Knowledge creation in focus groups: can group technologies help?

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Abstract

Knowledge creation is an important competitive factor in many organizations. Focus groups are one way that organizations are using to create knowledge about new products, processes, and procedures. Group technologies, specifically face-to-face group support systems (GSS), make it possible to enhance knowledge creation in focus groups by capturing and enhancing more ideas. It is suggested that facilitated GSS can enhance the quality and quantity of ideas that emerge and hence improve the knowledge that is captured about the product or process under study. The results of two experimental studies are presented. The first addressed the relevance of GSS to knowledge creation in focus group processes, and concluded that the use of a facilitated GSS can lead to greater knowledge creation in terms of the number of relevant ideas. In the second, it was found that focus groups using a GSS produced a greater number of better quality ideas, reached consensus more easily, but were less satisfied than groups not supported by a GSS. This suggests that GSS are useful to both practitioners and researchers seeking to maximize the knowledge created in focus group sessions. However, some human factor and participant satisfaction issues remain to be addressed. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Knowledge creation; Focus groups; Group support systems

Abbreviations: GSS, Group support systems; IT, information technology.

“... When I die, I want to come back with real power. I want to come back as a member of a focus group”.
Roger Ailes, former Reagan Media Advisor, 1996

1. Introduction

Knowledge management has become one of the primary imperatives of modern information-intensive organizations. In order to compete in increasingly complex and turbulent markets, these firms must create, share and manage knowledge that will give them a competitive advantage. Specifically, knowledge creation has become a focal point for managers who seek to capture the collective wisdom of their employees, customers and shareholders. One method of knowledge creation that has been used by organizations for many years is focus groups [27]. With the advent of new information technologies (IT) to support teams and groups and in particular, focus groups, renewed interest has developed into how these technologies can improve knowledge creation in groups.

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Unfortunately, relatively little research has been conducted into the use of IT to support focus groups. If they are one of the primary means of knowledge creation in organizations, it is important to study the processes and systems that would support them.

The purpose of this paper is to enrich understanding of how to enhance knowledge creation. As suggested by Clapper and Massey [6], an important basis upon which to ground such an investigation is the field of IT that supports groups: or group support systems (GSS). Through the practical application of IT to group interaction, GSS provide the potential to increase knowledge created in focus groups.

2. Knowledge creation, group support systems and focus groups knowledge creation and group support systems

Knowledge has been defined as information combined with experience, context, interpretation and reflection [12]. It can be either ‘tacit’ or ‘explicit’ [33]. Tacit knowledge is ‘internal’ and is difficult to formalize and communicate. Explicit knowledge can be expressed in words and numbers and can be codified and transmitted in a formal, symbolic language [28], it can be in the form of ideas that can be communicated between people, based on personal experience and interpretation.

Knowledge must be created or generated from some source and one of the most common sources in organizations are groups. These may include design teams, task forces, or focus groups. Knowledge is created in these groups by the interaction of ideas generated by group members. The ideas are either elaborated, enriched and accepted by other group members or rejected in some consensus-forming process. IT in the form of group knowledge creation systems or group support systems, offers the potential to enhance the knowledge creation process in focus groups.

The idea of using IT to support focus groups is not novel [9]. Portable, hand-held devices have become a staple to focus group researchers seeking to gauge audience reaction to audio and video presentations (typically commercials and entertainment). No studies in marketing and advertising studies were found that dealt with the use of GSS for this purpose, despite a plethora of research on their usefulness and relevance (for a meta-analytic review, see [2,14,25]). Rather, marketing-oriented research is apt to conclude that IT’s role in focus group research is strictly a supportive, non-intrusive role, based on the manipulation of manually captured data [10,18,19,20,36,45].

The emphasis on IT support for group meetings in general has resulted in GSS. Same-place-same-time physical configurations are typically used in a Decision Room, which consists of networked microcomputer stations around a U-shaped table.

An effective GSS usually contains both single and multiuser software. Single-user software like spreadsheets (e.g. Lotus 1-2-3), individual decision support systems (e.g. IFPS), and expert systems (e.g. Expert Choice) are typically available for group tasks like budgeting. A variety of GSS exist. For example, GroupSystems©, developed by Ventana Corporation, is used in many decision rooms around the world. It contains 12 tools and can form the basis of one, or a series of facilitated meeting sessions. These include commenting and idea generation tools (e.g. Electronic Brainstorming, Topic Commenter, Idea Organizer) as well as consensus and selection tools (e.g., Vote, Alternative Evaluation).

