Capturing the Participants' Voice: Using Causal Mapping Supported by Group Decision Software to Enhance Procedural Justice

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Abstract. This paper examines the way in which causal mapping, aided by group decision software, adheres to the tenets of procedural justice. Causal mapping workshops utilise a dual facilitation process that enables the participants' "voice" to be heard. We demonstrate how a causal mapping process of investigation surfaces authentic qualitative data by aligning the process of investigation with the principles of procedural justice as found in organisational justice literature. This is supported by a statistical analysis of the dimension of procedural justice using the responses of workshop participants.

Keywords: Causal mapping · Procedural justice · Focus groups

1 Introduction

This paper examines how certain processes and procedures that embody the dimensions of Procedural Justice are utilised during focus group activities, and the extent to which they develop more meaningful levels of engagement with participants. This cross disciplinary study investigates the use of a soft operations research technique, Causal Mapping [11], in workshops with focus groups, where the objective of the workshop is to elicit meaningful information related to decision making. This is studied in the context of both private sector organisations and the student body of a UK university. The paper will be of particular interest to readers involved with policy making at all levels, from a process of investigation perspective and the utility of the method employed.

In the focus group workshops described in this study, a dual (software and human) facilitation process is used that allows the facilitators to surface the underlying issues that groups feel are key to that particular workshop discussion. Causal Mapping allows participants [5] to raise the key issues of concern by inviting them for their thoughts on a key prompt question which is used to start the focus group session. This prompt

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question is pre-determined to reflect an important decision-making area for that group. In doing this we witnessed a significant amount of "open, honest" and "insightful" information emerging during the facilitated focus group process. This leads us to believe that the nature of these facilitated focus groups allowed a more authentic voice to emerge.

The primary aim of the paper is to emphasise the learning points from the process of investigation we have used, and how it helps to draw out more "authentic" meaningful, detailed qualitative data, from participants. This becomes possible, we argue, since the process of investigation used is procedurally fair and hence better able to capture the participants' voice.

The main body of this paper is in 6 parts. Initially an outline of the Causal Mapping methodology is presented, followed by an outline of the processes employed in the workshops. We then examine how this dual facilitation process is aligned with Procedural Justice Dimensions, including voice and treatment effects. Finally an exploratory statistical analysis of the links between dual facilitation process and procedural justice dimensions is presented, before concluding.

2 Causal Mapping in Focus Group Workshops

Causal Mapping has its roots in the Personal Construct Theory of Kelly [24] and has been developed most notably by Eden [11] amongst others. Causal Mapping was chosen for collecting and analysing qualitative data in the workshop with participants as it helps provide a coherent picture of a situation. Causal mapping is an approach from Problem Structuring Methods (PSMs) [30] which allows a "systematic understanding of the issue at hand" [31] as it can deal with the complexity of issues that are interrelated [29]. This intervention approach, when teamed with a software aided process, improves efficacy as the intervention tool serves as a means of recording the data generated. The construction and analysis of the maps created in the workshops provide an insight into the underlying structure of an issue and, as "participants are facilitated through the complexity using a structured transparent process…….. this has positive effects on the data captured" [31, p. 832].

The focus group workshops were run using a mobile laboratory of networked laptops, using Group Explorer® software combined with the Decision Explorer® tool. The process allows the gathering, structuring and analysis of qualitative information that develops in the workshops. It allows the user to work with a model of interlinked ideas using maps created from the participants' own understanding of the main prompt question. These ideas (concepts) are gathered anonymously with the participants individually inputting their ideas via the laptops. This safety of non-recourse at this initial stage is vital in preventing the need for self-censorship and allowing a more authentic voice to emerge. The facilitators conducting the workshops ensured that any qualitative data generated was directly inputted by the participants themselves, thus embodying the understanding of these particular groups. As noted in the conclusion, this can be understood as showing the participants "respect" in a desire to improve interactional justice [2].

