of all abilities have been able to successfully engage in the process as indicated by the high pass and completion rates. Students have indicated in the formal feedback that the learning contract was ‘too challenging’ and the prescriptive nature of the learning contract was ‘too complex’.

5. Conclusion

The use of a learning contract in the undergraduate subject for over 20 years has given the academics the opportunity to rethink and change what has not worked in the instructional practice. The subject has introduced students to the concept of learning contracts, a personal learning method that can be transferred to other contexts, especially workplace situations. From the academic perspective, staff changes have meant more teaching staff exposed to learning contracts and the associated ‘instructional support and learning contract practices of learner-centeredness, student self-directedness and learner-instructor dialogue’ (Fedeli, Giampaolo & Coryell 2013, 110).

This paper has described an initiative designed to integrate the teaching of an undergraduate subject through a research-led learning contract and the completion of actual research projects within the discipline. The learning contract has proven to be one of the best ways to encourage an active approach to learning and development and to introduce students to the research process. The students take an active role in diagnosing their learning needs and planning how to fulfil them. For most students, this was the first time in using a learning contract and even a first time doing a research project from start to finish. This case study has focused
on learning contracts negotiated between individual students and academics to progress through a research project in a leadership subject. The learning contract offered opportunities to make courses more flexible while fostering the development of capability.

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References

Learning Research Methods: How Personalised Should we be?

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Abstract: Much recent discussion in higher education has focused on the scope that exists to provide personalisation to students. This influences a range of factors, spanning the expectations that students have of the learning environment, the styles and methods used by lecturers, the need to deliver very specialist material to students, and the type of technological infrastructure that is adopted to support learning. For example, some viewpoints suggest that electronic resources to support learning should be delivered through a ‘personal learning environment’, as distinct from the currently familiar ‘virtual learning environment’, the implication being that personalisation is built into the learning environment as a core component. For teaching research methods, a personalised approach is attractive because students can be expected to vary in what approaches to research they are likely to use in other areas of their studies. Typically students want to make clear choices about exactly what research methods they learn. Furthermore there are particular variations in the extent to which students already have some experience of conducting their own research, and in the ease with which student are likely to adapt to a research mindset where they can deal with the demands of independent inquiry. For many students research is an individual pursuit, and indeed for students on undergraduate or taught postgraduate courses which include a major project, a piece of independent research is the most significant item of individual work within their course. Therefore this paper raises the question of whether research training needs to be as personalised as research itself. If it appropriate to prepare students for a major piece of research, where they will be choosing their own research methods, through a didactic course which covers a standard range of methods? Is it - in fact - essential that students are exposed to a wide range of research methods including those that they have no intention of ever using? The need to provide a range of skills and knowledge, and the possibilities to adapt this to students’ requirements, constitute only one facet of personalisation. Another is the ability to adjust material to differing prior levels of expertise, and to help students in finding the most effective path to achieve the necessary learning. While students are unlikely to enter higher education with any significant exposure to academic research methods, some of them will have carried out activities that have resonances with the research process. So there is considerable scope for inviting students to identify the most appropriate level at which to start learning research techniques. The intention is to identify some general principles for the personalisation of research methods learning and to discuss in what circumstances these might be relevant.

Keywords: personalisation, research methods teaching, student choice

1. Introduction

This paper discusses the overlap of two subjects which are directly relevant to the teaching of research methods:

- The need for university students, on taught degree courses where research is not a major area of focus, to learn a certain amount about how to conduct research – usually as a preparation for a significant individual and independent project that they must pursue as part of their studies.
- The emergence of personalisation as a current trend in learning and the possibility to apply this in different directions.

It reviews different approaches to personalisation and relates these to the teaching of research methods. Part of the background is that the research carried out by students within a taught degree is an individual activity and an intrinsic property of such research is that students should have differing individual requirements. In other words students’ research work is highly personalised, and an important question is whether their training in research techniques should be personalised to the same extent. The discussion in the paper is based on the author’s personal reflection and experience, predominantly in the context of undergraduate business and management degrees, within which students are required to carry out a single substantial piece of individual research in their final year. This reflection includes some thoughts prompted by the difficulties in applying some approaches to personalisation, which had achieved a measure of success when implemented to support other areas of learning, to the teaching and learning of research methods.

2. Concepts around personalised learning

This section introduces some of the concepts underpinning the potential for personalisation of learning in higher education. It discusses the context, and sets the scene for a further discussion of why personalisation is particularly relevant in the teaching of research skills within a university course. After a discussion of why personalisation is relevant, there follow some observations on the implications for learning design, and then the potential use of technology to achieve more personalised instruction.

Personalisation of products and services has become a familiar concept in many areas of life. The notion of the ‘long tail’ (Anderson, 2008) is built around the ability, given the technology that is now available, for businesses to offer a very wide range of products. Any products based around information technology will typically include a very large range of options and customisable features. Mass customisation (Coletti and Aichner, 2011) emerges from the development of manufacturing processes that allow the economies of scale historically associated with large-scale production, but also permit a wide variety of individualised products to be offered. Apple, with the iPhone, have adopted the contrasting approach of providing a highly standardised product which is manufactured and sold in large numbers, but in creating an ecosystem where suppliers of applications and accessories are allow their customers to build something which is highly personalised (Nuttall, 2011).

Personalisation is one of the promises of the recent generation of MOOCs (massive open online courses). One reading of the design philosophy behind MOOCs would be the application of mass customisation principles to adult learning. Typically the benefits of large-scale learning in a MOOC are sold to students in terms of access to prestigious institutions and highly regarded faculty. Nevertheless Anderson and McGreal (2012) position new models, notably the availability of open educational resources, as an example of the emergence of a low cost ‘no-frills’ approach to provision of higher education. George Siemens, one of the originators of the term MOOC, ascribes the need for new approaches to learning, to the complexity of the issues with which students need to grapple (Kolowich, 2014).

MOOCs are open to criticism, notably for the fact that computer-mediated individual support is no substitute for the quality of mentoring that direct contact with an expert can provide (Palaimo, 2013). There is a danger that personalisation of the MOOC experience can become superficial, and that a student-centred approach, or an invitation to students to co-create content, can appear as an excuse for students to work on their own with minimal help. But there are indications that the approaches embodied by MOOCs could have potential in preparing students for an individual research project. The promise of access to experts is appealing, because students value the opportunity to discuss their aspirations for research with academics with relevant knowledge. Also a MOOC offers an avenue for students into the chance to learn at their own pace, and a research project constitutes a significant element of self-paced learning which typically contrasts with the structured material taught elsewhere in a degree course. Dealing with complexity, referred to above as a driver for the use of MOOCs, is also a characteristic of students’ research projects, where there is a need to address and make sense of messy and unstructured problems.

Personalisation has a role in academic environments where a more didactic, face-to-face approach remains the primary channel for instruction, and arguably a measure of personalisation should be a feature of all higher education courses (Istance, 2011). Personalisation can be viewed in terms of alternative paths followed by learners – notably where there is a distinction between taking alternative paths to a common goal (for example where there is a wide discrepancy within the student cohort in the level of prior knowledge of a subject, but everybody in the cohort needs to achieve a baseline level by a certain stage, or where different members of a cohort exhibit different preferred learning styles and might benefit from material presented in a manner that suits their style). But it can also be viewed in terms of catering for alternative goals, where students might wish to learn about specialised topics which are only relevant to a few members of the cohort. In the context of research methods, and particularly training to carry out individual research, this aspect of personalised learning through offering multiple goals is significant.

Wells and Ball (2008) characterise students’ learning processes as an act of knowledge building and of navigation: an implication is that for both students and educators it is essential to recognise the effort which

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must be put into navigation. This is particularly relevant when resources are provided online, and when students need to pick resources which are right for their specific needs – for instance a student carrying out individual research into a particular topic should be able to navigate rapidly to supporting materials for their chosen research methods.

Simple quizzes can be used for self-assessment by students, so that they can adopt the most appropriate path through a personalised learning landscape. The use of games to facilitate learning through a sequence of interactive processes (De Freitas and Maharg, 2011) can be viewed as a further stage in this process where students choose and navigate their own path.

One variant on the notion of personalisation is the emergence of interest in a personalised learning environment, characterised by being learner centred and able to adapt to a learner’s use of a range of resources (Van Harmelen, 2006). It should be stressed that this concept has been raised in discussions of the sort of technology that could be used to support learning. At one level this could be viewed as a potential alternative to the virtual learning environments used in most institutions to make online resources available to students. Kallkvist et al (2009) discuss the creation of personalised learning spaces, and indeed their use to assist students in carrying out individual inquiry at an undergraduate level, using tools principally intended for students to produce e-portfolios of their own work.

Rae and Samuels (2011) discuss the use of a personalised system of instruction, an approach with a strong emphasis on formative assessment where students receive regular feedback and are encouraged to learn from this. They observe that this approach is particularly effective for students who could be perceived as being at risk of losing interest in a subject. Tellingly, they report on the technique being invoked to reduce the failure rate on a class which they describe as ‘painful’, and they refer to personalised learning being offered as far back as the 1970s, long before the current wave of interest in learning using the Internet. Marin Juarros et al (2014) compare two different approaches to construction of a personal learning environment using widely available interactive tools. In their evaluation they advocate that students be introduced to personalised learning environments at an early stage in their courses, so that they can adopt the mindset of prosumers (Toffler, 1981) where they create parts of the same products and services that they consume. Related to this, they suggest that autonomy in learning should be one of the defining characteristics of the current generation of students. It could be added that autonomy is an essential attribute for students about to embark on (possibly their only) exercise in research.

A further recent trend has been an increased interest in learning analytics and measurement of the interaction between learners and resources that are help online. This stems in part from an interest in analytics as a business tool (Davenport and Harris, 2007), but also reflects educators’ dependence on computing platforms which can generate considerable volumes of data about their users. Greller and Drachsler (2012) discuss the challenges associated with dealing with the data collected this way (including significant ethical concerns) and propose a generic approach to the use of learning analytics. Social learning analytics (Buckingham Shum and Ferguson, 2012) refers to the increased complexity entailed in applying the principles of analytics when the learning environment is, in practice, a complex and interconnected set of social networks.

Adaptive learning (Newman, 2013; Thompson, 2013) connects the use of analytics with the personalisation process, by automating students’ decisions about which options to choose. In adaptive learning, data is used to construct a complex picture of a learner’s requirement and to deliver learning materials accordingly, possibly in such a way that one learner would encounter subjects in a completely different order from another taking nominally the same course. A further characteristic of adaptive learning is that materials can be assembled at the same time that data about learners is gathered, and an ever-increasing body of material is incorporated into a learning resource.

What, then, are the practicalities of providing personalised instruction to support students’ individual research? What benefits might accrue and how can they be evaluated? On the strength of current ideas about personalised learning environments, and the availability of tools to help students to navigate through available information, the most promising approach looks to be the provision of supplementary online resources. Students should be encouraged to browse through these and to identify the ones which are most appropriate to their own subjects of interest. These resources can be provided in tandem with a small amount of formal instruction in research methods. While students would be encouraged to explore their own route
through these resources, there is potential for the use of analytics to steer students in directions that might be appropriate for their interests.

Such resources would provide value for students, by giving them access to useful supporting material for individual research, and by encouraging them to think through choices which affect their research projects. There is also potential to put students in touch with experts from within the university, by inviting academics to participate in the online resources and to offer guidance to students whose research interests coincide with those of the academics. Limitations of providing these online resources centre around some students’ reluctance to engage with supporting materials which are provided online. Also some effort is needed to prepare such resources, and to be effective, they should be provided in good time so that students – even those who are predisposed to hand in their final project at the last minute – should have access to them at an early stage.

Evaluation of students’ experience in carrying out individual research can be problematic. Within universities, evaluation questionnaires are very often worded in a way which is effective for a didactic, taught, component of the course but difficult to apply in the context of independent learning. The National Student Survey sets out to evaluate the experience of students in their final year, but there are limitations in using the resultant data – for example the analysis by Bennett and Kane which highlights the extent to which different students have different interpretations of the questions used in the survey.

