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The effects of participative safety and support for innovation on group creativity

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THE EFFECTS OF PARTICIPATIVE SAFETY AND SUPPORT FOR INNOVATION ON GROUP CREATIVITY

A Thesis

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ABSTRACT

This study examines the effects of Participative Safety (PS) and Support for Innovation (SI) proposed by West (1990) on team creativity. West proposes that PS helps develop teamwork processes where members feel comfortable expressing and exchanging their ideas freely, and SI makes a team perceive that creativity is valued. These climate conditions were created by providing a 15-minute PS training and a chance to win monetary rewards. One hundred twenty three students participated and formed into 41 groups to write a proposal to a given problem. These proposals were analyzed by 5 graduate students. Correlational analyses revealed significant relationships between participative safety, cohesiveness, and satisfaction. However, results indicated the manipulations were ineffective and did not support all the hypotheses.

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CHAPTER ONE

INTRODUCTION

The Effects of Participative Safety and Support for Innovation on Group Creativity

With the era of information, business is much more dynamic, diverse, and turbulent than ever before. Organizations must value creativity more than ever. Customers take a much more active role looking for information through the Internet and comparing the prices of a product across different brands, stores, and sometimes even countries (Kaneda, Tanaka, & Oomameida, 2004). Based on the amount of competition in business, customers have choices. Organizations must process all the information that is constantly coming in and be vigilant on what their competitors are doing. In such a dynamic environment, organizations cannot just keep making products that are considered adequate and moderately expensive if they want to keep and develop new customers. Organizations that do not try hard enough to be creative cannot survive. Therefore, in an environment where information is easily obtained, creativity is the key for organizations to differentiate themselves and

their products from others.

From the late 80s, the use of teamwork has been increasing to compete in business. By 1990, 47 percent of Fortune 1,000 companies reported that they had used teams compared with 28 percent three years earlier in 1987 (Lawler, Mohrman, & Ledford, 1995). Sixty-eight percent of Fortune 1000 companies in the United States use self-managing teams (Lawler, Mohrman, & Ledford, 1995), and 84 percent of over 5,000 European organizations rely on the semi-autonomous self-managed teams (Benders, Huijgen, Pekruhl, & O'Kelly, 1999). This trend in the use of teamwork clearly indicates that organizations now think that using teams helps increase their performance.

This current trend in the use of teamwork indicates that employees have to engage more in cognitive tasks and think "outside the box." Organizations have now recognized the utility and importance of teamwork to be more effective and creative than ever. Taggar (2002) said that teams are at the core of organizational innovation and that team processes are key components of the development of that innovation. This present study looked at characteristics of the environment that help groups enhance their interaction process and affect

their creativity.

Guilford (1950) once pointed out how few studies there had been about creativity. Since then, researchers have pursued such questions as what contributes to developing creativity and how people come about creative ideas. Many studies have focused on individual-based variables such as attraction to complexity, high energy, autonomy, intuition, and persistence, motivation (Ruscio, Whitney, & Amabile, 1998), and cognitive abilities. Amabile and colleagues (1983; Amabile, Conti, & Coon, 1996) have integrated personality, cognitive, and motivational elements and found that domain-relevant skills, creativity-relevant skills, and intrinsic motivation altogether contribute to one's creativity. Researchers also have identified a number of cognitive abilities that relate to creativity (Kirton, 1976). For example, people with an adaptive problem-solving style tend to work most comfortably within set boundaries and constraints and tend to work incrementally on problems, while people with an innovative style prefer to work on the problem itself before generating solutions (Kirton, 1976).

Understanding the relationship between such variables and creativity is not enough to understand how creativity can

be enhanced, there is something more that needs to be understood. For example, there are some obstacles that naturally reside within individuals who possess many of the individual-based variables such as cognitive abilities and motivation, which were found to be important for creativity. Cognitive psychologists have found that humans tend to think consistently along predictable lines and tend to be influenced by the surface features of problems (Novick, 1988). Previous experience or knowledge could lead to a functional fixedness that prevents individuals from producing creative solutions (Woodman, Sawyer, & Griffin, 1993).

Researchers have suggested that the use of groups in cognitive tasks could help overcome this individual cognitive tendency. Dugosh, Paulus, Roland, and Yang (2000) have demonstrated that ideas presented by others stimulate a member to generate his or her ideas. Hearing ideas of other group members may activate or make more accessible ideas that, without some external cue, would not have been activated. Consequently, individuals in a group context may generate ideas that they would not have generated if they had brainstormed alone (Brown, Tumeo, Larey & Paulus, 1998).

However, having a group of creative individuals does not always lead to creative outcomes because different skills are necessary for individuals working alone and those working within a group. Miller (2001) said effective teamwork is not just based on knowledge. People need correct teamwork practices to produce an effective team and also need the capability to put that knowledge into play. West and Wallace (1990) have suggested that innovation and effectiveness of groups come from characteristics at the group level more than at the individual level. For example, individually based measures such as one's knowledge of results, role ambiguity, or individual role innovation were unrelated to the rated innovativeness of teams in their study. For a team to be creative, it needs an effective group process to make members creative at the group level. Without it, even individuals who possess all of Amabile's components of creativity (Amabile et al., 1996) might not be able to exert or demonstrate their talents in team settings.

Researchers who have studied idea-generation at the group level have known the importance of the group process and how process losses could affect group creativity. Blocking, social loafing and anxiety are commonly mentioned

as part of process losses in group studies as inhibitive forces for group performance. Social loafing is the reduction of individual performance effort in group interactions (Forsyth, 1999). Blocking happens when a member is waiting for his or her turn to talk while another member is talking. He or she misses opportunities to talk because the discussion goes to a different topic or he or she forgets their ideas. Contrary to the general assumption that groups are more productive than individuals, many studies have found that group interaction leads to a much lower level of productivity than does individual brainstorming in terms of both quantity and rated quality of ideas (Karau & Williams, 1993; Paulus, 2000). Groups encounter various process losses. Members tend to converge both in the rate of ideas and the type of ideas generated (Brown, Tumeo, Larey, & Paulus, 1998; Camacho & Paulus, 1995). Miller (2001) and Stevens and Campion (1994) have emphasized the complexity of the communication process in teamwork as compared to individual work. These studies show that groups should adapt an effective process to decrease these constraints and enhance the group process to stimulate other members the most.

Group climate has been proposed as a medium to enhance the creativity process (Anderson & West, 1998; Bain, Mann, & Pirola-Merlo, 2001; Burningham & West, 1995; Caldwell & O'Reilly III, 2003; West & Wallace, 1991). Studies have directly related climate to team creativity (Bain, Mann, & Pirola-Merlo, 2001; West & Wallace, 1991). For example, Bain, Mann, and Pirola-Merlo (2001) conclude that team climate has a strong relationship to innovation in the longer term. Team climate in research teams was more strongly correlated with team-level innovation indicators such as number of patents and team leaders' rating of the creativity of the project's outcomes than individual-level indicators such as each member's own perception of their level of innovation. Team climate was only moderately related to individual innovation but strongly related to team-level innovation measures. This indicates that team climate exerts its effect mainly through group processes and dynamics. West and Wallace (1991) have found a relationship between practice innovativeness and team collaboration, peer leadership, group cohesiveness, participation in decision-making, commitment and climate. They have also suggested that group processes and climate are associated with group innovativeness and that individual

role factors and characteristics are less important.

West (1990) has proposed a model of group level innovation that suggests that four principal climate factors are likely to facilitate group processes and predict innovation within a group setting. He has defined these principals as vision, participative safety, task orientation, and support for innovation. Vision is an idea of a valued outcome that represents a higher order goal and a motivating force at work. Participative safety exists where involvement of each member in decision-making is motivated and reinforced while occurring in an environment that is perceived as interpersonally non-threatening. Task orientation is a shared concern with excellence and quality of task performance in relation to shared vision or outcomes, characterized by evaluations, modifications, control systems and critical appraisals. Support for innovation is the expectation, approval, and practical support of attempts to introduce new and improved ways of doing things in the work environment. In order to make teams develop a good innovative process, organizations, managers or leaders in groups must be able to control variables for such a group climate. Caldwell and O'Reilly (2003) have said that one way in which

group climate or culture may enhance innovation in groups is through norms. According to Forsyth (1999), people determine guidelines for appropriate behaviors in a given situation. O'Reilly and Chatman (1996) suggest that a strong normative order may act as a social control system to promote creativity and implementation. West's model (1990) has presented ideas of how groups could enhance their performance by manipulating those principals and given researchers possible variables at the group level for group creativity.

Burningham and West (1995) tested West's model (1990) by using a correlational study in which work groups from an oil company were asked to complete a questionnaire on their perceptions of team climate. The researchers had independent individuals knowledgeable about the groups and their performance rate the groups based on number of new ideas, newness of ideas, significance of ideas, and effectiveness of ideas. They found that innovative groups are characterized by high scores on measures of the four principals and that task and support of innovation emerged as principal predictors of group innovation.

Caldwell and O'Reilly (2003) looked for the dimensionality of variables relating to group innovation and

found results similar to West's model (1990) and Burningham and West's findings (1995). They developed a questionnaire with 36 items that groups of executives thought would enhance the likelihood of innovation in their organizations. They asked different participants to identify a team or group in which they had worked and for which they were capable of assessing the group's norms. The participants rated the importance of innovation and the level of innovation displayed in completing their task. Caldwell and O'Reilly factor-analyzed the patterns of the participants' responses and found four factors: support for creativity and risk-taking; teamwork; speed of action; and tolerance of mistakes. Even though they used different labels from West's model, the contents of those factors except speed of action are very similar to what West has developed. They found that factors such as support for risk-taking and a willingness to tolerate mistakes were related to observers' ratings of innovation. When the norms of group support for coordination and the exchange of information among members are present, and when the members share a sense of the need to accomplish tasks quickly, the group is likely to feel more comfortable putting creative ideas into actions than if these norms do

not exist. With Caldwell and O'Reilly's different approach to identify the important group variables influencing group innovation, they still found results similar to Burningham and West's study (1995). Their results have added extra support to West's model (1990).