3 Focus Group Workshop Process

The aim of the workshops was to elicit information which would be rich in meaning and understanding from the participants' own perspective, such that any underlying issues of importance they surfaced through the course of the workshop would be prompted solely by "their view of the world as they understood it". This is in keeping with the phenomenological aspect of focus groups of "seeking everyday knowledge" [4, p. 356]. The stages of the focus group workshops followed a process of gathering, clustering, rating, causal linking and laddering. We now explain each stage.

Gathering: Wide gather of ideas (known as "surfacing" of concepts): Individual participants anonymously input their own thoughts on an initial prompt question.

The Group Decision software draws the concepts inputted into the individual networked laptops together into one space for examination. Once inputting is completed, the ideas or "concepts" are projected onto a large computer screen to allow the participants to read all the ideas generated by the group. This helps prevent the "group think" or "social loafing" [21] effect at the outset.

Clustering: The group members pick out concepts that appear to be of a similar theme leading to "clusters" of ideas that are related in some way. This building of clusters allows content to be reduced to a manageable level as it allows the group to work on each theme sequentially, as each cluster is copied and examined in turn on a new separate screen view. The process then becomes more visible and the whole group is involved in structuring the understanding.

Rating: Ratings are applied to these clusters whereby each participant votes anonymously using the software, as to which cluster represents the most important one to examine first and a ranking of clusters is achieved as a result. This ensures equitability in the process and prevents more vocal participants dominating the workshop process path.

Causal linking: This is used to develop the group's own meaning and understanding of the map created. As the participants input the directional arrows, the process allows discussion between the members of the group and encourages agreement on how the links should be constructed, though consensus across the groups is not essential, with the facilitator playing a key role in ensuring all participants opinions are able to be heard. The directional casual links are used to connect ideas, such that one concept leads to/causes another, for example the link between concept 70 and concept 68 (see top middle Fig. 1) indicates that this student group felt that "more formative assessment with feedback" would lead in some way to them being able to "achieve expected academic qualification". A negative sign on a link indicates that the preceding concept inhibits the following concept. (see Fig. 1 concept 67 "group work doesn't always accurately reflect the ability of students", negatively affects concept 68, "students being able to achieve their expected academic attainment".)

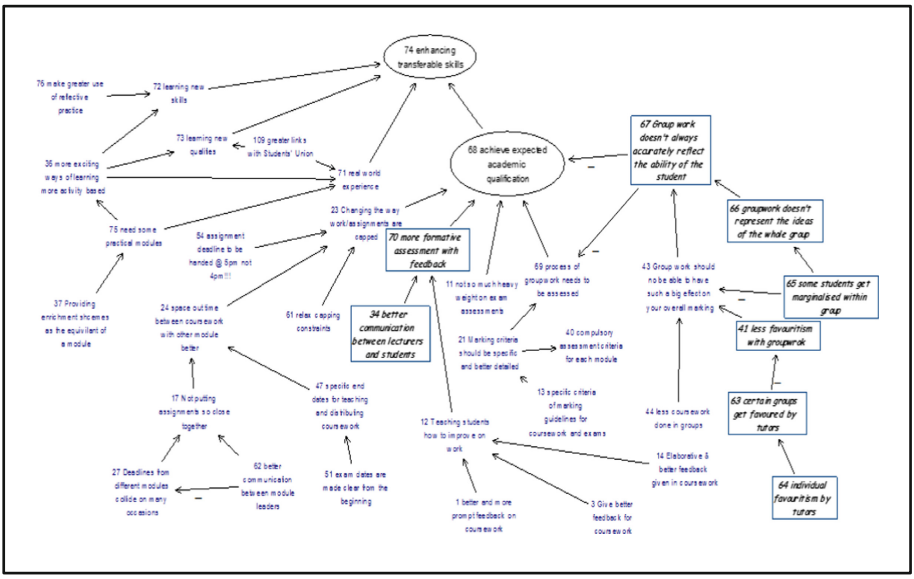

Fig. 1. Group One "Assessments" student map.

Laddering: By prompting the participants to consider why certain concepts matter to them we were able to work up towards goals (denoted by oval border statements) that they were hoping to achieve.

