

Flawed Tools:

The efficacy of group research methods to generate customer ideas or discover needs for innovation

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Author's Biography

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Before beginning his academic career Gary was actively involved in new product and service development in financial services. Professor Schirr formerly served on the new product committees of two international financial futures exchanges, headed service development for an online clearing subsidiary of a major bank, and had been in charge of product development for a leading software vendor serving online trading. From 2001-2004 he consulted with start-up firms involved in online trading and risk management.

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ABSTRACT

Group customer and user research methods, brainstorming and focus groups, continue to be used in innovation efforts to uncover customer needs, generate new product and service ideas and evaluate decisions, *despite extensive empirical evidence that group methods are ineffective for such purposes*. This article summarizes the strong evidence of the ineffectiveness of group research methods for these purposes, much of which has been published outside of the NPD or business literature. The article shows that the most common rationalization for the continued use of group methods – cost and speed advantages – are questionable, and then proposes an organizational market learning framework for evaluating the use of group methods. This framework provides guidance for the proper use of these research tools and suggests areas for future research on research methods for product innovation.

Understanding customer needs and generating ideas from good customer research are important antecedents of success in new products and service (Cooper et al. 1994; Cooper and Edgett 1996; Henard and Szymanski 2001). A succession of research streams has focused on engaging customers to understand their deep needs and generate ideas for product and service innovation, including: (1) the customer active paradigm of product development (von Hippel 1978), (2) lead users (von Hippel 1986), (3) the voice of the customer (Griffin and Hauser 1993), (4) probe and learn (Lynn and Morone 1996), (5) experimentation (Thomke 2001), and (6) co-creation by customers (C. K. Prahalad 2004; Payne et al. 2008). These methods focus on engaging users or customers at the individual level to uncover deep needs and sticky information (Szulanski 2003; von Hippel 1994); for example the authors of “The Voice of the Customer,” stressed that individual customer interviews were much more effective for new product ideas than focus groups (Griffin and Hauser 1993).

This preference for engaging customers *individually* instead of through group research methods is consistent with fifty years of research that casts doubt on the efficacy of group research methods for customer ideas or needs (Fern 1982; Griffin and Hauser 1993; Paulus and Dzindolet 1993; Taylor et al. 1958; Thompson 2003). The two primary face-to-face group techniques that may be employed in the ideation phase of innovation are focus groups, generally a group of four to nine customers or users assembled to explore user *needs*, and brainstorming groups, which may include engineers, customers, consultants and/or marketing staff, as well as users, to generate new product or service *ideas* (Fern 2001). Both focus groups and brainstorming groups are discussed in this article because: (1) as noted, needs and ideas are key antecedents of new product and service innovation and are gathered and generated at the onset of the effort, (2) both share the characteristics of face-to-face group interaction, which have been

considered a source of problems with the techniques, and (3) there is overlap in these groups: both may include customers and users and, despite the definitional distinctions focus groups are frequently used to generate new product or service ideas through brainstorming techniques (Durgee 1992; Fern 2001; McQuarrie and McIntyre 1986).

Despite strong and consistent evidence denouncing group ideation methods, some new product development researchers and consultants seem to consider all customer research to be effective. In addition, firms and consultants are using focus groups as part of new product and service ideation. This continued use of brainstorming groups and focus groups to uncover valuable customer needs and ideas is puzzling given strong evidence illustrating the ineffectiveness of group production. Why do group market research methods continue to be used in product and service development despite five decades of research showing such methods to be inferior to more individualized research techniques? The research questions for this article are vital to innovation in organizations:

Why are group research methods, focus groups and brainstorming, used in customer research for NPD ideas despite extensive evidence of ineffectiveness for ideation? Under what circumstances might an organization use group market research methods to support innovation and new product development?

Two recent articles have reviewed the strong evidence against group brainstorming and then suggested procedural changes, expressing hope that electronic groups might solve the group problems (Furnham 2000; Thompson 2003). This article takes a more fundamental approach to the issue: the evidence against group methods is reviewed, propositions about application of group methods in research for innovation are developed, and a framework for analyzing new group or hybrid methods for new product and service development research is presented.

A CONCEPTUAL STUDY

This article is a conceptual study to provide propositions to guide future research about the use of group market research methods as part of a new product development effort, and to provide a theoretical framework for choosing between group and individual ideation methods. The literature on the effectiveness of focus groups and brainstorming for generating ideas and uncovering customer needs in the context of product development is discussed. Possible benefits to organizational market learning from group techniques are explored. Ideas from the literature of new product development and market learning are used to frame the issue of when to employ group research. The objective of the effort is to develop propositions for future research and tentative guidelines on the proper use, if any, of these research tools.

The analysis emerges from a review of the literature on group research methods and focus groups in new product and service development (“NPD”). Most of these articles are empirical studies or meta-analyses of past empirical studies; although conceptual discussions are frequent in the meta-analyses and literature reviews. Meta-analyses are theory-building as they derive key effects and themes from previous empirical study. Given the increased acceptance of qualitative methods in marketing research, a conceptual article based in part on empirical studies should not seem unreasonable: theory can be created from data (Glaser 1992; Glaser and Strauss 1967; Strauss and Corbin 1998). Past conceptual work is, of course, also discussed and utilized.

Two secondary data sets which the author had access to are used to illustrate and frame the issues being discussed in the article. This is not an empirical study; the article could have been produced without the use of these two data sets. In the author’s opinion the statistics and exploratory data help the understanding of the issues, illustrate the problems, and frame choices. The two data sets used are the CPAS 2003 dataset from the Product Development &

Management Association (Adams-Bigelow 2004) and the results of the 2007 Bank New Service Development Survey conducted by the author in cooperation with the American Bankers Association (self-cite, AMA Winter Conference). Additional information about the two data sets is available as [Appendix 1](#).

The first section of this article reviews the empirical case against group research methods and the use of focus groups in need discovery, ideation or idea evaluation for innovation. The case against traditional group methods is strong with fifty years of evidence and hundreds of empirical studies, 208 articles in the sub-period 1967-1994 alone (Sutton and Hargadon 1996). Much of the empirical evidence is outside the marketing literature, in psychology and other social science areas, and may have therefore escaped full notice by marketing researchers and practitioners; this may explain why group research methods are still advocated for early stage innovation without fully acknowledging the proven pitfalls (Furnham 2000). The second section of the article demonstrates that despite the evidence against group methods, focus groups are still used in NPD to uncover valuable customer ideas and needs. Section three discusses efforts to explain the persistence of the use of group methods in the face of the dismal evidence of their efficacy. In the fourth section rationales for the use of group methods is linked to an organizational market learning model of new product and service development success. The final section before the Conclusion discusses the alternatives to face-to-face group methods that have been promoted through the years to reduce group-think problems.

Several propositions that emerge in the discussion are presented in the later sections. These propositions will ideally guide future research and provide some insight to innovators.

