

Using Focus Groups in Studies of ISD Team Behaviour

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Abstract: This paper discusses an innovative focus group approach used to study an Information Systems Development (ISD) environment. The research had to cope with the application of a broad framework, untested in practice, seeking to elicit potentially highly sensitive opinions and judgments in a highly pressurised, time-restricted environment. The researchers' design of the case research is discussed, in particular the use of focus groups. Through a description of how these were conducted some of the novel aspects of the data collection technique used to address the specific issues mentioned above are illustrated. This is followed by an exploration of various frameworks proposed in the literature for evaluation of focus groups in particular, and interpretive research in general. Future work proposed includes the evaluation of this research using a set of 7 criteria proposed in the literature based on critical interpretive epistemology.

Keywords: focus group, information systems development, evaluation criteria

1. Introduction

The research team in this study was tasked with assessing the agility of a proprietary method in a globally distributed systems development organisation. Rather than trying to assess agility by establishing the compliance of implementation with the defined method, we examined each implementation using a conceptually well-established agile assessment framework (see Conboy 2009). The assessment objectives were (i) to establish the agility afforded by the proprietary method as implemented in the organisation ('method-in-action'), and (ii) to identify major issues with the adoption and generate recommendations to address these.

This assessment was highly complex. Significant time restrictions were in place. A previously untested, broad, multi-faceted framework, consisting of highly complex and multidimensional constructs was to be used. There were no accompanying set of prescriptive questions, and the researchers had to address the potential for poor judgement, unsupported anecdotal statements, and statements arising from ulterior motives. The study also involved potentially sensitive and controversial data, and data was difficult to collect in some cases where ISD team members were geographically dispersed.

All of these issues required careful consideration when designing the focus groups approach for this research. Thus, the objectives of this paper are to describe the research approach used and discuss how it could be evaluated in terms of efficiency and effectiveness. In the following sections, the objective of this research is discussed and focus group theory is outlined, including a discussion of its use in various fields. We then describe the key elements of the ISD study we conducted, to demonstrate the complex nature of the study, and elaborate the focus group fieldwork conducted with a summary of the modifications to the focus group approach used in collecting data. This is followed by an evaluation of this modified data collection technique using evaluation criteria specifically proposed for focus groups, and reflection on possible improvements. We then discuss the need for a more holistic evaluation using other potential evaluation criteria which address the whole research method, including focus groups, in a comprehensive and rigorous manner. Finally, future work, including the application of such a broad research evaluation framework, and conclusions are discussed.

2. Research objectives

There are many reasons for specifically relaying experiences of focus group research in Information Systems (IS) and for evaluating their effectiveness in this discipline. As discussed below, focus groups have not been used extensively in IS research, despite apparent suitability. They are advocated for descriptive, explanatory and exploratory studies, leverage common concrete situations

and groups which are common in work teams in general, and can provide deep and specific insights into complex sociological situations such as teams. They also allow investigation of ambiguous or multi-dimensional topics and a large quantity of data to be collected even where time or researcher access is limited.

As well as all the advantages of the approach, the literature also recognises potential drawbacks. These include difficulties in directing topics for discussion while not imposing the researchers interpretation on the group, effects of group dynamics on the data collected and the lack of prescription in how the technique should be applied. While the literature contains some general 'rules of thumb' (Morgan 1997), such direction remains quite ambiguous and ill-defined compared to other techniques such as surveys (Kidd and Parshall 2000). For example, Morgan (1997) suggests that when conducting focus groups, the researcher "should use a relatively structured format with high moderator input". This in itself is quite a loose prescription, but the true ambiguity is revealed when Morgan suggests that "this guideline will vary depending on how exploratory, descriptive or explanatory the research objective".

In the current study, several significant modifications were made to the focus group technique described in the literature. These were designed to increase the efficiency of the method given the broad set of specific topics to be covered and the severe time restrictions. Modifications included describing each sub-topic to be addressed on an A1 poster stuck to the walls of the room, and collecting data primarily through notes written by members and stuck to these posters. This allowed the capture of inputs from multiple participants simultaneously and in a nominally anonymous manner. These modifications are discussed in more detail later in the paper.

Given the limited use of focus groups in IS research, the vagueness of details on its implementation in a specific context, the significant potential weaknesses in the method and the modifications to reported usage in this study, the researchers felt an evaluation of the technique was warranted. This paper describes such an evaluation, where the method as here implemented is reviewed with respect to criteria defined in the focus group literature. It is then argued that evaluation of the focus group data collection technique alone is insufficient where there is an impact on other areas of the research method, such as analysis. Therefore, alternate evaluation criteria are discussed and proposed for further work.

To illustrate the conceptual basis of the paper, the general focus group literature is reviewed in the next section before we introduce the specific extended focus group approach we employed in our ISD study and the evaluation of it.

3. Focus group research

Focus group research emerged from work performed by Paul Lazarsfeld, Robert Merton and colleagues at Columbia University in the early 1940s, It is defined as a "research technique that collects data through group interaction on a topic determined by the researcher" (Morgan 1997) and involves a group of participants and one or more moderators. The core theoretical elements of focus groups include topical focus, group interactions, in-depth data and a 'humanistic' character (Stewart, Shamdasani et al. 2007).

