

Past success and convergent thinking in groups: The role of group-focused attributions

JACK A. GONCALO*

University of California, Berkeley, USA

Abstract

Past success often causes groups to think narrowly around strategies that have worked in the past, even when environmental change has rendered these strategies ineffective. From a psychological perspective, this research seems to indicate that past success may give rise to convergent thinking in groups. Why might successful groups be prone to convergent thinking? I argue that the relationship between past success and convergent thinking may depend on the attributions that groups generate to explain their shared success. In this paper, I focus on two distinct attributions at the group level: Individual-focused attributions that reflect the idiosyncratic characteristics of individual group members and group-focused attributions that reflect the emergent properties of the group as a whole. I found that group-focused attributions for past success cause groups to generate fewer ideas that are, on average, more convergent. In contrast, individual-focused attributions cause groups to generate more ideas that are on average more divergent. These findings suggest that the experience of success may actually stimulate divergent thinking depending on how a group chooses to explain it. Copyright © 2004 John Wiley & Sons, Ltd.

An impressive body of research suggests that past success gives rise to a single-minded persistence that may be beneficial when a group must overcome obstacles (Bandura, 2000), but harmful when changes in the environment make a strategic shift necessary for survival (Audia, Locke, & Smith, 2000). Based on the notion that past success causes strategic rigidity, scholars have debated over whether such rigidity may be viewed as resilience and therefore necessary for future success, or whether such rigidity may cause stagnation and eventual failure (Whyte, 1998). Despite this disagreement, the two lines of research do share a common underlying assumption: Past success serves to narrow a group's focus of attention, an issue commonly conceptualized as convergent thinking (Mayer, 1992).

In contrast to previous work, I propose that a deeper understanding of the factors to which group success may be attributed leaves open the possibility that success may actually stimulate divergent

*Correspondence to: Dr. J. A. Goncalo, 545 Student Services Building, University of California at Berkeley, Berkeley, CA 94720-1900, USA. E-mail: goncalo@haas.berkeley.edu

thinking and an open-minded consideration of alternatives. Specifically, I identify an attributional dimension that may have direct implications for the issue of convergent thinking in groups. Attributions for group success may be focused on the individual group members and their unique characteristics, or they may be focused on the emergent properties of the group as a whole. Drawing on theories of social influence, I argue that the extent to which a group is narrow-minded following success may depend on whether their attributions are group-focused or individual-focused. I test these propositions in a laboratory study.

CONVERGENT THINKING IN GROUPS: THE ROLE OF CAUSAL ATTRIBUTIONS FOR PAST SUCCESS

Current research suggests that past success may cause groups to narrow their focus of attention. The literature that pertains to this issue crosses multiple disciplines and multiple levels of analysis. Various scholars who have theorized about similar issues using terms such as inertia (Hannan & Freeman, 1984), strategic convergence (Tushman & Romanelli, 1985), competency traps (Levitt & March, 1988) and collective efficacy (Whyte, 1998). The explanations for this effect have also ranged from the macro-sociological to the social-psychological to the cognitive. In this paper, I will focus on convergent thinking, defined as the movement towards a single solution to a problem that involves generating a large number of ideas that are similar to one another (Mayer, 1992). Convergent thinking captures many of the issues that have been raised by scholars working in disparate areas. When groups think convergently, they are 'boxed in' by the most obvious answer to a problem. Such groups are unable to imagine a wide range of possible solutions to a problem; instead they are narrowly focused on one particular solution.

Why might past success cause groups to think convergently? The answer to this question may lie with the reason groups believe they can be successful in the first place. Although research suggests a causal link between past success and tendencies toward rigidity, relatively little research has examined how groups interpret and explain shared experiences of success (Alper, Tjosvold, & Law, 1998).

This gap may be crucial for two reasons. First, research on causal attributions for group success suggests that they are often asked to justify and explain their success to external observers (Salancik & Meindl, 1984; Staw, 1975). Moreover, if a group manages to succeed where other groups have failed, it is likely that outsiders will notice the successful group and ask them to explain the cause of their performance (McGill, 1989; Wong & Weiner, 1981). Therefore, even if groups do not spontaneously attempt to explain the causes of their success as they often do following failure (Sitkin, 1992); they will probably do so in response to questions from external stakeholders. In other words, it is often the case that success must be explained.