GROUP RESEARCH METHODS FAIL TO UNCOVER NEEDS AND *KILL* IDEAS

This section presents the extensive evidence against the effectiveness of focus groups and brainstorming groups for the key research missions of product and service innovation: (1) uncovering user needs; (2) generating ideas for innovation; and (3) evaluating alternative ideas. Many studies, primarily empirical tests or meta-analyses of empirical studies of focus group and brainstorming effectiveness, are cited in the discussions. A summary table of selected past research articles is included as [Appendix 2](#).

Uncovering user needs through focus groups

Griffin and Hauser, in their working paper that preceded the 1993 “Voice of the Customer” article, note that there are often key “exciting needs...not voiced...(by most customers who)...do not consider their fulfillment a realistic possibility” (Griffin and Hauser 1991, p.7) and claim that these needs are often key to the success of a project. The consensus process within a focus group may inhibit raising key issues and be a partial explanation for the lower quality of ideas generated in focus groups. Consistent with the evidence on idea generation in brainstorming groups, “The Voice of the Customer” found that individuals were less effective at uncovering user needs in a group session (Griffin and Hauser 1993). A 2003 article that suggests that the appropriate use of focus groups in innovation is to uncover “thoughts held in common” and “less idiosyncratic ideas” (Bristol and Fern 2003, p. 447-48).

Especially for more innovative product development, uncovering customer needs and problems is hampered by their contextual knowledge and inability to express or understand the needs away from the context (Szulanski 2003; von Hippel 1994). Focus group or brainstorming participants are gathered at a central location away from their work or home environment where they normally use the organization’s goods or services. An article written by an experienced

focus group leader declared that focus groups should not be used for idea generation or screening in innovation (McQuarrie and McIntyre 1986; McQuarrie and McIntyre 1987). McQuarrie later wrote a number of publications on the merit of customer site visits for gathering ideas – visiting a user where the good or service would be used and observing and interviewing one-on-one (McQuarrie 1991; McQuarrie 1998).

Such sticky or contextual information is likely lost in these group methods. IDEO, a well-known innovation and design consultancy, is known as an active user of brainstorming groups for ideation, as will be discussed in a later section (Hargadon and Sutton 1997; Kelley et al. 2001). However, even IDEO advocates using ethnographic methods rather than focus groups to uncover customer and user needs, in order to get at the deep or really interesting needs (Higgins and Koucky 2003; Kelley 2005).

Group ideation

Brainstorming – and the underlying techniques of group research employed in brainstorming, focus groups, or “group creativity” exercises – was proposed as a method to generate ideas (“ideation”) in a book written by an advertising executive and adjunct professor (Osborn 1957). Osborn claimed that he had empirical evidence that a group brainstorming by his four key rules – (1) criticism not welcome, (2) freewheeling welcome, (3) quantity of ideas welcome, and (4) combining/ improving ideas welcome – could produce twice as many ideas as individuals brainstorming alone *and also produce better ideas* (Osborn 1957; Thompson 2003). Osborn (1957) indicated that number of ideas alone is a sufficient metric to measure the performance of group ideation since *better ideas necessarily result from more ideas*. Osborn never presented the evidence to back his claims for brainstorming’s superiority, but he laid down a gauntlet and clear metrics – number of ideas and quality of those ideas – that has led to fifty

years of research and hundreds of studies testing group ideation methods against individual ideation. Taylor et al. (1958) conducted experiments, finding that the combined results of individual brainstorming outperformed groups in terms of the number, quality and uniqueness of the ideas generated. Several studies have found support for two of Osborn's ideas – that the four rules of conduct enhance creativity and that quantity of ideas is linked to quality of ideas (Litchfield 2008; Mullen et al. 1991; Thompson 2003). However, a wide range of studies have supported the Taylor et al. (1958) findings that brainstorming *groups* produce fewer and lower average quality ideas than methods employing users individually (Bouchard 1972a; Bouchard 1972b; Bouchard et al. 1974; Bouchard and Hare 1970; Bristol and Fern 2003; Diehl and Stroebe 1987; Fern 1982; Griffin and Hauser 1993; Mullen et al. 1991; Taylor et al. 1958).

As noted in the introduction of this article, multiple streams of research have pointed to the importance of user and customer ideas for effective product and service innovation. Experimental results from customer research reported in the *Journal of Marketing Research* (Fern 1982, p. 11) found that individual one-on-one interviews were superior to focus groups in terms of: (1) the *number* of ideas generated, (2) the *quality* of ideas generated, (3) dealing with *complex concepts*, and (4) "*thought-generation tasks*". Fern's (1982) list of four areas in which focus groups were inferior to individual interviews seems to correspond well to what new product development managers would seek in generating ideas from customer research!

Focus groups reduce the number of unique ideas per subject involved and reduce the quality of the ideas generated; the effect is predicted to be more severe in complex products (Fern 1982). Fern's (1982) findings that focus groups reduce ideas and eliminate the most creative ideas are consistent with research results about the effectiveness of group market research methods – focus groups and group brainstorming – from the two decades before he

wrote his article and in the decades since (Diehl and Stroebe 1987; Griffin and Hauser 1993; Taylor et al. 1958; Thompson 2003). The effectiveness tradeoff is all too clear: for a standard time period of around an hour, individual interviews averaged 28 unique ideas (unique ideas within a randomly selected group), members of a four-person focus group averaged 20 unique ideas, and members of a six-person group averaged only 14 unique ideas (Fern 1982, p. 7). On the two measures of quality—“summed quality” and number of “good ideas”—the individual interviews scored 50% better than moderated focus groups (p. 8). Fern (1982) was not surprised by these results, noting that they were consistent with a series of earlier studies that found that brainstorming groups—students, scientists, or business managers—generated fewer ideas and lower quality ideas than by working alone (Campbell 1968; Dunnette et al. 1963; Taylor et al. 1958). McQuarrie and McIntyre (1986) recommended that *focus groups not be used for idea generation or idea screening in a new product development effort* (p. 41). Past research presents clear evidence that focus groups are less effective in idea generation or idea testing (Fern 1982), in defining customer needs (Griffin and Hauser 1993) or in discerning customer attitudes toward existing products (Bristol and Fern 2003).

Quality of ideas and BEST ideas

Osborn (1957) stressed that quality of ideas was linked to quantity generated, so to measure the effectiveness of an ideation technique measuring the quantity of ideas generated was sufficient. A large number of studies have measured both quantity and quality and have supported Osborn’s quantity-quality link, while strongly rejecting his claims for the performance of group brainstorming. A meta-analysis of data from twenty published studies showed that “quantitative productivity loss is not compensated for by an increase in quality of productivity” and in fact that “productivity loss... is highly significant and of strong magnitude” measured by

either quantity or quality of ideas generated (Mullen et al. 1991, p. 18). The link between quantity and quality is not a simple linear link due to the percentage of quality ideas staying constant; empirical evidence shows that the *average quality of ideas* generated through individual interviewing or brainstorming is higher than in groups (Diehl and Stroebe 1991; Fern 1982; Lamm and Trommsdorff 1973; Mullen et al. 1991; Taylor et al. 1958; Thompson 2003).