3. Architecture

In the light of the current rhetoric on personalisation, some principles which could be applied to a learning architecture, suitable for constructing teaching resources for undergraduates pursuing, typically, a single major piece of individual research, are discussed here. While the architecture is about pedagogy and not about any technological platform, it is worth noting that the author’s institution uses the Moodle virtual learning environment, and that work on personalisation of learning was concurrent with the transition from an early release of Moodle to a much newer one that facilitated the provision of content tailored to one student.

In this context, the term ‘architecture’ refers to a set of broader assumptions and general design principles that inform the approach to learning used in this setting. Garavan et al (2012) discuss architecture in the context of talent development among employees of an organisation, suggesting in a business context that it could be represented in terms of a set of systems and strategies that could contribute to effective learning which is appropriate for an individual. Given that in business and management degrees, an individual project often includes some work alongside an organisation, and offers scope for students to develop particular areas of interest, it is appropriate to use similar terminology when discussing training and supervision for student projects. Personalisation should be introduced early within a unit of learning. For the purpose of research training for undergraduate students at least, the unit of learning would be the final year project and any directly associated research training. This relates to the observation above, that students should be aware of their role as prosumers from an early stage, and also encourages them to consider their choices about methods and their research plan from an early stage.

It is worth reviewing the characteristics of a final year research project and discussing, how they could inform a learning architecture. The final year project differs from other aspects of the undergraduate course in the importance of an element of one-to-one supervision with a member of academic staff. Supervisors vary considerably in their preferred approaches: some like to annotate drafts sent by email whereas others rely very heavily on face-to-face discussions. Personalised online content for the final year project needs to reflect this, and possibly there is a need for supervisors to make explicit choices in how students should receive online material. But there is also a need to students to make choices, and to be guided in these – notably in what sort of demands to make of their supervisors. Sometimes students will work alongside their peers to form a community of practice, sharing their own knowledge and ideas.

The academic aspect of a project implies that students need to demonstrate some familiarity with the literature around their area of interest. In particular they will be expected to apply a high level of information literacy to their studies, and to evaluate the relevance and level of authority associated with different sources
Martin Rich (Abilock, 2010). The paradox between students working individually, and working as part of a cohort with shared aims, comes into play around this sort of issue, as students with projects covering different areas will encounter the same issues around information literacy and evaluation.

A potential benefit of introducing personalisation early in the unit of learning is the opportunity to foster a research mindset among this group of students. It is tempting to regard online learning resources purely as a means of offering practical information. However for students encountering research for the first time the biggest challenge is often to become accustomed to thinking as a researcher – to recognise how to carry out research and even to become familiar with some of the language of research. There are parallels with other subjects, where indeed there is scope to provide tailored extra support to students who struggle with the vocabulary and concepts which underlie the subject.

There is a considerable variation among students in which research methods they will wish to use. But students will also seek guidance so that they can make choices: somebody considering interviews, surveys, and observation as possible tools for data collection would have a working knowledge of all three before choosing just one. Moreover students who have conducted an individual project can be expected to have some familiarity with a range of research methods, and not only the ones that they have used themselves. So personalised resources should offer students the opportunity to explore a very wide range of research methods.

Because research training is a considerable step, for most undergraduate students, away from anything that they have done before, there is limited scope in building a component of adaptive learning into research training resources.

4. Experience and reflection

While early indications led the author to be optimistic about the use of a personalised approach to research training within their own institution, in practice the use of online personalised or adaptive resources to support learning of research skills remained limited. Some of this could be attributed to a lack of resources and commitment to creating learning materials, together with the lack of any perceived gap in requirements. Research training for undergraduate students, in preparation for their final year project, comprises a small number of briefing sessions together with one-to-one meetings between students and their academic supervisors. This is usually fit for purpose, at least to the extent that the majority of students were able to carry out projects with a significant research element. Students taking their final year project were provided with a simple Moodle page which included some pointers to background information on the research process. This attracted some traffic in the period immediately before the deadline for submission of the project, suggesting that online support for the project process was of most value as a way of dealing with last-minute emergencies.

It should be noted that the connection between formal research methods tuition, and the supervision for the final year project, was fairly loose. In principle the intention was that students attended a short series of briefing seminars where they were introduced to research methods, but they were then handed over to the supervisors, and any further instruction in research methods took place through individual supervisor meetings. A large number of academics acted as supervisors and there was a considerable variation in the extent to which these academics engaged with content elsewhere in the undergraduate course – including the research briefings. A consequence of this process was that, once students’ supervisors were allocated, students tended not to engage in any research instruction unless it was provided by their supervisor.

However discussions with faculty colleagues, and particularly with academic managers concerned with providing resources for supervision, have uncovered a new set of imperatives to revise the project supervision process. One is apparent from feedback, some of it from students, particularly through the National Student Survey taken by all final year undergraduates in the UK, where a clear theme in students’ free-text comments was that they appreciated the opportunity to carry out individual work, but that many of them would have liked more scaffolding, which would help them to carry out their projects with a clearer idea of what could be expected. But the supervisors also offered feedback, that in some cases they were unclear as to what was expected from student projects, and how best to offer guidance.
Furthermore, the number of students on the undergraduate business and management courses has increased in recent years, and this has placed increasing demands for supervision on a group of academic staff who are already under considerable pressure of work. So questions have been raised on how the current model for supervision can be adapted to place less pressure on individual members of academic staff.

Reflection on the reluctance, among both staff and students, to use personalised online learning revealed a number of issues:

- Because a lot of research tuition in practice had taken place through individual tutor meetings, research was perceived as a solitary activity by students (in contrast to the taught components of their degrees, which typically involved large lectures and a lot of teamwork). Personalisation was provided, but by tutors choosing specific topics which were relevant to individual students and by dispensing guidance to individuals. While this was valued by many students, unfortunately a number did not get sufficient guidance from their supervisors – and an argument for introducing more online resources could be framed either in terms of replicating elements of the personal tutoring meeting or in terms of dealing with the deficiencies experienced by this minority of students. While there were guidelines as to how much contact time students and staff should have in project supervision, there were also considerable discrepancies between tutors and students in how rigidly these were interpreted. So individual areas where students could have benefited from more research support were usually seen as difficulties affecting an individual student, and perhaps their relationship with their supervisor.

- Stemming from the individual nature of research work and research supervision, each student had a very different set of requirements and interests. While superficially this might appear to contribute to a case for personalisation, in practice this was merely an argument to put students in an environment where a wide range of learning resources was available, and there was not a strong case for taking one approach to learning and personalising it.

- Within the university there was some experience of implementing simple personalised resources using a virtual learning environment to direct students to suitable material online. This had been well received in one particular instance, when students were revising for an impending exam and were nervous about their level of preparedness. This approach was effective in the period immediately before a formal exam because students were looking for guidance on how to deal with a task that required a set of unequivocal answers. However students were more reluctant to engage with such resources in connection with research skills, which were more open-ended and where understanding of the skills would help them to ask further questions.

The last point, referring to the use of online resources by students to support last-minute revision, is particularly striking. A conscious aim in learning design throughout the undergraduate degree course was to provide a range of learning approaches to accommodate students with a variety of different preferences. This variety extended to different approaches to last-minute study, but a consistent pattern was that many students became ‘instrumental’ in the approach to an exam, in that they became focused on practical learning which could assist them with the exam. This pattern appeared less marked when the students were faced with an imminent deadline for a project, even though this was also a major piece of work where students might have been expected to turn to online resources for rapid guidance.

Campbell et al (2007) discuss personalised learning in connection with school, not university, education and some of the ambiguities that they document are specific to school-level education, notably the use of a predefined curriculum. Significantly, they discuss different perspectives on personalisation in terms of different models of deep and shallow personalisation. In forming their argument they draw on alternative views of personalisation which have their origins in analysis of the provision of a range of services, such as healthcare, but significantly they comment that deep personalisation can arise where professionals become advisors and brokers. This perspective has resonances in the roles of the supervisor of a student research project. Normak et al (2012) conceptualise personalised learning in terms of the interaction between learners and a logical space through which they should navigate following their own route. This is another approach that might be expected to fit the exploratory approach that would typically be pursued by students learning to carry out individual work.

In practice technology was used to support the project process, but at a simple level and with little connection to the supervision process. Moodle pages were made available with links to a limited range of pedagogic
resources, but also as a repository for practical information: timescales, procedures for referencing, facilities for electronic submission of student work, and so on. While supervisors had access to these Moodle pages, they were not encouraged to review them and no effort was made to publish guidance or information for supervisors through Moodle. So practical recommendations to enhance the use of Moodle to support the project process would include the provision of more resources (and possibly a dedicated Moodle page) specifically for academic staff acting as supervisors, and also ensuring that the Moodle spaces for the project attained a critical mass of use by students.

There are a number of alternative interpretations of the role of a project supervisor with subtle differences between them. Part of the context is that students on a predominantly taught university course perceive a project, where they need to carry out individual inquiry, as an excursion into the world of research. But it is a temporary excursion, and often one that they may value but that nevertheless takes them beyond the sort of learning experience within which they feel comfortable. Given this context, the role of a project supervisor is that of a guide or mentor, and the supervisor’s individual tuition is perhaps the most important element in helping the student to understand research methods.

A supervisor as a broker – implicit in the discussion of deep personalisation – would have a slightly different perspective. From the student’s viewpoint this implies an awareness that there are other sources of research guidance than their own supervisor. The supervisor’s role could involve mediating, both with academic experts in related fields and also with a range of sources of instruction in research methods. So the supervisor would no longer be somebody who knows everything in the students’ eyes, but become somebody able to facilitate personalisation.

In terms of providing online support and resources, then, a possible way forward would be to place the personalisation in the hands of the supervisor. Instead of inviting students to fill in questionnaires and choose options to navigate the most suitable route through learning materials, it might be more fruitful to provide questions and options for supervisors, which would help them to locate the right learning materials online for their students and which would facilitate their role as brokers. Moreover that this recognises that not only do students have their own preferences in how they learn, but supervisors have different styles which they bring to bear on the process. It also fits well with an environment where there are a large number of supervisors, and particularly in one where there is a need to provide students within a large cohort with a sense that they are receiving some individual attention.

So, returning to the stated intention in this paper, of identifying general principles for personalisation of teaching and learning of research methods, one important point is that personalisation should be about tailoring approaches to the research supervisor’s individual requirements as much as it should be about tailoring them to students’ needs. One further factor affecting the process is the institution’s formal structures and procedures. In the author’s institution these state that to achieve an honours undergraduate degree the student must carry out a successful final year project, although the definitions of what constitutes a suitable project are worded to allow some flexibility. Academic staff are expected to supervise a certain number of projects, which could be either postgraduate or undergraduate, as part of their teaching responsibilities. Some, but not all, academic staff regard project support as part of the responsibility associated with formal lecturing: if they deliver lectures on a subject to a group of students, they are prepared. While there is some scope to amend day-to-day process of project supervision, any fundamental alteration to the nature of student projects would be regarded as a major change requiring a complex and lengthy approval process.

At a broader level, the structure of the institution’s degree courses is based around a number of taught modules, each based around a certain amount of material delivered typically over 10 weeks. Within this structure the project is regarded as a double module, nominally lasting 20 weeks of the teaching term, but with minimal formal tuition. Moreover it is assessed through a single item of work (the final project) in contrast to other modules which are based around multiple assessments – typically an exam and often more than one piece of coursework. In practice students rarely spread their project work evenly over the 20 weeks allotted to it, so there is already a tension between the way that the project is represented within the structure of the degree, and the way that it is carried out by students.

Although the modular approach provides flexibility and choice for students in that they can choose different subjects to study, it can work against personalisation by making it difficult to provide units of learning which do not easily fit into a complete module. Such small units of learning could include tuition in particular research
skills which would be relevant to particular students’ projects, and provision of such small units is a further practical example of personalisation which would be worth pursuing.

