

Personality, creativity, and LEGO: A learning exercise

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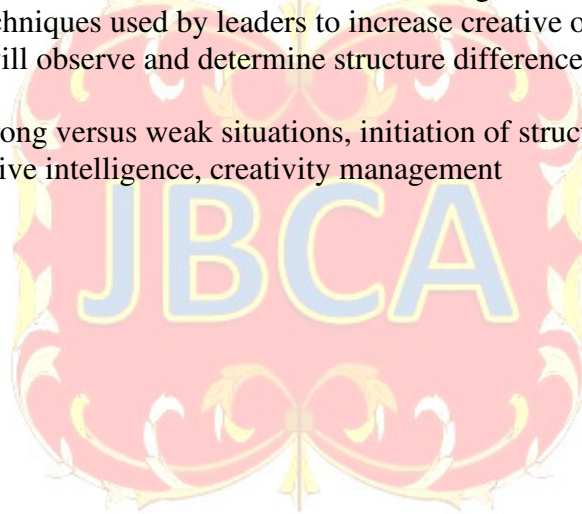
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ABSTRACT

This two-part exercise is used to illustrate the differences of creative management. Students are formed into two groups of three. One student will act as the leader and two students will act as followers. The difference will be in the instructions given to the leaders. The major differences will be the techniques used by leaders to increase creative output of their followers. The rest of the students will observe and determine structure differences.

Keywords: leadership, strong versus weak situations, initiation of structure leadership style, personality conflict, creative intelligence, creativity management



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INTRODUCTION

Creativity is becoming a fundamental requirement in today's workforce. It is often becoming cited as one of the most important skills needed to succeed at work (Peart, 2019). With this in mind it is imperative that today's educators prepare students to meet this skill requirement. This article presents an activity to aid instructors in developing a classroom experience to build creativity skills among students. The activity highlights the influence of diversity and leadership behaviors on creative outcomes.

This activity is built on using the following concepts.

- The interactional framework for analyzing leadership
- Structured vs unstructured situations
- Creativity
- Divergent Thinking
- Creativity Management
- Ohio State Leadership Studies
- The five-factor personality model

The logic of the activity is built upon the interactional framework for analyzing leadership as developed and illustrated by Richard Hughes, Robert Ginnett, and Gordon Curphy (2022). It is built upon three elements: the leader, the followers, and the situation. The leader behaviors are built upon the research of the Ohio State Leadership Studies. The follower elements are built upon the personality diversity, creativity, and divergent thinking. And finally, the situation is built using structured and unstructured situations.

The leader

The Ohio State leadership studies set out to determine leader behaviors that influenced team outcomes. Their research resulted in two groups of leader behaviors consideration and initiating structure. Initiating structure refers "to the leader's behavior in delineating the relationship between himself and the members of his group, and in endeavoring to establish well-defined patterns of organization, channels of communication, and ways of getting the job done" (Halpin, 1957). Consideration refers to "behavior indicative of friendship, mutual trust, and warmth in relationship between the leader and members of the group" (Halpin, 1957).

This activity is structured around the initiating structure leader behaviors. Both teams are given behaviors that focus on job completion and the work.

The followers

The activity completion effectiveness of the followers is the main discussion point of this activity. Leader behaviors are designed to influence the workplace creativity of the followers. Workplace creativity "concerns the cognitive and behavioral processes applied when attempting to generate novel ideas" (Hughes, Lee, Wei Tian, Newman, & Legood, 2018). And in the case of this study, divergent thinking is the vessel of creativity. Divergent thinking is "when an individual solves a problem reaches a decision using strategies that deviate from commonly used for previously taught strategies" (Guilford, 1967). Divergent thinking is used to overcome the cognitive bias of functional fixedness that is illustrated in this activity. Functional fixedness is

the “inability to realize that something known to have a particular use may also be used to perform other functions” (Vinacke, 2021).