A current working paper examines group and hybrid (individual research first then group brainstorming) ideation for the quantity, average quality, and very best ideas generated (Girotra et al. 2009). Girotra et al. (2009) conclude that an organization interested in generating ideas would be “better off relying on the asynchronous idea generation of individuals” rather than using groups (p. 23). Girotra found that hybrid groups were better than traditional groups in:

1. Generating more ideas
2. Generating better ideas
3. Generating the best ideas, and
4. Discerning the best ideas.

Furthermore Girotra et al. (2009) found that all of the benefits of the hybrid technique came from individual ideation: idea add-on and building, alleged advantages of group efforts, resulted in lower average quality ideas. *The group effect in ideation does not simply kill ideas, but it disproportionately eliminates better ideas and the very best ideas.* This is a major problem for group research: if the shortfall was only in quantity of ideas – or if the quality of ideas was even proportional to quantity – an organization could compensate for the ineffectiveness of group ideation by holding additional sessions. However this quality idea devastation cannot be cured by simply holding more group sessions. The only way to compensate for the reduction in higher quality and the very best ideas is to undertake research at the individual level.

Idea devastation

The effect of fifty years of empirical evidence on face to face group brainstorming methods is summarized in quotes from earlier researchers who have examined the empirical literature. Thompson (2004, p. 100) notes: “40 or so years of research on brainstorming has shown that group brainstorming is significantly worse in terms of fostering creativity than comparable numbers of solitary brainstormers...” “Research shows unequivocally that brainstorming groups produce *fewer and poorer quality* ideas than the same number of individuals working alone” (Furnham 2000, p. 21). Furnham (2000, p. 23) further states that: “The evidence from science suggests that business people must be insane to use brainstorming groups.” Academic meta-analyses use more restrained statements, but the meaning is still clear: “[Past and current studies]... suggest that there is little justification for group brainstorming in organizations” (Paulus et al. 1995, p. 262). A meta-analysis of group vs. nominal brainstorming studies state that “the long-lived popularity of brainstorming techniques is unequivocally and substantially misguided.” (Mullen et al. 1991, p. 18)

Before developing the propositions of this article it is worth noting a law of group ideation that has been supported by testing Osborn’s (1957) criterion for successful idea generation in hundreds of studies and multiple meta-analyses (Diehl and Stroebe 1987; Diehl and Stroebe 1991; Lamm and Trommsdorff 1973; Mullen et al. 1991; Mullen et al. 1989):

L1: *Group methods, focus groups or brainstorming, produce fewer and lower average quality ideas than individual brainstorming or interviews.*

Why do group methods kill ideas, especially good ideas?

Diehl and Stroebe (1987 and 1991) believed that group interactions caused the destruction of ideas in a group, specifically three hindrances: (1) free-riding by individuals, (2) evaluation apprehension, and (3) production blocking (limited time and need to wait for one's turn). Mullen et al. (1991) argued that it was not group processes but social psychology that affected group idea productivity. They noted that multiple studies had shown that limiting individual brainstorming to the time each was allowed in a group did not negate the superiority of individual ideation to group efforts in both quantity and average quality of ideas. Other efforts to procedurally deal with the three hindrances of Diehl and Stroebe (1991) similarly did not eliminate the idea gap. Mullen et al. (1991) urged that researchers and practitioners focus on issues such as self-attention and drive arousal that may be impacted by a group setting.

In a recent review of group literature, Thompson (2003) states that the key problem in group methods is not the group or team, "but rather the social-cognitive processes that operate in teamwork..." (p.100). She lists four major problems (p.100-01), the original three from Diehl and Stroebe (1991), plus an additional factor:

1. Social loafing – People in a group tend not to work as hard as they would individually, especially if their personal contributions will not be obvious in the final product.
2. Conformity – Group members desire to be accepted which leads them to respond with "traditional conservative and highly similar ideas."
3. Production blocking – A group member does not enjoy an "uninterrupted flow of thought... they must wait their turn...idea production is blocked."
4. Downward norm setting – Individuals working in groups "tend to match their performance to the least productive member." (Camacho and Paulus 1995; Paulus and Dzindolet 1993)

Her first and third factors would seem to predict the lower quantity of ideas from groups, while the second and fourth may explain the lower quality of group ideas. It is perhaps beyond the talents of even the most gifted moderators to overcome these group barriers as well as the social psychology barriers discussed by Mullen et al. (1991). Certainly the moderators used in fifty years of research under carefully controlled experimental conditions haven't succeeded.

DESPITE STRONG EVIDENCE, GROUP RESEARCH METHODS ARE USED IN NPD

Despite fifty years of evidence that group methods underperform by Osborn's (1957) standards, group methods are still used in early stage innovation – to uncover needs, generate ideas and evaluate ideas. Thompson (2003, p.100) notes that “companies who use brainstorming don't like to hear... [about the empirical evidence]” and “Despite the empirical evidence for its ineffectiveness, group brainstorming remains popular in business and industry.” As noted IDEO argued for individual methods rather than focus groups to uncover customer needs, but consultants, including IDEO continue to promote the benefits of ideation in brainstorming sessions (Kelley et al. 2001). A recent article on ideation by prominent NPD consultants even classified focus groups as a technique to understand the “Voice of the Customer”, despite the fact that Griffin and Hauser (1993) had marshaled considerable evidence against focus groups in their famous article (Cooper and Edgett 2008). A 2005 business press article urged companies to “Kill the Focus Groups (BusinessWeek 2005). Often-benchmarked P&G only recently de-emphasized focus groups in favor of individual methods such as individual interviews and ethnography in their innovation efforts (Lafley and Charan 2008).

Table 1 summarizes usage data from the two secondary datasets referred to in this study. A third of the PDMA membership that participated in the CPAS survey indicated that their

organization uses focus groups for customer research in at least half of their NPD efforts; 69% use them in at least 25% of the projects. Over half of the banks surveyed in the 2007 Bank New Service Development Study indicated that focus groups were employed in at least half of their service innovation programs. Despite fifty years of evidence about the ineffectiveness of the group methods to uncover needs and generate ideas, they are still widely used in customer research for product innovation.

[Insert Table 1 near here]

WHY ARE GROUP METHODS STILL USED IN PRODUCT INNOVATION?

After fifty years of evidence that groups are ineffective to generate ideas, evaluate ideas, or uncover customer needs, several ideas have been proposed to explain why brainstorming and focus groups have continued to be used for those purposes. Certainly there are times when focus groups can have real value, for example: (1) in conducting research with hard to reach or sensitive subjects such as immigrants, children, prisoners, persons with disabilities or anyone uncomfortable in a one-to-one interview situations; and (2) in situations where group decision making is relevant (Fern 2001; Stewart and Shamdasani 1998).