5. Conclusions

Synthesising the issues discussed above, a number of concluding points emerge:

- Personalised learning does in principle offer some attractive possibilities for research training. However these are not necessarily easy to implement using the electronic resources that are available.
- The role of the supervisor in encouraging and implementing personalised online learning is critical, especially given that a good supervisor will already provide a personalised approach to face-to-face learning.
- An effective supervisor would act as a broker, actively creating a link with other academics and other resources, and online materials should be designed to support this role.
- Benefits can accrue from exposing students to online personalised resources early in their research activities and thus to encourage them to adopt the mindset of a researcher.

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Exposing the Influencing Factors on Software Project Delay with Actor-Network Theory

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Abstract: Managing large software projects through global development teams is a complex undertaking; it involves managing interdependent problems and dynamic situations that are constantly changing. The research and practice bodies of knowledge need to match that complexity if they are to provide practical solutions to the challenges facing such projects. This research investigates the interdependent influences exerted on project progress that emerge during project execution and cause schedule delay. This paper aims to demonstrate the value of integrating different research methods and techniques from the technical and social domains in order to address such complexity, in particular the utility of actor-network theory (ANT) to expose the influencing factors on project schedule delay. The research approach (Mixed method) was applied to empirical data from a global software provider, integrating quantitative analysis (project metrics) with qualitative analysis (grounded theory) and culminating in the development of an explanation model (ANT). The findings demonstrate that considerable benefit can be gained from the fuller understanding of the management dynamics during project execution provided by this approach. ANT makes researchers look at the networks of influence at play between human and nonhuman elements of the project, thus offering a richer picture of the project.

Keywords: Research methods, Actor-network theory, Grounded theory, Project management, Information systems development, Software development

1. Introduction

Russell Ackoff (1979) describes the challenge facing project managers with the words ‘Managers are not confronted with problems that are independent of each other, but with dynamic situations that consist of complex systems of changing problems that interact with each other’ (page 99). Moreover, Donald Schön (1983) characterises the environment of practice with: ‘complexity, uncertainty, instability, uniqueness, and value conflict’ (page: 18). Today, the practice of software project management is no different. In this environment, delivering large software systems through global development teams increases these difficulties.

A challenge confronting software project management research and practice alike is producing practical solutions based on empirical data, while being hampered by ‘the split between industry practice and academic research’ (Jacobson et al. 2012). The research and professional bodies of knowledge have widely contributed to our understanding of the various areas of software project management. However, there seems still more to be learned about the interplay that emerges during actual project execution and the way it influences schedule duration. This research follows (Ralph, 2013) in arguing that more than one method or theory is needed to address the interdependent areas of software project management and that any such study should be based on empirical data to have practical relevance. The purpose of this research is to identify the causes of schedule delay in software projects. It will also illustrate the benefits of integrating various methods and theories, in particular the value of ANT, in illuminating the influences on schedule delay.

The research data used are past project progress reports created by and for project participants. They came from a global company (named ABC for anonymity) that develops software through globally distributed teams using a version of the Iterative and Incremental development method within a software factory model. ABC has an institutionalised software project management function, adopting industry standard frameworks, tools and techniques, blended with decades of practice. It is a typical major systems provider in the industry, hence, the interest in investigating its work practices to understand the causes of delivery delays.
The research adopted the mixed method approach to enquiry employing explanatory sequential design. It integrated actor-network theory, grounded theory, and project metrics to make sense of the interdependent factors of software project execution. The findings demonstrate the value of combining different approaches, in particular ANT in explaining project delay. ANT influences the way research is done. It makes researchers look at the context of a research object more carefully. This is because it focuses on networks of influence rather than ‘simple’ input-output models. These networks are heterogeneous, i.e. the nodes can be of many different types (e.g. human and nonhuman) and the nature of links (intermediaries) can also be very varied.

The questions relevant to the particular concern of this paper were:
RQ1 - To what extent can actor-network theory provide a useful model of the interactions between the various actors involved in a software development environment?
RQ2 - Is the application of actor-network theory compatible with a mixed methods research approach?
RQ3 - Is the application of actor-network theory compatible with a grounded theory approach?

2. Actor-network theory
This section outlines some ANT notions (in italics) and how they might be applied within the software engineering management field. This will be illustrated by examples drawn from, but not limited to, ABC’s software project management practices. As we will see, ANT is appropriate for studying the ‘shape and fate of technological projects’ (Law & Callon 1992, page: 46) and (Hughes, 2014, page: 186).

ANT has emerged from the social study of science and technology and attempts to make sense of the dynamics at play among disparate elements with varying degrees of flexibility. While ANT is applicable to many social settings, it is particularly suitable in explaining project behaviour. ANT focuses on the interactions occurring among the actors who collaborate to achieve some goal, and in doing so create an actor-network (Law, 2012). Project execution occurs in dynamic situations that consist of complex interactions among heterogeneous entities - (Law, 2012) calls this heterogeneous engineering. Hence, ANT offers the ability to describe whether the net of all interactions among these entities supports achieving the objective of the project.

In ANT terminology, an interaction between actors is facilitated by some form of intermediary. It could be, but is not limited to, text inscribed and circulated on paper or an electronic medium (Callon 1991, page: 135) as with a test performance report. In Figure 1 a group of actors (including Design, Build and Test managers) work to perform a software development task using intermediaries (such as a functional specification and design defect reports) to coordinate their activities. Actors and intermediaries can be human or nonhuman. An example of the later might be where legacy software is involved: the complexity of its structure and the dependence of existing users on the system will influence the behaviour of other, human, actors. An intermediary can itself become an actor; for example a software component under construction can have errors (code defects), the correction of which absorbs effort and causes delays. Thus, actors can be seen as elements of a project that interact through intermediaries.

Figure 1: Software development process
A typical software development process (Figure 1) includes the Design, Build, and Test phases. The Design manager (actor) delivers functional specification (intermediary) to the Build manager (actor). The Build manager registers design defects (intermediary) for the Design manager to resolve when seeking clarity on the functional specification. The Build manager delivers software (intermediary) to the Test manager (actor). The Test manager registers code defects (intermediary) for the Build manager to fix when defects are discovered during testing of the Software. The Test manager produces regular test performance reports (intermediary) to inform the Project manager (actor) of progress of the Test phase execution.

Some elements of an actor-network (i.e. the actors, intermediaries, and their interaction) can be thought of as a black-box. In ANT terminology, a black-box is an artefact that embodies a number of elements (which itself would be a network) where their internal interaction is concealed from the outside world. An outsider interacts only with the artefact’s external features but not with its internal constituents (Monteiro, 2001). For example, software testers may be interested in the external behaviour of a software component and not in its internal workings. They will treat the internal structure as a ‘black-box’ and will simply check that the inputs and outputs conform to the functional design. An actor-network can be very large and complicated and external actors may try to make their relationships with it easier by treating parts of the actor-network as a black-box. A similar ploy is to identify a major individual who can be treated as a representative of a broader actor-network. Thus the Design, Build, and Test phases each can be seen as individual actor-networks comprising a team that carry out daily tasks needed for that phase and a phase manager who represents the team to the outside world.

The mechanism for embedding programs of action in technical artefacts (e.g. the functional specification in Figure 1), with the aim of guiding the artefact user to operate in a certain way, is called inscription in ANT terms. A weakly inscribed program of action weakens the irreversibility of an actor-network. Irreversibility in ANT refers to the degree of stability in an established actor-network and its resistance to going back and changing things already done. A strong inscription resists reversibility attempts (Monteiro, 2001). For example, requirements informally described by the client may be weakly inscribed during the Design phase and lead to reversibility at the Build and Test phase if the client then modifies their requirements. ‘Weak inscription’ here refers to ‘room for interpretation’ as well as poor definition of system requirements; for example, a requirements document could be accurate but there may be lots of different ways that it can be implemented. The functional design phase selects a design which will meet those requirements, but the software developers will have some scope in deciding how that design will be converted into code. A stable actor-network enables steady progress in producing project deliverables. Although, irreversibility may sound contrary to the desirable quality of agility in software projects, there is a need even for software produced using agile approaches to become eventually a stable project deliverable.

ANT can be applied to non-projects (or even ‘pre-projects’) as well as projects. An ANT study can examine the construction of a network focussing on the attempts of the focal actor, an actor of interest to the area under study whose viewpoint of the network is being examined; such as Test manager. The focal actor may attempt to establish a network and mobilise the actors within it to achieve particular purpose. This process is called translation in ANT (Callon, 1986). An ANT study can also investigate the operation of an already established actor-network (project); examining the interactions among the actors and intermediaries which are well understood and accepted, this is called network dynamics. Callon (1991) refers to network dynamics as ‘the complex process in which actors and their talkative (sometimes indiscreet) intermediaries weave themselves together’ (page: 144). For example, Figure 2 shows ABC’s version of the iterative and incremental development (IID) method, where a project consists of multiple increments. An increment represents one development cycle comprising the three Design, Build, and Test (DBT) phases which deliver a portion of the software functionality. This approach and the roles needed for its implementation are well understood, even before a new project is planned. Some elements of the project, for example, relationships with new client may need new working relationships to be formed that will involve translations.

The vertical arrow ‘Project execution’ shows the increment cycle, where work flows across phases; from design to build to test. The horizontal arrow ‘Project progress’ shows work moving to the next increment of functionality within a particular phase; for example, following completion of design work in increment 1; the team starts to design increment 2 of the functionality and so on, the same principle being applied to the build and test phases. A problem controlling this version of IID (i.e. semi-parallel execution of increments) is that at
any one time, the functional project teams will be working on different increments of the same project. This may be a problem when one of the specialist teams needs to call upon the services of another. For example, the Test phase in increment 1 may require fixes of the code developed by the Build phase in Increment 1. However, at the time of executing the Test phase in Increment 1 (see the solid vertical line cutting through the phases), the Build resources are working on building Increment 2 of the functionality which leads to an issue about how the Build team should prioritise the competing demands on their services. ANT offers the concepts of alignment and coordination to make sense of the interactions among project actors (Callon 1991, page: 152). The network dynamics ought to be supportive of achieving the network objectives if the actor-network is to succeed.

**Figure 2: ABC’s software engineering method (adapted from Ahmedshareef et al. 2013)**

Alignment indicates the degree of agreement between the actors on, and their commitment to, their role in the network (Callon 1991, pages: 144-146). In project terms, during the execution of a software project, the Test manager of Increment 1 may attempt to maintain the Test phase’s progress on schedule through developing agreement with the Build and Design managers. A weakly aligned actor-network is one which the actors’ commitment is not guaranteed. This may be due to the actor being unable to commit to their role in the network (perhaps due to competing priorities), rather than not wanting to (though the latter is possible too). A weakly aligned actor-network exerts constraining influences on achieving the network objectives. Conversely, a strongly aligned actor-network is one which the actors remain committed to their role in the network, which exerts empowering influences on achieving network objectives.

Coordination in ANT refers to the extent to which a network is governed by rules inscribed in the interaction among the actors, aiming to stabilise the actor-network (Callon 1991, page: 146-147). For example, the Build manager (in Figure 2), whilst focused on developing the code in Increment 2, is also fixing defects of the code developed in Increment 1; because the Fix team (who is part of the Build team) are selected members of the Build team dedicated to perform fix activities for the code they developed in Increment 1. However no prior timeline (rule) was agreed to provide such fixes to the Test manager of Increment 1. A network with no adoption of rules exhibits ‘weak co-ordination’, which exert constraining influences on achieving network objectives. A network governed by rules exhibit ‘strong co-ordination’, which exerts empowering influences on achieving network objectives. Thus, absence/lack of acceptance of rules among the three phases/networks above results in weak coordination. As will be seen that managing dependencies and defining and enforcing rules will become particularly challenging during product transition from the preceding network to the succeeding one; i.e. Design to Build to Test - see Figure 1. The weekly progress meetings held by ABC projects were part of the coordination process. The creation of the original schedule was also part of the coordination process. There was a rule ‘phase teams must do everything to conform to the plan’, because delivering on schedule was the key success measure in ABC.