Researchers studying the effect of group interactions on group performance have compared interactive groups with nominal groups. Nominal groups are defined as a group of individual members who work alone on tasks, but their outcomes are aggregated. Interactive groups are groups where members interact with one another to complete tasks as a group product (Paulus, Larey, & Ortega, 1995). Group researchers have seen that face-to-face (FTF) interactive groups are less productive than nominal groups because of the process losses previously mentioned, but the reality is that organizations still use FTF groups and FTF groups commonly engage in brainstorming as part of other activities such as problem solving (Paulus, Larey, & Ortega, 1995). Brainstorming researchers have tested various techniques to avoid the procedural constraints. For example, they suggest electronic sharing of ideas, sharing information by means of written comments, increasing accountability for individual, and

using a facilitator (Oxley & Dzindolet, 1996; Paulus, Larey, Putman, Leggett, & Roland, 1996; Paulus & Yang, 2000). Findings have implied that group interaction can lead to both positive and negative effects depending on group process.

Brainstorming researchers have demonstrated that they could intentionally implant brainstorming rules to create an effective brainstorming process. Such rules, developed by Osborn (1963), include; the wilder the better; quantity is wanted, so the more the better; criticism is ruled out; and improve and combine ideas already presented. West's participative safety (1990) is very close to Osborn's ideas (1963) about brainstorming. Oxley and Dzindolet (1996) used a facilitator to support Osborn's rules (1963) to promote the group process during brainstorming. Other researchers have also demonstrated that using a facilitator makes the group process more efficient (Kramer, Fleming, & Mannis, 2001; Offner, Kramer, & Winter, 1996). They have found that compared with nominal groups, interactive groups facilitated by a well-trained facilitator performed well at the same level even though many group studies have found that the nominal groups outperform interactive groups (Paulus, Larey, & Ortega, 1995).

If social anxiety is a source for the gap between the performance of interactive and nominal groups and this gap disappears through the use of a facilitator as demonstrated in the above experiments, the use of the facilitator could create a group process in which even participants with high anxiety would be able to contribute to the group performance. It follows that if a trained facilitator is able to control Osborn's rules (1963), it is possible to train a team leader or members at work to control variables of the group climate, such as Participative Safety. Therefore, this study tested that the element of Participative Safety projected by the training of groups will create a process where members feel free to propose their ideas.

Studies have shown that group participation and socialization are related to group effectiveness (Campion, Medsker, & Higgs, 1993; Gilson & Shalley, 2004; Williams & Laungani, 1999). Socialization is found to be related to creativity by increasing participation in group activities and facilitating the flow of communication and ideas among members. Participative safety helps group members establish the process in which they can participate and contribute to group outcomes (West, 1990). Components of Participative

Safety include encouragement, non-judging behaviors, and listening skills (Anderson & West, 1998). Members need to encourage one another to participate, thus enhancing teamwork processes. When members verbally encourage one another to contribute their opinions, they will be more likely to share their ideas. In groups there are generally members who speak more and those who speak less. However, the purpose of the group is to put all the members' knowledge and ideas together and then integrate them to create better solutions to problems. Extracting such knowledge and ideas from the members is the first step. However, encouragement alone is not enough to create an environment of Participative Safety.

Listening skills and non-evaluative behaviors are necessary to create such an environment. When someone speaks up, others must actually pay attention to and not interrupt this person. Attention is a very important component to enhance the group process where ideas presented by others are meant to stimulate all members (Brown, Tumeo, Larey, & Paulus, 1998; Dugosh, Paulus, Roland, & Yang, 2000). Dogosh et al. (2000) have found that the amount of distraction appears to be a critical factor in an idea generation process,

and when individuals become distracted, their ability to focus attention appears to decrease, which leads to the decrease in potential for stimulation. If members merely encourage others to speak, but do not listen, their behaviors are not consistent and may make others perceive that their ideas are devalued.

Non-evaluative behaviors are also important. People tend to evaluate what they hear very rapidly (Fiske & Neuberg, 1990). Osborn (1963) noted that groups often evaluate ideas as they are shared, which in turn may inhibit group members from sharing ideas that they think might not receive a favorable evaluation. Camacho and Paulus (1995) placed participants into five groups based on their social anxiousness scores. The four conditions were: interactive-high anxious, nominal-high anxious, interactive-low anxious, and nominal-low anxious. The fifth condition was composed of two participants high and two participants low in the scores. They asked them to develop as many ideas as they could for a given problem. They found that the groups low in interaction anxiousness outperformed the groups high in interaction anxiousness, indicating that social anxiety plays a major role in brainstorming to inhibit

individuals in interacting with others. Their findings also revealed that the participants high in interaction anxiousness felt more pressure to come up with as many ideas as the other group members, more distracted by other group members, and more concerned about what others thought of their ideas than the participants low in anxiousness. In fact, they did not find that there was a significant difference in performance between the participants low in social anxiousness in interactive and nominal groups. The findings possibly suggest that social anxiousness may be an important factor in the productivity gap observed between interactive and nominal groups. Amabile (1979) also demonstrates that expectation of negative evaluation will undermine creative performance of individuals and positive evaluation will enhance creativity due to positive effects on self-efficacy. Baer (1997) found that female participants' performance decreased as they expected that their work would be evaluated compared with when there was no expectation of their work being evaluated later. Males' performance stayed constant across the different conditions. In the beginning of the group process, members have to present their own ideas and put them on the discussion table. If they feel threatened or

uncomfortable in talking about their ideas, they will not bring them to the discussion (Camacho & Paulus, 1995). Therefore, these three behavioral variables are necessary to create the participative safety in the group. This study would use training to create a group climate in which members would try to pay attention, encourage, would not interrupt, and not criticize one another (See Appendix A).

Support for innovation also has been recognized as a good predictor for creativity in many studies (Bain, Mann, & Pirola-Merlo, 2001; Caldwell & O'Reilly, 2003; Gilson & Shalley, 2004; Gilson, Shalley, & Ruddy, 2005; West & Anderson, 1996). Scott and Bruce (1994) have found that under conditions where potential risks associated with creativity are minimized, employees may attempt to be creative because they perceive that creativity is valued and supported by their organization. Zhou and George (2001) have shown how strongly contextual factors such as supportive managerial systems and positive coworkers' feedback for their creativity influence employees' creative behaviors. Other researchers have found some important influences on group innovation coming from factors such as support for new ideas, autonomy, and the promotion by supervisors of subordinate

risk taking (Hellstrom & Hellstrom, 2002; Klein, Conn, & Sorra, 2001). Caldwell and O'Reilly (2003) have found that support for risk-taking and a willingness to tolerate mistakes are associated with observers' ratings of innovation. West and Anderson (1998) have found support for innovation emerged as the principal predictor of innovation, accounting for 46 percent of the variance in overall innovation. Expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment are also characteristics of the support (West, 1990). Innovation is more likely to occur in contexts where there is support for innovation, or where innovative attempts are rewarded rather than punished (Amabile, 1983; Kanter, 1983). Abbey and Dickson (1983) have found that the climate of innovative research and development units is characterized by rewards given in recognition of excellent performance.

Anderson and West (1998) mention that enacted support is much more important than articulated support found in personnel documents, policy statements, or conveyed by word of mouth. People do not know what kinds of ideas will transform into great ideas even if these ideas seem strange

or sound improbable. Therefore, in the beginning stage of a group discussion or brainstorming, members should not suppress any of their ideas or the ideas of others. In a newly created team in which rapport has not been established yet, members may not feel comfortable talking about their unconventional ideas and will wait to see how others volunteer and contribute. Therefore, they need to encourage one another to offer any ideas even if they think that those ideas are unfeasible. This factor compared with the participative safety emphasizes the specific encouragement of creative or radical ideas.

In order to make people creative, support-for-innovation must affect their motivation. Motivation is considered one of the most important elements to creativity. Researchers repeatedly find a strong relationship between intrinsic motivation and creativity (Brehm, Kassin, & Fein, 2002; Ruscio, Whitney, & Amabile, 1998). Ruscio, Whitney, and Amabile (1998) asked trained raters or subject matter experts to subjectively rate three creativity activities such a structure, collage, and poem task and correlated the participants' intrinsic motivation with the creativity ratings. They demonstrated that

intrinsic motivation has a significant impact on creativity in their study. Researchers have tried to increase creativity by indirectly using variables that enhance one's intrinsic motivation (Amabile, Conti, Coon, Lazenby, & Herron, 1996). People who want to be creative or have radical ideas must feel rewarded and motivated to present their ideas through support from people with whom they are working. Gilson and Shalley (2004) found that creativity performance of certain employees increased because they sensed that creativity was valued from an organization trying to meet employees' needs to be creative.

Monetary rewards affect one's intrinsic motivation both positively and negatively. Amabile, Hennessey, and Grossman (1986) employed an experimental study to examine how different types of rewards would affect participants' intrinsic motivation for creativity and confirmed that working for rewards could lead to decrements in creativity. However, Eisenberger and Armeli (1997) found that monetary rewards could actually be used for enhancing creative performance and did not always lead to decrements in intrinsic motivation. Whether the rewards led to enhancements or decrements in creative performance or

intrinsic motivation depended on how the rewards are administered to participants. They argued that rewards were typically promised without reference to the nature of required performance and experimental participants were left uncertain about which aspects of their performance might be required for reward. Participants should have been told what performance would be evaluated and that the rewards would be given based on the required performance of creativity. As shown in the Abbey and Dickson's study (1983), in the real work setting, people knew what they did and how they were evaluated. If criteria for obtaining monetary rewards were explicitly and specifically spelled out, the criteria would motivate them to perform well and creatively. To follow the Abbey and Dickson's finding, this experiment used a bonus as a perceived support for innovation.