The use of GSS is based on the essential premise that if effective information and interaction support are provided, the quality of group meeting outcomes will improve. Consequently, improved structuring of group interaction and information processing features have been key elements in GSS design [7]. As such, GSS appear to be most successful when the performance of a group task can be enhanced by the provision of an externally imposed structure [29,39], enhanced information processing capabilities [43], and an anonymous communication channel [30]. It is also likely that GSS will be most useful when the group does not feel the need to enforce any sort of group norm in their task performance [37,40]. Put simply, GSS break up the group’s ability to create and enforce a norm, hence enabling a freer form of knowledge creation and a more efficient combination of individual effort into an aggregated whole.

Two general aspects of GSS use are of particular interest in knowledge creation: process and outcome. The most commonly accepted model of GSS, put forth by Bostrom and Anson [3] suggests that a variety of factors may affect the GSS session: task, group
characteristics, GSS tools, and context. These are put into play in a session, and the outcomes are more or less emergent [34] to the extent that structure of the GSS is more or less restrictive [42]. It has been the practice in GSS research to capture variables relevant to both the process and outcome. Outcome variables of interest include: number of unique alternatives generated, decision quality, outcome satisfaction, and decision confidence [47]. Process variables include process satisfaction, participation, and equality of influence [26]. In this study, we extend the domain of outcome variables to include the amount and quality of useful knowledge-based ideas. These are not simply unique ideas but ideas that demonstrate the experience of the group members.

While there have been some inconsistencies in GSS outcomes [13], when the group’s efforts can be best enhanced by improvements to mechanics, the strengths of GSS come to the fore. This is consistent with the concept of task-technology fit [17]. According to Zigurs and Buckland [48], task characteristics have been shown to account for more than half of the variation in group interaction [24,35,41], and the interaction between task and technology (i.e. the fit) can be critical to successful GSS use.

3. Focus groups

Focus groups, are interactive discussion groups used for generating knowledge and hypotheses, exploring opinions, attitudes, and attributes, evaluating commercials, and identifying and pretesting questionnaire items [15]. They exhibit many of the traits associated with managers in face-to-face meetings using a GSS. Contemporary definitions even adopt the notion of facilitation and moderation of discussions, such that focus groups are now seen as “... [a group] discussion of a particular topic under the direction of a moderator who promotes group participation and interaction and manages the discussion through a series of topics” [21,23] and as moderated “... free and spontaneous discussions that tap into attitudes and perceptions about products, services or programs...” [22]. They seek to maximize time efficiencies, and to take advantage of possible synergies that the combined effort of a group will provide.

The focus group concept is very similar to a GSS. However, Outcome studies assess focus groups in terms of outputs.

In sum, while it seems that an overarching theory of focus groups does not exist in the literature, they continue to be perceived as the most effective manner in which to qualitatively discern consumer wants, preferences, and opinions, in other words consumer knowledge about a product. Stewart and Shamdasani [44] summarize the advantages of focus groups over individual interviews and other methods like Delphi groups from two viewpoints: the respondent’s and the sponsor’s. For respondents, focus groups offer synergy, snowballing (bandwagon effect), stimulation, security, and spontaneity. For sponsors, they offer serendipity (ideas ‘out of the blue’), collective wisdom (knowledge), specialization, scientific scrutiny, structure, and speed.

In spite of their potential benefits, a number of shortcomings of the use of focus groups have been identified. Calder [4], Fern [15] and Winters [46] all note that as a research method, focus groups can be criticized for the subjectivity of their technique, the inconsistency of results across groups and moderation idiosyncrasies. As McDonald concludes, focus group performance is the result of “... a balance between moderator control and member participation.” [22] If use of a GSS can minimize these shortcomings and enhance the benefits, focus groups could become an even more productive tool for organizations.

This review of the GSS/Knowledge Creation and Focus Group literatures suggests a framework shown in Fig. 1.