Materials:

- Two small LEGO sets of equal difficulty.
- Four pieces of nylon rope approximately 3 to 4 feet long
- Two tables

How to stifle creativity

The role of leaders in influencing follower creativity has been studied by many noted scholars. This activity is based on the work of two articles. Amabile and Khaire (2008) identified many of the restrictive processes and policies that limit creative output. Particularly, they found that reducing autonomy, creating fragmented work schedules, providing insufficient resources, focusing on short-term goals, and discouraging collaboration and coordination hindered follower creativity. Furthermore, Chamorro-Premuzic (2017) stated that a moderate degree of diversity may entice more creativity than a lack of diversity or too much. These elements have been implemented in the activity instructions and design.

One way to differentiate personality traits is to use the five-factor model. The five factor model is a categorization scheme of five major dimensions of personality. The five major dimensions are:

Terms and Definitions

Term	Definition
Conscientiousness (Digman, 1996)	Describes a person’s ability to regulate their impulse control in order to engage in goal directed behaviors.
Agreeableness (Digman, 1996)	Refers to how people tend to treat relationships with others.
Extroversion (Digman, 1996)	Reflects the tendency in intensity to which someone seeks interaction with their environment, particularly socially.
Openness to experience (Digman, 1996)	Refers to one’s willingness to try new things as well as engage in imaginative intellectual activities.
Neuroticism (Digman, 1996)	Describes the overall emotional stability of an individual through how they perceive the world.

The International Personality Item Pool representation can be used to assess a person’s personality ratings. The website for the survey is located at personal.psu.edu/faculty/j/5/j5j/IPIP/.

Situational Strength and Decision-Making

Situational strengths refer to the degree to which the situation contains cues that indicate how individuals should behave (Cooper & Withey, 2009; Mischel, 1977). Mischel (1977) conceptualized four criteria of strong situation, such that it “lead everyone to construe particular

events the same way, induce uniform expectancies regarding the most appropriate behavior, provide adequate incentives for the performance of that response pattern, and require skills that everyone has to the same extent” (Mischel, 1977). To the contrary, weak situation refers to events “not uniformly coded, do not generate uniform expectancies concerning desirable behavior, do not offer sufficient incentives for its performance, or fail to provide the learning condition required for successful genesis of behavior” (Mischel, 1977). Similarly, Meyer and colleagues (2010) conceptualized situational strength as a four-facet construct. **Clarity** refers to the extent to which cues regarding work-related responsibility or requirement are available and easy to understand. **Consistency** refers to the extent to which cues are compatible with each other. **Constraint** refers to the extent to which individuals have discretion to take actions. **Consequence** is defined as the extent to which individual behaviors have important implications (e.g., reinforced or punished).

Situational strength is an important contextual factor that moderates predictor-criterion relationships (Mayer & Dalal, 2009; Mischel, 1977). Studies have shown that strong situations inhibit the expression of the individual differences (e.g., personality traits, job satisfaction) and reduce behavioral variety, while weak situations do the opposite. For instance, meta-analysis results indicate that the relationship between “Big Five” personality traits and job performance is stronger when job autonomy is higher (e.g., fitness trainers) than lower (e.g., subway operators) (Barrick & Mount, 1993; Meyer, Dalal, & Bonaccio, 2009). Another meta-analysis found that the constraint dimension of situational strength (i.e., autonomy, discretion) attenuates the magnitude of the job satisfaction-job performance relationship (Bowling, Khazon, Meyer, & Burrus, 2015), such that the impact of job satisfaction on performance is stronger in weak situations characterized by high autonomy.

Situational strength has been applied to understand decision-making. “Strong situations are governed by clearly specified rules, demands, or organizational policies” where individuals will have extensive guidance on how to make decisions (R. Hughes, R. Ginnett, & G. Curphy, 2022). Therefore, the influence of individual characteristics on decision-making will be minimized. In contrast, weak situations are characterized as unfamiliar and ambiguous, where individuals will have less guidance on how to make decisions (R. Hughes et al., 2022). Therefore, they will pull on their own experiences, knowledge, personality, and values to make a decision. Situational strength has been operationalized and empirically tested in different ways in the context of decision-making.