The focus of this article is the use of group customer research for product innovation. The literature showing that group ideation is ineffective has been discussed. McQuarrie and McIntyre (1986) recommended that *focus groups not be used for idea generation or idea screening in a new product development effort* (p. 41); they may instead may be useful for studying the adoption and diffusion of selected ideas (p. 42), far later in the NPD process. Two follow-up articles in response to the original article provided further support for the argument that focus groups were not good instruments for the front end of new product development (McQuarrie and McIntyre 1986; Seymour 1987). Group interaction in a focus group leads to a “shared

perspective” on the issues discussed in the group (Calder 1977, p.362). McQuarrie and McIntyre (1986) and Morgan (1996) suggest that the research topics should fit the group dynamics, where ideas and attitudes move toward a consensus. A possible effective use of the focus group procedure might be to help group customers into different categories (Bristol and Fern 2003). This approach – using the group nature of these methods – is logical but would limit their use to very specific applications. Aside from very specific applications (1) when customers are a protected group or (2) when product use will be a group decision, the research question of this article remains: why are group research methods still widely used in innovation research?

Empirical results have not been disseminated to business researchers and practitioners

As noted in the introduction to this article, most of the hundreds of articles and multiple meta-analysis that have shown empirical evidence have appeared in journals outside of the literature of marketing, new product development, or business; many have been published in social psychology or applied psychology publications. Businesspersons as well as business researchers may not be fully aware of the strong evidence against the effectiveness of group ideation methods. Furthermore Adrian Furnham (2000, p. 26) notes that “Most textbooks seem reluctant to discuss the damning research”. Furnham (2000) suggests that the ignorance of business persons of the extensive empirical evidence of the ineffectiveness of group methods, especially when combined with the tendency of group participants to overestimate group effectiveness (Paulus et al. 1993), may be a potent combination sustaining group research.

Low cost or faster innovation?

A common rationale for the use of group methods to generate ideas is low cost or speed in collecting information: lower cost or faster results may compensate for less effective ideation and fewer good ideas than from individual interviews. (Fern 1982; Krieg 1981; McQuarrie and

McIntyre 1986). However a review of the group research literature casts doubt on this rationale. In “The Voice of the Consumer”, a field experiment (Silver and Thompson 1991) to generate ideas for a complex piece of office equipment was cited (Griffin and Hauser 1993, p.7) as well as the ideation experiments from Fern (1982). As a general rule Griffin and Hauser (1993) found that groups of any size, 1-8, generated roughly the same number of ideas per hour. A study comparing individual interviews and focus groups suggested that even with the reduced quantity and quality of ideas “a number of logistical factors, such as location of the interviews, the mobility of the participants, the flexibility of their schedules, would determine which study would actually be easier to accomplish” (Morgan 1996).

Girotra et al. (2009) suggested an “asynchronous idea generation of individuals” for idea generation (p. 23). Since individual brainstorming or interviewing requires little training (Fern 1982), ideas could be collected by salespersons or customer services representatives during normal calls. When speed is essential it may be *faster* to gather six to eight customers in one location for a couple hours than to visit each one at their sites. However the cost of an experienced moderator, taping, the facilities and time reviewing the tapes must also be considered, *as well as the loss of better and the very best ideas* means the group effort is likely more expensive and less effective. If speed is more important than effectiveness there is still the option to employ the nominal group technique (“NGT”) which is individual brainstorming within and group and which has been shown to be almost as effective as individual interviews or individual brainstorming; furthermore NGT does not require a high-priced expert moderator (Claxton et al. 1980; Delbecq et al. 1975). Thus *neither the cost nor speed is a justification for the use of tradition face-to-face group research methods in innovation.*

The lower cost argument is really only convincing when an organization chooses to have a management team actively participate in the research: for example, sometimes a management team will observe a focus group session behind two-way mirrors. There is no evidence that such observation improves the number or quantity of ideas generated in group sessions. If an organization is determined to have a team of executives observe the idea generation, the cost and opportunity cost of their time, may make individual one-on-one interviews prohibitively expensive. However, even under the constraint that an organization wanted multiple executives to monitor ideation, some of the quasi-individual techniques such as nominal groups have proven to be more effective than focus groups or group brainstorming. So again, even with management team involvement, *a cost argument does not mandate idea-killing group sessions.*

It is worth repeating that earlier cited evidence showed the effectiveness of nominal groups or NGT with a single leader, or even leader-less individual idea generation. Organizations that choose to have management teams directly observe ideation efforts might have a rationale for the involvement of the teams other than the Osborn (1957) criteria of number and quantity of ideas generated, such as eliciting the help of the team members in the dissemination and implementation of ideas within the organization. These issues are discussed later, in the organizational market learning discussion.

Ideas are lost, but consultants profit from moderated group research

An ethnographic study of IDEO, a renowned design consulting firm that uses group brainstorming, acknowledges the compelling evidence against the effectiveness of group brainstorming for idea generation (Sutton and Hargadon 1996). Sutton and Hargadon (1996) explored how and why IDEO uses brainstorming, believing that Osborn's idea generation success metrics must be inadequate in light of the continued use of group research for ideation.

They found “six important consequences...not labeled as effectiveness outcomes [in prior research]: (1) supporting the organizational memory of design solutions; (2) providing skill variety for designers; (3) supporting an attitude of wisdom (acting with knowledge while doubting what one knows); (4) creating a status auction (a competition for status based on technical skill); (5) impressing clients; and (6) providing income for the firm” (p. 685).

Sutton and Hargadon’s (1996) “consequences” are consistent with past findings on the illusion of group effectiveness and organizational credibility of group output, and individual positive affect for group information (Paulus 2006; Paulus et al. 1993; Thompson 2003). Again, one way to read this list of group ideation consequences is to worry that consultants are taking advantage of the ignorance of business people of the compelling evidence against group methods (Furnham 2000): Consultants make money moderating group research (Sutton and Hargadon consequence #6); illusion of effectiveness makes the service easy to sell (#5); and the sessions advance the skills of the consultants that they can apply on future assignments (#1 and #2).

While the author believes from experience and anecdotal evidence that this cynical view of overselling by consultants is sometimes correct, organizational memory and skills (#1 and #2) and confidence in the information (#3 and #5) may help a firm’s innovation efforts in some circumstances. There is likely value in training your consultants and taking advantage of their other expertise. In addition organizational memory could be valuable within an organization that has ongoing innovation efforts. Furnham (2000) suggested that a benefit of group methods might be organizational acceptance of results. Indeed “the illusion of productivity might be a valuable affective outcome in some work contexts” (Litchfield 2008, p. 652; Paulus and Yang 2000; Sutton and Hargadon 1996).

The illusion of group effectivity

The illusion of group effectivity is thus one possible rationale for the continuing popularity of group research – brainstorming and focus groups are enjoyable and participants feel that they have been creative (Stroebe et al. 1992). Group participants expect their efforts to be productive before commencing [They have not reviewed the empirical evidence!], believe after the fact that they were productive, and take excess ownership of results: they take individual credit for the group results (Paulus and Dzindolet 1993; Paulus et al. 1993; Paulus et al. 1995). Thompson (2003) studied the tapes of multiple brainstorming sessions and found a pattern of positive feedback to all participants that likely left everyone with a good feeling and confirmed the Paulus et al. (1993) findings that individuals seemed to take personal credit for the group results. Fern (2001) notes the same effect in focus group participants involved in ideation or needs discovery: evidence shows they were not as productive as working alone but they enjoy the process more and have more confidence in the information obtained. Fern (2001) also notes that *even organizational members not involved in the group research* but merely observing or viewing the tapes give greater credibility to group output.