Several themes appear in GSS research that suggest that this technology may be relevant to enhancing focus group research—that the technology may enjoy a rather high degree of fit with the unique characteristics of a focus group task. First, there is the emphasis on process structuring. Nunamaker et al. [31] suggest that process templates are effective for certain types of tasks that can be relatively routinized. Such a template can be built into the menus and tools in the GSS software, and hence a large number of sessions can be conducted in a standardized manner. Next, there is the emphasis on aggregating individual input, rather than on group processes. In focus group research, the emphasis is more on aggregating input from indivi-
duals. This would appear to play directly into the strengths of a GSS. Finally, there is the interest in improving both the process of group sessions, to make them more efficient. In the context of focus group sessions, this should also enhance the process, and lead to better outcomes from a series of focus group sessions.

It follows, then, that GSS might be of use to focus group researchers in addressing these shortcomings, as they provide solutions to the very distortions that may be part of the dynamics.

In the marketing context, focus groups, and possibly GSS, might be used by researchers in one of two fashions. First, focus groups might be used to gather consumer knowledge to a specific product, product attribute, packaging, and/or advertisement. Here the participants are shown the object or an advertisement and asked to react verbally. The goal is to obtain as many comments as possible. Second, they might be used to position a product (e.g. ‘To whom might this product be sold’), to determine its value/price (e.g. ‘How much would you be willing to pay for this product?’), to test its unique selling proposition (e.g. ‘What does this product do that no other can?’), or even to assess possible channels of distribution (e.g. ‘Would you buy this type of merchandise from a catalogue?’). With this knowledge, tactical marketing and advertising decisions can be supported.

4. Hypotheses

We have found that the capabilities provided by GSS should lead to enhanced focus group sessions. Consistent with the areas in which GSS and Focus Group research appear to dovetail, we have devised our hypotheses to emphasize both process and outcome dependent variables.

The first task, one of obtaining as many useful ideas as possible, might be labelled a knowledge creation
task. Within the context of the research framework, the following hypotheses are proposed:

**H1:** Focus Group respondents utilizing a GSS will create more knowledge in the form of a greater number of unique ideas on a given topic than will Focus Group respondents interacting without a GSS.

**H2:** Focus Group respondents utilizing a GSS will create more useful knowledge in the form of higher-quality, more relevant ideas on a given topic than will Focus Group respondents interacting without a GSS.

**H3:** Focus Group respondents utilizing a GSS will be more satisfied with the knowledge creation process than will Focus Group respondents interacting without a GSS.

The second task, that of determining the degree of agreement which exists for a particular question, might be labelled a knowledge consensus task. Within the context of the contingency framework proposed, this leads to the following additional hypotheses:

**H4:** Focus Group respondents utilizing a GSS will reach consensus about the knowledge created more easily than will Focus Group respondents interacting without a GSS.

**H5:** Focus Group respondents utilizing a GSS will be more satisfied with the knowledge consensus process than will Focus Group respondents interacting without a GSS.

5. **Experiment 1**

Our first experiment built on a decade’s worth of research in GSS, extending it into the realm of focus groups. As such, the study was exploratory, contextual, and designed to investigate how a facilitated GSS might affect the performance, in terms of the amount of knowledge generated (number of enriched, unique ideas), of a focus group (H1).

5.1. **Method**

This experiment was a simple two treatment design. The two were GSS support (electronic idea generation, where group members used a networked computer system to aid them in generating ideas), and traditional idea generation, where group members verbally generated ideas in the traditional way.

5.2. **Subjects**

Forty undergraduate students (24 men and 16 women), enrolled in an organizational behavior course at a Canadian University, participated in the study for partial course credit. Their mean age was 20.2 years. They were chosen as they were part of the target market for the task considered. In addition, none had previously participated in a knowledge creation/idea generation experiment or a focus group session and had not studied the concept of GSS or knowledge creation in any of their courses. Groups of four were used. All subjects were randomly assigned to mixed sex groups.