1. Task structure. Structured task refers to clear solution to a problem was prescribed, while unstructured task is clear solution was not prescribed. Maier (1970) suggested high levels of task structure created a strong situation by “reducing uncertainty about what participants had to do to be successful”. He found that gender differences in leadership style emerge during discussion only when group task was unstructured, supporting strong situation hypothesis (Maier, 1970).
2. Feedback and communication. Lepine and colleagues (2002) choose feedback as a manipulation of situational strength. They suggest that frequent feedback among team members creates strong situation since it provides clear directions for the team. With frequent communication, members know how they should coordinate their effect to be successful. Indeed, they found that team composition (predictor) and decision-making accuracy (criterion) is attenuated by enhanced feedback within the team (LePine et al., 2002).

Pre-work

Students complete the following surveys.

- Five factor personality model
- Creativity assessment

Set up the room to allow all observers to see both teams but prevent both teams from seeing the other team.

Stage I: Group Construction

Group composition of team one:

- Ensure that all members are as homogeneous as possible. Ideally along racial, experience, personality and education backgrounds. Additionally, ensure that creativity assessments are low

Group composition of team two:

- Ensure that members are as diverse as possible. Ideally along racial, experience, personality and education backgrounds. Additionally, ensure that creativity assessments are high.

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Stage II: Instructions Phase

Give the following to each team.

Instructions for team one:

- All activities must have the leader's permission to enact.
- Followers it may not communicate with each other.
- The leader must direct all activities of the followers.
- The team must complete the activity in 10 minutes.

Instructions for team two:

- Encourage the followers to work together and develop solutions for their problems.
- Encourage open communication.
- Encourage wild ideas.
- Encourage the team to think outside the box.

Stage III: Task Setup

Each group will be given a table. The followers of both teams will be "handcuffed" using the nylon cord. The handcuffs should be tight enough that the followers have difficulty using their hands. The Lego bricks will be laid on the table. The leader will be given the group instructions and the Lego build instructions.

Stage IV: Task Performance

Each team will carry out the instructions given to them by the leader. The audience will monitor and take note of the performance of the two teams.

Likely order of activity accomplishment is first, the teams will attempt to solve handcuff problem. Team two is expected to solve the handcuff problem first. The solution to handcuff

problem involves breaking functional fixedness. To solve the problem, students need to make a loop of rope from their own handcuffs straight piece of rope, and then push this loop through one of their partner's wrist loops over his or her hand. Once this loop is over the partner's hand, the two will no longer be connected.

Next, the teams will build their Lego set according to the instructions. Team one is expected to complete the instructions first.

Stage VI: Discussion

The class will discuss the differences between the two teams and the outcome.

Discussion questions and key points:

1. Which team removed the handcuffs first? Why?

Team two is expected to complete the handcuff challenge first. The handcuff situation is considered a weak situation. The handcuff exercise is an exercise of divergent thinking. The team is set up for creative outcomes. Team one is hampered by the top-down structure of the team. The only person allowed to think is the leader.

2. Which team completed the Lego set first? Why?

Team one is expected to complete the Lego set construction first. The Lego set construction is considered a strong situation. Team one is set up to minimize conflict relating to job completion. Team two is set up to provide as much conflict as possible to solve problems. This conflict may get in the way to completing the procedure.

3. What set of behaviors from the leader contributed to the outcome?
4. How did the followers contribute to the outcome?

Key points to discuss

- Homogeneity of team one
- Lack of autonomy of team one
- The creation of a timeline for team one
- Lack of collaboration and team one

Strengths and Limitations

A potential strength of this study was the opportunity to observe creativity in the classroom. Another indicator of strength was the ability to have two representative groups for the exercise. However, a possible limitation was the restriction of using one class confined to one semester. Another identifiable limitation was due to diversity being contained to a specific class and number of students. Finally, assumptions made about Lego sets meant that prior Lego building skills were not factored into team member selections.

Conclusion

In conclusion, this study illustrated the challenges of group creativity and leadership in classroom settings. The exercise allowed observation of group dynamics and creative leadership among students in the classroom. The opportunity for divergent thinking allowed students to provide alternative solutions to the Lego build scenarios. For instance, one group was allowed to exercise freedom, creativity, and brainstorming as part of the team solution process. The study illustrated a contrasting between weak and strong situations among the expected outcomes.

Further research and observations are needed to explore creativity differences in future team settings.



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