Second, a great deal of research suggests that attributions for success may have important performance consequences. A large body of research on attributions at the individual level suggests that the attributions generated to explain prior outcomes will influence their performance on subsequent tasks (Weiner, 1985). For instance, people tend to attribute success to causes that are internal to themselves, and failure to causes that are external to themselves (Weiner, 1971). This tendency to externalize failure serves to enhance one's motivation to persist at difficult tasks and eventually succeed (Dweck, 1975). Although a great deal of research at the individual level has found that attributions for past performance may influence subsequent performance, no such link has been made between attributions and performance at the group level. In fact, attributions at the group level are more often viewed as a consequence of past performance (Salancik & Meindl, 1984; Staw, 1975; Zaccaro, Peterson, & Walker, 1987) and not a potential influence on future performance.

In contrast to previous work, I consider not just how people attribute the causes of past performance, but how these causal attributions may also become a cause of subsequent performance. In particular, I argue that the link between past success and convergent thinking in groups may depend on two distinct attributions at the group level: *Individual-focused* attributions that reflect the idiosyncratic characteristics of individual group members and *group-focused* attributions that reflect the emergent properties of the group as a whole. This attributional dimension is relevant across a variety of situations where the cause of an event may be shared by more than one person. For instance, research on close relationships suggests that causality may be attributed to the qualities of each individual in the partnership (i.e. 'He is inconsiderate, she is uptight') or to the relationship as a unit (i.e. 'We don't communicate well') (Newman, 1981). Much like a close relationship, attributions for group performance may also reflect a group versus individual-focus. For example, attributions for group performance may focus attention on individual group members, and the skills that they bring to bear on the task at hand (Zaccaro et al., 1987). Alternatively, attributions for group performance may also reflect the emergent properties of the group as a whole such as shared norms, values or beliefs ('Our success is due to the strength of our creed') (Bettenhausen & Murnighan, 1985; Collins & Porras, 1994; O'Reilly & Chatman, 1996). In a similar vein, attributions for group performance may be self-serving when individual members take personal credit for the group success, or they may be group-serving when individual members give credit to their team members (Taylor & Tyler, 1986).

Although little direct evidence exists, some research suggests that these attributions for success might impact group members' propensity to think convergently. For instance, when attributing success to the group as a whole, people might be more likely to focus on information that is shared by every group member. Conversely, by attributing success to the individuals in the group, people might be more likely to fully consider unique information (Stewart & Stasser, 1995). Given that homogeneity of viewpoints and perspectives tends to encourage convergent thinking (Janis, 1972; Peterson & Nemeth, 1996), group-focused attributions for success may narrow the focus of a group's thought processes. Therefore, individual-focused attributions, which call attention to the unique contributions of individual group members, may cause the group to be aware of a greater diversity of information in the group.

In addition, attributing success to the emergent properties of the group as a whole might exacerbate pressures toward conformity in the group. Past research suggests that individuals are more likely to conform to group norms when these shared norms are made salient (Cialdini, Reno, & Kallgren, 1990). Furthermore, a focus on the shared properties of the group as the cause of success might foster a belief that the only correct response to a question is one that everyone believes is correct (Moscovici, 1985; Moscovici & Faucheux, 1972). This conformity and agreement may inhibit group members from voicing unique solutions to a problem, and prevent them from maintaining enough independence from one another to diverge from a common line of thought (Larey & Paulus, 1999; Nemeth, 1986; Nemeth & Staw, 1989). Consequently, it is possible that group-focused attributions for success will give rise to convergent thinking.

HYPOTHESES

My objective is to determine whether a group's shared experience of past success gives rise to convergent thought, and whether this relationship is moderated by attributions that are group- or individual-focused. I will test these predictions by providing groups with false positive feedback, and then asking them to generate attributions for their prior success. I will then examine the extent to which their evidence convergent thinking on a subsequent and unrelated task.