5.3. **Tasks**

All groups performed two focus group tasks that required them to generate ideas or comments. The first was ‘What features should the new University library have?’ This was used because the University was in the planning stages of building a new library and the Planning Committee was requesting input from major users (students). The second task was ‘How can tourism be improved in our area?’ This task was chosen because the local Chamber of Commerce was promoting a campaign to encourage tourism and was requesting input from the student population (a major demographic category in the area). These tasks are typical of focus group tasks that ask group members from a target group to generate ideas/knowledge about products or services. The order of the tasks was randomly assigned across groups and the order of the technology was randomly varied across tasks.

6. **Treatments and procedures**

For the electronic idea generation treatment, the software was Ventana’s GroupSystems. As each member generated an idea, it was sent randomly to other group members so that they could see the ideas of others, comment and elaborate on those ideas, and generate their own ideas at the same time, at any time. Group members did not know whose ideas were presented to them.

For traditional idea generation, group members verbally generated their ideas and the facilitator wrote them on flip charts at the front of the room.
All sessions were set up as simulated focus group sessions. Three group facilitators were used: one randomly assigned to each session. Each facilitator used a standard script that explained the purpose and importance of the session and instructions that were to be followed to generate the ideas. The instructions were: ‘generate as many ideas as you can based on your experience, elaborate on the ideas of others if appropriate; the more novel and relevant the idea the better, suspend evaluation of ideas until later.’

Each session began with subjects being introduced to the facilitator and to each other. The subjects completed an experimental consent form and gave background information. Next, the facilitator described the purpose and importance of the session. The subjects were then given a practice idea generation task, with the facilitator providing the instructions. After the practice task, the group was given the first idea generation task, involving 30 min to generate ideas. This was followed by the second task, also of 30 min duration. No group, manual or GSS, took longer than 20 min for any task (thereby eliminating typing speed as a mitigating factor in the production of ideas). Lastly, the subjects were debriefed, and asked not to disclose what occurred in the session until the experiments were completed.

6.1. Dependent variable

The dependent variable was the number of enriched, unique ideas generated per group. Two experienced, treatment and hypothesis-blind researchers coded the ideas for uniqueness and relevance. A manual developed from previous electronic idea generation research [11] was adapted to train the coders. The inter-rater agreement was 0.94. Disagreements were discussed and resolved, and a single set of assessments used for the data analysis.

6.2. Results

A one-way ANOVA was conducted on each question of the background questionnaire (age, typing ability, experience in groups) to assess whether there were any significant differences between the groups prior to the sessions. No differences were found. An initial analysis of the number of ideas/knowledge generated for the two tasks indicated that there were no significant differences for the task or the order of the tasks ($F_{s}=1.96$ and 0.34, n.s., respectively). Therefore, we ignored these factors in subsequent analysis.

An ANOVA of the number of non-redundant, enriched ideas showed a significant effect for technology ($F=7.15, p<0.05$). Focus groups using electronic idea generation generated more unique ideas ($m=62.8$) than traditional verbal idea generation ($m=51.7$).

6.3. Conclusion

The results of this exploratory study support H1 as well as other research studies using different tasks that have compared electronic idea generation groups to traditional verbal idea generation groups (see [16] for a summary). This study was designed to simulate a focus group context with tasks that were real and appropriate for the target group. Here, using two different tasks, electronically supported groups generated more knowledge in the form of unique ideas. But this experiment focused on only one type of task that focus groups perform (knowledge creation) and used a relatively small number of subjects.

7. Experiment 2

The second experiment builds on the first experiment by examining other tasks that focus groups perform and assessing outputs in a number of ways. It explored how facilitated use of a GSS would affect the performance of focus groups for knowledge creation and knowledge consensus tasks. We sought to replicate the findings from Experiment 1 (albeit in a broader task setting and with more subjects and groups), to determine if a facilitated GSS aided focus groups in reaching consensus on an important product attribute: price of consumer products.

7.1. Method

The design of this experiment also involved two treatments. These were GSS support, where group members were aided by the GSS and a facilitator during their knowledge generation and consensus reaching tasks, and traditional group focus support where group members were aided by flip charts and
7.2. Tasks

The overall task was to compare the attributes of two competing products and reach consensus on their relative pricing. In order to do this we solicited a number of companies who we thought might be interested in comparing their product to that of a competitor. We chose a meat products company that was about to introduce a ‘specialty hot dog (frankfurter)’ to the market. They wanted such a comparison, especially focussing on the ‘young adult market’ (18–24 years old). They were seeking knowledge that could be used to develop comparative commercials and print ads aimed at establishing a distinct market position against this competitive product.