From the initial gathering of ideas (concepts) the groups worked together to build in "meaning" and understanding, such that the maps created directly reflected the negotiated understanding of the group. The role of the facilitator is to aid this process but at a "distance", helping only to structure and clarify the flow of the content not the actual content (concept statements) itself, whilst the maps are being "created" by the groups. To this end all the causal links (directional arrows) in the maps have been inputted by the participants. Thus it is fully their understanding that is represented in the structured maps. This approach is based upon Kelly's Personal Construct Theory [24] whereby a collection of ideas (concepts) and relationships (between the concepts) are connected in the form of a cognitive map. When these maps are utilised by groups they become referred to as causal maps. These maps help us to manage the content of a problem, whilst ensuring the social, political and process dynamics within the group are taken into account, so as to maintain a fair process [11–13]. During Causal Linking, it can be understood that Decision Explorer® is acting as a "dialectical tool, encouraging discussion and debate, helping people to explore the reasoning behind differing ideas held in the group" [1]. The maps represent a visual electronic memory of the discussion and can be added to and developed as the groups understanding evolves. The ability to add further content to the clusters, allows for the development of an emergent

Table 1. Participant feedback on dual facilitation process used.

Concept number from Student map	Statement in full
55	Visual representation of thinking on the screens helps to link understanding and give meaning
56	Process quicker than on paper and captures more content
57	We felt the questioning process was unbiased and not leading
58	Laptops were a familiar medium to use
59	Even with smaller a group the process yields a lot
60	Allowed us to discuss our experience as a whole
Concept number from Organization maps	Statement in full
82	Key benefit was keeping everything focused
83	Excellent presentation with clear and well explained conclusion
84	A follow on review breaking down further key points for each department
85	A very good way of collecting and assessing ideas in order to achieve a consensus of opinion, leading to action points
86	Good use of business model but reflecting on our actual business and it's requirements
87	Useful in clarifying goals/key issues for the company
88	Clear guidance for individual outcome and conclusion
89	Unlike typical "top-down" processes normally found in business. This allows equal participation by all parties
92	Excellent model for our team to understand our business

understanding in a seamless way over time. The notion of Concept Mapping [19] relies upon the view that abstract knowledge is more easily understood when transformed into visual representations. Thus it supports the use of a visual methodology to build understanding in the area of academic learning. Our feedback from participants in the workshop would appear to support this view (See Table 1 on feedback, concept 55). Maps are not provided here for brevity (and are available from authors)

A working model of the focus group sessions has been developed and can be represented by Fig. 2 below. The arrows in the looped feedback process represent the dual facilitation process in action. The right hand side of the diagram emphasises how the dual facilitation process encourages the display of desired extra role behaviours [25] in the workshops. The benefit of developing these behaviours for the quality of outcomes from the FGWs is discussed below.

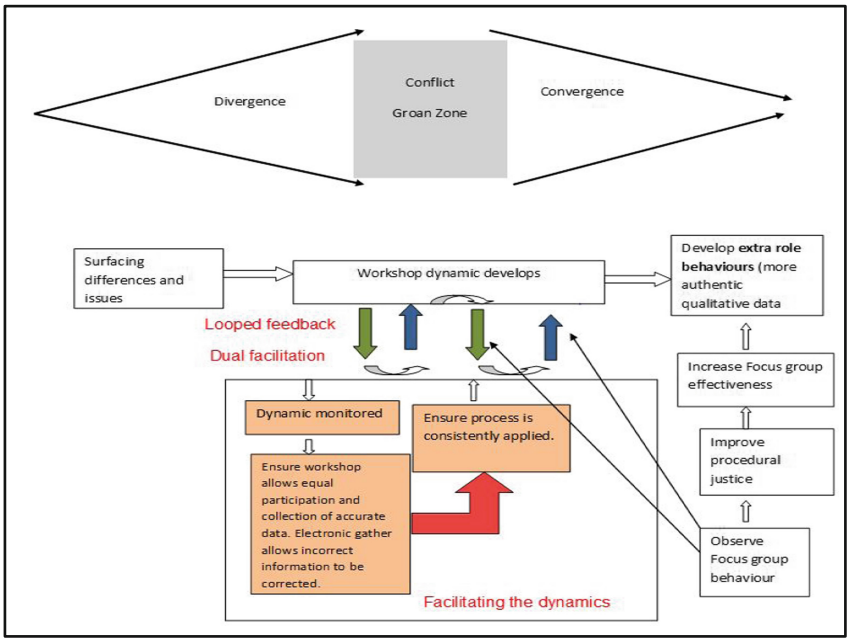

Fig. 2. Dual Facilitation Process of focus group workshops.