The measurement of climate has taken both objective and perceptual approaches (Siegel & Kaemmerer, 1978). For the objective measures, researchers actually analyze tangible resources an organization has available to employees. For example, distracting environments, monetary rewards or computer devices can be objectively measured. Other researchers have used the perceptions of participants to view

climate (Amabile, Conti, Coon, Lazenby, & Herron, 1996). James, Hartman, Stebins, and Jones (1977) state that climate represents signals individuals receive concerning organizational expectations for behavior and potential outcomes of behavior. Individuals use this information to formulate expectancies and instrumentalities. This study also defines team climate as perceptions members hold as a meaningful interpretation of their environment. Even if an organization has resources available to their members, if the members do not perceive the resources as support in a way the organization wants them to be perceived, the support cannot evolve into a climate.

Pirola-Merlo & Mann (2004) defined creativity in terms of newness and usefulness. If creativity could be just defined by newness, people could let a baby draw a picture and define it as creative. However, it also has to be useful and valued by society. For organizations to produce creative products, they must be new and useful to customers and a society. To avoid the subjectivity and difficulty involved in measuring creativity, many studies of idea-generation in brainstorming use the number of ideas groups or individuals are able to generate during a limited time instead of directly

measuring creativity (Camacho, & Paulus, 1995; Kramer, Fleming, & Mannis, 2001; Offner, Kramer, & Winter, 1996). However, the mere number of ideas groups are able to come up with does not adequately represent creativity because a number of good ideas may not be as great as a few extraordinary ideas. From Pirola-Merlo & Mann's criteria (2004), it seems almost impossible to define creativity objectively because perception and value of people and society constantly change. Amabile (1983) suggested that a specific definition of creativity is unnecessary, as long as the entity under consideration can be recognized with reasonably good consensus. She suggested adapting measurement that is based on subjective criteria, but that can be consensually validated (West & Anderson, 1996). Studies using this method have demonstrated that creativity can be measured by having raters score creativity and averaging them to obtain a total score (Anderson & West, 1998; Conti, Coon, & Amabile, 1996; Ruscio, Whitney, & Amabile, 1998; West & Wallace, 1991).

This study also looked at the effect of climate on cohesiveness because attraction to a group appears to be significant in the development of a group (Evans & Jarvis, 1986). Cohesion is the strength of the bonds linking

individual members to one another and to their group as a whole (Forsyth, 1999). If a group wants to maintain high performance, it is important that they develop high cohesion. In a cohesive group, members enjoy interacting with one another and they remain in the group for prolonged periods of time (Forsyth, 1999). Cohesiveness of a work group determines the degree to which individuals believe that they can introduce ideas without personal censure. Hodson, Welsh, Rieble, Jamison and Creighton (1993) found that union members' participation in group activities enhanced their perception of the union solidarity. Even though, groups which are just created have yet to develop cohesion, the groups with participative safety will likely have a good group process in their activities, which leads the members to engage in the process more than groups without participative safety. Support for innovation is also assumed to increase group cohesiveness. Cohesion influences members' willingness to work together to accomplish their objectives (Forsyth, 1999). Mullen and Copper (1994) found that the relationship that performance leads to cohesion is stronger than the relationship that cohesion leads to performance. If a group has more resources that help them to reach their goals or come

up with creative ideas than other groups, the members will be more motivated to accomplish their objectives and more likely to achieve the goals. As a result, their cohesion will be increased. Therefore, it is assumed that group members with West climate factors (1990) enjoy their interaction and group process, which contributes to the increase in their cohesiveness to the group.

Members' anxiety levels were found critical to the group process and performance (Camacho & Paulus, 1995). Their study showed that individuals who scored high on the anxiousness test did not perform well in the interactive groups and individuals with a high anxiousness score were found to perform better in the nominal groups than the participants with a high score in the interactive groups. They suggested that social anxiety is one of the most inhibitive factors contributing to the gap of group performance between nominal and interactive groups. Therefore, it suggests if a researcher finds group process decreases this anxiety level, it will help increase group performance. Oxley and Dzindolet (1996) showed that using a trained facilitator in a group process helped increase group performance of interactive groups and close a gap of group

performance between nominal and interactive groups. Unfortunately, in their study, they did not examine how the use of the facilitator affected the participants' anxiety level in the group process. According to Camacho and Paulus (1995), social anxiety was a very inhibitive force in the performance of interactive groups. If the use of the facilitator enhanced the group performance of interactive groups, it must have affected or more likely eased the group members' anxiety in the group process. From these two studies, controlling participants' interactions by the facilitator decreases their anxiety level and helps them contribute to the group performance.

It is assumed that participative safety will help decrease the social anxiety of group members. What has actually affected the anxiety in the Oxley and Dzindolet's study (1996) is what the facilitator did, not the facilitator himself. Many studies have found that even when other people are merely in the same room and not watching, members working on group tasks have higher anxiety level. If the facilitator had not engaged in any behaviors that were supposed to enhance the group process, he may have given evaluation apprehension to the participants and only increased their anxiety level,

which in turn decreased the performance of interactive groups. However, what he did overcame the evaluation apprehension and gave more facilitative force to the group process. Oxley and Dzindolet (1996) developed the facilitator guidelines on Osborn's brainstorming rule (1963). The basic ideas of participative safety are also very close to Osborn's brainstorming idea so that it's assumed that controlling the group climate based on participative safety will help decrease the social anxiety of group members.

The relationship between satisfaction and the climate was also examined. Clark, Anand, and Roberson (2000) found that group participation by all members of a diverse group was related to high levels of individual satisfaction and desire to remain a part of the group. Participative safety helps members feel comfortable participating in group process and presenting their ideas, participative safety is also assumed to enhance members' satisfactions.

Many researchers of creativity seem to be consistent in their findings with the four components of West's model (1990). This study follows West's model as a main concept to analyze the group climate on creativity. However, this experiment tested only two components: the support for

innovation and participative safety at the team level. Curral, Forrester, Dawson, and West (2001) have found that teams with a high innovation task requirement had significantly higher scores on the measures of participation and support for innovation. Many studies have found they hold stronger relations with creativity than the other two (Curral et al., 2001; Nijstad & De Dreu, 2002; Orpen, 1990).

Previous studies have shown that groups that have climate or norms similar to West's model (1990) perform well. However, the past studies were all correlational so that the researchers could not point out causal relationships between the climate and creativity at the group level (Anderson & West, 1998; Bain, Mann, & Pirola-Merlo, 2001; Burningham & West, 1995; Caldwell & O'Reilly, 2003; West & Wallace, 1991). In the actual work settings, there are many various factors that may be known or unknown to researchers contributing to their outcomes. The main disadvantage of correlational studies is that researchers cannot exert control over environmental factors and criteria. For example, even though researchers decide to measure creativity and ask employees to answer how creative they are at work, it is hard to measure creativity directly because every employee and group performs different

roles and tasks. Different tasks require different levels of creativity, skills, abilities, or responsibilities. Employees performing different tasks and roles have different perceptions of creativity. Thus, it seems difficult to measure the same criteria across groups in such studies even if researchers define their criteria and try to measure them in a systematic manner. To confirm the past findings about the effect of climate an experimental design needed to be employed to directly assess the effect of the climate on group creativity and establish the relationship between the climate and group creativity. Therefore, this study asked groups to perform a task that requires creativity, and all the groups perform the same task in the controlled environment so that it is possible to examine how the climate based on West model actually affects creativity at the group level.

Hypotheses

H1: Groups trained on participative safety score higher on creativity than untrained groups.

H2: Groups in the Support for Innovation condition score higher on the originality score than groups in the non-Support for Innovation condition.

H3: Groups trained on Participative Safety feel less anxiety than groups without the training.

H4: Groups trained on Participative Safety have more cohesiveness than groups without the training.

H5: Groups trained on Participative Safety have higher satisfaction than the group without the training.

CHAPTER TWO

METHOD, RESULTS, AND DISCUSSION

Method

Participants

One hundred twenty three participants were recruited from psychology classes and sign-up sheets at California State University, San Bernardino. There were thirty male and 103 female participants in this study. Average age was 27.75 ($SD = 9.56$). More than 80 per cent of the participants were either junior or senior students. There were 17 African Americans, 10 Asians/Pacific Islanders, 47 Hispanics, 21 native Americans, 31 Caucasians, and 2 others. Originally there were 132 participants. Three groups with nine participants were dropped because members had either univariate or multivariate outliers. As a result, the data resulted in 123 cases. Participation was voluntary, and participants were compensated by extra credits. They were randomly assigned to groups of three members and wrote a proposal of how to market a new product. They were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association,

1992). There were no restrictions on the participants' age and race in this study.

Tabachnick and Fidell (2001) suggest that each cell in Multivariate Analysis of Variance (MANOVA) needs to contain more cases than the number of dependent variables (DV). They also say that if the cell has only one or two more cases than DVs, the assumption is likely to be rejected. Thus, the cell must contain more than seven. Therefore, this study recruited more than 10 groups for each cell adding to 40 groups with the total of 123 participants in total.