All groups performed two tasks. First, they tasted and commented (generated ideas) about each hot dog. Second, they reached consensus on the relative price per package for each company’s hot dog. As both products were new to the market (still in testing), and unavailable in the market where the experiments were conducted, subjects did not know the real price for each product. Each group used either the GSS to support both tasks or used traditional support for both tasks. The order of presentation of products was randomly varied across groups. Products were identified only as Product A and Product B.

7.3. Subjects

A sample of 101 men and 92 women from the producer’s target market participated in this experiment. They were aged 21–25 (mean age 20.2 years). They were selected so that none had previously participated in an idea generation experiment or a focus group session, and none were familiar with GSS. They did, however, have experience with eating the general products under study and were able to bring their experience and knowledge to the task at hand. Forty groups were formed; 33 had five members and seven groups had four members. At least two participants from each gender were in each group. Within that constraint, all subjects were randomly assigned. Groups were randomly assigned to either the GSS-support treatment or the traditional treatment.

7.4. Treatments and procedures

For the GSS-support procedure, the same technology setting and support was used as in Experiment 1: group members sat around a U-shaped table with a computer screen and keyboard in front of each station. The computers were networked. The electronic idea generation or commenting software was also the same. As each member generated a comment/idea regarding the product that had just been tasted, it was sent randomly to other group participants so that they could see it. Again, anonymity of comments was preserved. Comments could be generated at any time. This type of interaction helped stimulate knowledge creation.

For the knowledge consensus task, group members used the computerized voting tool that allowed them to vote on the price choice and then see how their vote compared to other group members and their degree of consensus. Group members were asked electronically to select a price from a list of prices (10 price points) based on the expected retail price for the competitive product. This tool was used by each group two or three times until consensus was reached.

For the traditional support treatment, group members verbally generated their comments/ideas and the facilitator wrote those comments/ideas on flip charts. For reaching consensus on the product prices, the facilitator would give the group members a range of prices for the products (the same as used on the computer system) and asked that the group discuss the relative prices and reach consensus.

Two trained group facilitators (one male, one female) were used to run the sessions. Each had prior experience as a facilitator. Both were trained in the GSS tools. They were randomly assigned to groups and treatments. Again, the facilitator used a standard script that explained the purpose and importance of the session and the instructions. Each facilitator prepared and presented each product for tasting and comment. Depending on the treatment, the facilitator would record comments on flipcharts or run the GSS and assist participants in its use. The facilitators were instructed to minimize the differences between the treatments so that the results would be comparable. Questions on the post-session questionnaire were used to determine that no facilitator effects were present.

Each session was conducted like the first experiment’s, with the addition of product samplings in this
case. Subjects were asked to record their responses to two questions: (1) What did you like about the product? and (2) What did you not like about the product? No group took longer than 40 min to complete this task.

Next, group members were asked to reach consensus regarding fair retail pricing for a package of four hot dogs for each of the products. In the GSS-support treatment, group members used the Voting tool in GroupSystems. This displayed the range of possible prices and group members were able to anonymously select the price. In the traditional treatment, group members were shown the price points list and asked to reach consensus on a price for each product. No group had difficulty reaching consensus on prices, and none took longer than 30 min to reach consensus on the prices for the two products.

Finally, after the knowledge consensus task was completed, group members filled out a questionnaire about their perceptions, they were debriefed, asked not to discuss what went on in the session, and departed.

7.5. Dependent variables

The two dependent variables were the number and usefulness of the unique, enriched ideas produced per group. It was thought that these two variables would reflect the amount and quality of knowledge produced by the group. Two experienced, treatment and hypotheses-blind coders removed redundant, irrelevant ideas from the lists generated by the focus groups. The remaining ideas were then counted and rated as to their usefulness in terms of relevance to product launch and product positioning.

Satisfaction with the knowledge generation process was measured by three scales. The measures were adapted from Chin et al. [5]. Participants were asked to rate their satisfaction with: the task process, the outcome of the tasks and the way they felt their group had performed.