The focus element derives from participants of the group having a 'particular concrete situation' in common (Merton and Kendall 1946) but is also affected by the moderators direction of the groups discussions. In the present study, all participants shared common membership of an ISD project team. In terms of group interaction, small group dynamics can greatly affect the data collected and can lead to increased depth and reflection over individual interviews. In this case, since the topic being investigated related to the team as well as individuals, the group aspect of the technique is considered important in increasing the depth of data collected, as discussions stimulated reflection and helped surface opinions and other inputs that might otherwise not have been forthcoming. Finally, the technique supports an emphatic and open interaction with participants, where discovery of meaning is valued over measurement.

There are many advantages and disadvantages of the technique highlighted in the literature. Focus groups allow the researcher to obtain substantially more data from a group in a short amount of time than one-to-one interviews (Morgan 1997). Insights and less accessible data can emerge which may not otherwise come to the surface (Morgan, 1997). This is especially true where participants may not

know much about the research topic and require a group discussion to stimulate them to make a contribution, or what is referred to as “introspective retrospection” (Merton and Kendall 1946). In addition, Bloor, Frankland et al (2001) suggest that focus groups allow participants to “articulate those normally unarticulated normative assumptions”. Other researchers (Kitzinger 1994; Kidd and Parshall 2000) draw attention to the importance of this differentiator of focus groups from other forms of collective or focused interviews.

Ideally, group interaction will lead to “collaborative construction” but it can lead to effects such as conformity of views as dominant characters or roles in a group cause others to ‘tow the line’ (Morgan 1997). Small group dynamics come into play, which can stymie minority or controversial opinions. Conversely, the group setting can lead to polarisation into one or more sub-groups or ‘factions’ (Sim 1998; Barbour 2007). Opinions expressed may reflect those of a particular group context rather than an aggregation of the opinions of the individuals (Stewart, Shamdasani et al. 2007). Additionally, more ‘subtle’ input that might emerge in a less ‘public’ context can be missed. While the moderator has less control over a group and less access to individual opinions, the setting of the topic of focus by the researcher can also influence the range and depth of input gathered and may not reflect topics considered important or interesting to participants (Merton and Kendall 1946). Focus groups do not allow observation of groups in more ‘natural’ contexts and are primarily restricted to discussions rather than other forms of interaction (Morgan 1997). Data collected is confined to participants’ opinions and reportage of experiences and therefore is highly subjective (Wilkinson 1998).

Focus groups are suitable for exploratory, descriptive and explanatory research but, as implied by the definition above, is particularly suited where the researcher wants to focus on specific topics while leveraging group interaction. The method has also been advocated for “formative evaluation, for programme improvement” (Patton 1990) which matches the use in this study (Hines 2000). Focus groups could be considered to lie between dyadic interviews and direct observation: while allowing the researcher to direct attention to specific topics as allowed by interviews, they also facilitate group discussion as per observation. A significant benefit of focus groups is the ability to get a lot of data from a group in a short amount of time (Morgan 1997; Stewart, Shamdasani et al. 2007).

Despite being a valid data collection approach, and extensively used in other disciplines such as marketing and health service research, an examination of the IS literature shows that focus groups as a method of research are under-utilised in the field, with very few IS studies adopting the approach to date (Sobreperez 2008), and none specifically within the domain of ISD as far as we are aware. Where focus groups have been used in IS studies, they are usually in contexts where focus group studies are more widely used such as health (Eysenbach 2000; Koppel, Metlay et al. 2005) and marketing (Pitt, Watson et al. 1995). Some other research in IS has used focus groups but only as a minor supplementary data collection technique (Reich and Benbasat 2000). More indirectly related to IS, related fields such as Library and Information Science have reportedly used Focus Groups extensively (Kerslake and Goulding 1996).

In the following section we discuss the use of two conceptual frameworks in the study of the agility of ISD teams. This is followed by a description of the case research conducted in a company using these frameworks before discussion of how the quality of such research can be evaluated.

4. Extended focus group approach in an ISD study

Here we describe the research approach adopted for this study, and how the focus groups were conducted in the field.

4.1 The ISD study: Assessing agile development methods

In assessing ISD methods, measuring compliance to defined practices is common. However, this fails to take account of contextual factors specific to a work context. The novel approach used in this research considers the true contribution of each method practice to agility itself, rather than compliance to a defined agile method. For this we used a ‘conceptual framework’ for agility which defines the underlying aspects of an agile team such as creativity and simplicity. Therefore, the agile methods in use could be assessed effectively regardless of the particular practices each project did or did not implement, or indeed how the project implemented each practice. This approach allowed effective comparison of the three projects using three different agile implementations – in effect

allowing us compare ‘apples and oranges’. Therefore the assessment involved answering the three following questions illustrated in Figure 1: High level research design