I predict that groups who receive positive feedback about their performance will think more convergently than groups who do not receive any feedback. Furthermore, I predict that groups who make a group-focused attribution for their success will think more convergently than groups who make an individual-focused attribution for their success. These predictions can be summarized as follows.

Hypothesis 1: Groups who experience success will think more convergently than groups who did not experience success.

Hypothesis 2: Groups who make a group-focused attribution for success will think more convergently than groups who make an individual-focused attribution for success.

METHOD

A total of 160 students (80 men and 80 women) at a large North-American university participated in this experiment for course credit. Participants were assigned to groups on the basis of voluntary sign ups. All participants were run in same-sex groups of four, which resulted in a total of 40 groups. All groups were randomly assigned to one of the four treatment conditions described below.

Condition 1: Individual-focused attribution with false positive feedback.

Condition 2: Group-focused attribution with false positive feedback.

Condition 3: No attribution with false positive feedback.

Condition 4: No attribution and no feedback.

Experimental Procedure

The experiment took less than 1 h to complete, and was divided into three phases.

Phase 1

Upon entry, subjects were seated at a table and asked to sign a letter of informed consent stating that they would participate in a study of how groups interact to solve difficult problems. There were four seats at the table, and each spot was labeled 'A'–'D'. No one was seated at the head of the table. Subjects were then asked to decide, as a group, on the items that a family should take with them on a vacation to the moon (North, 1991).

The groups that were going to receive false positive feedback (Conditions 1–3) were told that there were correct answers to the problem and that they would be evaluated as a group on how well they answered the question compared to other groups that have performed this task in previous studies. They were also told that the problem was more difficult than it first appeared, so they should think carefully before arriving at their solution. Finally, there were told that after they completed the task, they would be categorized as either an average group, or an above average group, and then their performance would be observed on subsequent tasks.

The groups that were not going to receive feedback about their performance (Condition 4) were simply told that the problem was more difficult than it first appeared, so they should think carefully before arriving at their decision.

All groups were then given a picture of all the items the family could take, a copy of the instructions, and one sheet on which to write their solutions. The experimenter then assigned the person sitting in seat 'A' to record the group's solutions. Across all conditions, this person recorded the group's responses for the remainder of the experiment. All groups were given 10 min to work on the problem.

Phase 2

After 10 min elapsed, all groups were told that their time was up and to hand in their answer sheet. The groups that did not receive any feedback regarding their performance on the task (Condition 4) were simply asked to continue on to the next task.

The groups that were going to receive false positive feedback regarding their performance (Conditions 1–3) were told that their answers must be evaluated before continuing. The experimenter left the room and returned after 4 min. All groups were then told the following: ‘Your group did well above average. That means that your group was able to identify more correct items than most groups have been able to do in my previous experiments. I’ll give you the answer key with the correct solutions after the study is over, but for now, let’s move on to the next task.’

Condition 3 received positive feedback, but did not make an attribution for their successful completion of the task. These groups were simply asked to move on to the next task in the experiment.

The groups that were to make a causal attribution for their performance on the previous task (Conditions 1–2) were told that in order to understand their group better, they were to answer one question as a group. At this point the groups in Conditions 1 and 2 were given the attribution manipulation.

Condition 1 (Individual-focused attribution): What are the qualities of every individual in your group that led to the successful completion of the previous task?

Condition 2 (Group-focused attribution): What are the qualities of your group that led to the successful completion of the previous task?

In both conditions, the person in seat ‘A’ wrote the group’s response to the question on a single sheet of lined paper. The question was written exactly as spoken at the top of the sheet. In the individual-focused condition, the lined sheet was divided into four sections marked A through D, corresponding to each individual in the group.

The experimenter then asked person ‘A’ to write at the top of the sheet that they were an above average group, ostensibly for the experimenter’s records. All groups in Conditions 1 and 2 were given 5 min to respond to this question.