The degree of difficulty in reaching consensus was measured by three separate single-item Likert scales on the post-consensus questionnaire: (1) How difficult did you expect the consensus task to be, (2) How difficult was the consensus task and (3) To what extent would you advocate this process to others?

The overall satisfaction with the consensus process was assessed using a 3-item scale [38] on the post-consensus questionnaire (e.g. Overall, how satisfied were you with the consensus process your group used?).

7.6. Results

A one-way ANOVA was conducted on each question of the background questionnaire (age, sex, typing ability, work experience, vegetarianism, experience with computers, previous use of a GSS, purchase and consumption of hot dogs) to assess whether there were any significant differences between the groups before the sessions. No differences were found. No differences were found, either, for the order of product presentation or for facilitators.

The comments generated by the GSS and non-GSS groups were first transcribed in a standardized format to remove any trace of their origin. Each rater independently evaluated the comments/ideas on two dimensions: the total number of unique comments/ideas on topic, and the quality of these comments in terms of their usefulness for product launch. The inter-rater agreement on the number of comments on-topic was 0.91. We used the results of one of the coders for the data analysis.

An ANOVA of the number of non-redundant, on-topic ideas showed a significant effect of technology ($F=20.757, p<0.000$), strongly supporting our first hypothesis. As was the case for the first experiment, focus groups using a GSS generated more knowledge in the form of unique ideas on-topic, or pertaining to the product launch than focus groups not using a GSS ($m=34.1$ and $22.6$, respectively).

The total number of unique, enriched ideas on-topic were rated on two quality dimensions: their usefulness for product launch decisions and their usefulness for positioning decisions. The distinction between these two dimensions centers on whether or not the product is assessed against another [32]. In an advertising context, comments useful for product launch would be those that highlight the product’s attributes and the extent to which it meets targeted consumer needs. These comments might eventually be embodied into advertisements for the product. Comments useful in positioning the product are more comparative (e.g. assessing the product’s performance against a competitor’s) as well as more specific in terms of consumer evaluation.
Each group’s comments was independently assessed by each rater using a 1–5 (Of little use to Superior) Likert scale. A mean score for the group was computed. Interrater reliability for the usefulness of comments for product launch decisions was low (0.47) so the mean score between the raters for each group was utilized for the data analysis. The inter-rater reliability for the positioning usefulness mean scores was low but acceptable (0.67) [8], so the results of one coder were used for the data analysis.

The results also show support for H2. An ANOVA of the quality of knowledge-based ideas for product launch decisions showed a significant effect for technology ($F=9.48$, $p<0.005$). Groups using a GSS produced higher quality comments in terms of the launch decision than did groups not using a GSS ($m=2.13$ and $m=1.86$, respectively). An analysis of the quality of the comments for positioning decisions was also significant for technology ($F=9.135$, $p<0.005$). Focus groups using a GSS produced higher-quality comments ($m=1.53$) than did focus groups not using a GSS ($m=1.33$).

Two dimensions of satisfaction were measured: satisfaction with the task process and the degree to which participants were satisfied with the way their group performed. For both dimensions, focus groups not using a GSS reported significantly higher levels of satisfaction, failing to provide support for H3, as well as contradicting previous research.

Focus group participants using a GSS were less satisfied with their experience than were group members not using a GSS ($F=7.72$, $p<0.01$). Out of a highest possible score of 17, the mean for the GSS groups was 11.95, while the mean for the non-GSS groups was 13.11. Similarly, groups using a GSS were less satisfied with their team’s performance ($F=4.09$, $p<0.05$). Thus, H3 was not supported, with results opposite to the direction predicted.

On the whole, the results strongly supported H4. Participants using a GSS perceived the task of reaching consensus on a retail selling price for the product to be less difficult than they expected ($F=7.21$, $p<0.01$) and less difficult in fact ($F=10.1$, $p<0.005$) than groups not using a GSS for this task. Groups using a GSS also strongly advocated the use of a GSS for this type of task than groups using a manual method ($F=15.328$, $p<0.000$). Mean scores on each of these dimensions were 4.83 and 4.35 (out of 5, respectively) for the perceived difficulty of the task, 3.16 and 4.03 for the actual difficulty encountered, and 5.46 and 4.61 out of 7, respectively for advocacy of the respective methods used to reach consensus.

