Performance Patterns, Attributions, Positive Affect and Group Processes and Group Efficacy

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A qualitative analysis of the impact of performance patterns, attributions, positive affect and group processes on the development of group efficacy perceptions.

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Abstract

A qualitative case study approach was taken to analyze the impact of performance patterns, attributions, positive affect and internal group processes and behaviors on the development of group efficacy perceptions. Results of the study suggest that the development of group efficacy perceptions is not simply driven by performance but may be influenced by the pattern of performance over time. Performance attributions appear to differ depending on group membership. Finally, positive affect was not found to be related to group efficacy perceptions but still seemed to bring benefits to the groups. The practical and theoretical implications of these results are discussed.

Keywords: Performance, attributions, positive affect, group efficacy.
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Introduction

In a relatively short period of time the concept of group efficacy has become well known as a group-level attribute in the group effectiveness literature. Group efficacy is described as ‘a group’s sense of its capacity to complete a task successfully or to reach its objectives’ (Whiteoak, Chalip & Hort 2004, p. 158). Group efficacy is often found to predict the performance level of groups (Bandura, 1986; Gibson, Randel & Earley 2000) and lead groups to exert more effort and persist longer in the pursuit of their goals (Mulvey & Klein 1998; Prussia & Kinicki 1996).

However, questions still remain about how group efficacy develops in relation to group performance. For example, recent research findings have suggested that the relationship between group efficacy and group performance can be somewhat tenuous in the early stages of group development (Jung & Sosik 2003; Whiteoak & Chalip 2007). Further, Lindsley, Brass and Thomas (1995) suggest the group efficacy-performance relationship may take the form of a ‘deviation-amplifying loop’. These deviation-amplifying loops or spirals are claimed to occur when the variables build upon themselves in either a positive or negative way so that a change in one variable (i.e., increase or decrease) leads to a similar change in the other variable.

Lindsley et al. (1995) also discuss the possibility that ‘downward spirals’ may correct upwardly under certain conditions. They offer a number of theoretical reasons for these corrections although currently no research has empirically addresses possible patterns in the relationship between group efficacy and group performance over time. Given the espoused benefits of group efficacy to group performance it seems important to empirically investigate factors that may lead to the occurrence, continuation and correction of group-efficacy performance spirals.

In this study we attempt to advance the current literature by investigating the pattern between group efficacy and group performance, over twelve trials of a computer simulation task, in groups that 1) increase in efficacy, 2) decrease in efficacy or 3) experience an initial decrease in efficacy followed by a correction or increase in efficacy.

It is also possible that group affect, performance attributions and group behaviors and processes (i.e., cohesion, social-loafing, commitment, intragroup conflict, and task uncertainty) may influence the occurrence, continuation or correction of group-efficacy performance spirals. Thus, in this study these variables are analyzed qualitatively (using video taped interactions and transcripts) in an effort to identify possible relationships with spirals or a negative spiral correction. Given the qualitative nature of the current paper, our goal is focused on expanding current theory and developing a series of propositions for future research.

The group efficacy – group performance relationship

According to Bandura (1986) performance success will generally raise efficacy appraisals while repeated failures will lower them. Therefore, in the current study we would expect to observe high performing groups having higher levels of group efficacy while less successful groups should have lower efficacy beliefs. However, Bandura (1982) also notes that efficacy and performance are not simple equivalents. For example, he claims that failure should have less effect on efficacy judgments after multiple successes and in some situations, a small success can lead to higher efficacy judgments if it is perceived as significant. Therefore, we would expect to find that multiple
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performance successes protect a group’s confidence level, to some degree, from the effects of failure.