Procedure

The design is a 2 x 2 factorial experiment (reward vs. non-reward) x (participative safety vs. non-participative safety). Groups of three members were given a task to develop a marketing method to sell a new sweetener product and asked to write a one to two-page proposal within 60 minutes. They were provided with information about the sweetener product (See Appendix A). The participants in all of the conditions were informed about performance criteria and given brief definitions of the criteria. To avoid a situation where the groups had members who know each other well, the experimenter tried to conduct two group activities at the same time so that

he was able to randomly assign them to each group or divide students who knew each other.

Support for Innovation

In the reward condition, participants were told that the group that produced the most innovative outcome would be rewarded with a bonus of 100 dollars per member. To reinforce the participants' belief that the bonus would be actually given to one of the groups, a copy of the paper submitted for IRB indicating that the bonus was real was shown to participants. While the bonus was real, it was based on random selection to avoid identifying participants with their data. Instead of giving the bonus based on the scores, the experimenter had a lottery to decide which group would obtain the bonus. At the end of the group activity, participants were told that this condition was just to increase their motivation to be creative, and each group took a lottery slip from a box. In the non-reward condition, the bonus was not mentioned.

Participative Safety

In the participative safety condition, groups were given training on participative safety to create a group climate with West's participative safety (1990) (See

Appendix B). In the control condition, no training was given to the groups. The training was given to the experimental groups. The guidelines were developed to make participants understand that specific behaviors such as encouragement, non-judging, and listening behaviors could help build a group process in which all the members could contribute to group productivity. Some of the guidelines were developed based on the training used in the Oxley and Dzindolet study (1996). The experimental groups were informed of the directions they should follow to create participative safety climate prior to their activity (See Appendix A). An enlarged paper with the list of the directions was placed on a table in the experiment room.

A 60 minute time limit had been chosen because Oxley and Dzindolet (1996) had suggested that perhaps 35 to 40 minutes would have helped their participants working in an interactive group perform the best in their idea-generation study. Participants in this study had to engage in more cognitive tasks like developing ideas and convincing others to come to a consensus on a solution compared with Oxley and Dzindolet's participants (1996) only generating a number of ideas in brainstorming study. Sixty minutes was an adequate

time limit in this study.

Ratings of Creativity

Five graduate students at CSU, San Bernardino were asked to score group proposals based on the following five criteria (originality, appropriateness, feasibility, attractiveness, and overall), and interrater reliability of the scores from the raters were analyzed. Originality refers to the newness of the proposal. Attractiveness refers to the degree to which the proposal could get target customers interested in the product. Appropriateness refers to the degree to which the proposal is directed toward the problem the group is asked to address. Feasibility refers to the possibility of the proposal actually being implemented (See Appendix C).

Interrater reliabilities for the five subscales of creativity were assessed (Originality, Appropriateness, Feasibility, Attractiveness, and Overall Score). There were acceptable high interrater reliabilities for Originality, Attractiveness, and Overall Score with the interrater reliability of .75, .69, and .66, respectively. Interrater reliabilities for Appropriateness and Feasibility were .37 and .32. Due to the low interrater reliabilities for these

two subscales, they were discarded. Only the three subscales with high interrater reliabilities were included in further analyses. Each subscale had five different raters so that five scores were averaged to obtain a single score for each subscale, and three averaged scores were further averaged to obtain the total score for creativity of each group.

Materials

At the end of the activities, the participants were provided questionnaires asking about their cohesion, general fear of negative evaluation, social anxiety, individual creativity preferences, satisfaction with the process, the sense of participative safety and support for innovation, and demographic questions. All the internal consistencies were calculated using SPSS function. Cohesion was examined using the Group Attitude Scale (Evans & Jarvis, 1986) (See Appendix D). In this study, this scale is called the cohesiveness scale. The reliability of this scale had been tested in three studies, and all of the reliabilities exceeded .90 (Evans & Jarvis, 1986). The internal consistency of this scale in this study was .87. The original measure was developed to assess ongoing groups that would not dissolve after one activity. The present tense of the questions were changed to the past

tense or modified to say "if you have another session". The measure contained 20 questions using a 9-point Likert scale (1 = disagree and 9 = agree). An example of the questions is, "I want to remain a member of this group if there are other sessions."

As a manipulation check, the sense of Participative Safety was examined (See Appendix E). The sense of Participative Safety examined the degree to which participants felt Participative Safety. The Participative Safety question items were taken from the Team Climate Inventory (TCI) (Anderson & West, 1998) and Caldwell and O'Reilly's survey (2003). The original question items of these two questionnaires were developed to measure Participative Safety of ongoing groups. In order to use them in this study the items had to be modified and some of them had to be discarded. The two measures were combined to create enough question items. The new measure contains 10 questions using a five point Likert scale (1 = very little and 5 = very much). An example of the questions is, "We share information generally in the team rather than keeping it to ourselves." The internal consistency of this scale was .95.

The sense of Support for Innovation examined the degree to which participants felt supported for being creative (see Appendix F and G). The Support for Innovation question items were developed based on the TCI and Caldwell and O'Reilly's survey. Number 6, 7, and 8 were only for the experimental groups so the questionnaire without the item 6, 7, and 8 was only given to the control groups. The question items 6, 7, and 8 examined the extent to which participants saw the monetary reward as rewarding enough to motivate them in an activity. A five point Likert scale would be used (1 = very little and 5 = very much). An example of the questions is, "The group was motivated to come up with creative ideas." The internal consistency of this scale was .69.

Participants' general social anxiety was measured using the Brief Fear of Negative Evaluation (Leary, 1983) (Appendix H). This measure was employed to examine the extent to which participants were anxious about group interactions in general. A five-point Likert scale was used for this scale (1 = very little and 5 = very much). The original interrater reliability was .90, and the interrater reliability in this study was .95. A sample question is, "Sometimes I think I am too concerned with what other people think."

Participants' creativity preferences were measured using the Creative Personal Scale with a five-point Likert scale (1 = very inaccurate and 5 = very accurate) (Kaufman & Baer, 2004a, 2004b; Kaufman, Bromley, & Cole, in press). This scale measures the creativity facet and Imagination (See Appendix I). This scale was used to examine if some groups had significantly more members whose creativity preference was high than did some other groups, which could have made difference in group performance. The internal consistency for this scale was .80. A sample item is, "I do things that others find strange." The internal consistency for this study was .78.

A social anxiety questionnaire and satisfaction questionnaire were used to ask participants about their thoughts and their feelings during the activity (See Appendix J). A nine-point Likert scale was used (1 = very little and 9 = very much). The first three question items asked about social anxiety, and question four to eight asked about satisfaction. The items about social anxiety were taken from the Camacho and Paulus's study (1995). In general, participants were asked about pressure to come up with ideas, failing to express ideas because of concern with negative

evaluation from other members, and being uncomfortable while presenting ideas. The internal consistency for this scale was .52. According to Shultz and Whitney (2005), this reliability was not acceptable. Even though it was an unacceptable reliability, the items were not dropped from this study because they examined participants' responses in anxiety to group interactions in this study, which the general social anxiety scale did not provide. Instead, each question item was analyzed to examine if there were any patterns of participants' anxiety responses that resulted from this study.

The satisfaction questions assessed the extent of participants' satisfaction with their group interactions and outcomes. A sample question asked, "How satisfied were you with the group process, not the outcome?" The internal consistency for the satisfaction questionnaire was found .86. The individual items were averaged, and the averaged score was analyzed.

At the end, the demographic questionnaire asked about gender, age, and grade. All the internal consistencies for the scales used in this study were acceptable except the scale for Support for Innovation. According to Shultz and Whitney

(2005), .70 or above of reliability is commonly considered acceptable. Even though the internal consistency for Support for Innovation was relatively low, it was almost close to the acceptable criteria for reliabilities. Therefore, this scale was maintained for the further analyses. Individual item questions of each scale were aggregated to create composite scores.

Results

The data contained variables at the group and individual level so that these different data sets were analyzed separately at their appropriate level of analysis. The individual level variables are cohesiveness, participative safety, fear of negative evaluation, individual creativity preference, satisfaction scores, social anxiety and support for innovation. The group level variables were the three subscales of creativity (See Table 1). All the analyses were conducted using SPSS version 11.

Items that needed to be reverse-coded were converted into reverse-scores. Missing Value Analysis was conducted. No more than five percent of the total participants missed any questions. The pattern of missing values was not

significant, and the analysis suggested this as missing completely at random (χ^2 = 1793.48, df = 1722, p > .05). Therefore, an expectation maximization method was employed to estimate missing scores and insert those estimated scores into missing data.

Univariate outliers for the aggregated variables of the individual data set were examined with the cutoff point of a 3.3 and - 3.3 z score. There was one person whose cohesion z score was -4.9 with the actual score of 26 and whose Participative Safety Z-score was -5.36 with the actual score of 14 (p < .001). This person and their group 14 were discarded. Then, multivariate outliers for the same variables were examined using Mahalanobis distance. There were two multivariate outliers found. One person who belonged to Group 11 had 24.15, and the other one who belonged to Group 40 had 22.48 in Mahalanobis distance (p < .001). Both of the individuals and the groups were discarded. There were two distributions in the data whose z score was less than -3.3. The first one was the distribution for cohesion, z = -4.59, and the other one was for Participative Safety, z = -7.41. These two distributions were not transformed. According to Tabachnick and Fidell (2001), outliers lead to both Type I

and Type II error. Therefore, these outliers were discarded.

Z scores for outliers in the group performance data set were analyzed with the cutoff point of 3.3 and -3.3. No outliers were found. Then, distributions of skewness and kurtosis were analyzed with the cutoff value of 3.3 and -3.3. All data was normally distributed. According to Tabachnick and Fidell (2001), for data that are small and unequal samples across cells, normality of DVs can be assessed using judgment. Each individual variable that was normally distributed without any outliers would most likely ensure multivariate normality. Therefore, it was concluded that these conditions ensured robustness of multivariate normality.