The outcome of an ANT analysis can be a description, model, or explanation of the area being investigated (McLean & Hassard, 2004), aiming to ‘learn from the actors’ (Latour, 1999) through tracing of associations (Latour 2005, page: 8, Underwood 2014, page: 357) by following project management activities (Callon 2012,
page: 92) rather than imposing existing frameworks. This, as Akrich et al. (2002) put it, helps to ‘render the mechanisms of success and failure intelligible and ultimately more manageable’ (page: 191). Table 1 summarises the ANT concepts applied on the case study along with possible indicators of what might be a failing actor-network.

**Table 1: Summary of ANT concepts and possible indicators of problematic project**

<table>
<thead>
<tr>
<th>ANT concept</th>
<th>Description</th>
<th>Possible indicators of problematic project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor</td>
<td>An element within the network of associations that has the ability to exert influence on the other elements in the network; that is, it can act. Most actors can be seen as in fact actor-networks. They are effectively a representative of a group of actors.</td>
<td>A project with a large number of actors is likely to be more complex (and therefore more problematic) than one that has very few actors. Intermediaries in the project become ‘mediators’. Whilst intermediary transports meaning or force without transformation; a mediator may change the input in some way before they pass it on (Latour 2005, page: 39), thus adding uncertainty to the progress of the project.</td>
</tr>
<tr>
<td>Intermediary</td>
<td>An element within the network of associations that facilitates interaction between actors; they are the relationships/associations the actors forge to enable interaction.</td>
<td>The project’s behaviour cannot be known or predicted to some degree (i.e. not black-boxed - see next).</td>
</tr>
<tr>
<td>Actor-network</td>
<td>A network is formed as actors interact through intermediaries to achieve some goal. An actor-network is the actors, their intermediaries, and the interactions taking place.</td>
<td>The project is not black-boxed. An effective black-box may go unnoticed. When a black box makes its presence known then that usually means it is malfunctioning and demands management action e.g. when a power supply is cut off.</td>
</tr>
<tr>
<td>Black-box</td>
<td>An element that embodies a number of elements (which itself would be a network), where their internal interaction is concealed from the outside world.</td>
<td>Programs of action can be weakly inscribed, leading to weakening irreversibility (see next). A ‘strong’ program of action is not just one that is detailed and enforceable. It needs to be widely accepted - i.e. contribute to alignment.</td>
</tr>
<tr>
<td>Inscription</td>
<td>Embedding programs of action in technical artefacts to influence the artefact user to operate in a certain way.</td>
<td>The project’s behaviour cannot be known or predicted to some degree (i.e. not black-boxed - see next).</td>
</tr>
<tr>
<td>Irreversibility</td>
<td>The degree of stability of an actor-network and its resistance to going back and changing things that have already been done.</td>
<td>Unstable project; prevalence of disorder in project activities; disruption in producing deliverables.</td>
</tr>
<tr>
<td>Network dynamics</td>
<td>The complex processes in which actors and intermediaries entangle and interact to achieve a particular purpose; the dynamics ought to be supportive of achieving network objectives.</td>
<td>The interactions are constraining the achievement of the overall project objectives.</td>
</tr>
<tr>
<td>Alignment</td>
<td>The degree of agreement between the actors on, and their commitment to, their role in the network.</td>
<td>Weakly aligned: actors are not committed/unable to commit to their role in achieving the project objectives; which exerts constraining influences on achieving project objectives.</td>
</tr>
<tr>
<td>Coordination</td>
<td>The extent to which a network is governed by rules inscribed in the interaction among the actors, aiming to stabilise the actor-network.</td>
<td>Weak coordination: project rules are weakly inscribed in the interaction among the actors; rules are not widely accepted by project actors, which exert constraining influences on achieving project objectives.</td>
</tr>
</tbody>
</table>

3. Research approach

The study integrated actor-network theory, grounded theory, and project metrics within mixed method approach (Creswell & Clark, 2011) to obtain a fuller understanding of what might be happening during project execution - see Figure 3.
The research data were project performance reports, produced and used by project participants, comprising numeric and textual data. This was supplemented with the contextual information obtained from members of ABC which explained the terminology used in the reports. The numeric data of three projects were analysed to determine extent of delay in the projects and their component phases. Six Test phases were identified as contributing most to schedule delay. The textual data of the reports for these phases were analysed qualitatively using grounded theory (GT) techniques. This resulted in the emergence of categories of phenomena present during the execution of the Test phases. An explanation model was then developed of schedule delay using actor-network theory (ANT) by tracing of associations among the instances of the GT categories, identifying actor-networks, and examining the network dynamics.

ANT was an appropriate technique for analysing the influences on a project resulting from the interactions among actors and intermediaries. However, where project performance was measured quantitatively then metrics-based approach was introduced to complement ANT. The metrics were mapped to the elements identified in the ANT analysis. The numeric progress data had corresponding text reflecting the reasons for the performance results perceived by the project participants. Grounded theory was an appropriate way of analysing the text. The approach is illustrated next through a case example.

3.1 Case example
Project 1 in ABC produces weekly performance reports (comprising numeric and text) for management meetings to track progress of work activities against plan. This research analysed the numeric data, which resulted in the project metrics shown in Figure 4 and Table 2 below.

Figure 4 illustrates that various project phases/actor-networks interacted to develop software over time. The functional design (FD) actor-network inscribed the client’s requirements into design specifications. The build actor-networks were responsible for FD/TD Transition, TD (Technical design), and Code which inscribed the design specifications into code (i.e. executable computer programs). Similarly, the test actor-network was responsible for AT (Assembly Test) and IT (Integration Test) which executed the code to test their operation. Figure 4 also shows that some activities in the planned schedule which had ‘Finish-to-start’ relationships with the following dependent activities in fact overlapped when executed. A Finish-to-start project relationship refers to the situation where the succeeding activity may not start until the preceding activity has finished.
Thus, the project management rule of starting a phase only when the preceding one was completed had clearly been flouted causing coordination and alignment complications.

Table 2: Project 1 delay metrics

<table>
<thead>
<tr>
<th>#</th>
<th>Project 1 Phases</th>
<th>Planned start (day)</th>
<th>Actual start (day)</th>
<th>Start variance</th>
<th>Planned finish (day)</th>
<th>Actual finish (day)</th>
<th>Finish variance</th>
<th>Change in duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FD (Inc1)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>44</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>FD (Inc2)</td>
<td>49</td>
<td>49</td>
<td>0</td>
<td>60</td>
<td>63</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>FD (Inc3)</td>
<td>74</td>
<td>86</td>
<td>12</td>
<td>95</td>
<td>98</td>
<td>3</td>
<td>-9</td>
</tr>
<tr>
<td>4</td>
<td>FD/TD Transition (Inc1)</td>
<td>21</td>
<td>21</td>
<td>0</td>
<td>34</td>
<td>39</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>FD/TD Transition (Inc2)</td>
<td>60</td>
<td>60</td>
<td>0</td>
<td>65</td>
<td>70</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>TD (Inc1)</td>
<td>35</td>
<td>35</td>
<td>0</td>
<td>60</td>
<td>60</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>TD (Inc2)</td>
<td>70</td>
<td>70</td>
<td>0</td>
<td>78</td>
<td>81</td>
<td>-3</td>
<td>-1</td>
</tr>
<tr>
<td>8</td>
<td>Code (Inc1 &amp; Inc2)</td>
<td>36</td>
<td>37</td>
<td>1</td>
<td>90</td>
<td>109</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>9</td>
<td>FD/TD Transition+TD+Code (Inc3)</td>
<td>98</td>
<td>118</td>
<td>20</td>
<td>132</td>
<td>144</td>
<td>12</td>
<td>-8</td>
</tr>
<tr>
<td>10</td>
<td>TD and Code (Inc4)</td>
<td>167</td>
<td>165</td>
<td>-2</td>
<td>174</td>
<td>178</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>AT - Plan &amp; Preparation (Inc1)</td>
<td>27</td>
<td>35</td>
<td>8</td>
<td>90</td>
<td>90</td>
<td>0</td>
<td>-8</td>
</tr>
<tr>
<td>12</td>
<td>AT - Execution (Inc1)</td>
<td>91</td>
<td>91</td>
<td>0</td>
<td>118</td>
<td>125</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>13</td>
<td>IT - Execution - with Authentication Tool (Inc1)</td>
<td>119</td>
<td>126</td>
<td>7</td>
<td>144</td>
<td>166</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>IT - Execution - without Authentication Tool (Inc1)</td>
<td>142</td>
<td>142</td>
<td>0</td>
<td>151</td>
<td>166</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>15</td>
<td>IT (Inc4)</td>
<td>169</td>
<td>179</td>
<td>10</td>
<td>190</td>
<td>242</td>
<td>52</td>
<td>42</td>
</tr>
</tbody>
</table>

Table 2 shows the degree of delay for each of the project phases on the Gantt chart in Figure 4. The last column (Change in duration) shows the number of days which the particular phase was delayed (positive value) or completed earlier (negative value). The phase with the largest delay was the Integration Test phase (#15) that took 42 days more than planned; and as the phase had started 10 days later than scheduled (see Start variance column for #15), this resulted in an overall project delay of 52 days. In ABC, the key indicator of project success was delivering on schedule.
The project metrics identified the phases where schedule was delayed. However, they did not explain why progress was behind. Since the largest delay was in the Integration Test phase in row #15, research further examined the textual data of the Integration Test phases in the project.

The study used the techniques of grounded theory (GT) to code the textual data of the Test phase reports and to categorise the phenomena present during project execution - see Figure 5 for the GT process. In utilising the GT techniques, this research did not seek to generate theory. Urquhart (2013) supported decision to use GT for other than theory generation.

The following GT analyses were carried out:

1) Open coding - segments of text were labelled (coded) to summarise what was happening in the statement. A statement could be coded more than once.
2) Selective or Theoretical coding - the Open codes that represent similar themes were grouped into sub-categories, in which two types emerged: Selective and Theoretical. Selective code represents entity; Theoretical code represents relationship between entities.
3) Category developing - the sub-categories that represent similar concepts were grouped into categories.

The categories that emerged from coding the textual information in the subset of Project 1 performance reports relating to the Test phases are shown in Table 3. These relate to the reasons given for the delays in testing identified in Table 2.

Table 3: Project 1 execution phenomena

<table>
<thead>
<tr>
<th>#</th>
<th>Category</th>
<th>Description</th>
<th>Selected example/instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contest</td>
<td>A contested environment where phase managers attempt to protect their professional reputation in front of the Project</td>
<td>Accusing others for own failing; Causes;</td>
</tr>
</tbody>
</table>
4. An ANT model of project execution

In order to make sense of the project execution phenomena emerged from applying the grounded theory techniques (Table 3), the study developed an explanatory model by means of the three steps in Figure 6.

Figure 6: ANT explanatory model of project execution

Figure 6 shows that each step in developing the model builds on the preceding step. These are elaborated in the following sections.

4.1 Tracing of associations

The narrative in the textual data of Project 1’s Test progress reports, supplemented by contextual information, were used to trace the associations present among the example categories of the project execution phenomena (Table 3 - last column) during the execution of the Test phases. Earlier, Table 2 identified the Test phases as most contributing to project delay, Table 3 then identifies the phenomena present during the execution of these Test phases: consequently, the analysis below focuses on the Test manager as the focal point.
actor in the network. This carries with it the implication of reflecting the Test manager’s perspective on the actor-network, though not in isolation since it was discussed in the presence of the other actors. Nonetheless, the study is aware that the other actors’ perspectives on their interaction in the network may differ.