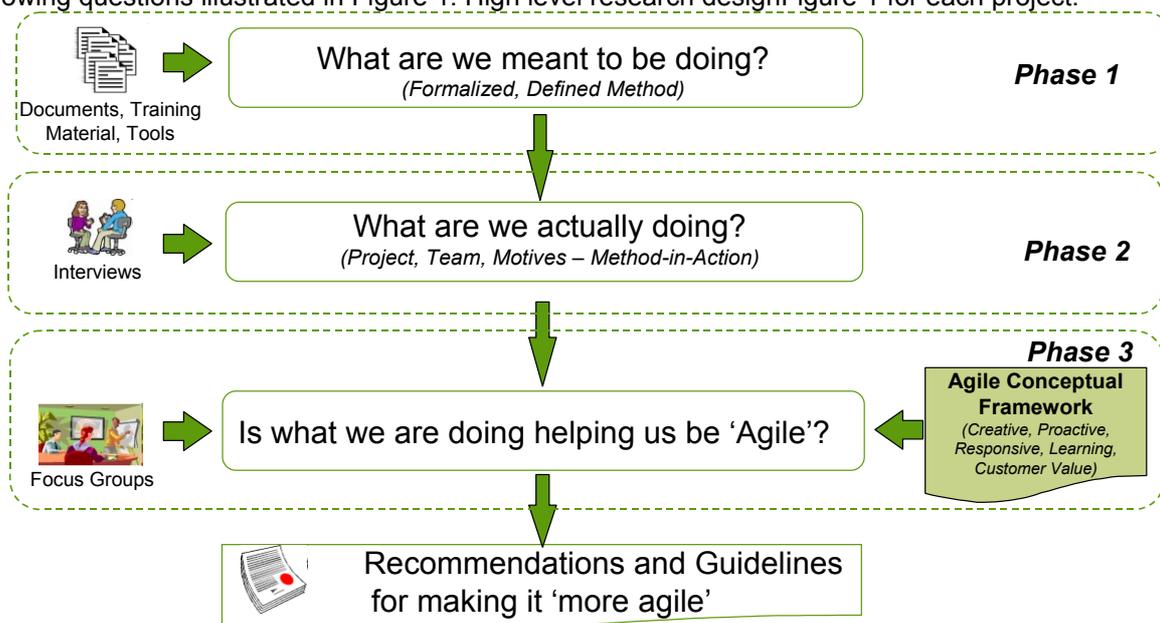


Figure 1: High level research design

The defined method was established through analysis of the documentation and training materials provided by Pennysoft describing the various practices. Then a set of interviews with team leaders from each of the projects established the method-in-action [4]. Research has shown that work methods are never implemented exactly as defined, varying by project, team and organizational context [5]. Agile methods generally acknowledge this explicitly, citing the ‘tailoring’ of methods to ensure effectiveness in specific situations. Therefore, it is not good enough to assume the practices have been implemented in a textbook manner – it’s essential to understand where implementations are similar and where they differ from the documented method and across projects.

The method-in-action for each of the three projects studied were found to be quite different. Different sets of practices were used, and each of these were used differently. Each project method was examined in terms of the following which derive from the method-in-action framework [4]:

- Development context: The nature of the business and technical project drivers, stakeholders, project history, criticality, complexity and so forth.
- Team context: Characteristics of the project team including size, diversity, experience, skills, geographical distribution and motivation.
- Rational and political roles: The role of the ISD method on a particular project, both in terms of explicit and rational use (reduce cost, increase quality, etc) and political use, such as team reputation, showcasing fast development ability, etc.

Once the method-in-action was established, the third phase involved a half-day focus group session with each team to establish how each practice supported or inhibited agility.

Agility in work is not a new concept, and originated long before software development was established as an industry. From a foundation of organizational agility, and with reference to agile software development, the core contributory concepts of agility have been identified [6]. Creativity, proaction, reaction, learning, cost, quality and simplicity are the foundations of agility and were used to study how the work methods used in these projects affected team and organizational agility. The agile concepts we used derive from the following definition of agility [6]:

The continual readiness of an ISD method to rapidly or inherently create change, proactively or reactively embrace change, and learn from change while contributing to perceived customer value (economy, quality and simplicity), through its collective components and relationships with its environment.

In the focus group sessions, described further below, each agile practice employed by each project was evaluated for the following:

- Their agility in terms of creativity, proaction, reaction and learning from change
- Their perceived customer value of cost, quality and simplicity

Using these concepts allowed characterization of each project method in a consistent manner, regardless of the details of how they had implemented agile. Table 2 below gives a description of each concept to guide how they can be considered in relation to each ISD practice.

Table 1: Agile concepts used in the agility assessment

Concept	Description
Creativity	The ability to create inventions or solve problems using an original, novel, or unconventional approach. This involves creativity among all stakeholders, sharing of ideas and knowledge and continuous improvement in the team and processes.
Proaction	Taking steps in advance of change, which pre-empt the change, or acting in anticipation of future problems, needs, or changes. This requires early identification, estimation and prioritization of risks and planning for contingencies.
Reaction	Responding to situations, or changes that have taken place, including communication of changes requested and rapid interpretation and empowered response to such changes and their impacts.
Learning	Knowledge or skill acquired or modification of a behavioral tendency by experience (as exposure to conditioning). This requires both dissemination and absorption of knowledge.
Cost	The total cost of the solution including time spent by stakeholders, skill and experience levels required by the team, capital and operational costs and lost opportunity costs.
Quality	The quality of the solution in terms of delivery (bugs), the business value delivered, and even the quality of the experience for various stakeholders
Simplicity	Maximizing the work not done by ensuring the processes, tools and metrics are easy to use, all solution features implemented are needed and used and the design is as simple as possible to deliver current functionality.

