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The Use of Fantasy Theme Analysis to Describe the Group Communication and Creative Problem-Solving Skills of University-Level Students as They Prepare for Destination Imagination Global Finals Competition

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ABSTRACT

THE USE OF FANTASY THEME ANALYSIS TO DESCRIBE THE
GROUP COMMUNICATION AND CREATIVE PROBLEM-
SOLVING SKILLS OF UNIVERSITY-LEVEL STUDENTS
AS THEY PREPARE FOR DESTINATION
IMAGINATION GLOBAL FINALS
COMPETITION

by

Elizabeth Morgan Armstrong

Chair: Shirley A. Freed

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: THE USE OF FANTASY THEME ANALYSIS TO DESCRIBE THE
GROUP COMMUNICATION AND CREATIVE PROBLEM-
SOLVING SKILLS OF UNIVERSITY-LEVEL STUDENTS
AS THEY PREPARE FOR DESTINATION IMAGINATION
GLOBAL FINALS COMPETITION

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Date completed: March 2015

Problem and Purpose

In order to meet the growing needs for efficiency in the workplace, industry is

turning to group-work and collaboration. Successful teams are in demand because they

not only meet the efficiency needs, but also provide the kind of bonding that creates

convergence in the members. The chemistry or recipe for this kind of success is difficult

to pinpoint, however, and several aspects of group communication and skills, need to be

re-examined using communication theory. The purpose of this study is to describe one of

those aspects—group creative problem-solving—in order to see how the communication

used in that process affects the group dynamic.

Method

The research was a qualitative design based on a multiple or comparative case study. A theoretical/conceptual framework using Symbolic Convergence Theory and CAVE (Combine, Analogue, Visualize, Elaborate), an acronym that provides a way to describe in communication terms the creative problem-solving process, was applied to groups that were formed specifically to do competitive creative problem-solving. Fantasy Theme Analysis (FTA) is the method used to identify Symbolic Convergence Theory, and observation surveys were designed to note the occurrence of Fantasy Chains, Fantasy Themes, and Fantasy Types. The observation surveys also were designed to follow CAVE as it occurred.

Three university-level Destination Imagination teams were observed as they prepared over a period of 3 months for Global Finals Creative Problem-solving Competition.

Data were collected through video recordings, field notes, artifacts, and interviews. The teams were made up of five to seven members, and each, additionally, had a Team Manager. Using observation surveys, the teams' communication patterns were noted and evaluated. The results were documented in case studies that were reported first individually, and then cross-case analysis was performed.

Results

Symbolic communication, described as Fantasy Chaining, Fantasy Theming, and Fantasy Types, was found to induce the creative process (CAVE), and the two occurred simultaneously. In addition to being interactive, a crucial piece of the symbolic conversion for the group was a crucial piece of the group creative problem-solving

process. The use of analogue in both processes linked the two, and was seen as the element that tied the two processes together in these cases. Two of the cases gave clear evidence of how this works when both symbolic communication and creative process are present. The third case showed the results of a lack of use of symbolic communication, and its impact on the creative process. When symbolic communication processes occurred, bonding also occurred, which produced the skills that have been noted as being critical for synergy to happen in a group. When those symbolic communication processes were absent, as in the third case study, no bonding or synergy occurred.

Conclusions

Fantasy Chaining sparks CAVE, and works with it to fuel the creative process. The kind of communication uncovered with FTA is the same communication used in CAVE, and should be included in creative problem-solving models.

The use of symbolic communication processes provides the climate for group bonding. Therefore, the type of communication in use is also seen as the way group creative problem-solving can aid the cohesion and synergy of the team, and thus the convergence of the team. And because all groups inherently problem-solve, group communication models need to recognize how group creative problem-solving communication affects the group dynamic. Skills that accompany this kind of communication are the skills that have been identified as necessary for cohesion and synergy to occur. Additionally, while the symbolic communication processes drove the creative process, the reverse was also true. So it was apparent that Symbolic Conversion and CAVE exist in a symbiotic relationship, which is needed for a group to truly converge.

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A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

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Methodologist: Delyse Steyn

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For my beautiful boy,
A Highlander to the heart,
Who came from generations of storytellers
And surpassed us all
In his ability to
Spin a tale.

In Loving Memory of
Levi Morgan Armstrong
February 29, 1992—October 19, 2011

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CHAPTER 1

INTRODUCTION

Background to the Problem

"Teams have become the strategy of choice when organizations are confronted with complex and difficult tasks" (Salas, Cook, & Rosen, 2008, p. 540). "In a highly organized urban society such as the one in the United States, (most of us) work in groups for at least several hours each day" (Bormann, 1990, p. 3). This observation is still valid today, and perhaps even more so as groups are expected to accomplish a wide variety of tasks, whether at work, or in social events.