Phase 3

All groups were then asked to complete one more task. They were told that this task was a scenario in which they would be asked to design and market a new product. The scenario was read to them as follows: ‘After years of mismanagement and poor-quality food, the University restaurant has finally gone bankrupt and is being shutdown. The school administration now has an empty space and is trying to decide what kind of business should go into the space. I want you, as a group, to come up with as many solutions as you can to their problem.’ All groups were given 10 min to complete the task. The person in seat ‘A’ was handed a single sheet of lined paper on which to record the group’s solutions.

Dependent Variables

Convergent Thinking

Convergent thinking was measured in terms of the fluency and flexibility of the ideas generated by the group (Guilford, 1956). Fluency refers to the sheer number of ideas a group is able to generate.

Flexibility refers to the extent to which their ideas cross multiple categories. To illustrate, imagine a group may be asked to think of possible uses for a brick (a typical divergent thinking task). They might suggest, 'Use a brick to build a bridge, to build a house, to build a castle in the sky.' These ideas are convergent because they all suggest that the brick may be used to build something. Moreover, while the suggestion of using a brick to build a castle in the sky may be statistically infrequent, it is nonetheless convergent in that sense that a brick can be used to build something. More divergent responses may involve using a brick as a door stop or as a weapon.

Fluency Following from previous research, fluency was measured by counting the number of solutions the group was able to generate in the 10-min period (Guilford, 1956). Two independent coders who were blind to the conditions and hypotheses of the study were asked to identify any repeated ideas that were written on each group's solution sheet. Neither coder identified any repeated ideas.

Flexibility To assess flexibility, two coders who were blind to the conditions and hypotheses of the study were instructed to categorize all of the ideas generated in the sample by their semantic similarity (Larey & Paulus, 1999; Nijstad, Stroebe, & Lodewijkx, 2002). For instance, all the ideas that suggested the space be used for some type of medical facility (e.g. dentist's office, optometrist's office, birth control centre) were categorized together. Next, each coder counted the number of categories that were covered by each group. Since the coders showed significant agreement on the number of categories covered by each group ($r=0.84$, $p < 0.001$) their ratings were averaged together. One limitation of this procedure is that each coder created their own categories; therefore some of their categories may have been non-overlapping. However, this procedure is consistent with my focus on the sheer number of categories and not their specific content.

Within-Category Fluency Measures of flexibility indicate the breadth of ideas generated by a group. However, it may be the case that some groups might generate a large number of ideas, but these ideas tend to fall into fewer categories. Such groups might compensate breadth of ideas with greater depth. Therefore, within-category fluency was measured by dividing the number of categories by the total number of ideas generated (Nijstad et al., 2002). This procedure gives a measure of the number of ideas generated per category.

RESULTS

I predicted that groups who experience success will think more convergently than groups who do not experience success (H1). However, I also predicted that this effect should be moderated by attributions groups generate to explain their success. Groups who make a group-focused attribution for success will think more convergently than groups who make an individual-focused attribution for success (H2).

Attributions and Fluency

Univariate analyses of variance showed a significant main effect for condition, $F(3, 36) = 6.31$, $p < 0.01$. Contrary to hypothesis 1, a planned contrast revealed that groups who received false positive feedback without generating an attribution did not generate fewer ideas than groups who did not receive any feedback regarding their performance, $F(1, 18) = 0.02$, ns. However, in support of hypothesis 2, groups who made a group-focused attribution for success generated significantly fewer ideas than groups who made an individual-focused attribution for success, $F(1, 18) = 11.93$, $p < 0.01$ (see Table 1).

Table 1. Convergent thinking by condition

	Individual focus	Group focus	Positive feedback	Full control
Fluency (number of ideas)	52.8	27.7	37.8	38.4
Flexibility (number of categories)	18.8	12.0	14	14.6
Within-category fluency	2.9	2.2	2.7	2.7

Post-hoc tests further revealed that groups who made a group-focused attribution for success generated significantly fewer ideas than groups who received false positive feedback without generating an attribution; $t = 2.12$, $p < 0.05$. They also generated significantly fewer ideas than groups who did not receive any feedback regarding their performance; $t = 2.66$, $p < 0.05$. In contrast, groups who made an individual-focused attribution generated significantly more ideas than both the groups who received false positive feedback without generating an attribution, $t = 2.09$, $p < 0.05$, and the control groups who did not receive any performance feedback, $t = 2.15$, $p < 0.05$.