For the individual data, the examination of assumptions for Analysis of Multivariate Variance (MANOVA) was conducted. Homogeneity of variance-covariance was examined and assured by a significant value more than .001. Linearities were also assured by drawing liner lines between some pairs of randomly selected DVs. Homogeneity of variance-covariance matrices were examined. The Box's *M* test for homogeneity of dispersion matrices produced F (63, 3311.48) = .88, $p > .05$, which confirmed homogeneity of variance-covariance matrices. Homogeneity of regression was assessed with SPSS (Tabachnick

& Fidell, 2001). For the satisfaction variable, the F value for homogeneity of regression is F (6, 111) = 1.35, p > .01. Homogeneity of regression is established for all steps. Therefore, the use of MANOVA on the individual data was assured.

Before the examinations of the assumptions of MANOVA for the group data, bivariate correlations among the subscales of creativity were assessed. The analysis revealed that all of the pairs were significantly highly correlated, and the minimum correlation among them was .81 between Attractiveness and Originality. All the DV measure scales were subscales of the creativity measure so that these high correlations were expected. Such high correlations indicated that each DV contained a tremendous amount of overlapping information with one another. Tabachnick and Fidell (2001) indicate that MANOVA works relatively well with moderately correlated DVs in either direction (+ or - .6) and would not be appropriate for data with highly correlated variables. In addition, MANOVA has lower power than Analysis of Variance (ANOVA). Therefore, the three scales were averaged to one, Creativity score.

Assumptions for ANOVA for the group data were conducted. The first assumption, Independence of scores, was met. Every group went through the experiment independently from other groups, and there was no way for the data to be correlated across groups. The second assumption, normally distributed treatment populations, was met. The participants of this study were drawn from a college population who was not particularly trained or interested in creativity generation. The third assumption, Homogeneity of Variance, was also met because the ratio of the largest within-group variance to the smallest within-group variance was no more than nine (Keppel, 1991). Therefore, ANOVA could be employed in further analyses of the data at the group level.

The questionnaires of participative safety and support-for-innovation were examined by 2x2 ANOVAs to see if the training and the reward had any effects on participants' perceptions toward teamwork. To analyze the support-for-innovation questionnaires between the conditions, item one to five were used, and item six to eight were used for further analysis in the next paragraph. Analysis revealed no main effects or interaction effects in their perception between the groups for Participative Safety

and Support for Innovation. The results indicated that participants did not perceive the effect of the training in creating the environment where team members could exchange their ideas without feeling evaluated. Groups that were told the chance of receiving a monetary reward did not feel that they were supported on their creativity tasks more than did groups that were not told about the reward.

Further analysis of Support for Innovation suggested that it was not effective enough to induce motivations to be creative. To examine the effect of support for innovation over the perception of participants that the reward was a motivational factor, the three questions with a 5-point scale (1 = Very Little & 5 = Very Much) (Support for Innovation 6, 7, & 8) were combined and assessed with descriptive statistics. Because these three questions were only given to Support for Innovation groups, a direct comparison between Support for Innovation and non-Support for Innovation group could not be made. Thus, descriptive analysis was employed. Without directly comparing two groups, it was impossible to understand what scores participants actually perceived high enough as motivational. However, given that participants must have perceived the scale point three as neutral, the

average score of 3.74 (*SD* = 1.29) suggested that the manipulation was not strong enough. In addition, the frequency distribution of those scores was not negatively skewed enough. All the means were close to the scale point three (neutral) and the scores were dispersed normally. If there had been the effect of Support for Innovation on the participants' perception, the means would have been higher, and the distributions would have been negatively skewed. All together it indicated that the participants did not feel that support-for-innovation was a strong motivational factor for generating creative ideas.

Group Data Analyses

Correlations of all the variables were analyzed (See Table 2). There were three significant correlations of .67, .65 and .80 between satisfaction and cohesion, satisfaction and participative safety, and cohesion and participative safety, respectively. None of the variables had significant correlations with the group performance (creativity) variable. However, even though the assumption checks indicated that the manipulations were not effective, participative safety had significant correlations with the other variables.

With the cutoff point for α level of .05, ANOVA was conducted to analyze how different conditions (participative safety and support for innovation) would affect the score in creativity at the group level. There was no significant main or interaction effects found in the creativity score in both of the conditions. However, there was a marginal difference in the creativity score in the support for innovation condition, $F(1, 37) = 3.62$, $p = .065$, $\eta^2 = .09$, power = .46. The groups in the non-support for innovation condition ($M = 3.46$, $SD = .13$) performed higher than did the groups in the support for innovation condition ($M = 3.10$, $SD = .13$). However, the analysis did not reveal any significant difference in the creativity score for the participative safety condition. Neither hypothesis one that groups trained on participative safety would score higher on creativity than untrained groups nor hypothesis two that groups in the support for innovation condition (rewarded groups) would score higher on the originality score than groups in the non-support for innovation condition (non-rewarded groups) were supported.

Individual Data Analyses

Correlations among individual variables were examined. There were three significant correlations of .73, .67,

and .68 between satisfaction and cohesion, satisfaction and participative safety, and cohesion and participative safety, respectively (See Table 3).

A 2 x 2 MANOVA was conducted to analyze the three dependent variables at the individual level (cohesion, anxiety and satisfaction scores). For the anxiety analysis, three individual anxiety question items were analyzed because they could not be aggregated due to the lack of the reliability. These analyses together were conducted to examine hypothesis three to five.

Results on the main DVs revealed that there was a significant difference in the cohesiveness score between the control and experimental groups of the reward condition, $F(1, 119) = 4.35$, $p < .05$ $\eta^2 = .04$. The groups that had the chance of receiving the reward had higher scores on cohesiveness ($M = 150.75$, $SD = 2.66$) than the groups that did not have the chance for the reward ($M = 142.81$, $SD = 2.72$). There was no other difference found in the training or reward condition. The individual question items of social anxiety were also analyzed, but none of them came out significant. Therefore, the results did not support hypothesis three that groups trained on participative safety would feel less anxiety than

groups without the training, hypothesis four that groups trained on participative safety would have more cohesiveness than groups without the training, and hypothesis five that groups trained on participative safety would have higher satisfaction than the group without the training.

A supplemental analysis was conducted with Multiple Regression Analysis to examine if aggregated individual creative scores would predict group creativity. In order to obtain the total members' creativity preference for this analysis, the individual creativity preference had to be aggregated to the group level. Based on group literature, there are two ways to operationalyze this task. The average creative scores of each group were also taken as a group score and the highest creative scores of members were taken and used as a group creative score. The task given in this study was called a disjunctive task where members of each group had to choose the product from pool of members' judgments and produce single solution as the group's product (Forsyth, 1999). When one member in a group comes up with a very creative idea, and the group adapts that idea as their solution, the score does not necessarily reflect the group performance. For this disjunctive task, individual members with the highest

creativity preference scores might have had more impact on their group solutions than other members with lower scores. Therefore, it seemed reasonable to include the highest score of each group as the group creativity preference score in this supplemental analysis. Multiple Regression Analysis with these two variables predicting the originality subscale was used to assess the relationship. However, no significant values were found.

Another supplemental analysis was tried to further examine a possible cause for the unexpected finding. According to Camacho and Paulus, (1995), social anxiety inhibits one's performance. Being presented a chance to win money, participants may have felt high anxiety while working in a group. To examine the unexpected finding of the creativity score from the point of social anxiety, ANOVA was conducted to assess if there were any differences in the partcipants' fear scores between the reward conditions. There was no significant difference found in this analysis. In addition, it revealed that generally participants felt relaxed with their task (M = 3.31, SD = 1.71 for the reward & M = 3.41, SD = 1.84 for the non-reward). Therefore, social anxiety could not be the cause for the difference found in

the creativity score between the reward conditions.

The last analysis was performed on the dependent variables at the group level instead of the individual level. The intraclass correlation (ICC) examines within and between variances in dependent variables and indicates the extent to which groups are different in terms of the variables (Bryk & Raudenbush, 1992; Watson, Chemers, & Preiser, 2001). ICC for cohesiveness, fear, and satisfaction were all significant (ICC = .24, .18, and .37, respectively, $df = 120$, and $p < .05$). Therefore, individual scores of each group were aggregated for a group score.

Discussion

Past research shows that the West model (1990) with the four key climate factors enhances group performance across different organizational settings. A reasonably large amount of research shows that group norms influence the behaviors of individuals as well as groups (Caldwell & O'Reilly, 2003; West & Wallace, 1991). West (1990) has proposed that establishing participative safety and support for innovation, with which all of group members participate in a group task and exchange any ideas freely to achieve their goal and feel

supported for being creative, helps increase creativity at the group level. This experiment was designed to develop a group process that would create similar norms to participative safety and support for innovation to examine if these norms lead to group creativity. All the past studies testing the model were correlational and had not been conducted in a laboratory setting. This study selected two variables that were partially representative of the two climate factors and testable in a laboratory setting and attempted to examine the effect of the model on group creativity. However, this study did not confirm any of the hypotheses.

The first hypothesis that groups trained on participative safety would score higher on creativity than untrained groups was not supported. The manipulation checks and all non-significant results about the effect of the participative safety clearly indicated the lack of the manipulation power. Virtually there were no differences in terms of the manipulations between the conditions. Without the effects of the manipulations, participants could not develop norms that would help them be more creative. This was the main reason for all the non-significant results.