Unlike the results for the knowledge creation task, the overall satisfaction of participants with the consensus task in either conditions was not significantly different ($F=0.36$, n.s.). Group mean scores were 12.5 and 12.2 (out of 17) for the GSS and non-GSS groups, respectively. Thus, while H5 was not supported, the trend noted in the commenting task did not persist.

8. General discussion

Overall, the results indicate that focus groups may create more knowledge in the form of unique, enriched ideas when using a GSS. Consistent with previous GSS research, those groups which used a GSS to support their activities produced a greater number of ideas/knowledge that proved more useful to advertising and marketing managers making product launch decisions (H1 and H2). Unlike previous research in informations systems, these studies extend the use of GSS into knowledge creation and consensus specifically in the fields of advertising and marketing research.

The first experiment was exploratory, intended to show initial support for the assertion that focus group knowledge creation could be improved by using a GSS. When support was shown for this assertion, a second experiment was undertaken to attempt to replicate these results across more groups and more tasks. That the first hypothesis of the second experiment was strongly supported underscores the notion that process gains can be derived through the use of a GSS. Groups using a GSS produced, on average, 55% more unique, knowledge-based ideas than groups not using the technology.

It was found that the Knowledge Consensus task was perceived as much easier when using a GSS. Focus groups supported by the Voting tool were able to reach a decision on the selling price of the product more readily than groups who relied on traditional methods. Moreover, after the fact, the GSS groups were more prone to recommending this method for resolution of such questions than were the traditional groups. This suggests that any such choice decisions
might be made easier with a GSS. These include, but are not limited to, package choices, brand or product preferences, as well as advertising decisions surrounding the choice of a particular ad (print, radio, or television), particular spokesperson, or even the content of these advertisements, especially comparative ones.

The results from Hypotheses 3 and 5 of the second experiment may suggest however, that there is a cost (beyond monetary) to using a GSS in focus groups. Participants using a GSS were significantly less satisfied with the quality of their experience than those who did not use a GSS. This contradicts some earlier findings in the GSS literature which suggest that groups using a GSS tend to be more satisfied. In the case of the Knowledge Creation task, participants using the GSS were clearly dissatisfied, a result opposite to what was predicted. In the case of the Knowledge Consensus task, the GSS groups were satisfied to the same extent as the traditional groups. This could partly be due to the composition of, and tasks engaged in by groups in previous GSS research being less meaningful, or satisfying than traditional focus groups.

Alternatively, as Altman [1] notes, the focus group experience is a social one that relies on interaction between group members to produce a desired outcome. While using a GSS does not remove this interaction, it substantially changes it. Instead of interacting directly with one another, participant communication is mediated through a computer system. The introduction of this technology might be sufficiently disruptive as to dissatisfy the users. It could be that participant satisfaction is more a function of the role assumed by the facilitator. In this case, our facilitators were mostly passive in the GSS condition, and limited their input so as to allow a more precise gauging of the effects of the technology.

9. Conclusions

Overall, this work is encouraging, inasmuch as it offers some support for the use of a GSS as a knowledge creation support system for focus groups. This research crosses boundaries in that it combines IS and marketing research in an effort to improve the performance of focus groups. For marketing researchers it provides a new avenue of research in which information technology is not used solely as a manipulator of information/knowledge, but as a generator of knowledge in a group context.

This study should encourage the use of a GSS in focus group research as groups are more productive in terms of both the quantity and quality of knowledge they generate. Specifically, when considering new products aimed at younger, perhaps more computer-literate consumers, using a GSS might provide focus group researchers with more useful and candid comments. The same might be said of advertising stimuli, and for pricing research. Similarly, GSS might be beneficial in cases where a client is seeking to elicit depth knowledge, evaluations, and feelings on the part of consumers.

Given the expense and effort involved in assembling and running focus groups, these are key formative factors for managers contemplating their use. A concern might be that satisfaction of group members might not be as high as in more traditional arrangements, but, if group members are only participating once in the exercise, this effect might be negligible. As noted, active facilitation could also remedy this state. Certainly, in cases where an advertising choice or group consensus are required, this research builds a strong case for considering GSS for knowledge creation in focus groups.

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