Agility analysis involved a half-day focus group session with each team to establish how each practice supported or inhibited agility. Focus groups were selected as the primary data collection technique for the current study due to their efficiency in gathering a lot of data from a group of informants and their ability to improve the range and depth of input. However, to address some of the shortcomings mentioned in the previous section, several novel extensions were made to the method. Participants were encouraged to provide input in the form of written notes as well as through recording and analysis of group discussions. Therefore, the discussions allowed group (and sub-group) exploration of the topics before participants gave written input, but the post-its also facilitated individual input without discussion. The discussion was also highly focused, covering each agile practice in turn. Input was solicited for each practice covered to avoid 'gaps' where certain topics would not have input. Therefore, the less defined, 'non-directive' moderator strategy often advocated for focus groups was not followed. Additionally, participants were not randomly selected from a homogenous population as normal; for practical reasons they included several roles (which could be considered to have opposing interests, priorities and motivations) and were selected by the participants rather than randomly. Further details of the novel aspects to these focus groups are described in the next.

4.2 Conducting focus groups in Pennysoft

Here we describe the context of the data collection followed by the technique used across three ISD teams. This includes modifications to the focus group approach such as the use of ISD method practices on posters to act as an interview guide, the use of written input by participants as the primary data input method, and the 'self-coding' of such input by attaching the notes to the appropriate poster under a particular agile concept.

Pennysoft (referring to the case study organization which is not identified for confidentiality reasons) is a global financial services firm with approximately 45,000 employees worldwide. Up to 10,000 of these are IT personnel developing systems to support the business, distributed across multiple sites in the US, Europe and India. A formal 'waterfall' development method has been used extensively across the company for several years. A newly developed proprietary method incorporating many principles and practices from agile methods such as Scrum is currently being piloted in several sites. Three such trial projects located in an Irish office were studied as part of this research between July

and September 2009. All were part of distributed teams, but with the majority of analysis, development and test based in Ireland. One was a 'green field' project with some US members and a small, inexperienced team of five. The other two were larger (10-20) with US and India based members and were part of larger enterprise wide programs.

A single, 3 hour focus group was then held for each project, with a representative sample of half or more of the team selected by project management. In one case, two participants based in India used a videoconference link and contributed written input using instant messaging. From 3 to 6 researchers filled the roles of moderators, note takers, discussion facilitators and logistical support, and several audio recorders were placed about the room. Each session began with an overview of the research project objectives and the format of the group session. This was followed by an introduction to the agile conceptual framework, including description and examples of how a practice might impinge on creativity, quality and other aspects that affect agility. Then 5-10 minutes was spent on considering each practice in turn (a total of about 2 hours). This was followed by 30 minutes for further discussion of emerging topics, ambiguities and so on. At the end of each session, informants were invited to submit any further, possibly confidential, input directly to the researchers outside the focus group setting.

Before the group session, each development practice as used in the project was described briefly as a set of bullet points on an A1 poster, all of which were hung on the walls of the meeting room. The posters also included a column for each agile concept (see Figure 2) where participants could stick post-it notes with their input on how that concept was affected by the practice concerned. Additionally, two A1 posters were displayed describing the agility constructs. Pens and post-it notes were made available around the room. During the session, the moderator moved from practice to practice, describing each briefly to refresh informants memories and inviting updates or corrections about the practice in verbal or written form. The moderator then encouraged discussion between informants and invited written input. Researchers also captured verbal input from discussions and added these to the posters using a different coloured post-it.