Others suggest that the efficacy-performance relationship will change with task experience and consider the early stage of a new task particularly important (Lindsley et al. 1995). They claim that groups that start off performing well will get even better as time passes, and higher levels of group efficacy resulting from performance feedback continue to reinforce further group efficacy levels. Thus, we may observe when groups start well they improve across the experiment; on the other hand, groups that initially perform poorly should show a deterioration of performance over time. Indeed, it is also possible that in the early stages of a new task the group may have an incomplete understanding of the task parameters. This may lead the group members to make incorrect attributions and/or faulty adjustments about their performance. Lindsley et al. (1995) have suggested that task uncertainty may play a role under these circumstances. Thus, we would not expect to find a relationship between performance and group efficacy when the group exhibits a high level of task uncertainty.

However after repeated trials, the group’s previous experiences on the task may offset the effects of one or two consecutive failures or successes, thereby having little effect on perceived efficacy. Bandura (1986) suggests that occasional failures are unlikely to have much effect on judgments of one’s capabilities. Further, Lindsley et al. (1995) state that stopping spirals once they have begun may be much more difficult than initially avoiding them. It is claimed that feedback may be ignored during a downward or upward spiral. Thus, we could expect that groups that trend upward should be less influenced by failure later in the task and likewise groups that trend downward would be less likely to be influenced by success later in the task. Although, Lindsley et al. also suggest that small wins and losses should be related to stopping spirals. Thus we may also observe a series of small performance wins in groups that self-correct after an initial downward efficacy trend.

The impact of performance attributions on the group efficacy – group performance relationship

Attribution theory is concerned with how humans perceive the causes of behavior (Weiner 2005). The cause of an event may be interpreted as being internally caused or externally caused and the interpretation of this cause should influence subsequent behavior (Nisbett & Schachter 1966). Thus internal performance attributions (e.g., ‘we are really good at this’) may suggest a perception of controllability on the part of the actor or group whereas external performance attributions (e.g., ‘the task is faulty’) may indicate a perception of uncontrollability.

Bandura and Wood (1989) have argued that attributions about the degree of controllability over the cause of prior performance may influence self-efficacy. In other words, perceived control over one’s own performance will lead to enhanced self-efficacy whereas lack of perceived control will lead to diminished self-efficacy (Bandura & Wood 1989; Bandura 1991; Martocchio & Dulebohn 1994).

Lindsley et al. (1995) also suggest that spirals are likely to involve attributions of uncontrollability. An attribution of control fosters actions aimed at self-correction whereas a perceived lack of control may result in frustration, anxiety, and feelings of helplessness (Bandura 1997). Consequently, we might expect to find groups with higher
levels of group efficacy will tend to attribute performance to internal causes. We should also expect to observe internal attributions in groups that spiral upward. Because in order to influence efficacy the actors must believe that they are the cause of some performance change, rather than some external factor (Lindsley et al. 1995).

Bandura (1986) also suggests that failure may be particularly important in the early course of events when it does not reflect lack of effort or adverse external circumstances. As a consequence we might expect that groups that suffer an early loss and internalize their failure may be more likely to initially make low judgments of group efficacy. Further, Lindsley et al. (1995) suggest that verbal persuasion may be particularly important in instigating corrective adjustments and avoiding spirals. For example, they suggest that hearing discouraging remarks (e.g., ‘you are never going to get this right’) following a failure may contribute to the occurrence of a downward spiral. Thus, groups which are able to self-correct from a negative efficacy trend should also be more likely to internally attribute their earlier performance outcomes. Further, negative or discouraging remarks may also be found in downward efficacy groups.

Group affect and group efficacy

The concept of emotion in groups has received broadened attention in recent years (Kelly & Barsade 2001) and has been found to have a direct influence on group cooperation, sociocognitive processes and group performance. While emotion and mood can be distinguished (Mossholde, Settoon, Armenakis & Harris 2000) in that mood is generally less intense and not as focused as emotions (Weiss & Cropanzano 1996) the two are not mutually exclusive. For example, Kelly and Barsade (2001) suggest that ‘group emotion’ can be composed of many types of affect ranging from low-level moods to intense emotions. Thus we use the term ‘affect’ as a generic label to refer to both moods and emotions (viz., Forgas & George 2001).