To maintain the Test execution progress on schedule, the Test manager (TM) was dependent on various resources (i.e. constituent parts of the project) outside the Test phase, such as the developed code, the functional design, and the Build manager (BM). The TM was also dependent on the Project manager (PM) for support in setting priorities for other actors which maintained the Test execution progress on schedule.

Tracing the resources reveal that they were created and circulated by other phase managers to support the TM. The BM needed to deliver the code and, since operating as Fix manager during the Test phase execution, needed to provide timely resolutions of defects in the developed code. The Design manager (DM) needed to deliver the design and to clarify design specifications. Issues with these elements, such as the discovery of defects in the project products (in this case, developed code and functional Design) caused the Test execution progress to fall behind schedule.

Although the TM registered the defects, delays in Test progress contributed to uncertainty about the future progress of the Test phase, which were made worse by the BM not clarifying when the issues would be resolved and the DM delaying providing functional knowledge of the specifications. The TM blamed the other phase managers for failing to maintain Test execution progress on schedule. The TM also mounted pressure on the other phase managers for quick resolution by portraying himself as powerless to the PM for having no influence over them.

The TM communicated lack of progress to the PM through weekly performance reports, and attempted to influence the PM’s perception on the lack of progress as being caused by factors outside their control. Furthermore, the TM conveyed to the PM that they were under time pressure as they had to deal with multiple issues simultaneously. The PM used the performance reports to resolve the above obstacles/issues by negotiating changes in priorities with the BM and DM.

4.2 Identifying actor-networks

The associations that emerged through tracing the instances of the project execution phenomena during the execution of the Test phases can be represented diagrammatically - see Figure 7. This uses the categories and instances that were identified by the GT approach to analysing the text of progress reports. To develop an ANT model is to model the interaction among the actors in the network which could also be a graphical representation of a network comprising sequences of points and lines (Callon 2012, page: 90). However, at this stage of analysis, the model we have is only a representation of the contents of textual data in the Test performance reports (the GT analysis), rather than the underlying physical system, and therefore it cannot be assumed to encapsulate all the contextual information surrounding the project.
Figure 7 illustrates that varied phenomena are in interaction during the execution of the Test phases which are shown as nodes - people, product, schedule, and quality - and links that connect the nodes - contest, feature, tactic, turbulence, and undertaking. These phenomena correspond to the example categories of the project execution phenomena (Table 3). This suggests that the project can be reinterpreted as a network of actors and intermediaries, both human and nonhuman, each of whom can, to varying degrees, empower or constrain others. For example, the ‘People’ category are human actors, the ‘Product’ cases can be seen as intermediaries. The model that came out of the GT analysis seemed aligned to that expected by Actor-Network Theory (ANT), and therefore the ability of ANT to explain/illuminate the picture that had emerged seemed to demand some attention.

Using the project’s contextual information, the context of interaction during the execution of the Test phases was examined in the model, which indicates the presence of the following actor-networks: Test actor-network (TAN), Build actor-network (BAN), Design actor-network (DAN), and Project manager (PM). Recall that an actor in ANT usually represents a network of actors. The TM for example, among other things, speaks on behalf of a team of testers. The context of interaction between TAN and each of BAN, DAN, and PM is described next.

The TAN, represented by the Test manager (TM) in the model, comprised the TM and their team. The main objective of TAN is to maintain the progress of the Test phase execution on schedule, provided that the tested software conforms to the specification. Therefore, delays in the Test execution schedule was seen as failing to deliver on the plan by the TAN, the consequences which put the TM’s competency into question (i.e. whether they are capable of managing a Test phase). The TM reports progress of the Test phase execution to the Project manager (PM) in the weekly performance meetings, highlighting any obstacles facing progress and seeking support from the PM to remove these obstacles.
The BAN, represented by the Build manager (BM) in the model, comprised the BM and their team. Part of the BAN is expected to provide code fix for the increment being tested during the Test execution phase in a timely manner. The other part of BAN continues developing the subsequent increment/s of the one being tested by the TAN (see Figure 2). The BM’s main focus is to maintain the progress of the increment under development on schedule, for the same competency reasons described earlier (i.e. a factor in assessing the performance of phase managers is their ability to deliver on schedule in ABC).

The DAN, represented by the Design manager (DM) in the model, comprised the DM and their team. The DAN is expected to provide support to TAN in timely manner, during the Test phase, in the form of functional knowledge of the software specification. This support helps the TAN to prepare Test data and Test scenarios that conform to the specification and the way business users would use the final system. The DAN’s main focus is designing the subsequent increment (to preserve their performance reputation) to the one being tested, whilst providing support to TAN in the increment being tested (see Figure 2).

The PM manages the overall project. The PM also has line manager responsibility over each of the TAN, BAN, and DAN. The PM helps the TAN in monitoring and controlling the Test phase execution and is expected to remove obstacles in the way of maintaining progress on schedule by negotiating changes in priorities with BAN and DAN using the weekly phase performance reports. The PM’s interaction with BAN and DAN occurs during the performance meetings where specific actions are negotiated to control deviation from the Test phase schedule. However these interactions are not recorded in the Test performance reports, which the model reflects, and hence did not emerge in the original model.

Figure 7 illustrates the complexity of interdependent problems and various actor-networks interacting with each other, but contain gaps that indicate that the factors influencing schedule delay can be implicit, exerting their influence through means other than explicit interaction – for example, the BAN may have been unable to provide quick resolution of code defects to TAN, due to their focus on maintaining the progress, of the increment under development, on schedule (i.e. competing priorities). These influences are examined next in more depth.

### 4.3 Examining actor-network dynamics

The study now examines the dynamics of TAN with each of BAN, DAN, and PM to identify what may have caused schedule delay. TAN is the focal actor of interest to this study, because the Test phases were most contributing to project delay. The analysis was done by applying an ANT interpretation to the project execution model (Figure 7) through the concepts of network dynamics: alignment and coordination to ascertain the extent to which the dynamics of these actor-networks support the achievement of project objectives in maintaining the progress of the Test phases on schedule.

#### 4.3.1 Alignment

The project execution model (Figure 7) shows that the software Code exhibits defects, which indicate weak inscription of the design specification into the code, leading to reversibility of the affected Code from the Test phase back to the Build phase. The model also shows the TAN blaming BAN for delays in the Test execution progress - see the relationship ‘Accusing others for own failing’ associating BAN with TAN (i.e. failing to deliver on the Test execution plan), which indicates weak commitment of BAN to their role in supporting TAN on a timely manner. In addition, the association ‘Depending on’ linking TAN with BAN in the model indicates dependency of TAN on BAN to providing timely fix of defects. The relationship ‘Contributing to uncertainty’ could also be interpreted as indicating weak commitment from BAN to support TAN through not clarifying when the registered defects would be resolved. Finally, the extracts from the progress reports below, reported in the Test performance reports, showing the volume of discovered Code defects the BAN had to resolve, may indicate why BAN may appear not being able to commit to their role. The BAN may want to be committed to quick resolution of these defects but actually unable to do so because of the difficulties of the task (this is an illustration of the Code within the BAN as a nonhuman actor having influence on the project). Thus, the actor-network of TAN-BAN exerts constraining influences on achieving the project objectives in maintaining the progress of the Test phase on schedule.

Case_03: N_03: ‘13 new Defects have been raised’
In relation to alignment of DAN, the project execution model shows that the Design exhibits defects, which indicates weak inscription of software requirements into the Design documents, and leading to reversibility of the related Code from the Build phase to the Design phase. The model also shows that TAN is blaming DAN for not being able to maintain the progress of the Test phase on schedule through the relationship ‘Accusing others for own failing’, which indicates weak commitment from DAN to their role in supporting TAN on a timely manner. The example empirical data below indicates that the TAN is seeking the help of the PM to make DAN provide functional knowledge in time. The actor-network of TAN-DAN, therefore, exerts constraining influences on maintaining progress on schedule.

The alignment of PM and TAN in the project execution model shows a different picture compared to the preceding ones; it indicates strong alignment. The model shows the associations ‘Portraying powerlessness’ and ‘Attempting to influence perception’ that link TAN to PM, which indicate strong alignment because they get the PM to negotiate priorities with BAN and DAN in order to maintain the Test phase progress on schedule. Furthermore, the example empirical data below indicates the removal of obstacles on the way of Test phase progress from one week to the next, which is supported by the contextual information that the PM was negotiating reprioritising of activities with BAN and DAN, to bring the deviation of the Test progress back on schedule. Thus, the actor-network of TAN-PM exerts empowering influences on maintaining progress on schedule.

Moreover, Figure 4 (the Gantt chart) showed the violation of the project management rule of ‘Start-to-Finish’. This indicates weak coordination in the overall project network. These problems appear to have been caused by the use of parallel incremental delivery (Figure 2), where project phases started earlier than scheduled, with the approval of the PM, so that the impact of delay in preceding phases is reduced on the subsequent phases. The consequence, however, seems to be that priority is given to delivering the next increment on schedule, whilst supporting earlier increments became a second priority. That is, weak coordination leads to weak alignment, which then exerts constraining influences on the progress. In addition, the exclusive focus on minimising project delay, in ABC, appears to have ignored the fact that there are other objectives e.g. the detection and removal of defects. In theory, the TAN could be successful in reducing testing time by reducing the quality of the end product.

In contrast, coordination between TAN-PM is strong through the circulation of Test phase performance reports by the Test manager, and the PM ‘Using’ the reports to removing obstacles on the way of progress.
Furthermore, the relationship ‘Grappling with time’ indicates strength of this interaction such that the PM understands lack of/slow progress due to internal circumstance to the TAN, since TAN is dealing with multiple issues simultaneously.

Thus, the complexity of the dynamics emerged in the preceding analyses reveals that, TAN is struggling to maintain the Test phase progress on schedule because it has limited control over schedule duration. It is the BAN and DAN who, to a large extent, exercise that control and unfortunately are the ones who exert constraining influences on project progress, eventually leading to schedule delay.

This section has demonstrated that, through ANT it was possible to explain how the dynamics that developed during project execution influenced schedule delay; as Law (2012) put it ‘the point...is to discover the pattern of forces as these revealed in the collisions that occur between different types of elements’ (page: 108).

5. Concluding remarks
The purpose of this research was to identify causes of software project delay, arguing that managing the execution of large software projects involves not only managing technology, people, processes, environments, and contexts; but also managing interdependent problems and dynamic situations that are constantly changing; and that research ought to match that complexity to produce practical solutions through, but not limited to, integrating different methods and techniques (Coleman & O’Connor, 2007) and investigating the interdependent aspects of managing such projects. Previous work has commended such approach in ‘providing insight into software engineering behaviour’ (Ralph, 2013). This paper sought to answer the following questions:

RQ1 - To what extent can actor-network theory provide a useful model of the interactions between the various actors involved in a software development environment?

The value of ANT in this study can be seen in its illumination of the constraining and empowering influences exerted by various actors (human and nonhuman) on achieving project objectives in maintaining the Test phase progress on schedule. Without the application of ANT concepts in this study, it would have been difficult to identify causes of schedule delay in such a complex project environment. In addition, what the ANT analysis exposed contradicts the conventional assumption that the project/phase manager ‘owns’ and controls all the resources allocated to the phase. In fact, the system forces the phase manager to interact with other actors outside their control but who constrain the progress of the phase. Thus, there appear to be a basic flaw in the management system which makes the person responsible for an operation (Test phase) over which they have little power to control. ANT enabled investigating the interdependent areas, and dynamics, of software project management through its demand on the researcher to attend to the context of the research object more carefully.