Even though ideas are being lost through group research methods, individuals involved in innovation in organizations feel that the efforts are successful, believe in the information collected, and enjoy the process. Combined with ignorance of the empirical evidence against group methods (Furnham 2000), this credibility and affect for group methods may lead to overuse of the methods. However, the credibility and affect for group methods by participants and non-participants in an organization (Fern 2001), even if not merited, might provide advantages to an organization. A few articles have suggested including group methods as a supplement to individual ideation due to the organization affect and credibility (Paulus et al.

1993; Paulus and Yang 2000), but have not suggested the exact benefit to innovation or how to evaluate the tradeoff between good ideas and organizational affect and credibility. Furnham (2000) suggests that it is reasonable for firms to use group methods in order to “increase decision acceptance” and get diverse groups in an organization on board (p. 26).

These suggested benefits of group methods seem to fit an organizational market learning model of innovation success that has been used in recent new product development research. The next section of this article explores how the illusion of group effectiveness, belief in the information collected, and organizational learning and skill-building, might fit into an organizational marketing learning model of innovation success. Law 1 should always be kept in mind however: group methods will produce fewer and lower quality ideas.

MARKET LEARNING AND ASSIMILATION OF IDEAS

An organizational market learning model stressing the importance of information acquisition, dissemination, and implementation has been applied to new product development (Lynn et al. 1999; March 1991; Slater and Narver 1995; Veldhuizen et al. 2006). A process that gathers customer information can affect new product development directly through the needs collected and the ideas generated and indirectly through its effect on dissemination and acceptance of the new ideas (Berchicci and Tucci forthcoming). Three recent studies applying the organizational market learning approach to new product development have found that: (1) a stage-gateTM type process may hinder learning and therefore negatively impact long term organizational innovation (Sethi and Iqbal 2008); (2) organizations can enhance high-tech innovation by “influencing project priority and flexibility, and by reducing interdepartmental

conflict” (Veldhuizen et al. 2006, p. 353); and (3) team values may affect NPD by affecting how the information is shared (Berchicci and Tucci forthcoming).

This organizational market learning framework explains the value of fun, credibility and idea dissemination from group research techniques. In a group process information is disseminated to multiple members of an organization at once: in the case of internal brainstorming multiple members of the organization participate and should buy into the results (Thompson 2003). Similar multiple members of the organization will be involved in focus group sessions and tapes of sessions are often shown to organization members. Even organizational non-participants in group research seem to have positive affect to grant increased credibility to group research results (Fern 2001). Adapting Figure 5 from Berchicci and Tucci (2007), Figure 1 below contrasts the effect of 1:1 methods on NPD success through a market learning model to the effect from group methods.

[Insert Figure 1 near here]

In Figure 1 the use of 1:1 customer research methods has a strong positive direct effect on both information acquisition and the ultimate NPD performance; group methods have only moderate direct positive effects on acquisition and performance. However group methods also have positive effect on the two later stages of market learning, information dissemination and sharing and implementation due to the credibility and positive affect for the group process within the organization. Since project priorities and the innovation process is driven by teams, dissemination and implementation of innovation ideas is important. The illusion of group effectivity (Stroebe et al. 1992) may have a positive effect in promoting the implement of ideas. The model depicted in Figure 1 provides a rationale for employing group methods of ideation, at least on a limited basis:

P1: *Group methods for ideation enhance the dissemination of information in an organization.*

P2: *Group methods for ideation enhance information sharing in an organization and lead to faster implementation of new ideas.*

Propositions P1 and P2 provide a possible rationale for continued use of group methods of market research in NPD: An organization may want to first engage in individual research activities and then use group methods. Saturation is a term used in qualitative analysis to describe the point at which most of the good ideas have been generated and further research is high cost relative to new discovery (Berg 2004). Griffin and Hauser (1993) found that 20 subjects were generally sufficient to saturate new product ideas; in narrow markets with very similar users as few as 8 subjects might be sufficient. Thus a logical approach to group methods might be to first gather ideas from 1:1 methods and then hold some focus groups or brainstorming sessions to aid market learning: “saturate, and then meet.” Saturate, then meet would seem to be particularly well suited for internal organization brainstorming.

Propositions 1 and 2 and the idea of saturation suggest some possible *specialized uses for group ideation methods* including:

1. When the gain from (1) enhancing the dissemination of information and (2) the sharing and implementation of ideas, is believed to outweigh the costs of lost ideas and more creative ideas from employing the methods.
2. To advance the dissemination and implementation of the information, after individual ideation methods have reached saturation.
3. To validate decisions – for example, when an innovation has already been decided upon by senior management and cooperation or organization “buy-in” is sought.
4. When the product innovation is small or incremental.

Future research, both qualitative and quantitative, should explore *whether* group idea-generation methods are being used for these specialized uses and if so *how effective* they are in these uses.

Tradeoff of group vs. individual techniques in different innovation situations

Focus groups and brainstorming methods kill ideas, eliminate the better ideas (Diehl and Stroebe 1987; Fern 1982; Griffin and Hauser 1993; Thompson 2003) and the very best ideas (Girotra et al. 2009; Taylor et al. 1958). Group gatherings remove the ideation effort from useful context and reduces the chances of collecting sticky or contextual information which is often essential to more innovative ideas (Szulanski 2003; von Hippel 1994). Ideation groups are not good at evaluating ideas (Fern 2001; Fern 1982; Girotra et al. 2009; McQuarrie and McIntyre 1986). Clearly an NPD team looking for ideas for more innovative projects should be skeptical of these methods.

However, as suggested in the preceding propositions, there may be circumstances when the positive affect, credibility and organizational acceptance from group methods compensate for reduced quantity and quality of ideas generated. This tradeoff could differ in varying innovation situations. For example, consultants are often hired to “sell” ideas that senior management has already accepted or that are viewed as obvious needed changes to line managers and staff (O'Shea and Madigan 2002). The credibility of group processes could be used as a tool to achieve employee buy-in for such engagements: what could be more powerful than to note that the ideas came from a brainstorming session of the managers or focus groups that they were involved in? Similarly the loss of the better ideas and the very best ideas may be more costly to a more innovative project than an incremental new product or service. This discussion leads to the following propositions:

P3: *Group ideation methods will be less frequently used in more innovative or radical new product development and explorative innovation efforts than for more incremental innovation.*

User input as a scarce resource: B2B Firms

Small firms, startup firms and some B2B organizations have a limited number of customers or potential users to solicit ideas, needs and problems (McQuarrie 1991; Oliva 2005). Even firms with larger customer bases pursuing novel or more innovative ideas may find available hours of lead users (von Hippel 1986) to be limited. There is actually a reduction of productivity as the groups get larger (Mullen et al. 1991). This idea devastation should be even more alarming when customer time is scarce. Using this framework of scarcity of user time for ideation, another proposition emerges:

P4: *Group ideation methods will be less frequently used as a part of a new product development effort by B2B firms or firms targeting a small number of customers.*

The CPAS data set allows an exploratory look at this proposition. The B2B members of the PDMA who participated in the survey were indeed less likely to use focus groups than B2C participants. This is illustrated in Table 2.