According to Forgas and George (2001) moods may be particularly important to human behavior as they provide the underlying affective context for most of our ongoing thought processes and behaviors. It has been suggested that certain work group moods may help to promote congruence in members’ attention, effort and persistence, which, in turn, may stimulate well-coordinated patterns of behavior (i.e., task strategies) toward collective goals (Bartel & Saavedra 2000). Further, Watson and Clark (1994) have suggested that self-confidence is a positive emotion that is considered a marker of positive affect. Moreover, George and Brief (1996) proposed that positive mood plays a critically important role in work motivation, as it can lead to more optimistic and ambitious perceptions and judgments. Finally, Bandura (1986) suggested that mood states might provide information about efficacy beliefs in that negative states lead to lower expectations of performance. Taken together, there is a strong suggestion in the literature that group affect may play a role in the development of group efficacy perceptions. However, little research has examined the relationship. In the current study we observe affect levels in groups and examine whether there is evidence of a relationship between affect and levels of group efficacy.

The interaction of affect, performance attributions and group efficacy

We have suggested that affect and group efficacy will be related because a positive affect state should lead to higher expectations about performance. However, the
relationship between affect and efficacy may be influenced by an actor’s attribution of controllability. For example, Erez and Isen (2002) found that positive mood does not lead to mindlessly assigning more positive probabilities or evaluations to events, but rather people assign higher scores when it makes sense to do so. Specifically, they found that in chance situations individuals with a positive mood did not have any higher expectation about their performance than individuals in a neutral mood state.

Thus, affect and confidence may only be linked when the group members feel they have control over the task outcomes. If this is the case then in the current study we would expect to observe that affect influences group efficacy when the group makes internal attributions about their performance.

Control over one’s performance is likely to be associated with higher positive affective states, and lack of control is likely to be related to lower positive affect (Bandura 1991). This is likely because those who believe that they have control over performance cope more effectively than those who do not. Thus, we predict a relationship between internal attributions and groups with higher levels of positive affect.

Observed group behaviors and processes

In this study we also observe a number of well-understood and important group behaviors and processes. These are group cohesion (e.g., Carron 1982; Cartwright 1968; Festinger 1950), social loafing (e.g., Karau & Hart 1998; Williams, Harkins & Latane 1981), intergroup conflict (e.g., Jehn & Mannix 2001), task uncertainty (e.g., Ashford 1989; Wood 1986) and task commitment (Klein & Wright 1994). A great deal of research has been devoted to these variables. However, given the observational nature of the analysis this study may provide a unique insight into the relationship between these variables and the other variables in the study. Definitions of these variables are provided in the Method section of the paper below.

Method

Sample selection procedure

The sample for this paper was selected from a larger study that consisted of 87 undergraduate students (29 groups of three) who had participated in an experiment that involved managing a simulated organization. The associated experimental procedures are outlined below and were identical for all of the participants. From the larger sample set we wanted to identify the groups that best represented either upward, downward, or self-correcting group efficacy trends. To achieve this we classified the groups by their efficacy scores. Thirteen groups were classified as having a mostly upward efficacy trend, nine groups appeared to show a predominantly downward efficacy trend, while the remaining seven groups were classified as having a self-correcting trend. We then applied screening procedures to select two groups from within each classification that best represented that classification. To select the critical cases nine PhD qualified judges were shown the raw efficacy scores of each classification (see Table 2 for an example) and asked to select two groups that they believed best represented that classification. The judges were told that absolute values were not important and they should identify the groups that followed the most representative trend from stage 1 to stage 4. Selecting two cases from each classification would allow us the opportunity of literal and theoretical
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replication and in doing so providing stronger support for our theoretical propositions (Yin, 1989).

The inter-rater reliability for the judge’s decisions for the cluster represented above (upward efficacy trend) was .95. The Cronbach’s alpha for the other conditions, downward and correcting, also suggested high levels of agreement among the judges (.92, and .91 respectively). Based on these decisions we chose the two most frequently identified groups within each cluster as the basis for further analysis. For example, from Table 2, the judges selected groups 1 and 11 most frequently. The resulting sample was six groups and is described below.