RQ2 - Is the application of actor-network theory compatible with a mixed methods research approach?
It can be said that this paper demonstrated that applying ANT within mixed methods approach is a step towards obtaining a fuller understanding of the complexity of what is happening during software project execution. Applied to different types of data, the techniques used (ANT, GT, and project metrics) complement one another identifying the causes of schedule delay. We argue that the contribution of combining ANT and mixed methods in illuminating the influence of actor (human and nonhuman) dynamics on schedule delay cannot be overlooked in software project management research. It is worth noting that other studies have integrated ANT with various research methods successfully. For example; Hanseth et al. (2006) investigated a project of developing electronic patient record system in Norwegian hospital, combining ANT with complexity theory and reflexivity theory to make sense of the complex dynamics inherent in implementing software projects; and Greenhalgh & Stones (2010) combined ANT with the strong structuration theory to develop theoretical perspectives and understand what happens in developing large IT systems in the UK’s NHS.

RQ3 - Is the application of actor-network theory compatible with a grounded theory approach?
A similarity that can be observed between ANT and GT is that they both encourage the researcher to learn from the investigated domain and identify latent patterns, rather than impose preconceived ideas or existing frameworks on the domain. A difference that can be drawn is that, whilst GT categories emerge from the subject domain, ANT concepts (e.g. actors and intermediaries) are used to interpret the subject domain. Thus,
ANT and GT can be seen to complement one another, the GT analysis generating phenomena, whilst the ANT concepts ‘glue’ the phenomena through illuminating the influence of interactions among them. However, evolving GT categories into an ANT model required the development of intermediary analysis steps for this study involving the creation of an explanation model to facilitate the transition (Figure 6). Applying ANT to GT categories is not completely new; for example, Lopes (2010) used ANT to enhance and elaborate the categories that emerged from a GT analysis, and to explore nonhuman relationships in the process of making decisions under uncertainty and complexity (page: 52).

Finally, the integration of ANT, GT, and project metrics in this study to make sense of the complexity of managing software project execution raises fresh questions on the challenges facing management to resolve competing organisational and project priorities, physical resource clashes, and the escalation processes to resolve such problems - questions that create fertile ground for future research.

References

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From Art for Arts Sake to Art as Means of Knowing: A Rationale for Advancing Arts-Based Methods in Research, Practice and Pedagogy

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Abstract: This paper advances a philosophically informed rationale for the broader, reflexive and practical application of arts-based methods to benefit research, practice and pedagogy. It addresses the complexity and diversity of learning and knowing, foregrounding a cohabitative position and recognition of a plurality of research approaches, tailored and responsive to context. Appreciation of art and aesthetic experience is situated in the everyday, underpinned by multi-layered exemplars of pragmatic visual-arts narrative inquiry undertaken in the third, creative and communications sectors. Discussion considers semi-guided use of arts-based methods as a conduit for topic engagement, reflection and intersubjective agreement; alongside observation and interpretation of organically employed approaches used by participants within daily norms. Techniques span handcrafted (drawing), digital (photography), hybrid (cartooning), performance dimensions (improvised installations) and music (metaphor and structure). The process of creation, the artefact/outcome produced and experiences of consummation are all significant, with specific reflexivity impacts. Exploring methodology and epistemology, both the “doing” and its interpretation are explicated to inform method selection, replication, utility, evaluation and development of cross-media skills literacy. Approaches are found engaging, accessible and empowering, with nuanced capabilities to alter relationships with phenomena, experiences and people. By building a discursive space that reduces barriers; emancipation, interaction, polyphony, letting-go and the progressive unfolding of thoughts are supported, benefiting ways of knowing, narrative (re)construction, sensory perception and capacities to act. This can also present underexplored researcher risks in respect to emotion work, self-disclosure, identity and agenda. The paper therefore elucidates complex, intricate relationships between form and content, the represented and the representation or performance, researcher and participant, and the self and other. This benefits understanding of phenomena including personal experience, sensitive issues, empowerment, identity, transition and liminality. Observations are relevant to qualitative and mixed methods researchers and a multidisciplinary audience, with explicit identification of challenges, opportunities and implications.

Keywords: arts-based research, arts, aesthetics, visual narrative inquiry, reflexivity, authenticity, polyphony, knowledge

1. Introduction: Arts and aesthetics

“Beauty is the terrain of real artists, and one way to recognise them is if they dwell in this terrain” (Nicolosi 2010, p.106).

Nicolosi’s (2010) description, situated in a primarily theological discussion, is representative of critical questions regarding the definition and nature of beauty, perceptions on value and authenticity and the approach by which “real” art is created and received. This paper seeks to move beyond more “restrictive” notions of art and the artist (Foster 1996, p.202) and similarly, of beauty as the preserve of the Fine Arts (Hegel 1835/1993). Itforegrounds authentic personal expression and art as experience (Dewey 1934) which can be found in the everyday, with individuals continually acting on – and acted upon by - their environments. Drawing on diverse contextual exemplars outside of the institutions (Finley 2008) and varying types and methods of interaction, engagement with art is demonstrated to expand perceptions and scaffold a broadening of understanding. This can build a “knowledge of something else” (Dewey 1938, p.122), enabling reflexive and purposeful action (Goldblatt 2006). The relationship between art and aesthetics is now explored in depth.

The Arts may be considered a democratising “aesthetic dimension of experience” (Alexander 1987, xiii on Dewey 1934), combining nature and will (Emerson 1841), imparting both text and texture (Larsen 2013), connecting decoration and utility (Glassie 1993), supporting social reinforcement (Dissanayake 2003) and enabling personal discovery and knowledge making (Sullivan 2005). Indeed, artistic production and the human response evoked are recognised neurological events (Kapitan 2014). Art provides “a vital timepiece” (Davidson 2012, p.97) which enables connection and transition, both through the process of its creation alongside the capacity to see oneself substituted into a creative artefact, which may take multiple potential forms. Art can induce emotion, challenge understanding and be disrupting and even disconcerting, serving to redefine how...
we make assumptions and potentially catalysing transformative change (Bishop 2004). Self is therefore important to both the production and consummatory experience of art (Dewey 1934).

Derived from the Greek aesthetika, aesthetics refers to that which is perceptible through both visual and bodily senses, transversing individual and cultural consensus level responses. An art-centred aesthetic experience offers transformative power which can “modify irrevocably our habitual ways of thinking, feeling, and perceiving” (Jackson 1998, p. xiv), reintegrating standalone embodied events into the stream of daily life (Dewey 1934). It can draw from a rich influence base and reach out to a broad audience enhancing understanding of the human condition (Cole & Knowles 2008), reflecting the entanglement of making and viewing (Dewey 1934). Hegel’s (1835/1993, p.3) depiction of aesthetics as the “realm of the beautiful” affords a close association with the Fine Arts as creations of the mind and considered transcendentally higher than natural beauty. This view persists in many modern philosophical definitions of aesthetics (Wickman 2006). Kant (1970/1951) describes the self-sufficiency of an aesthetic object, a perspective of disconnected detachment, later advanced by the proponents of art for art’s sake (Abrams & Harpham 2009, p.61).

In this paper, the perspective adopted aligns with Dewey and Wittgenstein’s examination of aesthetics as used in our lives and activities but is not as restrictive as the sub-discipline of everyday aesthetics (Melchionne 2013). Human beings are the 'live creature interacting with its environment’ (Wittgenstein 1958, 77) and further, as Dewey (1934) discusses, the relationship between fine art and ordinary experience may be considered dialectical. A consideration of the Arts and aesthetics can be orientated towards the everyday, ranging from emergent scholarship in street art (Harwood 2014), to community creative enterprise (Eaves 2014) and daily expression in the workplace (Eaves & Walton 2013); foregrounding art as experience (Dewey 1934). The core question emerges, what can the purposeful and coherent use of arts-based methods incorporating aesthetic appreciation make possible in terms of shared, individual and self-understanding, across diverse contexts, to broadly benefit research, practice and pedagogy?

2. Fugue as metaphor and paper structure

“Each piece of music we play, each dance, each drawing, each episode of life, reflects our own mind back at us, complete with all its imperfections” (Nachmanovitch 1990, p.25).

Responding to Bresler’s (2009, p.8) call to encourage musicianship and musical sensibility in an expanded research context, the author employs a metaphor of the fugue to aid perception, conceptualisation and engagement; benefiting from artistic and classical connotations. Use of metaphor enables a pervasive cognitive and interactive process which aligns conceptualisation and language (Fauconnier 1997, p.168) and fosters seeing-as to scaffold shifts in framing and awareness (Cornelissen & Kafouros 2008). Metaphorical impact may include support for organising and clarifying understanding and theory, alongside the generation of new conceptual insight, ideas, constructs and meaning.

Aligning with the aesthetic orientation of this paper alongside increasingly volatile, uncertain, complex and ambiguous research environments, a fugue is considered a germane vehicle for both metaphorical and structural representation, given its historical association of adoption in times of societal, cultural, technological and religious change (Mann 1965). Considering its polyphonic composition, it is also consistent with the methodology and purpose employed as well as its situation in the literature of multiple disciplines. A fugue begins with an introductory exposition and is composed contrapuntally with a tonic/dominant subject and counter-subjects with themes repeated, expanded and altered through various voices in episodes, entries and finales. This connotes dynamism, variation, imitation and modulation, multiple layers, tension and release, sound and silence, and a stream of motion or flow (Mann 1965).

A fugue is paradoxical in nature as cognate with its etymology, embracing both the Italian fugere (to pursue) and fugare (to flee). The paper is similarly designed to achieve unity and order, harmonising the text as a whole; whilst seeking inventiveness and episodic elaboration, in its combination, management and presentation of polyphony or multiple voices as distinct but related parts. Discussion firstly imparts an initial
exposition of the principal voice of arts-based methods, then moves to explore a main recurring subject of arts-based methods as different ways of knowing, alongside a countersubject of author reflection and experience, employing episodes or case exemplars which also serve to ground some of the more abstract dimensions. This fugal form can also enable a “searching-out” of participants, researcher (Rainwater & Scheidk 1985, pp.71) and audience, inviting them to rethink a particular issue or perspective. It also aligns with Pieper’s (1990) elucidation of how artistic craft/practice and appreciation can captivate, elevate and notably, encourage contemplation and attention to the minutiae which may be overlooked.

3. What is Arts-based research?

Arts production constitutes an authentic experience (Dewey 1934) that “becomes research when practices are articulated as inquiry” (Hernández-Hernández & Fendler 2013). Arts-based research is a “process that uses the expressive qualities of form to convey meaning” to enlarge human understanding (Barone & Eisner 2012, p.xii), synthesise intuitive thought with logic (Vallack 2005), disrupt and reconcile (Estrella & Forinash 2007) and develop an empathetic participation (Ewing 2013). It employs aesthetic judgment and blurs discipline boundaries (Cahnmann-Taylor 2008), enabling an interplay of form and content (Leavy 2009) and building layers and interconnection (Roberts 2008). This moves beyond the confines of discursive communication and the “hegemony and linearity in written texts” (Butler-Kisber 2008, p. 268) to deliver new insight, meaning and values. Leavy (2009) richly describes six core genres, those of narrative inquiry, poetry, music, performance, dance or movement and the visual arts. Approaches within and across these fields offer breadth and fusion of “tools that allow us to reveal that which would remain unseen” (Hernández-Hernández & Fendler 2013, p.viii) or silenced (Barone 2000). It is congruent with a sociomaterial, performative perspective “that knowing does not come from standing at a distance and representing but rather from a direct material engagement with the world” (Barad 2007, p.49). This is intra-active thinking, relevant whether the context is in language, in movement, in rel

As an emergent field, there remains diversity in methodological scope, approach and techniques; ongoing debate regarding standards, legitimacy and publication, and variance in application; for example arts-based approaches are more typically observed within education research than business, management and innovation studies (Schiuma 2012; Barone & Eisner 2012). Nebulous nomenclature is identified with the terms arts-based research methods, arts-based methods, arts-based approaches, arts-informed methods or inquiry and artistic research (Stanley 2009; Scott et al. 2013; Hernández-Hernández & Fendler 2013) often used interchangeably.