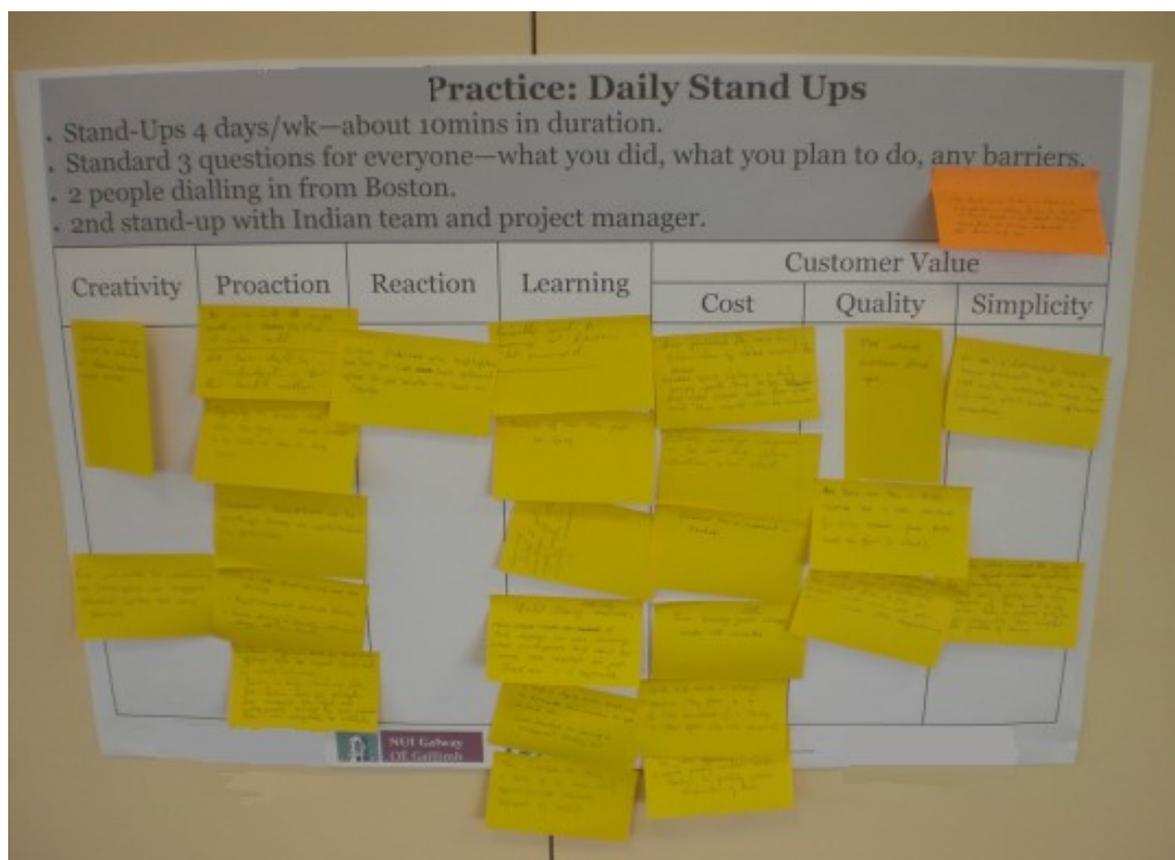


Figure 2: Poster sample with post-it note contributions

Periodically, the importance of specific, concrete examples was emphasised in preference to abstract opinions and feelings. As informants stuck post-its to the posters the researchers selected particularly vague or particularly interesting examples and read them out to the group. Immediately following each

focus group the post-it notes were coded to record the practice and concept to which they applied and the content was typed up into data tables for use in the analysis. Group discussions, which took place during the session, were later transcribed from the audio recordings. The initial analysis was allocated to four researchers with each working on a set of practices, sometimes jointly. Due to time and resource constraints, formal coding and other data analysis techniques were not used. Following the analysis each section was reviewed by at least two academic reviewers and one industrial reviewer (all of whom had also been involved in the focus groups) with extensive discussions and revisions leading to a comprehensive report for the company.

Table 2 below summarises the specific extensions and modifications made to the focus group method as described in the literature.

Table 2: Novel extensions to focus group data collection technique

Captured Written Participant Input	Written input was regarded as the primary data input method, rather than group discussions as usual in focus groups
Self-Coding of Participant Input	Participants decided what practice, and which agility concept, with which they would associate each written post-it by placing it appropriately on the wall posters.
Substantial Anonymity of Written Input	Written input was substantially anonymous – there was no identification on the post notes, though it would be possible through hand-writing etc for participants to determine the author of a note if they tried.
Concurrent Independent Input by Participants	Participants were free to write notes on practices not currently the focus of the group – at times participants were considering and giving input on a range of different practices at the same time.
Reduced Capture of Group Discussions	Usually in a focus group there is one discussion underway at any time, and it can therefore be captured in full by the researchers. In this case, there were several concurrent discussions by subsets of participants – some but not all such discussion was captured.
Possible increase in 'thoughtful' interpretation by participants	Rather than discussions providing the data for the research, where initial thoughts and preconceptions might be captured, the written input could be regarded as the output or conclusion of such discussion. It therefore may include consideration of others opinions and a more thoughtful & considered input.
Loss of attribution & other context in written input	The post-its did not identify the individual, role, time written, discussion under way or other contextual data which would be available for normal focus group data.
Restricted time/space for writing low inference descriptors	Written input was restricted due to: the short time given each topic limited space on post-its relatively slow speed to write rather than speak input Therefore, opportunity to give illustrations and examples was limited.
Highly Structured interview guide based on Method-In-Action analysis.	The sessions were based on a set of practices pre-determined by the researchers through document reviews of the defined method and interviews with the project manager for each team.
Highly directed topics to minimise gaps in data	There was a conscious effort to ensure each practice received a minimum level of input – this may have reduced time spent on more important topics (as judged by participants) and placed too much emphasis on topics not considered significant.
Heterogenous participants with different team roles/status	Focus group literature calls for randomly selected, homogenous participants to arrive at deep insights into particular topics. Although the concrete situation (the project) was common to all participants, significant heterogeneity was evident based on the diverse team roles involved. Also, participants were determined by project management and were not randomly selected.