Sample
The resulting participants in this study were 18 (6 groups) undergraduate students. Sixty-six percent of these participants were female, 78% studied full-time, 78% were in their first year of study and 26% did not work. The average age of the participants was 21.29 years (SD = 3.06).

Procedure
On arrival, participants were randomly allocated to groups of three. Once in their group, participants were given standardized instructions explaining the task and emphasizing that they were required to work as a group. The participants were then asked if they agreed to be video taped during the experiment – all participants consented. The task selected for this study was a computer-based organizational simulation developed by Robert Wood (cf., Bandura & Wood, 1989; Wood & Bailey, 1985). Participants assumed the role of managers of a department in a furniture factory that processes special orders within a manufacturing environment.

In this study the simulation was organized into four stages of three trials each and it took approximately one hour to complete the twelve trials. After completing each trial, participants received feedback about their department on a computer screen. The group’s performance was determined by how well the participants set goals, provided feedback and assigned rewards to the simulated employees in the simulated environment. After assessing their performance, participants could alter their choices for the next production order. After each stage of three trials (one stage), the groups were presented with a questionnaire that assessed their group’s efficacy. So at each stage of the simulation three performance trails precedes a group efficacy judgment. That is, participants receive feedback about performance for trails 1 to 3 and then indicate their group efficacy concerning how well they believe they will performance in the next three trials. This continued through to the last measure of group efficacy at stage 4.
Measures

Group performance. Group performance was measured in terms of the group’s ability to reduce production hours within a simulated furniture factory. The production hours (group performance) of each trial were calculated automatically by the simulation program on the basis of the group’s allocation of employees to job functions and their choice of associated motivation factors (e.g., goal-level and reward). The fewer the production hours, the better the managerial decision making by the group of participants. The participants’ performance was also reported as a percentage of a preset standard time, with a lower percentage suggesting a higher level of performance. For the analysis these data were standardized so that a higher score indicates a higher level of performance.

Group efficacy. At the end of each stage, the group recorded its perceived group efficacy on a multi-item efficacy scale that described nine possible levels of performance attainment. Each level was expressed as a percentage of a standard time ranging from 70% of standard time (high performance) to 140% of standard time (low performance). For each level, the participants responded on a 10-point scale ranging from ‘no confidence at all’ to ‘total confidence’.

The consensual method for estimating group efficacy was the approach adopted for this study (i.e., the three group members had to reach consensus on their rating). That is, the groups were required to agree on their level of group confidence. Previous work (e.g., Gibson et al., 2000; Whiteoak et al., 2004) has shown this method to be both valid and reliable.

Performance based attributions. Using the video tape recordings a transcription of each group’s conversations was produced. The researchers subsequently reduced the transcripts to contain only performance-based attributions that immediately followed performance. The resulting transcripts were then analysed by the researchers.

Observational measures

Three independent raters were employed to assess a group affect and a number of group behavior and process variables. Each group video recording was split into three equal segments and each rater made a rating after each segment. This led to a total of 54 observations for each of the variables of interest. To improve inter-rater reliability the raters were required to view and rate two training videos (not used in the analysis); this was followed by a group meeting (involving the principal researcher and the raters) where each of the variables were discussed and a level of agreement about the amount of each variable the group was displaying. The ratings were averaged to give a single group score for each of the variables.

Positive affect. Eight items based on the circumplex model of mood (Larsen & Diener 1992) were used to develop a general positive affect score. Four items taken from the activated and pleasant dimensions of the circumplex (enthusiastic, excited, happy and cheerful) and four items (reverse scored) from the unactivated and unpleasant dimensions of the circumplex (dull, bored, miserable and grouchy) were included. Using a nine-point scale (ranging from not at all to very much) the raters were asked to indicate the degree to which they believed the group displayed each of the eight moods. The Cronbach’s alpha for this scale was .89.
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**Group cohesion.** To assess group cohesion raters were asked to indicate the degree they believed that ‘This group worked cohesively’, ‘This group worked very well together’ and ‘On the whole, the people in this group seemed to like each other’. These items were adapted from a study (Whiteoak 2007) where they were found to high internal reliability as a self-report measure (Cronbach’s alpha = .91). In this study observers scored the items on a nine-point scale, ranging from not at all to very much. The Cronbach’s alpha for the scale in this study was .87.