[Insert Table 2 near here]

REMOVING THE GROUP FROM GROUP IDEATION METHODS

Osborn's original four principles of brainstorming and similar rules for focus groups are in part attempts to overcome problems caused by group dynamics (Osborn 1957). As evidence continues to collect that group methods kill ideas other rules or approaches have been proposed to improve creativity. Thompson (2003, p. 102-03) summarized some of the more promising approaches, which include:

- Diversity – Participants with different expertise will tend to look at things differently. In addition diverse individuals may be less likely to bond into tight teams.
- Analogical Reasoning – This cognitive approach may help to access deep or contextual knowledge.

- Brainwriting – Group members individually write down ideas silently. This is an attempt to gather individual ideas before group pressures kill them.
- Nominal group techniques – Groups engage in brainwriting to collect ideas, and after discussing them, they individually, silently rate the ideas.
- Delphi – Delphi is the ultimate nominal group technique: group members *never* meet face-to-face.

According to Mullen et al. (1991), totally eliminating the face-to-face interaction is key: defining “alone nominal groups” (standard nominal groups) as individual brainstormers and “together nominal groups” as groups sitting together doing individual activity, this meta-analysis found that together nominal groups had less productivity loss than group brainstorming but still underperformed the alone nominal groups. These efforts to enhance group methods raise some interesting definitional problems: when has a method ceased to be a group method? An important topic worthy of future study is *whether or to what degree the group benefits of improved dissemination and implementation of ideas persist in “non-group group approaches”* such as nominal groups, Delphi, and markets for ideas (Armstrong 2006b; Green et al. 2007).

Researchers and practitioners should investigate the use of non-group group techniques, often electronic or virtual techniques enabled by the internet, such as Delphi and idea markets (Armstrong 1996; Armstrong 2006a; Armstrong 2006b; Thompson 2003). Perhaps non-group group techniques – Delphi, idea markets, or online limited-interaction brainstorming or focus groups – can provide a superior tradeoff of ideas generated and dissemination and implementation of the ideas. However if these techniques completely remove group effects, then they may be merely considered to be more efficient electronic or online interviews or individual brainstorming.

Evaluating new, hybrid and/or online ideation methods

The discussion of organizational market learning suggests that group methods may aid in the dissemination and implementation of ideas. If these benefits to group methods are shown to exist, than it may be possible that some of the hybrid techniques combine benefits of individual and group ideation methods. These new or hybrid techniques should thus be evaluated against benefits from both individual techniques and traditional group techniques:

Electronic groups, nominal groups and any proposed procedures to reduce idea loss from group research should be evaluated by three criteria: (1) Osborn's measures – quantity and quality of ideas relative to individual brainstorming; (2) Cost by time and resources used; and (3) to what extent the new methods advance dissemination and implementation by being fun, attracting management attention, and aiding firm retention, compared to traditional face-to-face group methods.

CONCLUSION

A review of selected empirical studies and multiple meta-analyses and reviews covering hundreds of empirical studies over the past fifty years, established that group techniques are not effective for key early inputs into organizational innovation: (1) uncovering user needs, (2) generating new product or service ideas, and (3) evaluating ideas. Group ideation has been shown to be inferior to individual ideation whether measured by the *number* of ideas generated, the *average quality* of ideas generated, generating the *very best ideas* or *evaluating* ideas. This review of the empirical research, including the summary table in [Appendix 2](#), should address the need to further disseminate the strong evidence against group methods suggested by Furnham (2000).

This article also showed that a review of the empirical evidence did not support the most common justification for the continued use of group methods for ideation and needs-discovery, the alleged low cost and speed of group methods. Individual methods that should be at least as quick and low cost as traditional group research methods are more productive in generating ideas and uncovering user needs. Cost and speed do not justify group methods; use of group methods can only be justified by factors other than the output of ideas and information.

Group methods have been shown to be fun and believed productive by participants who take undo credit for the results; even non-participant observers find group results credible. Applying an organizational market learning model to an organization's innovation effort, it seems likely that group methods may *promote dissemination and implementation of information*. A set of propositions are presented about the tradeoffs of individual and group methods for ideation and need discovery that should suggest future research and guidance for practitioners.

Group methods may have a role in the early stages of innovation to promote dissemination and implementation of user information, but ideally only after information has been gathered through individual research methods. Online, virtual and pseudo-group methods should be evaluated both on idea-generation versus individual brainstorming and interviews and on organizational affect and credibility to further the implementation and dissemination of information compared to traditional group methods.

IMPLICATIONS FOR FUTURE RESEARCH

The (fuzzy) front end of product innovation, where user needs are discovered and product ideas generated and partially screened, is recognized as a vital process of innovation that is relatively unknown and understudied (Koen et al. 2001; Page and Schirr 2008; Reid and Ulrike de 2004). A recent study of the front end process found that enhancing inputs positively impacted the process while formal process controls inhibited an effective front end effort (Poskela and Miia 2009). A primary contribution of this article is to summarize the extensive research from social psychology on the efficacy of group research for ideation for the front end innovation process. This suggests that individual methods be substituted for – or at minimum be used to augment – traditional group methods for soliciting user inputs. In addition, an organizational market learning framework suggested other areas of research on ideation methods and measures to supplement the Osborn (1957) metrics of ideation success.

From the organizational market learning discussion there emerged four propositions about the proper use of group methods for ideation in a product innovation effort. These propositions should translate into testable hypotheses in experimental or quantitative research efforts. In addition within the discussion of the organizational marketing learning model a series of potential niche uses for group methods were suggested that could be explored in qualitative studies of organizational product innovation. For example: Do group methods suit incremental product innovation?

Individual interviews, individual brainstorming, or even the nominal group technique outperform group methods for ideation – this should be considered a law of idea generation for NPD. There are an array of individual engagement techniques (ethnography, lead user analysis, experimentation, etc.) that have been presented in the product innovation literature to elicit deep

or sticky information from users (Szulanski 2003; von Hippel 1998). These techniques have been generally been observed in a limited number of case studies. It is time to test these promising methods against individual interviews as the group methods have been tested. Product innovation researchers and practitioners would benefit from experimental and quantitative tests and ultimately meta-analyses of the efficacy of these individual engagement methods. Similarly the online, electronic or virtual “group” methods need to be subjected to rigorous testing. It seems reasonable that Delphi research for experts and various forms of online brainstorming for users that minimizes group interaction may produce results similar to individual interviews or nominal groups but empirical evidence of their effectiveness is needed.