5. Evaluating focus group research

There is extensive literature on the design and moderation of focus group research (Merton, Fiske et al. 1990; Kitzinger 1994; Morgan 1997; Barbour 2007; Stewart, Shamdasani et al. 2007; Krueger and Casey 2009). However, there are few criteria defined for evaluating such research designs. Nor can these researchers find examples of the evaluation of focus groups as a data collection technique. In this section we first consider two sets of evaluation criteria for focus groups, and report an evaluation of the current study using one of the criteria sets. Then we discuss other potential evaluation frameworks proposed for interpretive research in general which, it is argued, provide a more holistic view of the quality of the research as a whole, rather than the specific focus group technique used for data collection.

5.1 Focus group evaluation criteria

The first framework, proposed by Sim (1998), proposes three critical constraints to focus group research as follows:

Table 3: Focus group research evaluation criteria (Sim 1998)

Issues on consensus and dissent	Participant discussion and “argumentative interactions” (Kitzinger 1994) are central to focus groups (Sim 1998). Yet research into group dynamics indicate that apparent consensus may merely reflect dominant personalities, or majority views and may not be shared by less articulate subjects, or participants in the minority. Similarly, dissent and polarisation into factions may have more to do with group dynamics than with the actual views held. Getting participants to write down their views in advance, a technique used in this study, may help in reducing such effects (Albrecht, Johnson et al. 1993).
Strength of Opinion	The emphasis and time spent discussing certain viewpoints in a group setting do not necessarily represent the true strength of feeling of the participants. Therefore, using focus groups to gauge strength of opinion cannot be considered valid. They cannot be considered a verbal form of such surveys (Asbury 1995) quoted in (Sim 1998) .
Generalisation	Generalisation is a common objective in positivist quantitative research, and normally takes the form of empirical generalisation allowing findings from the study of a representative sample to be extrapolated to the population with a certain degree of statistical confidence. But generalisation in qualitative research is more problematic since findings are normally situated in a certain context. However, theoretical generalisation is still possible whereby findings can be “transferred” from one context to another which has a similar context (Sim 1998).

An alternative set of four criteria is proposed by Merton, Fiske et al. (1990). These are range, specificity, depth and personal context, and each is described briefly below:

Table 4: Focus group research evaluation criteria (Merton, Fiske et al. 1990)

Range	It is recommended that a broad range of topics be discussed, possibly including some not foreseen by the researchers. This approach is supported through “nondirective” moderation of the group (Merton and Kendall 1946) and ensures participant input reflects what is important or interesting to the participant rather than to the researcher. Directed research questions and prompts invariably reflect the “framework” of the researcher and may imply certain interpretations and suggestions.
Specificity	Capturing input in terms of experiences and perspectives rather than just opinions is advocated by Merton and Kendall (1946). This helps prevent discussion drifting to generalities and reflects Yin’s (1994) call to focus on “low-inference descriptors”. However, this advice has been contested in the literature with the argument that the participants may be best placed to interpret events or experiences and that this approach may actually reduce researcher bias (Hines 2000). An improved technique is to elicit both specific input but also the participants interpretation or opinion.
Depth	This relates to the extent of self-revelatory input gained from participants, rather than merely descriptive input. It is important that a ‘feeling context’ is established to elicit input which provides more insight than statements describing what happened or was experienced. This can be easier where participants are intimately involved in the topic as in this study.
Personal Context	The personal and social context can be associated with the role played by the individual, such as project manager or developer, their skill and experience and their affinity with the team. Additional individual circumstance may also play a part, such as previous experiences with agile practices and with other project stakeholders (Morgan 1997). Although there are contrary views (Krueger and Casey 2009), most literature (Merton, Fiske et al. 1990; Kitzinger 1994; Sim 1998) calls for homogenous groups selected randomly from a population. Although different roles and experiences will bring different insights to a group discussion, one of the strengths of a homogenous group is that the differences and convergences can be more easily identified and can lead to deep insights (Sim 1998).

Both these evaluation frameworks are derived from focus group literature and relate directly to the design and conducting of focus groups as a data collection technique. The following section describes the application of one of these to the study conducted in Pennysoft.

5.2 Evaluation of the extended focus group approach

We evaluated the extended focus group approach using the criteria of Merton, Fiske et al. (1990), selecting this based on its prominence in the literature and more extensive operationalisation details provided.

Range – It is recommended that a broad range of topics be discussed, possibly including some not foreseen by the researchers. In the current study, one of the moderators had worked in the organisation previously, had conducted the dyadic interviews and was very familiar with the various projects, methods and participants. The previous senior position of this researcher in the organisation may have led to a certain directed effect in participants, and comments or questions may have inadvertently carried more weight than appropriate.

Planning for focus groups normally include preparation of an interview guide, which contains typical questions, areas for inquiry and hypothesis (Merton and Kendall 1946). However, given the importance of free flowing discussion in a focus group, such guides must be used carefully – the researcher should be familiar with the domain of inquiry and be attentive to both the explicit and implied content of the discussion. This allows them avoid re-covering topics already discussed or inadvertently cutting short a member by switching topic at an inappropriate time. In this case the guide was expressed as a set of ISD practices as used by the particular group in their project, along with the conceptual agile framework. Each practice was addressed in turn with strong delineation as the discussion moved from one to the next. However, the agile concepts were addressed all together for each practice and allowed free flowing discussion. Due to the written input method used, participants were also free to write down input to practices not currently the focus of the moderators and rest of the group. The researchers feel that this structure allowed sufficient flexibility for individuals and sub-groups to address topics as they saw fit, while ensuring all practices used by the team were given minimum attention and input.