**Social loafing.** Observed social loafing was assessed by adapting four-items taken from Mulvey & Klein’s (1998) perceived social loafing scale. The observers were asked to rate the groups on a nine-point scale ranging from strongly disagree to strongly agree. Scale items included, ‘The members of this group were trying as hard as they could’, ‘The members of this group were contributing less than they could’. The coefficient alpha for this scale was .87 which compares favorably with the coefficient of .90 reported for the original scale.

**Task commitment.** Task commitment was assessed using three items. All items were scored by the observers on a nine-point scale ranging from strongly disagree to strongly agree. Example items included ‘The group did not take this task seriously’ and ‘The group members seemed strongly committed to doing well on the task’. Cronbach’s alpha for this scale was .75.

**Task uncertainty.** Three items were used to measure task uncertainty. A nine-point scale ranging from not much to very much was used to rate this variable. Example items included ‘The group members were uncertain about how the task works’ and ‘The group members were indecisive about what to do’. This scale showed moderate levels of internal reliability (Cronbach’s alpha = .73).

**Group conflict.** Group conflict was measured using two scales (four items each) adapted from Jehn and Manix (2001). The observers were asked to rate task conflict on a nine point scale by responding to how often they observed conflict about ideas, who should do what, task responsibilities, and different possible actions of the group members. Social conflict was also assessed using four items. The items for this scale were, how often was there: relationship tension, emotional conflict, interpersonal friction and anger exhibited by one or more members of the group. Both of these scales had a Cronbach’s alpha of .75.

**Data analysis**

To investigate the development of the relationship between group efficacy and performance a multiple-case replication design (Yin, 1989) was employed in this research. A case approach is a useful way to analyze naturally occurring critical phenomena in a highly detailed fashion. In addition, testing multiple cases (two) within each classification can help to identify similarity or replication within each grouping (Yin 1989). This should ultimately provide stronger support for our theoretical propositions.
Results

Figures 1a, 2a & 3a present the group performance trends of each of the groups in the study. While Figures 1b, 2b & 3b present the relevant group efficacy scores of each group. These figures are discussed in more detail below.

It was suggested above that performance success should generally raise efficacy appraisals while repeated failure will lower them. Examination of all graphs suggests that generally speaking as performance increases group efficacy appears to increase (compare Figures 1 and 2) while decreasing performance leads to decreasing group efficacy.

However, it appears that performance and group efficacy are not isomorphic. That is, higher performance does not necessarily engender higher levels of group efficacy. For example, the final performance position of group ‘up_b’ (see Figure 1a) is the highest of all of the groups in the sample, but their group efficacy scores are clearly lower than the other group in that condition. This suggests that how a group arrives at a performance level may also play an important role in the group’s efficacy perceptions.

It can also be observed that performance attributions differed between these groups in these early stages. Thus group ‘up_a’ was generally more positive (e.g., ‘they all did pretty well’ and ‘you’ve almost done the perfect job’) whereas group ‘down_a’ was generally more negative (e.g., ‘we need to get them to work harder’, and ‘at least we are getting down’). This is consistent with the suggestion that discouraging remarks will be found in groups exhibiting a downward efficacy trend. Importantly, the members of group ‘down_b’ were making discouraging remarks about their performance before they started performing poorly. That is, the negative remarks preceded the poor performance.

An examination of groups in the self-correcting classification (Figure 3a and 3b) reveals that these groups had relatively similar starting patterns. While their initial efficacy judgments were distinct, both groups suffered a small drop followed by a solid recovery. Both groups then experienced a significant performance failure followed by a substantial performance improvement.