Rolling (2010) foregrounds a particular distinction between the arts-based and arts-informed, emphasising immersion, disciplined practice and high creative commitment to arts practice for the former, and an orientation towards employing arts inspiration for the latter, either in source or presentation. The primacy or centrality of the arts methods to the research process is stressed (Springgay et al. 2005) across the scholarly inquiry, method of representation and/or means of performance. Davidson (2012) elucidates this when discussing the personal and professional insight gained by participating through the full process of artwork creation, including curation, framing and exhibition; an experience which altered relationships with the artefacts and the ideas represented. Arts-informed research foregrounds an approach that is “influenced by, but not based in the arts” (Gillis 2012), undertaken as part of a systematic investigation (Ewing 2013). Stanley’s (2009) discussion on arts-informed inquiry emphasises an inclusive and mutually reinforcing perspective.

This paper is panoptic and unifying in intention, respecting arts-based and arts-informed methods as equally valid as appropriate to context, application and means of integration with capacities to “increase voice and reflexivity .... , and to expand the possibilities of multiple, diverse realities and understandings (Butler-Kisber 2008, p.268). The term arts-based methods will be employed from this juncture to aid clarity and consistency. The work seeks to contribute to the evolving and interrelated epistemological, theoretical and methodological dialogue in respect to art as a mode of inquiry. It demonstrates the value of intersection, the range of problem situations which may be addressed and considers strengths, limitations and dimensions of quality when moving beyond reading, to become generative, exploring the creation of images and visual reality (Cahnmann-Taylor 2008). Further, it aims to foreground and advance the depth of perception that may be achieved from art-based methods, as encapsulated in the metaphor of stereopsis, inspired by Cassirer (1944).
4. Arts-based initiatives in business and management

Art-as-illustration exemplars are well established within business education (Eaves 2014), from the metaphorical association of Jazz and entrepreneurship (Barrett 2012) to Shakespearean plays as a stage to explore leadership issues (Ibbotson 2008). Purposeful arts-based interventions (Schiuma 2012) are also increasingly adopted, typically aimed at management and leadership levels in respect to skills transfer, employing a projective technique, illustration of essence and/or making (Taylor & Ladkin 2007). For example, social sculpting and staging may be incorporated to enrich and dramatise case studies. Furthermore, the spontaneous use of artistic expression within the workplace can provide a conduit of informal and organic actor expression and an aesthetic form of resistance to change (Eaves & Walton 2013) but remains underexplored.

This emergent influence of the arts and aesthetics is considered a cognate response to engaging, understanding and managing complex, dynamic and ambiguous organisational environments, characterised by messy, indeterminate and intricate problems (Meisiek, Irgens & Barry 2008). It reflects a need for managers to expand forms of learning and knowing, with greater attention to situated and experiential approaches that include conative, emotional and practical/making dimensions (Eaves 2014). It also contributes to the development of aesthetic workspaces that support reflexivity and aid contextual, cultural and self-awareness in respect to roles, perspectives and behaviours (Sutherland 2013). Given this potential alongside extant knowledge gaps, the paper aims to surface broadened insight for cross-disciplinary benefit.

5. Author positioning and personal experience

The author opines a holistic and pluralistic approach to research which foregrounds the interconnections between epistemology, theory and methodology, with the stance that no method should be privileged as intrinsically superior to another, but rather, the selection and indeed combination of methods must be based on the value afforded to address the particularity of the problem situation. It is also influenced by an appreciation of both theoretical and methodological bricolage aligning with self-identification as a “researcher-bricoleur” (Denzin & Lincoln 2011), underpinned by purposeful and intelligent-action orientated pragmatism (Dewey 1920).

Catalysed by trustee and volunteer roles in a UK charity and community creative-digital enterprises, fused with multidisciplinary IT practitioner, artistic and educational roles, the accumulated research was partially a response to a situation of disorientation as described by Mezirow (2000). This relates to a personally felt disconnect between the potential for the experiences of interconnection, insight, relatedness and enhanced meaning by “making special” (Dissanayake 2003, p.13) through art, and its broader actualisation. It reflects a desire to explore the capacity for greater inclusion of equally valued arts-based methods as experienced within creative/third sector roles extended to a range of settings and disciplines, opening up art across research, practice and pedagogy.

The author is committed to exploring a rich, panoptic continuum of aesthetic experiences, ranging from the ordinary and background, to the intense and foregrounded and has a particular interest in research that can give voice and support the enablement of participants by fostering polyphony, surfacing the intangible and invisible, and optimising the capacity for authenticity in representation. There is also a strong personal desire to continually enhance recognition and understanding of different ways of learning and knowing to benefit professional praxis alongside self-development. Drawing on Gadamer’s (1989) fusion of horizons, an open-minded, multi-sensory immersion is encouraged to foster deep and receptive reading. This resonates with Lewis’s (1972) discussion on looking at (viewing from outside) and looking along (stepping inside) and the nature of what may be considered a true and valid experience; neither is intrinsically better or more representative of truth, rather it is particularistic to each case and should not be a preconceived outcome. It takes looking at and looking along to develop appreciation and consideration of different experiences and the nature and truth of what they can tell us, a theme permeating this paper.
6. Unifying methodology

‘...bring both arts and social inquiry out of the elitist institutions of academia and art museums, and relocate inquiry within the realm of local, personal, everyday places and events’ (Finley 2008, p.72).

As with all research approaches, arts based inquiry should be selected with sensitivity to context and in reflection of the means in which the techniques employed frame or moreover, may impact outcomes. Particular considerations are identified with respect to the potential for a researcher’s self-position to scaffold data interpretation, for example the perspective of adults perceiving the meaning of output created by children (Carter & Ford 2013). Lewis’s (1972) depiction of looking at and looking along is salient in this regard.

Research method choices attract additional nuances for researcher focus, with the art forms and specific mediums made available for participants highly significant. These directly impact the artefacts that can be produced – opening up some possibilities but potentially, restricting others. As an example, when using watercolours, if the colour palette provided is narrow this could restrain what is painted and it may be this lack of capacity that is more influential in the process and final output, rather than the free expression of the creator, therefore risking a negation in authenticity of interpretation. It may also impact the nature of the experience, with fabrics such as fibre associated with a heightened level of softness and sensuality that can aid the translation of hard ideas into a safe, soft and more accessible form (Davidson 2012).

The research exemplars introduced are connected by a shared methodology of visual narrative inquiry (Riessman 2008), within which both researchers and participants explore and make meaning of experience across visual and narrative dimensions with their environment. It is an active, intentional and reflective human process (Bach 2007) which aligns with an increasing need to navigate highly storied, idiosyncratic, ambiguous and emergent contexts, exploring emotion and imagery alongside processes of self-identification and social representation. Photography is employed to benefit reflection and interpretation through preservation and metaphorical connection (Bach 2001). The integration of text and imagery can support reflexivity and personal development, enable identity construction and reconstruction, evoke memory and facilitate the sharing of stories across a group (Riessman 2008; Eaves & Walton 2013). Further, the use of narrative can combine the application of categories as found in the sciences, alongside juxtaposition as identified in the Arts (Meisiek, Irgens & Barry 2008).

Research exemplars are chosen with the intent to foreground a range of media, techniques and materials, tailored to specific contexts, participants, problem situations and audiences (Dewey 1934), with an emphasis on accessibility, polyphony and authenticity (Eaves & Walton 2013). Attention to ethical rigor was applied throughout with participant anonymity afforded as requested. The methodological pluralism adopted is encouraged to "exploit the manifold ways of knowing" (Moses & Knutsen 2007, p.294). Further, the application of arts-based methods contributes to the call for “added diversity” (Riessman 2008, p.200) in the emergent field of narrative methodology. For each exemplar, the story behind the production process of the artefact is presented, alongside the artefact (image) itself and the narrative of its interpretation, drawing on the voices of creator, researcher and audience. Guidance, challenges and opportunities surfaced by the use and interpretation of participatory visual texts is fused within the discussion (Richards 2011).

7. Arts-based methods as empowerment and transition

Severn House is a UK regional charity which aims to support and enable victims of domestic assault, providing both a place of immediate safety and aftercare and moreover, fostering an extended system of optional personal and/or group counselling (details are anonymised). As a volunteer in a different but linked charity, the author was approached to become involved in a pilot scheme to explore emotions through the creative arts. This was catalysed by the feedback given by the attendees themselves, both directly to counsellors and through confidential comments cards, in respect to the difficulty of “Expressing how I really feel, why are the words lost to me?” which became the title for the project.

An underpinning feature is that attendees indicated a preference not to work with a professional artist, but rather one who would more likely self-identity as, in their words, “an enthusiastic, creative practitioner with empathetic awareness of the charity aims”. This formed a scaffold or supporting structure identified from the outset, alongside a commitment to confidentiality – a theme which will be revisited as the discussion emerges. All workshop sessions followed a similar protocol with attendees (5 per group) being offered the same prompt to create a response to a pre-agreed subject. In the exemplar expounded, this prompt was to “represent your view of anxiety”.

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A range of arts-centred mediums were provided with free selection, including handcrafted (drawing/painting/pastels), digital (Web 2.0 creative applications) and any performance dimension as conceived by the group. The author was available to help participants use the materials and/or technology, providing skills support as requested. The range of approaches in scope was eclectic by design, aiming to optimise accessibility to text and texture via different conduits of expression, thereby supporting polyphony. Selection was also cognisant to McLuhan’s (1967) exposition on medium with framing, structure, texture, colour, style, syntax, usage and other specific qualities capable of producing and/or embedding different narratives (Davidson 2012).

Contributors were invited to either note a caption; define an explanation; verbally describe their resultant artefact or “let it speak for itself”, with these options agreed within the group. On discussion of all the work created, the following image was universally selected as the “most representative and provoking”. This was not a judgement of aesthetic quality, but rather of aesthetic impact, one that resonated beyond the individual creator to the group. Nested either side of the image, fragments of the participants’ voices are presented, enabling a degree of triangulation in commonality with traditional research approaches, but also allowing for more open interpretation for the audience.

“I have visions of what I want to achieve but I am scared to go for it, to do things, it’s how to connect across the two” (Reflection 1).

“IT IS NOT THAT WE ALL SEE ANXIETY THE SAME, IT IS THAT WE CAN ALL SEE OUR OWN TAKE ON ANXIETY WITHIN THE PICTURE. IT’S QUITE STARTLING TO SEE IT LIKE THAT. YOU SEE FOR ME, WELL, ANXIETY BUILDS UP IN INTENSITY BUT IT CAN CHANGE REALLY QUICKLY. I FEEL LIKE I COULD ALTER THE COLOUR SHADE WITHIN THIS IMAGE TO REFLECT HOW INTENSE THE FEELING IS AT A PARTICULAR TIME. I WISH I COULD BE IN MORE CONTROL OF IT LIKE THAT” (Reflection 2)

“I see the real me, I’m still here. But I don’t know how to get me out. And when I feel like I am getting close, well, sometimes it feels safer to stay inside. It’s become some strange sort of comfort actually, not going out. But I think I want it to be different now.” (Reflection 3).

Both the process of creation and the artefacts produced emerge as of equal significance, facilitating different reflexive benefits and new perspectives. The creative act was seen to benefit the representation of an emotion or feeling that was otherwise “hard to find the words to express”. It enabled a “departure from the norm”, “a joining up of thoughts I hadn’t seen this way before” and a “new way of talking”. In addition, scaffolding participant choice in media selection, with support available on request, facilitated personal control which is considered of particular importance when approaching sensitive subjects where people are experiencing difficulties in their lives (Dickson-Swift et al. 2009). A noted preference for handcrafted rather than digital techniques was observed in this group in order to “feel what I am doing” as commented by one participant. This resonates with the authors’ belief in making as connecting, aligning with Gauntlett (2013).