Finally, the discussion of organizational market learning suggested supplemental measures of organizational members “buy-in” to aid in the dissemination and implementation of ideas. As suggested group methods should be evaluated for these benefits. More importantly some of the online and virtual group methods should be evaluated as well. Do tapes and records from nominal group sessions lead to better organizational dissemination than do output from individual interviews or solo brainstorming? If so, is there a benefit to the product innovation effort beyond the quality of ideation? Does Delphi research and forms of online brainstorming that limit group interaction still lead to increased acceptance from participants and observers? Research on these questions could provide further illumination of need discovery and idea generation at the front end of product innovation.

IMPLICATIONS FOR PRODUCT INNOVATION PRACTICE

Managers of NPD or organizational innovation should be wary of dependence on group techniques, whether focus groups of potential customers or brainstorming of stakeholders, to generate or evaluate ideas for innovation. A group brainstorming session among organizational members may be a good way to build enthusiasm for change, but is unlikely to generate the quantity of ideas or more importantly the most innovative ideas. Organizational members involved in NPD should visit customer sites and engage in one-to-one interviewing to understand customer needs and elicit their ideas (Griffin and Hauser 1993; McQuarrie 1998). When group techniques are used, urge the research leaders to employ techniques such as brainwriting – individually generating ideas before the group session – that have been shown to reduce the idea devastation resulting from the use of group research methods.

The evidence on the relative efficacy of research methods indicates that product innovation teams should employ one-on-one discussions with users and perhaps try out online interview and “individual brainstorming” techniques to directly solicit ideas for innovation. As noted in the previous section additional research is needed on new one-on-one engagement techniques, but NPD managers might experiment with methods designed to more deeply engage users in ideation such as ethnography (Rosenthal and Capper 2006), experimentation (Thomke 2003), and lead user methods (von Hippel 1986). If an innovation team has funds allocated to hire “expert moderators” for group sessions, it should consider diverting some of the funds to instead hire an anthropologist to train employees on ethnographic techniques!

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Figure 1: Market learning framework for weighing group research vs. 1:1 customer research

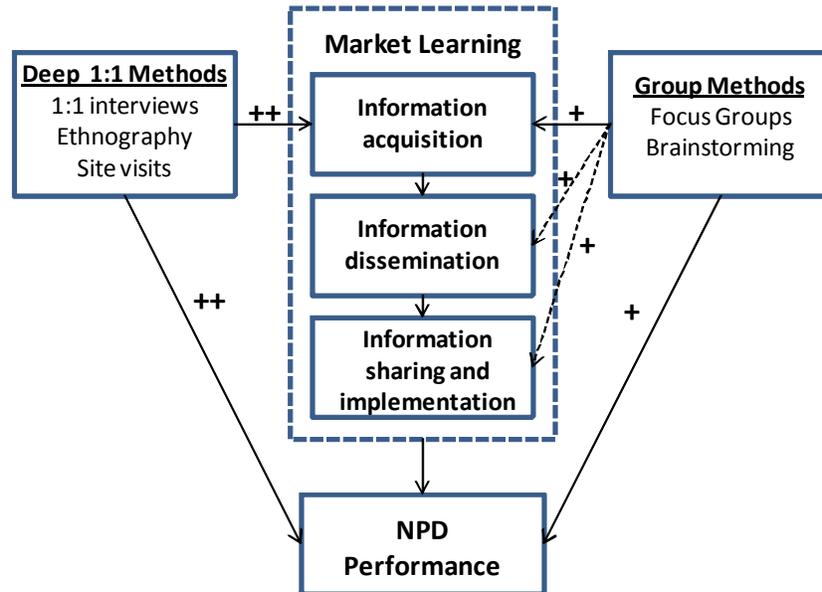


Table 1: Use of Focus Groups for customer research in New Product Development

	CPAS-PDMA <i>Diverse goods</i>	ABA 2007 <i>Bank Survey</i>
Almost Never	31%	47%
Around 25% of the time	36%	24%
Around 50% of the time	13%	15%
Around 75% of the time	10%	7%
Almost always	10%	7%
Mean on 1-5 scale	2.3	2.0

Table 2: Use of groups methods for innovation for B2B versus B2C firms*Group methods usage by B2B versus B2C firms in CPAS data set*

	B2B Firms	B2C Firms
Focus Groups: Mean use (1-5 scale)	2.0	3.0
Focus Groups: “Almost never use” %	39%	13%
Brainstorming: Mean use (1-5 scale)	1.5	2.1
Brainstorming: “Almost never use” %	67%	36%

APPENDIX 1: DATA SETS EMPLOYED TO ILLUSTRATE KEY POINTS

The CPAS dataset was collected from the membership of the Product Development and Management Association (Adams-Bigelow 2004; Adams-Bigelow and Boike 2004). The CPAS dataset was created from a single-respondent survey of members who had recently been involved in new product development. Due to the nature of the PDMA and some advance screening, most of the members contacted were qualified to take the survey. The response rate was 17%. Respondents represented a broad range of industries and an even mix of B2B and B2C companies. Most of the companies were goods manufacturers, service organizations were underrepresented.

The 2007 Bank New Service Development Survey was conducted by the author with the help of the American Bankers Association (self-cite, working paper). This single service industry study included 211 banks of diverse sizes. Solicitations were sent to an unqualified list of bankers, so that the gross response rate was 3.3%, however using the estimates from the ABA of the percentage of recipients who were qualified (had personally been actively involved in a new service development project within the past 24 months) the response rate among eligible recipients was estimated to be over 30%.

More detailed information about these data sets is available from the cited publications or from the author.

Appendix 2: A sampling of articles on the efficacy of group methods versus individual research methods

Publication(s)	Overview - Group Research	Explanation for problems	Improvements
Osborn (1953, 1957) <i>Applied Imagination</i> Guide to Brainstorming	1. Four key rules of Brainstorming 2. More ideas linked to quality 3. Individuals are more productive in groups	<i>Expert moderator</i> must follow 4 key rules of brainstorming.	Four keys: (1) Judgment withheld; (2) Freewheeling; (3) Quantity is goal; (4) Combine & improve
Taylor et al. (1958) <i>Admin Science Quarterly</i> Experiments - group vs. ind.	“Nominal groups” – combined individual brainstorming – outperformed group brainstorming in terms of the <i>number, quality</i> and <i>uniqueness</i> of ideas generated.	Group interaction kills ideas.	Use individual brainstorming and individual interviews instead of group brainstorming.
Bouchard & Hare (1970) Thomas J. Bouchard (1972a) Thomas J. Bouchard (1972b) Bouchard et al. (1974) <i>Journal of Applied Psychology</i> Improving group thinking	“group brainstorming...inhibits rather than facilitates creative thinking, and pooled individual effort is a far more productive procedure than group effort” (1970, p. 51)	Blocking of individual inputs in groups. Group creativity does not improve with size; nominal individual does.	Forced participation and use of analogies (syntectics) in group research improves productivity but not to the level of individual research.
Delbecq and de Ven (1971) <i>J of Appl. Behaviorial Science</i> Claxton et al. (1980) <i>J of Consumer Research</i> Nominal Group Technique	Focus groups require a highly trained leader and group dynamics still affect ideation.	An individual or subset may dominate a focus group.	Use the Nominal Group Technique . NGT leaders need little training. Individual ideas are gathered. Group idea loss is avoided.
Lamm & Trommsdorff (1973) <i>European J of Social Psych.</i> Review of empirical studies	Nominal groups outperform group ideation in terms of quantity and quality of ideas generated. Brainstorming rules are effective.	Group dynamics, especially production blocking, social inhibition, and cognitive uniformity affect group results.	More study needed on uniqueness and variety of ideas (adjusted for number) generated. More research on psychological factors suggested.
Edward F. Fern (1982) <i>J of Marketing Research</i> Focus groups for ideation	If a goal is quantity of ideas, quality of ideas, or relevance of ideas, individual brainstorming or interviews outperform focus groups or groups in general.	Group dynamics are the main factor reducing effectiveness. Moderators did not have a significant effect. Group participants did enjoy the experience more than individuals.	The “relatively low cost as well as the speed” (p.1) of group ideation must be weighed against the loss of quantity, quality and relevance of ideas from individual methods.