One may suppose that if the second improvement were not as significant then these groups may not have corrected a potential downward trend. Bandura (1997) has suggested that overcoming failure can lead to higher levels of confidence. Although we find that overcoming one failure may not be enough to turn around a group that is on a downward spiral (see Figure 2a and 2b). For example, the down groups both suffered two large performance failures and while these groups were able to make subsequent
performance improvements, the improvements were not enough to reverse their downward trending efficacy perceptions.

It might be expected that performance attributions would be positive when group performance improves. However, the present results indicate that improvement in itself does not necessarily lead to a group to make positive attributions about their performance. For example, in the self-correcting classification, (see Figure 3a), in both cases (group ‘correct_a’ at trail 6 and group ‘correct_b’ at trial 5) the groups showed, through their performance attributions, a level of dissatisfaction with their performance. For example, group ‘correct_a’ commented that ‘they have done badly, because of you’ while group ‘correct_b’ said ‘we are obviously not playing the game right’ and ‘he is hopeless’. In fact, it was not until after trial nine that the attributions of these groups became positive. It took these groups until trial nine to improve on their initial performance and the preset standard time. This might suggest that groups perceive performance, regardless of level of improvement unless it as seen as a ‘win’. That is, losing and improving may not necessarily be conducive to building group confidence. Rather, the improvement needs to be equal to or better than to a previously perceived successful attempt or in this case, better than the preset standard.

Interestingly, group ‘up_b’ was the only group to perceive an improvement that was below the preset standard (see Figure 1a at trail 2-3). Their comments included ‘that’s pretty good’, ‘that’s all right’, and ‘we’re getting down’. This may indicate that encouraging a group to focus more on their areas of improvement and less on the bottom-line (i.e., winning versus losing) may lead to stronger levels of confidence over time.

We can also see that an early success is very important to initial efficacy perceptions. Note group ‘correct_a’ (see Figure 3a and 3b) and group ‘down_b’ (see Figure 2a and 2b). Both of these groups experienced an early success followed by a failure. This failure while arguably significant in both cases did not appear to be detrimental to their initial efficacy perceptions. This is particularly true for group ‘down_b’. Although, it was observed that this group had relatively high levels of task uncertainty (see Table 2) that may have lead to a faulty efficacy judgment. Still if we compare these groups to group ‘up_b’ where the impact of an early failure, even when immediately followed by a success, had an extremely powerful effect on this group’s initial efficacy judgment. Even though they made positive attributions about their improved performance they still were the least confident of all the groups.

It was also suggested above that groups that suffer an early loss and internalize the failure might be more likely to initially make a low efficacy judgment. We find some support for this proposition in the current research. Both group ‘down_b’ and ‘correct_b’ experienced an early loss (see trail 1 to trial 2) and consequently made a relatively low efficacy judgment at stage 1. In the case of group ‘down_b’ their related comments included ‘that didn’t do too good at all’, ‘we took ages’ and ‘that went pretty bad didn’t it?’ While group ‘correct_b’ made comments that were not as internal they did appear more uncertain about the task and this may have been impacting their initial low judgment. For example they stated ‘How did it go up when we set him a high goal?’ Thus, we suggest that when task uncertainty is low and groups experience an early loss
and this loss is internalized then group efficacy judgments may be low. However, if a group has higher levels of uncertainty and fails early in their task experience then efficacy is likely to be low regardless of attributions.

The latter stages of performance in the down groups are also interesting to observe (see Figure 2a and 2b). It appears at this stage the group’s confidence is not influenced by their performance improvements.

In this paper we were also interested to examine whether there would be observable relationships between positive affect and group efficacy. Examination of Table 1 shows that affect and efficacy trends do not appear to be linked. However, if we look at the three groups that were rate highest on positive group affect we see that they all started well on the task, whereas the other three groups suffered an early loss. This may suggest that doing well early on a new task is more likely to lead the group members to experience more positive affect. Importantly, it seems regardless of performance, across the experiment, this initial position may have set the scene for the groups’ affect throughout the study.