This study did not confirm the second hypothesis that groups in the support for innovation condition would score higher on the creativity score than groups in the non-support for innovation condition. Support for Innovation is a climate where members feel encouraged and supported for being creative. In order to make participants feel supported for generating a creative solution to their task, this study chose the monetary reward. Researchers used variables that enhanced one's intrinsic motivation to increase creativity so that they could motivate people who wanted to have radical ideas to present their ideas in a group (Ruscio, Whitney, & Amabile, 1998). However, as the analyses of the manipulation checks indicated, the manipulation failed to make the participants feel supported for their creativity generation or motivate them enough to be creative.

A major flaw of the Support for Innovation manipulation was that participants did not perceive the monetary reward as support for what they were doing. It is understandable why the manipulation of the support for innovation did not affect their performance in the way the past studies testing West's model (1990) showed. The groups that were just formed were not working under any circumstances where they had to face

serious consequences if they did not generate creative ideas or compete with other groups to obtain something valuable to them so that they might not have needed any support for what they were doing. The monetary reward for them might not have been something valuable, and they might have wanted something different to feel supported for being creative.

There was one marginally significant result that indicated that the participants who were not told a chance to obtain the monetary reward outperformed in creativity scores the participants who were told about the chance. The reason for not finding this as significant could be attributed to the lack of the power. The effect size of this analysis was not trivial ($\eta^2 = .09$) and the p-value was almost close to .05. Increasing the power of the analysis or sample size could have made this result significant.

It did not confirm hypothesis three that groups trained on Participative Safety would feel less anxiety than groups without the training. The analyses of the participants' anxiety scores did not find any differences between the two conditions. Responses of participants to the anxiety scores ($M = 4.27$ out of 9) indicated that participants had a relatively low average mean for their anxiety in group

interactions, indicating that on average they did not feel anxious working in a group and presenting ideas to their members. The analyses of the general social anxiety scores indicated that 70 per cent of the participants fell below the scale point of three (neutral point) ($M = 2.48$, $SD = 1.04$). It indicated that the majority of the participants would feel comfortable interacting with people in their day-to-day life. In addition to the non-effect of the participative safety, it could have been very difficult with this sample from the beginning of this study to reduce their anxiety by providing the training because they were not anxious about the task they would do.

Part of the reason why hypothesis three was not confirmed is that groups in the both conditions might have had members who were already comfortable working with others and exchanging their ideas. There might be no difference on their anxiety to differentiate from the beginning of the experiment. Another reason is that this was a mere experimental situation for participants without any consequence. The fact that there was no consequence on their life even if they had not generated good ideas or contributed to their group might have made them relaxed. In reality at

work, people face consequences such as being unable to obtain a promotion or favorable evaluation due to their poor performance of their group. This real situation would make them more nervous or very serious about what they do with their group, which in turn would make a group process more difficult. Therefore, the training we had given would have been more effective to alleviate their anxiousness.

Hypothesis four and five were not supported by the main analyses. Hypothesis four was that groups trained on participative safety had more cohesiveness than groups without the training, and hypothesis five was that groups trained on participative safety had higher satisfaction than the group without the training. Neither was confirmed. The results by MANOVA did not find any significant differences between the experimental and control groups, and these non-significant results were in line with the other hypotheses of the participative safety and also indicated that the training had no effect on the participants' behaviors.

Correlational analyses indicated that participative safety, cohesiveness, and satisfaction were all significantly and positively correlated. The significant

positive correlations indicated that having high participative safety in group interactions was associated with satisfaction and cohesiveness with their groups. Even though it was not observed that participative safety directly affected group performance, these correlations demonstrate that participative safety was an important factor in creating an effective group process. Both of the affective outcomes with which participative safety has an association are important to group function. Cohesion has been found to be related to group member retention (Oliver, Harman, & Hoover, 1999), and satisfaction has been found to be related to group performance (Iaffaldano & Muchinsky, 1985) and organizational citizenship behavior (Bateman & Organ, 1983). As can be seen, satisfaction and cohesion are established important factors in group processes. Therefore, participative safety is an important construct that needs to be further explored and understood even though all the hypotheses here did not confirm the effect of it.

However, the analyses found that there was the effect of the support for innovation on cohesiveness and that groups that had the possible chance of the reward had higher scores than did groups that did not have the chance. Unfortunately,

there is no study conducted that has directly tested if a chance to win a monetary reward affects cohesiveness. It seems that compared with the groups in the non-support for innovation condition, for the members in the groups in the support for innovation condition, there was a reason to be there trying to come up with ideas which might have made them win the reward. However, the members in the non-support for innovation condition had to be there to obtain extra credits, which might have affected their group process as well as their cohesiveness. One of the definitions of a group includes common interests or goals (Greenberg & Baron, 2000). Facing a possible chance to obtain the reward, in addition to obtaining extra credits, the members in the support for innovation groups might have found one additional common interest to be working as a group that the members in the non-support groups did not have. Interestingly, there was no difference in the satisfaction scores between these two conditions. It is assumed that all the members in both conditions enjoyed the activity, but the non-support for innovation groups could not have seen any other purposes with working in their groups besides getting extra credits while the support for innovation groups might have seen some

purposes to be there. As a result, they might have gotten more attracted to their groups than their counterparts. However, all the assumptions presented here were not tested and were all inconclusive.

In spite of the higher scores of cohesiveness in the support for innovation groups, they did not outperform the non-support-for-innovation groups. This may have indicated that the high cohesiveness found in the support for innovation groups was social cohesion. Even though there is a reasonable amount of research indicating the positive relationship between cohesion and performance (Burke, & McLendon, 2003; Patterson, Carron, & Loughead, 2005), this relationship is not always the case. Researchers have proposed that cohesiveness has different dimensions (Forsyth, 1999; Mullen & Copper, 1994), two of which researchers have been most interested in are task and social cohesiveness. Task cohesion can be defined as commitment to task, and social cohesiveness can be defined as attraction to group (Forsyth, 1999). Researchers have found a stronger, positive relationship between task cohesiveness and group performance than the relationship between social cohesiveness and group performance (Burke & McLendon, 2003; Forsyth, 1999; Mullen

& Copper, 1994). Groups with high scores in task cohesiveness have been found to perform better than groups with low scores, but groups with high social cohesiveness do not seem to outperform group with low score.

If this assumption were correct, we can delineate a better relationship between the group performance, the cohesiveness scores and the manipulation checks and further add support to this reasoning. The examination of the manipulation checks indicated that the support for innovation was not a motivational factor for the participants to be creative but does not indicate that it was not motivating the participants to be there interacting with the others. If the assumption were correct that the reward affected their social cohesiveness but not task cohesiveness, it would make sense that the manipulation checks did not reveal anything because the way that the manipulation-check questions for the support for innovation were set up was asking task-related questions. The questions would not have captured elements of social cohesiveness. If the support for innovation manipulation had not affected participants' task cohesiveness, the experimental groups would more likely not have outperformed the control groups

or vice versa because there was no difference created that would have affected their performance. However, the analyses still showed that the support for innovation increased the cohesiveness scores of the experimental groups. What was left that did not affect the group performance and that the manipulation checks did not capture should be social cohesiveness. Therefore, it seems that the dimension of cohesiveness the support for innovation affected was social cohesiveness.

These results do not disconfirm the effect of West's model (1990) because a large amount of past studies have shown that variables that enhance group process increase group performance as well as affective outcomes. The results indicated that the effect of the training on participative safety seemed very small or zero so that it did not affect the group process which was supposed to affect cohesiveness and satisfaction in turn.

The manipulation checks indicated that there was no difference in the participative safety between the groups that received and did not receive the training. They indicated that the training did not affect the group process in the experimental condition but did not indicate if the

content of the training did not capture any elements of the participative safety or if the way the training was implemented was not effective in case that the contents were effective. A flaw might possibly lay in the way it was implemented but not in the content of the training. Many studies have shown that collaborative group process, group participation, and non-judging behaviors increase group process, which in turn increases group creativity (Anderson & West, 1998; Oxley & Dzindolet, 1996; Lovelace, Sharpiro, & Weingart, 2001; Williams & Laungani, 1999). The content was developed based on the training guideline used in the Oxley and Dzindolet study (1996), which indicated the effects of their training. Therefore, the results of these studies show that the content of the training could be effective.

To maximize individual performances in group interactions, an individual performance basis reward should have employed instead of a group performance basis reward. Kahai, Sosik, and Avolio (2003) examined if group performance would vary depending on types of reward that would be determined solely on group performance or individual contributions and an identified/anonymity condition in which individual contributions to the group performance were

identified or unidentified. For the identified condition, group performance in the individual performance contribution basis reward was higher than that of groups for the group performance basis reward. Because they did not have a condition where there was no reward presented to groups, we do not know if such groups would have performed higher or lower than groups that were given either type of the reward. However, from their study, we can infer that a group performance basis reward may not be as effective as an individual performance basis reward to motivate individual members at their best. Therefore, an individual contribution basis reward should have been considered in this study.

This study should have included a scale that would measure the participants' understanding of the guideline such as how much participants understood the guideline and attempted to follow it as they were engaging in the activity. As the manipulation check, this study had a scale that directly measured how much the participative safety existed in each group. This scale seems particularly good to measure the existing climate in a group that has already worked for a particular period of time and established some kind of group climate. However, it was not designed to detect if

participants consciously would try to follow the training in order to develop the participative safety climate. Therefore, the current study could have seen how much successful it would be in terms of the implementation of the training if a questionnaire to measure the development of the participative safety had been included.

In order to examine where the flaw lied in the training process, a questionnaire that would measure the effect of the training should have been incorporated. By questions that would ask participants if they were conscious about the training during the activity and they tried to follow it and to force that norm into the group process, we could have made sure that participants did not try to implement the participative safety. If they answered to this questionnaire that they followed, comes the question to the effectiveness of the contents in the training. If they answered that they did not, the effect of the training can be made sure, and the same training can be used with but some changes in the way it is implemented. This type of questions for the manipulation checks would have been helpful in analyzing flaws of the experimental design.