Figure 2 at the top provides the conventional notion of focus group activity passing through the three stages of divergence in group thinking, followed by the "Groan Zone" [22, 23] before the group moves into convergence of thinking. The modelling underneath developed by the authors represents the dual facilitation process as employed in the workshops. The initial surfacing of different ideas occurs in the gathering stage of the focus group process. As the workshop dynamic develops, the dual facilitation process allows a looped feedback process to operate whilst the workshop is operating live. Through the use of Group Explorer software, we monitor the group contribution to ensure an equal input of ideas from all of the participants. The dual facilitation process aids the enhancement of focus group outcomes as the workshop progresses, by encouraging the display of productive extra role behaviours.

In summary to this section the focus group examination undertaken tends to fit with the notion of experiential focus groups of the phenomenological type. In the context of the Experiential Focus Group as an effects application, [16] one looks to surface the "natural attitudes" of the focus group members. The primary focus of this phenomenological approach according to Calder [4] is to "draw out" the shared life experiences of the participants and is thus aimed at the "common-sense conceptions and ordinary explanations shared by a set of social actors".

We have not attempted to cover an overview of conventional focus groups, as this is well documented and referenced [6]. Other work in the field examines the notion of group think problems in focus groups [21], with others emphasising the importance of the group as a group notion, [7, 18].

The next section of the paper examines how this method of undertaking focus group activity, mirrors the dimensions of a "fair" process, as is discussed in procedural justice literature. The lack of research in this applied area is noted:

> "The relatively small amount of research in group decision making is surprising considering its importance for both practice and theory. One possible explanation for this scarcity is the absence of an effective tool of for measuring fairness of procedures in a group context" [20, p. 386].

This section aims to draw the links between the facilitated, software driven focus group process used in the study and the characteristics of procedural justice.

4 Aligning the Dual Facilitation Process with Procedural Justice Dimensions

In organisational justice research concerns about fairness are based on the inter-related aspects of organisations, such as how resources are distributed - *distributive justice*; the fairness of decision making processes - *procedural justice*; the nature of interpersonal treatment received from others - *interactional justice* and collectively these justice dimensions are known as *organisational justice* [9]. Of these justice dimensions, the one which was the main aim of examination for the focus group work undertaken was *procedural justice,* since fairness of process is expected to enhance the focus group outcomes, in terms of levels of firstly; meaningful engagement with the process and secondly; the richness and authenticity of the qualitative data generated.

The work on Justice Literature has developed in waves with each dimension receiving prominence in certain decades; distributive (1950–1970), procedural (mid 1970s to mid-1990s), integrative (mid 1980s to present). Increasingly when examining the area of organisational justice, there has been a movement away from "distributive justice" to "procedural justice" (PJ) concerns.

The aspect of Justice in organisational literature is a subjective notion of justice that states that certain process and procedure types can enhance fairness judgments [28, p. 3]. "Procedures can refer to official rules of how things are done, how decisions are made etc. This represents the traditional view which in this study we refer to as Procedural Justice Narrow (PJN). An alternative and possibly more inclusive understanding of procedures can comprise all processes and interactions that occur in the context of organisational life" [3, p. 123], which we refer to as Procedural Justice Wide (PJW).

The quality of the sessions is indicated by the authenticity of the data generated and the number of concepts/statements that the participants volunteered in the session. We look to understand how our process ensures PJ as part of the process itself and not as a way of enabling PJW. That is: How does it ensure PJN?