The literature suggests that the link between affect and efficacy may be more specific and depend on attributions. Groups demonstrating positive affect and making internal attributions would have higher levels of group efficacy. The present study finds little support for this contention. This may be due to the relatively high scores of all the groups in the study.

However, on the task (see Figures 1a, 2a and 3a) there was some evidence in this study that suggests a relationship between ‘internal’ attributions and positive affect. For example, group ‘down_a’ performed poorly but were much more internal about their performance than group ‘down_b’. While group ‘down_b’ made comments including ‘it’s not our fault, it’s their fault’, ‘the employees are slack I think that’s the problem’ and ‘we are putting them in the best jobs and they are not performing’, group ‘down_a’ made comments including ‘we shouldn’t have changed them around’, ‘we have to revert back’ and ‘we tried to give them opportunities and it didn’t work for us’.

In sum, this research lends little support for including positive affect in a model to predict efficacy-performance spirals. However, we do find that positive affect was related to other variables in the study. Table 2 shows the means, standard deviations and correlations among the observational variables used in the study. As it may be expected we find that positive affect and group cohesion are positively related. This suggests the happier a group appears the more cohesive. In addition, we find that social loafing and positive affect are negatively related. This may indicate that social loafing in the group influences how happy the group feels. Alternatively members of less happy groups may have been more likely to social loaf. Positive affect was also positively linked to commitment suggesting happy groups are more likely to commit to the task. This is important because in this study happy groups were not necessarily the highest performing groups.

insert Table 2 about here
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In relation to the other group process and behavior variables we can see that the means of both conflict measures were relatively low suggesting little conflict existing within the study groups. Although both conflict measures were related to group cohesion, while only relationship conflict influenced positive affect. Task uncertainty was observed to be central to many of the other variables in the study. For example, we find that high uncertainty leads to higher levels of social loafing. This might suggest that social loafing is more likely to occur when a group, as a whole, is unsure what to do. When people do not know what to do they may withdraw from the task. A strong negative correlation between task commitment and social loafing was observed. This may suggest that when we observe social loafing we may be likely to interpret this as indicating the group members may not be as committed to the task.

Discussion

The results of this study make several contributions to the current literature about group efficacy. First, the findings show quite clearly that the level of confidence displayed by a group does not necessarily convey their level of performance. Theoretically group efficacy should be a positive predictor of subsequent group performance (Myers, et al., 2004). However, it appears, from the findings of this research, that the pattern of previous performances can play an important role in the development of group efficacy perceptions. We find that a drop in performance does not always lead to a drop in efficacy. However, it seems the size of the failure is more critical to subsequent group efficacy perceptions. Thus, even those who are performing at very high levels may be susceptible to downward spirals, if the spiral is significant enough.

Second, it is argued that habitual routines are established very quickly and early in a group’s experience (Gersick, 1988; Ginnett, 1990). We find support for this suggestion in this research, although the performance pattern of the group in the early stages of a new task appears to be extremely important to their initial efficacy judgments. Specifically, we find an early failure is likely to pull a group’s confidence downward even if they subsequently improve. On the other hand, an early success can lift a group’s efficacy even if the group subsequently fails. Although, unless the improvement results in a performance outcome considered as a ‘win’ then it is likely to have limited impact on subsequent group efficacy and lead to continued negative attributions about performance. These findings have important implications for managing groups and teams. Managers may need to be aware of the initial success and failures of a group and how these may be impacting subsequent efficacy perceptions. When possible a manager might consider withholding or managing feedback about a group’s performance if they feel it may be detrimental to future efficacy and subsequent performances. For example, Martocchio and Dulebohn (1994) found that providing feedback that conveys performance within trainees’ control resulted in higher software efficacy.