In addition to this type of questionnaire, from a theoretical point, two reasonable assumptions can be drawn for why the training did not have any influence on the participants. The first one is motivation of trainees, and the second one is the training method. Motivation plays an important role in training (Noe, 1986; Noe & Schmitt, 1986). Noe and Schmitt (1986) found that people who had high job involvement were more likely to have positive attitudes toward training, which would in turn increase their actual learning. Students participated in this study just to receive extra credits so that they were not motivated enough to seek out a way to come up with unique ideas. When the participative safety training was given, the participants did not have commitment in the activity or motivation to learn the training or they might not even have understood why it was given to them. Their indifference to the training or the study might have affected their attention or attitudes to the training.

The training in this study was delivered in lecture. One of the disadvantages in the lecture method is that the lecture style does not allow trainees to discuss their questions (Goldstein & Ford, 2002). The lecture might not be

the best method to train the participants who did not have any motivation to be very creative and see the benefit of the training. Instead, a training method that engages trainees in active learning should have been chosen. Unfortunately, without a questionnaire to examine how much they learned from the training, this assumption cannot be confirmed. However, given that the training was constructed based on the effective training (Oxley & Dzindolet, 1996), this can be a reasonable assumption.

A laboratory setting using groups for a short period of time may have some limitation in testing a norm. Using groups that have to continuously work together may render a better result. According to Forsyth (1999), group norms regulate members' behaviors by providing guidelines in what behaviors are accepted and should be avoided and members internalize norms that are considered as legitimate standards. Group norms gradually develop as members go through many different events and align their behaviors. All the studies examining West's model used teams that had been working for time long enough to develop norms (Burningham & West, 1995; Caldwell & O'Reilly, 2003; Curral, Forrester, Dawson, & West, 2001; West & Anderson, 1998; West & Wallace,

1991). On the other hand, this study attempted to enforce the norms on the participants that were formed into groups for one hour and given the 15-minute training. In addition, even before some norms would develop or they would internalize behaviors of the training guidelines as legitimate, the activity was over, and they were disbanded. Therefore, the effects of the norms that those studies could measure are not comparable to the effects of norms developed and measured in laboratory studies using groups for a short time. Groups that have to continuously work for a class project or a long-term project reveal actual dynamics that occur in actual groups in a company, and using them could enhance the effects of the manipulations of this study.

Some types of team climate have been recognized to help teams and groups perform effectively (West, 1990). The West model (1990) is a comprehensive model with the four climate factors, and research testing this model have accumulated over the years indicating that it is fairly applicable to different teams at different organizations. However, variables that consist of the model have not been well specified. This experimental study attempted to contribute to the field by examining the actual causal effects of the

team climate using two variables that were thought to be representative of Participative Safety and support for innovation factor. Because of the lack of the manipulation power, this study was unable to confirm that the proposed variables in this study were part of the model. For the future study, including all suggestions of this study will render more manipulation power and help design an experiment where we can examine and specify variables of the West model. More defined variables in the model will further help practitioners and managers understand and develop a work environment or training program for how to improve group creativity so that further study is necessary to establish casual relationships between specific variables and outcomes.

TABLE 1

Variable Means Across the Groups

	Condition	N	Females	Age	CP (M/SD)	PS	SI
1	Training and Support	11	22	27.35	3.17/.80	41.82	4.18
2	Training and non-Support	10	22	29.73	3.52/.38	41.06	4.18
3	non-Training and Support	9	27	26.61	3.03/.70	41.37	4.05
4	non-Training and non-Support	11	24	29.90	3.41/.47	41.36	4.39

	Preference	Cohesion	Satisfaction	Fear
1	65.44	150.91	8.56	2.61
2	70.31	148.40	6.81	2.60
3	71.60	143.00	6.85	2.29
4	67.46	144.36	6.86	2.40

NOTE: CP = Creativity Performance; SI = Support for Innovation; PS = Participative Safety; Preference = Creativity Preference

TABLE 2

Correlations Between Variables at the Group Level

	Variable	1	2	3	4	5
1	Creativity Performance					
2	Fear of Negative Evaluation	.07				
3	Satisfaction	.10	.06			
4	Cohesion	.22	.08	.67*		
5	Participative Safety	.09	-.03	.65*	.80*	
6	Support for Innovation	.06	-.15	-.03	.20	.11

NOTE: n= 41.

p<.01.

TABLE 3

Correlations Between Variables at the Individual Level

	Variable	1	2	3	4	5
1	Individual Creativity Preferences					
2	Fear of Negative Evaluation	-.04				
3	Satisfaction	.02	.01			
4	Cohesion	-.01	.00	.73*		
5	Participative Safety	-.05	-.03	.67*	.68*	
6	Support for Innovation	-.07	-.08	.13	.14	.04

NOTE: n= 123.

*p<.01.

APPENDIX A

SWEETNER

Artificial sweetener is a popular substitute for sugar today. Products made from artificial sweeteners are used by many different groups of people who are interested in the removal of sugar from their diets. For example, 87% of the diabetic population in the United States use an artificial a sweetener of some kind for their own medical reasons. 34% more females represent sweetener consumers than males. In an annual NutraSweet consumer report, results indicated that the sweetener product was used in a variety of ways:

Use	Percent
Cooking	13%
Baking	25%
Tea/Coffee	24%
Soft Drinks	36%
Other	2%

Artificial sweetener is also used by parents of children whose behavior is affected by intake sugar (23% of consumers reported this). Moreover, these products are used substantially by people who reported the goal of lowering their individual calorie intake (67% females).

Although sweeteners apparently are valuable to our society, some controversy surrounds the FDA's approval of these products. Severe headaches have been reported by a small subset of the women involved in the human trial phase of product teasing. Some researchers believe that this is due to the substantial amount of the sweetener being consumed at one time by these women, and that this would not be apparent with normal consumption. Further, they contend that the prior animal phase of testing proceeded smoothly, and that even after a high level of intake over several months, no negative results emerged. Other opposing scientists believe that these results are biased, and that the public may in fact consume large amounts of the sweetener in the absence of warnings to the contrary.

The non-caloric sweetener currently on the market has been criticized on safety grounds as well. Sugar substitutes are found to contain "aspartame"—which is reported responsible for 78% of all of the non-drug complaints to the Food and Drug Administration. Aspartame contains 10% methanol, which also contributes to the adverse reactions described by its victims. One researcher reported it being "one of the most dangerous substances ever to b foisted upon the unsuspecting public". However, aspartame can be overcome. Here is some breakdown information:

	Date of Bottling	6 mos. After Bottling	36 mos. After Bottling
Aspartame	550.00 mg	155.34 mg	19.70 mg

Furthermore, it is thoroughly established that after 10 weeks at temperatures over 85 degrees F, there is no aspartame left in soft drinks, etc.

Your team has been chosen to design a promotional program for a new non-caloric sweetener product (This is not Splenda). This product has been tested in the same way as the past sweeteners, bringing the same controversial issues to light. However, this new product is inexpensive, easy to mass produce and store, and has an indefinite shelf life. It resembles sugar physically and will not decompose in high temperatures or lose its sweetness like the current sweetener product. Write a brief proposal (1-2 pages) of your plans for marketing your product, indicating your potential audience and how you intend to convince them to purchase your product.

PLEASE NOTE THAT ONLY THE WRITTEN PROPOSAL WILL BE SCORED.

APPENDIX B

GUIDELINE FOR THE TRAINING

Past studies have found that social anxiety inhibits one's ability to perform in group interactions and it is important to build the group process where every member feels comfortable talking and presenting their ideas and contributing to the group performance. There are important key behaviors to create such an environment. Such behaviors are encouragement, non-judging, and listening behaviors. The following guidelines were created based on past literatures to help build the group process to perform well as a group.

1. Members need to encourage one another.
    a. Encouragement can be anything. You can verbally encourage other members to speak by saying, "Let's hear about other opinions", "What do you think?" or "Does anyone have different opinions?"
    b. Verbal encouragement is not enough if you are not paying attention to others. Even when you encourage others to speak but if you do not seem to be paying attention, this might discourage others. Please pay attention to others. For example, you can sometimes look into the eyes of the speakers instead of just looking down all the time.
    c. Interruption of someone's talk may send a signal that his/her ideas are not valued. Please try not to interrupt the others.
2. If you are the one who speaks more than others, you should initiate encouraging the others.
    a. People who are shy or not used to speaking in a new group may feel embarrassed to speak. However, those people might have great ideas. Even if people are quiet, it does not always mean that they do not have any ideas. Please encourage the others by saying, "What do you think about my idea?"
3. Do not interrupt while your member is speaking his/her ideas. If you want to speak while this person is speaking, raise your hand and wait for your turn.
4. When someone interrupts another more than twice, wait until this person finishes talking and then let him/her know by saying, for example, "Excuse me. When somebody is presenting his idea, let's listen to him."
5. People tend to evaluate what they hear very rapidly. Keep this in mind and do not criticize your members or evaluate their ideas.
    a. Even if you think you are not criticizing others, they may think you are. You may want to avoid some behaviors. The examples are: "Really??", "Whatever.", "Do you think so?", or "I don't think your idea is good."
    b. Your facial expressions may be taken as criticizing. For example, the way you look at others might be perceived as criticizing.
6. When someone criticizes another member, remind the subject about the guideline.

7. These behaviors may occur unintentionally or unconsciously. If someone displays these types of behaviors, let this one know by saying, "Excuse me. No offense, but you seem to be violating the guideline. Let's not have one."
    a. It is hard for people to let someone know about this. So please keep in mind that some behaviors may appear evaluating or criticizing to the others."