The sharing of explanations behind the contributions was particularly impactful, validating and empowering (Estrella & Forinash 2007). After initial shares and feedback was voiced, increasing connections developed.
across the group, which manifested themselves in the semantic and the semiotic, from the cumulative and
commonalities of word selection, to changes in tone and supportive gestures made. This created an open,
trusting discursive space which may be best encapsulated as a form of progressive disclosure, an unfolding of
narrative. An almost tacit and emergent appreciation of an aesthetic way of sensing was also identified.
Participants were able to respond and put themselves into the work of others, for example, to consider how a
change in shading might represent their own intensity of emotion at different points and discuss why, which
enabled them to surface greater meaning from that which they had created themselves. This reflects the
means in which more informed understanding of the past can build an enhanced capability to comprehend the
present and may begin to enact a sense of control.

This collaborative sensemaking led to Bridge emerging as an agreed metaphor for anxiety. This reflected the
push-pull between moving forward and being held back, and moreover a recognition that holding back was
sometimes an acquired form of comfort, not fear. This was highly influential for some group members and
interpreted by the author as a transient state resonant of the “transitional spaces of liminality” described by
Küpers (2011, p.45). The generative act of art creation, alongside individual and collaborative interpretation
had created a personal and shared visual and inter-textual vocabulary to express and begin to join up
fragments of experiences, emotions and feelings to benefit discovery. This is congruent with Kapitan’s (2014)
discussion of the capacity of art to rebalance brain functions which have been negatively impacted by
disruptions to human connectivity, such as emotional and physical trauma. The insight continued to develop
over time with one participant articulating in a follow-up session that “the issues still continue in my head but I
see them now – I am no longer heavy through living them”. This reflects the means in which more informed
understanding of the past can build an enhanced capability to comprehend the present and may begin to
enact a sense of control.

Finally, the author reflects on the fact that this exemplar was never anticipated to be part of a research study;
being situated within a personal volunteering experience. However, a desire to share the process and impact
emerged strongly from the group narrative and by the end of the pilot, this emerged as a voice in its own right.
Whilst preserving anonymity, all contributors articulated the want to expand awareness of different means to
explore sensitive issues, to “open up conversations” to the broadest audience, so that the benefits
experienced could be made available to others. The rich insight attained through the process is congruent with
McNiff’s (2008, p.40) assertion that the “most meaningful insights often come by surprise”. This elaborated
description elucidates the very genesis of this paper and in a moment of fugal counterpoint, also serves to
introduce the remaining episodes or case exemplars which move beyond its unanticipated origins.

8. Arts-based methods as identity and transition

Reflecting on the above, the author moves to consider the organic use of arts-based methods, an aspect
underexplored in organisational settings. The episode serves to illustrate a more unusual and self-organising
intervention technique in the application of cartooning. Combining caricature and portraiture, cartoons are an
engaging, compact, imprecise, familiar and ubiquitous visual method which can afford a socio-cultural lens into
the lifeworld depicted, surface the serious by means of the playful, amuse, and invite debate. Use of
cartooning is in receipt of limited empirical study but demonstrates capacities to surface context and
interactions, encourage reflexivity and broader questioning (Lafrenière et al. 2014) and provide an engaging
means of dissemination (Bartlett 2012).

As part of a wider mixed methods study within a UK Communications sector firm subject to transformational
post joint-venture change, a cultural legacy of passion for creative expression was established. Humour
emerged as an important cultural norm, employed as a coping strategy to navigate high rates of change and
stress (Eaves & Walton 2013). Indeed, it is increasingly recognised as an important and revealing constituent of
organisational life (Westwood & Rhodes 2006). Use of humour may be considered an adaptive defence
mechanism and has been found to be negatively correlated with intention to resist organisational change
(Bovey & Hede 2001).

The image presented was self-created by an organisational actor in the midst of an outsourcing initiative that
had been publicly criticised for lack of transparency. The hybrid cartoon style sketch was posted in a
recreational area, spawning similar creations and post-it note additions with fragments of commentary,
becoming a transient artistic installation. “Am I in or am I out?” was added later as a form of tagline by another

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actor. This resonates elements of humour theory, specifically Relief Theory as a release of negative feelings towards a subject, alongside Incongruity-Resolution Theory where two objects are presented in a single frame and the nature of this relationship explicated (Mulder & Nijholt 2002). It affords utility to surface power, identity and socio-cultural understanding.

Figure 2: Actor use of cartooning

This example is resonant with aspects of relational art or relational aesthetics (Bourriaud 2002), specifically the capacity to produce new experiences and intersubjective encounters through which meaning is elaborated collectively within a social context. It enables an interactive space for being together whereby novel connections and possibly an alternative discourse may emerge. In contrast to Burke’s (2005) foregrounding of the strength of performance identified in framed, set-apart events such as formalised rituals as opposed to the everyday; the author finds that organic workplace examples can also be highly performative and impactful occasions. These can serve to disrupt established cognitive and in-praxis routines, validate individual experiences and scaffold constructive action (Estrella & Forinash 2007).

Additionally, alternative organic art exemplars are identified drawing on the authors’ active participation in the DIY-making arena, notably a coding-crafts club for young people aged 5-16, alongside support and “governance” roles in two UK social enterprises. This is exemplified at Access Space in Sheffield where knowledge is interpreted to be legitimised by the prominent display of participants’ artefacts (Eaves & Walton 2013). This enables creative expression (Walter 2012), benefits cultural intermediation (Jones 2012) and supports a positive psychology that aligns with symbolic functionality (Elsbach & Bechky 2007). As one participant commented, “I never saw myself as an artist at all, nobody else would give me this opportunity. I can now say I have exhibited!”
Alongside craftsmanship and discipline, the capacity to work organically with discarded material and fragments is also revealed (Eaves & Walton 2013); from scraps of hardware to cabling and pieces of wood. It surfaces a need to develop presence from that which is absent to find new meaning and a visual vocabulary (Chatterjee 2006) as epitomised by one participant: “I guess this is my way of talking about the world and how I would like it to be”. Individual and group interactive discussion about the artefacts surfaced a shared need to take apart and reconstruct, to play, to constrain and then find a new form. The desire to “reconnect”, “reuse”, “show beauty” and “reveal what is hidden” was recurrent. The author also inferred a need to find some degree of organisation and a tacit reflection of art as a neurological event (Kapitan 2014). As one contributor stated “My ideas just seem to flow better, things come together when I am working and reshaping”.

9. Reflections and Implications

The third sector research involved significant emotion work (Hochschild 1983) as an embodied experience which can impact researchers’ intellectually, emotionally and physically (Gilbert 2001). This is an underreported element in research methods literature but highly salient to investigating sensitive topics such as within the Severn House episode. It can pose challenges and risks to the investigator such as navigating personal/professional boundaries (Grinyer 2005) and emotional management (Dickson-Swift et al. 2009). It may also involve aspects of self-disclosure during processes of rapport building. Further, researcher identity, biography and conscious/unconscious personal agendas are 2014). Attention to this perspective contributes to understanding different ways of knowing and raises a need to include reflexive consideration during the research process and its transparent publication.

Reflecting across all the episodes or cases introduced; implications for future development and application may be identified. Firstly, the introduction of photo-elicitation may offer benefits for longitudinal study whereby images of the artefact(s) produced could be discussed with the participant at a debriefing-style session, to aid exploration of their response over time. Drawing on the self-reflections surfaced, the capacity for arts-based methods to aid auto-ethnographic research is indicated, with a potential to reveal intricate tensions between the self and other (Davidson 2012). Opportunities for multiple, layered and interactive linkages using different methods, mediums and materials also emerges strongly (Foster 2008), enabling a visual and inter-textual vocabulary.

Novel articulation approaches such as the fugue metaphor and structure demonstrates a capability to unify text, providing a new conduit for hearing voices, building insight and developing understanding. Underexplored techniques such as cartooning warrant additional empirical investigation and guidance for use as a qualitative research and findings engagement tool, and as an aid for practitioners.
Potential areas of adoption include utilisation as a storyboard to build an interactive presentation or create backdrops for display, and employing cartoon-style illustrations alongside text or comic-book formats to communicate findings and convey core messages. Specific benefits are observed within Information Systems to foster rich dialogue on use case composition, development and prototyping.

Researchers, practitioners and scholars are encouraged to reflect on opportunities to employ or expand arts-based research methods within their work, whilst remaining cognisant to challenges and implications. The value of interdisciplinary and cross-sectoral approaches is brought into focus and may benefit from increased collaboration working within qualitative or mixed methods teams to advance knowledge and skill exchange. The capacity to enhance teaching and training for early career researchers is also indicated, for example to build performative interpretive skills and techniques (Roberts 2008). This may include raising awareness of coping strategies to manage emotional work, such as maintaining a research diary and working with a non-insider co-author with a relatively neutral and stabilising position. Sharing research experiences is 2014) with the arts an effective conduit for this purpose (Ewing 2013).

10. Conclusions

Combining philosophical and theoretical exposition with exemplars from pragmatic visual-narrative research, this paper richly elucidates the application and interpretation of semi-guided and organic arts-based methods as “experience-near” methods of inquiry (Estrella & Forinash 2007, p.382). This is underpinned by transparency, discipline and reflection (Mitchell, O’Reilly-Scanlon & Weber 2005) alongside epistemological, theoretical and methodological coherency to benefit authenticity of representation or performance, audience relatability and the warrants of assertions (Dewey 1920). Both the visual artefacts created and the unfolding of their production become a means of living, articulating and (re)presenting individual and collective stories of experience, needs and aspirations. As Ingold (2012, p.435) argues “in the phenomenal world, every material is a becoming”. It is the inquiry and the aesthetic impact located within everyday, local, personal and workplace experience (Finley 2008) that is foregrounded, rather than an assessment of aesthetic quality (Dewey 1934).

Arts-based research is demonstrated to support a re-visioning of subjective issues in a means not possible from more traditional and linear descriptive methods of engagement (Butler-Kisber 2008). Purposefully designed to align with the particular context, participants can benefit from greater freedom and control to move beyond a sharing of experience, to a fuller expression and shaping of their story in a way that makes sense and matters to them. It serves to evoke meanings, not denote them (Leavy 2009, p.14), fosters intersubjectivity and can benefit the surfacing of conflict whilst supporting a move towards reconciliation, empowerment, adjustment (emotions and practices) and change (Estrella & Forinash 2007). This can scaffold a breadth and depth of storytelling where the eyes of the researched, not the researcher occupies centre stage, whilst enabling an enlargement of understanding and reflection for both (Barone & Eisner 2012).

A broader application with more integral and/or integrative use of arts-based methods is therefore promoted to inspire non-habitual, experiential and pluralistic responses to re-vision, reframe, re-relate and re-evaluate, whilst catalysing ongoing representation and performance, interpretation, sensemaking, experimentation, learning, reflexivity and alternative forms of learning, knowledge production and narrative (re)construction. This is relevant to connect research and lived experience in a range of settings and can aid both capture and communication of the diversity and complexity of human experience (Knowles & Cole 2008, p.57). It can also enhance capacities to act by scaffolding a rich polyphonic understanding, cultivating contextual humility and promoting awareness and sensitivity to different perspectives, including those of self. This supports a cohabitative appreciation of different ways of knowing (Eaves 2014).

The qualities and diversity in arts-based methods, media and materials thereby contributes to a wider aisthésis, whereby meaningful perception is enhanced across the senses (Roberts 2008). Alongside participant outcomes, this can make scholarship more accessible, stimulating, evocative and empathetic (Cole & Knowles 2008), whilst recognising considerations for training, design and conduct. Drawing on the theme of stereopsis, the impact can also be disruptive and transitional, supporting a move from “habitual blindness” associated with entrenched or familiar stances to “binocular vision” (Meisiek, Irgens & Barry 2008), enhancing saper vedere or knowing how to see, to benefit creator-participant, researcher and audience. Reflecting back on
Nicolosi’s (2010) statement querying the terrain of real artists, this paper serves to foreground the multilayered, multivocal and multidisciplinary value, beauty and authenticity of arts and aesthetics as situated in everyday experiences of production, consumption and reflection. This provides a robust and engaging rationale for expanded application of arts-based methods across research, practice and pedagogy.

References


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