Attributions and Flexibility

Univariate analyses showed a significant main effect for condition, $F(3, 36) = 4.22$, $p < 0.05$. Contrary to hypothesis 1, a planned contrast revealed that groups who received false positive feedback without generating an attribution did not display less flexibility than groups who did not receive any feedback regarding their performance, $F(1, 18) = 0.25$, ns. However, in support of hypothesis 2, groups who made a group-focused attribution for success generated ideas that were significantly less flexible than those generated by groups who made an individual-focused attribution for success, $F(1, 18) = 7.39$, $p < 0.05$ (see Table 1).

Post-hoc tests further showed that groups who made a group-focused attribution for success generated ideas that were not significantly less flexible than the groups who received positive feedback without making an attribution, $t = 1.40$, ns, but they were significantly less flexible than those generated by the groups who did not receive any feedback, $t = 2.27$, $p < 0.05$. In contrast, groups who made individual-focused attributions generated ideas that were significantly more flexible than both the groups who received positive feedback without making an attribution, $t = 2.43$, $p < 0.05$, and the groups who did not receive any feedback about their performance, $t = 2.13$, $p < 0.05$.

Attributions and Within-category Fluency

Univariate analyses showed a significant main effect for condition, $F(3, 36) = 3.01$, $p < 0.05$. Contrary to hypothesis 1, a planned contrast showed that the groups who received false positive feedback about their performance did not generate more ideas per category than groups who did not receive any feedback, $F(1, 18) = 0.03$, ns. However, in support of hypothesis 2, groups who made group-focused attributions for success generated significantly fewer ideas per category than groups who made individual-focused attributions for success, $F(1, 18) = 7.12$, $p < 0.05$ (see Table 1).

Post-hoc comparisons demonstrated that groups who made group-focused attributions for success generated significantly fewer ideas per category than groups who received positive feedback but did not generate an attribution, $t = 2.10$, $p < 0.05$. Furthermore, groups who made group-focused attributions for success generated slightly fewer ideas per category than groups who did not receive

any performance feedback, $t = 1.95, p < 0.10$. There was no difference, however, between groups who made individual-focused attributions and groups who received positive feedback without making an attribution, $t = 0.78$, ns, nor between the groups who did not receive performance feedback, $t = 0.93$, ns.

DISCUSSION

I raised the possibility that past success may cause groups to think convergently. In particular, I argued that the relationship between success and convergent thinking may depend on the attributions groups generate to explain their success. The literature on attributions in the context of close relationships and groups points to an important distinction between attributions that emphasize sharedness as opposed to uniqueness. Group-focused attributions centre on the shared aspects of the group as a whole, while individual-focused attributions for success centre on the idiosyncratic qualities of every member of the group.

I predicted that groups who experience success should think more convergently than groups who do not experience success. For groups who received positive feedback without making an attribution as to its cause, this hypothesis was consistently rejected. Groups who received positive feedback without generating an attribution did not differ from the groups who did not receive any feedback regarding their performance both in terms of the number of ideas they were able to generate and the flexibility of their ideas.

I also predicted that the relationship between group success and convergent thought would depend on the attributions generated to explain their performance. The results suggest clear distinctions in support of this prediction. Group-focused attributions caused groups to generate far fewer ideas than groups who made an individual-focused attribution for their success. The results also show that groups who made an individual-focused attribution differed not only from those who made a group-focused attribution, but also from groups who only received positive feedback, and groups who did not receive any feedback. These results suggest not only that group-focused attributions for success give rise to convergent thought, but also that individual-focused attributions may stimulate groups to think divergently.