APPENDIX C

CREATIVITY CRITERIA

Originality—This dimensions refers to the newness of the proposal. Does the proposal reflect newness or out-of-the-ordinary ideas? Does the proposal present a new approach or different way of solving the problem?

1 = proposal is very ordinary, displaying no uniqueness
3 = proposal is slightly unique
5 = proposal is extraordinary unique

Appropriateness—This dimension refers to the degree to which the proposal is directed towards the problem the group was asked to address. Has the group addressed the proposal task or have they strayed from the task?

1 = proposal is not appropriate to the problem
3 = proposal deals with some aspects of the problem
5 = proposal is completely appropriate to the problem

Feasibility—This dimension refers to the possibility of the proposal actually being implemented. Does the proposal require unreasonable resources to be implemented? (Note: their tasks were large in score – so it is not unreasonable for them to assume they have some source of funding – this dimension will only distinguish between proposals that do not require unreasonable resources and proposals that require millions of dollars, personal visits to every American high school students, and trips to mars)

1 = proposal is unreasonable and could not be implemented
3 = proposal requires many resources, but might be realistically implemented
5 = proposal does not require unreasonable resources and could realistically be implemented.

Attractiveness—This dimension refers to the degree to which the proposal could get target customers interested in the product. Does the proposal have an impact on customers' attention to the product? Does the proposal display imagination? Does the way the proposal market the product fascinate customers?

1 = proposal is not attractive to customers
3 = proposal needs to be modified, but could attract customers
5 = proposal is very attractive and can have an impact on the customers' attention

Overall Quality—This dimension refers to the overall quality of the proposal. This is a holistic rating that includes your overall reaction to the proposal.

1 = the quality of the proposal is very low

5 = the quality of this proposal is very high

APPENDIX D

GROUP ATTITUDE SCALE

Please circle the number that represents the degree to which you agree with each statement.

Questions	Disagree				Neutral				Agree
1. I want to remain a member of this group if there are other sessions.	1	2	3	4	5	6	7	8	9
2. I liked my group.	1	2	3	4	5	6	7	8	9
3. If I have another meeting with this group, I will look forward to coming to the group.	1	2	3	4	5	6	7	8	9
4. I did not care what happened in this group.	1	2	3	4	5	6	7	8	9
5. I felt involved in what was happening in my group.	1	2	3	4	5	6	7	8	9
6. If I could have dropped out of the group during the activity, I would have.	1	2	3	4	5	6	7	8	9
7. I would dread coming to this group if there were other sessions with the same group.	1	2	3	4	5	6	7	8	9
8. I wished it had been possible for the group activity to end sooner.	1	2	3	4	5	6	7	8	9
9. I was dissatisfied with the group.	1	2	3	4	5	6	7	8	9
10. If it had been possible to move to another group, I would have.	1	2	3	4	5	6	7	8	9
11. I felt included in the group.	1	2	3	4	5	6	7	8	9
12. In spite of individual differences, a feeling of unity existed in my group.	1	2	3	4	5	6	7	8	9
13. Compared to past groups I participated in, I felt this group was better than most.	1	2	3	4	5	6	7	8	9
14. I did not feel a part of the group's activities.	1	2	3	4	5	6	7	8	9
15. I felt it would have made a difference to the group if I had not been here.	1	2	3	4	5	6	7	8	9
16. If I were told my group would not meet today, I would feel badly.	1	2	3	4	5	6	7	8	9

17. I felt distant from the group.	1	2	3	4	5	6	7	8	9
18. It made a difference to me how this group turned out.	1	2	3	4	5	6	7	8	9
19. I felt my participation did not matter to the group.	1	2	3	4	5	6	7	8	9
20. I would not feel badly if I had to miss a meeting of this group.	1	2	3	4	5	6	7	8	9

APPENDIX E

PARTICIPATIVE SAFETY

Please circle the number that represents the degree to which you agree with each statement.

Question	Very Little		Neutral		Very Much
1. We generally shared information in the team rather than keeping it to ourselves.	1	2	3	4	5
2. People felt understood and accepted by each other.	1	2	3	4	5
3. Everyone's view was listened to even if it was in a minority.	1	2	3	4	5
4. There were real attempts to share information throughout the team.	1	2	3	4	5
5. People in our group felt that they were all pulling together for a common goal.	1	2	3	4	5
6. Some members of a group criticized the ideas of others.	1	2	3	4	5
7. Members of our group listened carefully to the views of others.	1	2	3	4	5
8. People in our group had a difficult time accepting criticism.	1	2	3	4	5
9. There was a shared vision about what we were trying to accomplish here.	1	2	3	4	5

APPENDIX F

SUPPORT FOR INNOVATION 1

Please circle the number that represents the degree to which you agree with each statement.

Question	Very Little		Neutral		Very Much
1. The group was motivated to come up with creative ideas.	1	2	3	4	5
2. I put more effort to come up with creative ideas than in regular group activities.	1	2	3	4	5
3. Group members co-operated in order to help develop and write the creative proposal.	1	2	3	4	5
4. I felt during the group activity that the experimenter was looking for creative ideas.	1	2	3	4	5
5. Group members expected one another to come up with creative ideas.	1	2	3	4	5
6. Creative ideas were encouraged by the possible chance of the bonus.	1	2	3	4	5
7. The possible chance of the bonus was appropriate to increase the group's attempts to come up with creative ideas.	1	2	3	4	5
8. I believe the money will really be given to the most innovative group.	1	2	3	4	5

APPENDIX G

SUPPORT FOR INNOVATION 2

Please circle the number that represents the degree to which you agree with each statement.

Question	Very Little		Neutral		Very Much
1. The group was motivated to come up with creative ideas.	1	2	3	4	5
2. I put more effort to come up with creative ideas than in regular group activities.	1	2	3	4	5
3. Group members co-operated in order to help develop and write the creative proposal.	1	2	3	4	5
4. I felt during the group activity that the experimenter was looking for creative ideas.	1	2	3	4	5
5. Group members expected one another to come up with creative ideas.	1	2	3	4	5

APPENDIX H

FEAR OF NEGATIVE EVALUATION

Please circle the number that represents the degree to which you agree with each statement.

Question	Very little	A little		Some	Very much
1. Sometimes I think I am too concerned with what other people think.	1	2	3	4	5
2. I worry about what kind of impression I make on people.	1	2	3	4	5
3. I am afraid that people will find fault with me.	1	2	3	4	5
4. I am concerned about other people's opinions of me.	1	2	3	4	5
5. When I am talking to someone, I worry about what they may be thinking of me.	1	2	3	4	5
6. I am afraid that others will not approve of me.	1	2	3	4	5
7. I am usually worried about the kind of impression I make.	1	2	3	4	5
8. I am frequently afraid of other people noticing my shortcomings.	1	2	3	4	5
9. I worry what other people with think of me even when I know it doesn't make any difference.	1	2	3	4	5
10. It bothers me when people form an unfavorable opinion of me.	1	2	3	4	5
11. I often worry that I will say or do the wrong things.	1	2	3	4	5
12. If I know that someone is judging me, it tends to bother me.	1	2	3	4	5

APPENDIX I

CREATIVE PERSONALITY SCALE

Please circle the number that represents the degree to which you agree with each statement.

	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
1. I do things that others find strange	1	2	3	4	5
2. I Like to get lost in thought	1	2	3	4	5
3. I enjoy wild flights of fantasy	1	2	3	4	5
4. I do things by the book	1	2	3	4	5
5. I love to daydream	1	2	3	4	5
6. I swim against the current	1	2	3	4	5
7. I like to solve complex problems	1	2	3	4	5
8. I am not interested in abstract ideas	1	2	3	4	5
9. I love to read challenging material	1	2	3	4	5
10. I seldom get lost in thought	1	2	3	4	5
11. I have a vivid imagination	1	2	3	4	5
12. I know how things work	1	2	3	4	5
13. I m not interested in theoretical discussions	1	2	3	4	5
14. I seldom daydream	1	2	3	4	5
15. I take deviant positions	1	2	3	4	5

	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
16. I try to avoid complex people	1	2	3	4	5
17. I avoid difficult reading material	1	2	3	4	5
18. I do unexpected things	1	2	3	4	5
19. I do not have a good imagination	1	2	3	4	5
20. I love to think up new ways of doing things	1	2	3	4	5

APPENDIX J

SOCIAL ANXIETY AND SATISFACTION

Please circle the number that represents the degree to which you agree with each statement.

Question	Very little								Very much
1. How uncomfortable did you feel while presenting ideas?	1	2	3	4	5	6	7	8	9
2. How much do you think you failed to express ideas because of concern with negative evaluation from other members?	1	2	3	4	5	6	7	8	9
3. How much pressure did you feel during the activity to come up with ideas and present them to your group?	1	2	3	4	5	6	7	8	9
4. How satisfied were you with the group process, not the outcome?	1	2	3	4	5	6	7	8	9
5. How much did you enjoy the activity?	1	2	3	4	5	6	7	8	9
6. How much do you think you would like to work with this same group in the future?	1	2	3	4	5	6	7	8	9
7. How comfortable did you feel while presenting ideas?	1	2	3	4	5	6	7	8	9
8. How satisfied are you with your group proposal?	1	2	3	4	5	6	7	8	9
9. How creative do you think you are?	1	2	3	4	5	6	7	8	9
10. As for the proposal, how do you think your group did in terms of creativity?	1	2	3	4	5	6	7	8	9

1. Age _____
2. Gender: Male Female
3. Grade: Freshman Sophomore Junior Senior Graduate
4. Ethnicity: African American Asian/Pacific Islanders Hispanic Native American White

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