There is a further distinction in the literature that will help our understanding. Organisational Justice can be seen to operate at two distinct but potentially interrelated levels. The individual self-interest models that state that participants are interested in fairness purely from improving their individual outcomes [26, p. 493], and the group oriented models which reflect the concerns of all the group members and are thus more complex in nature [28, 33, 34]. As we were using a group process that did not involve

the participants making decisions that would necessarily directly affect their individual outcomes, it is argued that the group orientated models are more appropriate in framing this examination and this will be discussed further below under treatment issues in PJ.

In the area of PJ the work of Thibaut and Walker [32] paid particular attention to the "level of control" the participants believed they had in a process and the subsequent decisions arrived at through that process. They noted that participants reported higher levels of satisfaction when the process was seen as fair and as such even second best final decisions could be accepted by the participants so long as they had experienced control and fair participation in the earlier, process stage. [8, p. 426] "disputants viewed the procedure as fair if they perceived that they had process control" (that is, control over the presentation and sufficient time to present their case). This process control effect is often referred to as the "fair process effect" or "voice" effect [17, 28]. In this context fair decision making would allow participants control over the procedures that determine the outcome, as opposed to the outcomes themselves.

Linking this to our work, in an organisational context with a hierarchical structure such as a university or private sector organisation, direct decision making tends to reside at the top, and given that participants recognise this as the correct legal structure, they are hence prepared to accept "indirect opportunities" to impact on decision making as acceptable. This indirect aspect is termed "process control" by Thibaut and Walker [32], or the opportunity to express "voice". The process used allowed all participants to directly input their concepts (thoughts) into the Group Explorer system, without any censoring of views; hence we propose that the power to express "voice" for the participants is greatly enhanced by this process. This can be positively detected in the feedback from participants provided in Table 1, shown by concept 89.

Colquitt et al. [8] note that Leventhal broadened the determinants of procedural justice to points beyond process control [27]. This requires six criteria to be met if procedure is to be perceived as fair [8, p. 426]. These six determinants are drawn out to compare to the characteristics of the dual facilitation process used in the study in Table 2 below.

Table 2. Colquitt et al. [8]: p. 426.

Determinant; Colquitt et al.	Workshop process; Dual facilitation
(a) Procedures should be applied consistently across people and across time	We conduct the workshops using laptop laboratory setting, ensures uniformity over time, with the same prompt question for each group and general steps followed
(b) Procedures should be free from bias (i.e. ensuring that a third part has no vested interest in a particular settlement)	As facilitators we are independent of the university senior executive/organisation, and cannot impact on policy formulation at senior level
(c) Procedures should ensure that accurate information is collected and used in making decisions	Electronic gather of statements/concepts directly from the participants, ensures accurate collection of qualitative/experiential data with a clear audit trail through cluster building

(*continued*)

Table 2. (*continued*)

Determinant; Colquitt et al.	Workshop process; Dual facilitation
(d) Procedures should have a mechanism to correct flawed or incorrect decisions	The process can be used iteratively to ensure accuracy of information gathered. Concepts entered can be corrected electronically if incorrect
(e) Procedures should conform to prevailing standards of ethics or morality	Trained independent facilitators ensure process is ethically used with a correct employment of group norms in the focus sessions
(f) Procedures should ensure opinions of various groups affected by the decision have been taken into account	Students (and lower management in private organisations) are often not directly consulted in policy formulation, yet this process affords them a clear and transparent voice

When processes of investigation are embodying PJ determinants, the participants show commitment to the decisions made and will exhibit extra-role behaviours [25]. PJ also enhances the levels of voluntary contribution by "invoking the side of human behaviour that goes beyond the out-come driven self-interest" in exhibiting the extra-role behaviours [25]. All participants in our study were either volunteers or had been invited to take part by the lead member of the focus group (for the private organisations). Hence participants looked to experience a "fair" process of focus group investigation so as to engage meaningfully. In this study, the extra-role behaviour would be to divulge information that participants are not normally obliged to divulge and in doing so show "honesty" of opinion in a transparent manner. This would enable them to volunteer sensitive individual information (given the initial anonymity of the facilitated software driven process) relating to; how they felt they had been treated, how they had interacted with university tutors or to what extent as junior managers they could impact on decision making. As the inputting is anonymous electronic inputting to individual PCs, participants are less likely to self-sensor and will be more likely to engage in exhibiting extra- role behaviours and allow to surface sensitive individual opinions, which otherwise they would not feel safe to express. This can be illustrated by some concepts drawn from the maps, such as 64 in Fig. 1, "individual favouritism" which leads to 63 "certain groups get favoured by tutors", or statement 92; "students should be judged on ability rather than perception of ability", taken from another map not shown here. Similarly in the private organisation focus groups (given in Fig. 3) we had statements such as 29 "better dialogue between sales, warehouse and administration to achieve consensus agreement", clearly indicating communication issues that needed resolving.