The results also showed that group-focused attributions impacted the flexibility of the ideas generated. Mirroring the findings on fluency of idea generation, groups who made group-focused attributions for success generated ideas that crossed significantly fewer categories than groups who made individual-focused attributions for success. In addition, individual-focused attributions led groups to cross more categories than the groups who only received positive feedback, and the groups who did not receive any feedback. These findings provide further evidence in support of the possibility that group-focused attributions for success give rise to convergent thinking, while individual-focused attributions for success stimulate divergent thinking. In other words, it is not simply the case that group- and individual-focused attributions differ from each other, but they also have an impact in relation to the groups who did not generate an attribution and the groups who did not receive feedback.

I also addressed the possibility that group-focused attributions may compensate for their relative lack of breadth of ideas by increased depth. It is possible that groups may focus on fewer categories of ideas but generate significantly more ideas in each category. However, the results show that groups who made individual-focused attributions for success generated more ideas per category than those who made group-focused attributions for success. In other words, groups who were individual-focused were not only broad with respect to the flexibility of the ideas they generated, but they were also relatively deep in that they generated a greater number of ideas per category.

Limitations and Future Research

One limitation of the present study is that the exact mechanisms linking attributions to convergent thinking were not measured. However, the results were consistent with my theoretical propositions. The influence of attributions on convergent thinking is probably not due to any direct informational value of the attribution itself, given the fact that convergent thought was demonstrated on a subsequent and unrelated task. Instead, it is possible that attributions that centre on the group as a whole might create conformity pressure. People are probably less likely to voice an idea that differs significantly from the ones that their fellow group members are generating if the success of the group is presumed to lie with aspects of the group that everyone shares. Conversely, if individual contributions are highlighted as the cause of the group's success, people might be more likely to express ideas that differ significantly from those suggested by their fellow group members. Therefore, future research should examine the group processes that may link attributions for group success with convergent thinking. It should be emphasized, however, that it was not positive feedback by itself that led to convergent thinking, rather it depended on the way groups interpreted the causes of their success. In fact, the results suggest that past success may actually stimulate divergent thought depending on how a group chooses to explain it.

One possibility emerging from these findings is that the experience of success by itself might not lead to convergent thinking. Instead, convergent thinking seems to arise when attributions for success are group-focused. Therefore, future research should examine the factors that might shift a group's attributional focus. For instance, social identification processes might play a role. As people become 'interchangeable' members of their group, individual-focused attributions for success may be less likely to occur (Simon & Pettigrew, 1990). Another possibility is the group's relative emphasis on collectivistic versus individualistic values. Individualistic cultures, by making differences between people salient, might make the group more likely to emphasize individual contributions to the success of the group (Chatman, Polzer, Barsade, & Neale, 1998).

In addition to fluency, future research might also consider the role of accessibility experience, or the extent to which the experience of generating ideas is viewed as being easy or difficult (Schwarz, 1998). For instance, the results show that individual-focused attributions for success led groups to generate more ideas, but it may also be the case that the subjective experience of generating ideas was easier in groups that were individual-focused than for those who were group-focused. This potential link raises the possibility that group-focused attributions may make groups more susceptible to the hindsight bias (Sanna & Schwarz, 2003).

Finally, the results also suggest that group-focused attributions for success may give rise to convergent thinking even on a subsequent task that is unrelated to the one on which they received positive feedback. Research in organizational settings tends to assume that groups will persist with particular strategies that have produced success in the past, to the exclusion of other possibilities (Audia et al., 2000). The results presented here suggest that when success is attributed to the group, there may actually be a more general tendency towards convergent thought that extends to the performance of unrelated tasks. Therefore, the insidious effects of past success may be broader than previously assumed.

In conclusion, the notion that some groups believe success lies with shared values, beliefs or other emergent properties of the group is not a new one. In the middle of the last century Bertrand Russell warned people against believing that the future of any nation depends on their adherence to shared values (1957). The present approach suggests that such an attributional orientation may be a vehicle for narrow-mindedness. In contrast, groups who recognize the unique contributions of individuals may be in a better position to imagine a wide range of possibilities.

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