A common criticism of focus group research is that conversations between participants are largely ignored both in reportage and analysis (Wilkinson 1998). Although several extended discussions were transcribed and included in the analysis, undoubtedly the main data collection mechanism considered was the written input. Therefore, more careful attention to group discussions could significantly improve the range of data collected, and its depth.

Specificity – Capturing input in terms of experiences and perspectives rather than just opinions is advocated by Merton and Kendall (1946). In this study, the moderators actively encouraged the use of specific examples by participants in illustrating their opinions, and even articulated examples from other projects to encourage description of specific instances. This approach supports “retrospective introspection” (Merton and Kendall 1946) which increases the specificity of input. However, the use of post-its with limited writing space and constraints on time most likely restricted the contribution of specific input and may, indeed, have biased written responses towards the more abstract and subjective.

Depth – Achieving depth of input requires an emotionally and politically ‘safe’ environment for participants. Sensitive issues may not emerge in a group that is not sympathetic. Such ‘safety’ was achieved in some part by using written notes as the primary method of accepting input from participants – such notes were nominally anonymous. However, since each participant posted their notes, in their own handwriting, on the wall posters it could not be considered entirely secure in this respect. The emphasis put on specificity and detailed examples from the stimulus situation also helped in achieving depth.

Personal Context – The personal and social context of participants is an important factor in interpreting input. In the current study, a representative sample of members from across the ISD teams were selected – these differed in roles, skills, and experience among other factors. However, all had intimate knowledge and experience of the project and the practices used and were homogenous in that respect. Since the study was evaluating the agility of the team as a whole rather than a certain role within the team, it was felt this was the most appropriate way to constitute the groups. However, participants were selected by the project manager of each team and a certain bias may have been introduced in terms of representation.

In considering the effect of personal context on the research method, it is clear that this is particularly important in the data analysis stage. To facilitate this, quotations and other input should be attributed accurately to individual group members (Sim 1998). This facilitates effective coding and pattern detection during data analysis (Kidd and Parshall 2000). In this study, a significant opportunity for improvement is to devise a mechanism to allow attribution of both written and verbal input.

However, this must be integrated with an approach that also provides broader context to the input – which places each written contribution in terms of the questions or discussion which prompted it. Although the placing of post-its at certain places on each poster provides some such context, this cannot be considered entirely reliable.

5.3 Evaluation criteria for qualitative research

Although the evaluation described above allowed us to draw several improvements of the approach we have used, the evaluation criteria employed are akin to “rules of thumb” for conducting focus groups. This is because there is no theoretical or conceptual grounding of these criteria – they are not based on any evaluation criteria more widely used in qualitative research. In addition, they are proposed for evaluating the focus group aspects of research rather than the overall research method. As such, their ability to establish the impacts of such data collection on the quality of research is limited. Therefore such criteria are not sufficient to appraise the efficiency and effectiveness of the overall approach. Further evaluation with respect to quality criteria well-grounded and commonly used in qualitative research will help address these shortcomings and highlight other aspects of the approach that can be improved. In this subsection we provide a review of several potential evaluation criteria.

In terms of the evaluation of more general interpretive research, validity and reliability are two most important facets of the quality of qualitative inquiry (Yin 1994, Silverman and Marvasti 2008). Hammersley (1990) provides two straightforward definitions of validity and reliability respectively: “by validity, I mean truth: interpreted as the extent to which an account accurately represents the social phenomena to which it refers” (p. 57); and “reliability refers to the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions” (p. 67). A more detailed and complex set of criteria have been argued for (Miles and Huberman 1994, Yin 1994), which further deconstruct validity and reliability. It is important to acknowledge at the outset, however, that particular philosophical underpinnings or theoretical orientations and resulting methodological commitments for qualitative inquiry will suggest different criteria for judging validity and reliability (Patton 2002). Furthermore, as the popularity of interpretive research in IS has increased, a debate has developed as to how to evaluate its quality. Here we provide an summary review of the major contributions to this debate to provide context for the selection of evaluation criteria the authors believe most suitable to assess the extended focus group data collection method used in our research.

Interpretive research in IS has gained considerably in popularity since 1991 when it constituted a very small proportion of published IS research (Orlikowski and Baroudi 1991; Walsham 2006). Early interpretive research used quality criteria borrowed from the well-established positivist tradition which broadly assesses validity and reliability at various levels of granularity and specificity. Texts on qualitative and case study research offered operationalised versions of these (Miles and Huberman 1994; Yin 1994) and were adopted by interpretive researchers (Johnson, Buehring et al. 2006). However, there has been an increasingly active debate in the literature over the appropriateness of such criteria, based as they are in positivist philosophical assumptions (Johnson, Buehring et al. 2006). By failing to guide research design and execution appropriately, and in undermining the perceived quality of such research, the pervasiveness of these well-established but not-universally optimal criteria are seen to limit the effectiveness of interpretive research.