The construction of the maps enables the facilitators to understand the conversation so that they may help surface more meaningful qualitative data. The understanding of qualitative research employed in this study is derived from Eisenhardt and Graebner [15] who stipulate that "qualitative research is highly descriptive, emphasising the

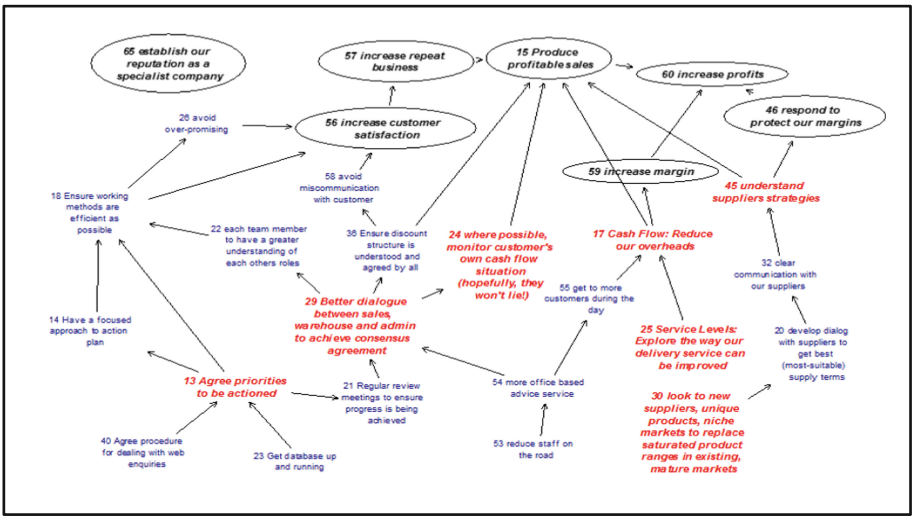

Fig. 3. Private organisation communication map.

social construction of reality, and focuses on revealing how extant theory operates in particular examples" [15, p. 28].

To understand how we are enabling PJN in our process, which in turn may enhance PJW we need to consider a more recent refinement of PJ terms.

4.1 Treatment Issues in Procedural Justice

The group engagement model of Tyler and Blader [34] gives a prominent role to procedural justice and is used to contextualise the work in this study. Within their model *treatment issues* are examined – participants value PJ (operationalised by voice or process control) because it aids the decision maker's ability to make equitable judgments. In this post 1990s examination of PJ more attention is given to the *interpersonal aspects* of procedures. This recognises that any process or procedure used in a group context will be a setting where participants are involved in social interaction, and is known as the *treatment aspect.* Interpersonal experience can range from being polite, rude, respectful and with hostility. The process used in these workshops is proposed to exhibit interpersonal fairness as one of the key functions of the independent facilitators is to ensure that the group conducts itself in a way that reinforces interpersonal fairness positively. The workshop sessions open with a slide on 7 "workshop conventions and norms" of operation that are adhered to throughout the workshop.

This shift in PJ, from a focus on decision making to interpersonal treatment aspects, shows the current development of PJ literature. It increasingly emphasises "pro-social outcomes, such as how to build trust, encourage responsibility and obligation, generate intrinsic motivation and stimulate voluntary co-operation with others" [33].

From the understanding of procedural justice dimensions, described in the section, a questionnaire has been constructed with 22 questions relating directly to these

dimensions. Each question includes a 7 point Likert scale with a single dimension of agreement ranging from strongly disagree to strongly agree. Some questions were negatively worded to check for consistency of responses and thus detect any potential measurement error. These scales were reversed for the analysis. The questionnaire was given to 62 respondents across 7 workshops of various sizes ranging from 5–10 participants. The questionnaires were designed to check if the participants perceived the dual facilitation process was procedurally fair. The results from these questionnaires are discussed next.