Table (Continued-2): A sampling of articles on the efficacy of group methods versus individual research methods

Publication(s)	Overview - Group Research	Explanation for problems	Improvements
McQuarrie & McIntyre (1986) <i>J of Product Innovation Man</i> Focus Groups and NPD	For new product ideas or to screen new ideas it is better to interview market participants individually than in focus groups. (p. 41)	Group research may have a role in evaluating and testing concepts or studying diffusion of products.	Use individuals for generating and evaluating ideas.
Diehl & Stroebe (1987) <i>J of Personality & Social Psy.</i> Diehl & Stroebe (1991) <i>Interpersonal relations</i> Meta-analysis & experiments	Idea generating groups and brainstorming are “widely used in industry...despite overwhelming evidence for its ineffectiveness.” (1991, 392)	Group ideation is hindered by: 1. Free-riding, 2. Evaluation apprehension, 3. Production blocking	Writing down ideas is a <i>minor</i> aid to groups. Groups suffer significant loss of quantity & quality even if individual speaking time is equal.
Mullen et al. (1989) <i>Journal of General Psychology</i> Mullen et al. (1991) <i>B & Appl. Social Psychology</i> Meta-analysis of studies	For quantity or quality of ideas, “productivity loss in brainstorming groups is highly significant and of strong magnitude.” It is “difficult to justify brainstorming... [by]...any performance outcomes.” (1991, 18)	Group productivity decreases with size. Working individually in group (NGT) is better than group but not as good as truly individual. Social psychology issues self-attention, drive arousal need to be studied.	Neither incentives for productivity nor interruption-avoidance will help group ideation. Social psychology adjustments to deal to encourage self-focus or reduce anxiety might.
Griffin & Hauser (1993) <i>Marketing Science</i> Voice of the Customer	The “group synergies expected from focus groups do not seem to be present.”	Focus groups are less effective than individual interviews in uncovering needs from individuals.	Groups are so much less effective to call into question whether there are any cost efficiencies.
Paulus, et al. (1993) <i>Personality and Social Psych.</i> Illusion of Group Productivity	Groups produce fewer ideas, but group research remains popular. One basis may be <i>perceived</i> productivity of groups.	Group participants: 1. Expect to be productive 2. Believe they were productive 3. Take individual credit	Future study to look for basis of group perceptions.
Sutton and Hargadon (1996) <i>ASQ: Adm. Science Quarterly</i> Ethnography of IDEO	Groups are less effective than individuals working alone.	There are objectives for group methods other than quantity or quality of ideas generated. IDEO (as consultant) benefits from group use	Other objectives may include: (1) organizational memory; (2) skill variety; (3) attitude of wisdom; (4) impressing clients; (5) profit

Table (Continued-3): A sampling of articles on the efficacy of group methods versus individual research methods

Publication(s)	Overview - Group Research	Explanation for problems	Improvements
<p>Adrian Furnham (2000) <i>Business Strategy Review</i> Lit review and justifications</p>	<p>“Research shows unequivocally that brainstorming groups produce fewer and poorer ideas...” (p. 21) “business people must be insane” to use group methods. (p. 23)</p>	<p>Business may be unaware of group evidence and/or influenced by the illusion of effectiveness. GOOD reasons include (1) decision acceptance, (2) pool efforts.</p>	<p>Suggests “electronic meetings” as possible alternative to face-to-face group ideation.</p>
<p>Edward F. Fern (2001) <i>Adv. Focus Group Research</i> Summary of issues in f groups</p>	<p>“Collecting unique or creative thoughts or ideas poses an almost insurmountable obstacle for focus groups.” (p. 168)</p>	<p>There is no evidence for creative synergy in group efforts, but there may be non-idea advantages.</p>	<p>Focus groups are <i>fun</i>. <i>Both participants and observers</i> of focus groups tend to <i>believe</i> the results of the groups.</p>
<p>Leigh Thompson (2003) <i>AoM Executive</i> Review of research</p>	<p>(p. 100) “Despite the empirical evidence for its ineffectiveness, group brainstorming remains popular...” Idea quantity <i>does</i> breed quality.</p>	<p>Reasons for group problems, incl:</p> <ol style="list-style-type: none"> 1. Social Loafing 2. Conformity 3. Production blocking, and 4. Downward norm setting. 	<p>Procedural strategies (8) including: (1) Team diversity, (2) Brainwriting, (3) Nominal group technique, (4) electronic brainstorming, (5) building a playground</p>
<p>Bristol & Fern (2003) <i>Psychology and Marketing</i> F groups – interaction effects</p>	<p>“individuals working alone are better at generating ideas”...and better at uncovering attitudes of individuals. (p. 447)</p>	<p>Opinions in groups are swayed. Individual and NGT research is more productive and better represents individual attitudes.</p>	<p>Focus groups should perhaps be limited to the study of group decision making.</p>
<p>Robert C. Litchfield (2008) <i>Ac. of Management Review</i> Goal-based view</p>	<p>Research indicates that individuals are more efficient and effective than groups, but Osborn’s four rules for brainstorming <i>are effective</i> and support goal-based ideation.</p>	<p>Improving ideation in groups or individually will use managerial goal setting as well as psychological factors.</p>	<p>Goal-based rules may improve ideation in groups and individually.</p>
<p>Girotra et al. (2009) <i>Working Paper INSEAD, SSRN</i> Quality of hybrid vs. group id.</p>	<p>An organization is likely better off “relying on the asynchronous idea generation of individuals” rather than hybrid groups or traditional groups. (p. 23)</p>	<p>Hybrid groups (individual then group analysis) outperform groups:</p> <ol style="list-style-type: none"> 1. 3 to 1 in quantity of ideas 2. In <i>average quality</i> of ideas 3. In the “<i>very best</i>” ideas 	<p>Hybrid groups are better than traditional groups at evaluating ideas, but underperform outside groups. Building on others ideas does not result in better ideas.</p>