This research also indicates that if a group internalizes an initial poor performance then it may be more likely to lower their initial efficacy judgment. This occurs as the group considers themselves responsible for the failure and therefore lowers their efficacy perceptions. The perception that ‘we caused it’ may lead to a cautious efficacy judgment.

Third, we also find that there were differences in the way groups in an upward spiral and those in a downward spiral make attributions about performance. Specifically,
downward groups were being generally more negative about their performance and they were negative before they were performing poorly.

Fourth, once a group is on a downward trajectory it appears that turning around such a spiral can be difficult. In this study group efficacy continued to drop until the group lifted itself out of the hole or they overcame failure more than once.

Fifth, positive affect and group efficacy did not appear related in this study. Several scholars have asserted that work group members come to develop mutually shared moods and emotions in the course of executing their tasks (Bartel & Saavedra 2000; Smith & Crandell 1994) while these moods may not be related to performance we find that positive affect may be beneficial to a group’s well being. In this study positive affect was related to higher levels of cohesion, less social loafing, and stronger task commitment.

Finally, we see in the latter stages of the task that group efficacy becomes much more independent of performance and appears difficult to shift. This appears particularly true for groups on a negative performance spiral. It seems that failure quickly leads groups to now internalize its new lowly status of being poor performers with little confidence. This is consistent with Hackman’s (1990) suggestion that eventually members of a bad group who are caught in a negative spiral accept the validity of the label and stop trying.

In conclusion, this research suggests that the development of efficacy perceptions is not simply driven by performance but may be influenced by the pattern of performance and group efficacy across time. In addition, other factors such as affect and group behaviors and processes as investigated may also play a role. Future research is needed to examine the significance of these results, as it is clear that high confidence and winning are inextricably linked. Therefore, there are many opportunities to apply these findings on a multitude of stages and at multiple levels. This research has added to the current literature by empirically investigating a number of propositions presented by Bandura (1986, 1991, 1997) and Lindsley et al. (1995). We have also advanced the theory of group efficacy by providing new questions about the relationship between group efficacy and group performance.
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### Table 1
Raw Scores for Groups in the Upward Spiral Cluster

<table>
<thead>
<tr>
<th>Group</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
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### Table 2
Group means and standard deviations of the observed variables used in the study.

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<th>Variables (n=9)</th>
<th>up_a M</th>
<th>sd up_a</th>
<th>up_b M</th>
<th>sd up_b</th>
<th>down_a M</th>
<th>sd down_a</th>
<th>down_b M</th>
<th>sd down_b</th>
<th>correct_a M</th>
<th>sd correct_a</th>
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<td>0.79</td>
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<td>1.71</td>
<td>3.86</td>
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<td>4.48</td>
<td>1.25</td>
<td>4.87</td>
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<td>0.85</td>
<td>3.64</td>
<td>1.08</td>
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<td>2.95</td>
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<td>2.69</td>
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### Table 3

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<td>3. Social Loafing</td>
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</table>

*These are variables were scored by external observers using video tapes.

Note: The correlations valued at .35 is significant at p < .05 while all correlations greater than .35 are significant at p < .01.
Performance Patterns, Attributions, Positive Affect and Group Processes and Group Efficacy

Figure 1a. Performance of the groups in the up classification

Figure 1b. Group efficacy of the groups in the up classification. Note: Efficacy scores were collected after three trials of performance. That is, efficacy at stage 1 was measured after performance from trails 1 – 3.

Figure 2a. Performance of the groups in the down classification

Figure 2b. Group efficacy of the groups in the down classification. Note: Efficacy scores were collected after three trials of performance. That is, efficacy at stage 1 was measured after performance from trails 1 – 3.
Performance Patterns, Attributions, Positive Affect and Group Processes and Group Efficacy

Figure 3a. Performance of the groups in the self-correcting classification.

Figure 3b. Group efficacy of the groups in the self-correcting classification. Note: Efficacy scores were collected after three trials of performance. That is, efficacy at stage 1 was measured after performance from trails 1 – 3.