5 Statistical Analysis of Procedural Justice Dimensions

The data was first checked for reliability of scales across the questions. We did this by examining the questions designed to capture fair procedures (12 questions) and treatment effects (4 questions) separately and using Cronbach's alpha. Of the remaining 6 questions 3 related to outcomes from the workshops and 3 to elements specific to Causal Mapping. For fair procedures we had a Cronbach's Alpha of 0.749 with the deletion of any of the items not significantly improving the result. For treatment effects the Alpha score was 0.835. Both of these are seen as indicating a high degree of correlation between the items, which suggests that it is appropriate to use scale reduction techniques. The Cronbach's Alpha also allows for the possibility of sub-dimensions within each of the dimensions of process and treatment effects (Cortina 1993) [10].

We proceeded to examine each of the dimensions in turn using Exploratory Factor Analysis, using a Principal Components Analysis (PCA) technique. For the treatment effect questions we had a Kaiser-Meyer-Olkin Measure of Sampling adequacy (KMO) of 0.704 and Bartlett's test of sphericity with a significance level below 1% indicating that there is a sufficiently high degree of correlation between the 4 items for PCA to be applicable. PCA yielded a single dimension with the single component accounting for 68% of the variation with 4 items.

In analysing the 12 items for process we used PCA and included or removed items on the basis of whether or not the KMO figure was suitably high, that all the of the items had an anti-image correlation above 0.5 and that the Bartlett's test of sphericity had a significance level below 0.05. We then inspected the components and used orthogonal rotation (varimax) to surface more clearly separated components, this approach assumes no correlation between the components or sub dimensions.

This process yielded a final rotated components matrix of with two components that accounted for 60% of the overall variation within the scales. The KMO was 0.668 with a significance level below 1% for Bartlett's test of sphericity.

The 7 remaining items loaded upon the two components with the following groups of questions:

Component 1 included: The participants were not able to make an equal contribution (reversed item contributionRev); The participants were treated equally in the process (equal); The process allowed for the group to discuss their concerns in an ethical manner (ethics); The opinions of the group were taken into account during the process (group opinions).

Component 2 included: I was able to contribute to the workshop without feeling the need to self-censor my contribution (censor); I felt able to express my ideas during the process (express); I think my opinions were being captured in the process (my opinions).

Component 1 appears to bear a strong resemblance to a notion of interactional fairness within the fair process effect outlined above and component 2 seems aligned to the notion of "voice" within the area of process control. It would appear that there is some prima facie evidence that the dual facilitation process using group software embodies the key dimensions of procedural justice incorporating the dimensions of voice, interactional fair processes and treatment. This supports the claims of Eden, Ackermann and Page [14] who have sought to incorporate the four-component model of Tyler and Blader [33] into their strategic decision making process using their "Journey" making approach.

A larger question is whether the existence of these dimensions delivers a better outcome for the participants. We have measured the participants' views on their satisfaction with the workshops and the perceived effectiveness of the workshops, these scores came out uniformly high. It is, therefore, difficult for any testing to pick up any correlation between the existence of the components above and variation in outcomes. In order to tease out any such relationships we would recommend that a larger data set is gathered, and a comparison with other approaches to running focus group workshops in undertaken. This would allow one to see if superior outcomes can be attributed to one approach when compared with another.

6 Conclusion

The examination here is firmly "practice based" in terms of context, as the study is drawn from focus group research on students and organisations.

The electronic gathering of qualitative statements (known as concepts) on the prompt question allows the participants a clear "voice". It has been noted that "voice" has value beyond is ability to shape decision making processes and outcomes [34, p. 351]. In the field of organisational research, justice is considered to be socially constructed. Although it is based upon a small sample and more comparative studies are needed, the statistical analysis appears to confirm the alignment between the dual facilitation process used in the Focus Group Workshops and the dimensions of procedural justice.

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