Recognition of this weakness has led to three distinct responses in the literature. One argues that the epistemological underpinnings of interpretive research argues against the use of established, standardised or imposed criteria at all (Bochner 2000). The application of criteria is seen as constraining the freedom and limiting possibilities of the research, and indeed resisting the change which characterises the progressive nature of research itself. The use of “personal standards” is instead advocated to ensure quality of research. This approach to judging research is reflected in the view of interpretivism as a ‘craft’ (Seale 1999) and criteria to evaluate it as restricting the freedom and creativity of the researcher to operate in the “new rubric of poetic social science” (Bochner 2000).

A second response, and seemingly the most popular in the literature, is that of extending existing criteria for validity and reliability by sub-categorisation. Several works have contributed variously alternative, complementary and overlapping proposals. These result in validity being extended from the three most popular forms of construct, internal and external validity to increasingly specific forms

such as 'successor', catalytic', 'voluptuous' and 'ironic' (Altheide and Johnson 1994) . Similarly, reliability can be disaggregated into more specific concepts such as 'quixotic', 'diachronic' and 'synchronic' (Kirk and Miller 1986).

A third approach to creating evaluation criteria for interpretive research is to propose alternates which are not based explicitly on validity and reliability. In a recent paper Geoff Walsham, an authority on interpretive methods in IS research, excludes any mention of the words validity or reliability when describing how the quality of such methods should be evaluated (Walsham 2006). Instead he refers to two alternate schemes which propose variously the use of authenticity, plausibility and criticality (Golden-Biddle and Locke 1993) or the seven principles based on anthropology, phenomenology and hermeneutics which have gained prominence in recent years (Klein and Myers 1999). However, there remains considerable ambiguity in how these should be applied, with one study (Cepeda and Martin 2005) looking at the quality of case studies applying the seven principles in addition to, rather than instead of, Yin's (Yin 1994) tests for validity and reliability. Regardless, K&M are frequently cited by IS researchers to justify or validate their research approaches (e.g., Pan et al. 2006, Dhillon and Torkezadeh 2006, Bjørn and Ngwenyama 2009).

A lack of satisfactory conclusions or universally accepted criteria for judging interpretive research indicates that this debate may continue for some time to come (Guba and Lincoln 1994; Johnson, Buehring et al. 2006). Although the two sets of evaluation criteria for focus groups proposed (Sim 1998; Merton, Fiske et al. 1990) confront specific aspects of that data collection technique, they do not consider the wider interplay between data collection, analysis, research design and other factors impinging on the quality of the research. The authors therefore favor a framework addressing the complete research method. Given that the epistemological nature of the research is critical interpretive, criteria with a basis in positivism were not considered as relevant as those explicitly grounded in interpretivism. The most comprehensive and established evaluation framework specific to critical interpretive research is therefore chosen (Klein and Myers 1999). The seven principles described in the framework also include descriptions of and references to various studies which are assessed by the authors using one or more of the principles. However, a search of the literature has not revealed any previous studies involving the formal operationalisation of all of the principles.

Table 5: Interpretive research evaluation criteria (Klein and Myers 1999)

1. The Fundamental Principle of the Hermeneutic Circle	This principle suggests that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.
2. The Principle of Contextualization	Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged.
3. The Principle of Interaction Between the Researchers and the Subjects	Requires critical reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants.
4. The Principle of Abstraction and Generalization	Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that describe the nature of human understanding and social action.
5. The Principle of Dialogical Reasoning	Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story which the data tell") with subsequent cycles of revision.
6. The Principle of Multiple Interpretations	Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. Similar to multiple witness accounts even if all tell it as they saw it.
7. The Principle of Suspicion	Requires sensitivity to possible "biases" and systematic "distortions" in the narratives collected from the participants.

6. Conclusion

Given the severe time and resource restrictions, and the extensive scope and lack of prescription of the research task, the focus group approach was highly successful in gathering large amounts of data from each ISD team. The use of written, semi-anonymous input and a highly structured format created specifically for each team, together with multiple researchers with deep knowledge of the

projects were critical. However, the several novel extensions to the focus group data collection technique described here justifies a comprehensive evaluation of the research method. In this paper the authors discuss several evaluation frameworks found in both focus group and qualitative research literature. We outline the current debate concerning the evaluation of focus groups specifically, and interpretive research in general. In proposing the use of a comprehensive evaluation framework which addresses the whole research method rather than specifically focus groups as the data collection method, the authors recognize such a framework should not be based on assumptions of positivist epistemology. Although not widely applied in the literature, the 7 principles proposed by K&M, being founded on hermeneutics, phenomenology and anthropology, are designed specifically for the evaluation of critically interpretive research. Future work will include the operationalisation of these 7 principles as a set of self-reflective questions, and the application of these to the research described in this paper. It is expected that this work will lead to a set of guidelines for the use of focus groups as a useful data collection technique for IS researchers, and a new framework for the evaluation of interpretive IS research more generally.

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