This emphasis on teams and group work means that within any given industry it is increasingly important to function well in a group or team environment where workers can no longer work in isolation. Because the corporate world continues to grow, whether in its use of digital networking, social media, or rapid information exchange, organizational communication changes have become common expectations on the part of employers and employees. Networking has become an important aspect of productivity. In order to work in concert with other companies, or to work despite geographical distance, companies are choosing to use teamwork to tackle their various approaches to productivity. Group skills and the ability to work effectively in teams have become essential in the workforce over the last 50 years (Lawler, Mohrman, & Ledford, 1995).

Team efficiency and productivity are the purpose of teamwork; however, it is not always clear what characteristics make a team successful. Experts say that it is because of successful teamwork that "some of today's most innovative companies . . . show that they succeed by designing their organizations to maximize collaboration" (Sawyer, 2008, Kindle Location 138). "The truth is that, despite the proliferation of [such] advice in the business press, many companies don't know how to foster creative collaboration" (Sawyer, 2008, Kindle Location 116). Inherent to collaboration are the communication skills, needed by group members, in order to function well.

When "skills" or "group skills" are mentioned, the literature references a specific set of behaviors required in order for groups and teams to perform well on any given task. "Ineffective team interaction and unproductive team meetings" are listed as the second reason for team failure on a popular team-building website which offers free advice for struggling organizational groups ("Identifying Symptoms," 2013, para. 8). The term "Team interaction" clearly points to the communication style the group has developed, which can result in unproductive meetings. Skills are forms of thinking, and show patterns of thought (Eisner, 1991). Team interaction is based on these patterns. Skills then include group communication skills that enhance a group's ability to progress with thinking together, or teamwork, that meets goals.

Bormann (1996) acknowledges that people often have an "unrealistic picture" of group work, and notes that "we cannot stress too strongly that working together in a group is a most difficult and complicated communication task" (p. 81). In order for groups to reach the kind of effectiveness that brings about success, group members' ideas are generated and discussed, and the group then chooses the idea that best suits their

shared vision. To make quality decisions, the members must have an attitude of commitment as well as identify common themes with the group while maintaining an attitude of commitment to the group through participation (Ellis, 1994).

The work of groups that use a specific set of skills to achieve positive problem-solving communication results in quality decision-making processes. These implicit behaviors are learned communication skills. Somewhere along the line, people acquire the art of knowing when to speak and when to listen. Effective communicators also learn how to add to the conversation, how to expand on another's thoughts, how to interact together. However, when communication skills differ between group members, group dynamics suffer. It takes specific communication skills to get the group to move synergistically to perform group tasks uniformly. Without skills, groups cannot meet their goals effectively. Group skills include an understanding of how to participate in group communication processes using messaging and feedback while maintaining equity, role responsibility, and individual as well as shared motivation to reach the group goal.

When groups employ these skills sets, it is more likely they will experience cohesion and stick-to-it-iveness. These skills provide the foundation necessary for successful goal achievement. Because groups need to problem-solve, members require the skills to collaborate for convergence. Convergence evolves when synergy and cohesion are present. This brings us back to the problem of how to achieve synergy and cohesion. According to Hargie (2011), groups with displayed levels of appropriate cohesiveness use skills that look like this. They:

1. set goals easily
2. exhibit a high commitment to achieving the purpose of the group

3. are more productive

4. experience fewer attendance issues

5. have group members who are willing to stick with the group

6. have members who are willing to listen to each other and offer support and constructive criticism; and

7. experience less anger and tension than do groups who do not experience cohesion.

Group cohesion coupled with group identity often produces group convergence. Hargie (2011) further believes appropriate levels of group cohesion "usually create a positive group climate, since group climate is affected by members' satisfaction with the group" (Marston & Hecht, 1988, p. 238). Group cohesion is basically the glue that holds the group together (Marston & Hecht, 1988).

If a group cannot establish a shared communication style that supports reaching its goal, the goal can be difficult to attain. Therefore, if divergent thinking from particular members can be thought of as unique or creative thinking, the group as a whole will require a developed and open communication style using skills that enable all ideas to be shared. This kind of thinking becomes collaborative, another way to think about converged communication. In this way, unique and individual methods of thinking are brought together, and meaning changes as the participants share symbols that enable each person to be brought to the same vision. This then leads to symbolic convergence, which creates the bonds of cohesion, adding the motivation required to achieve synergy. While several communication theories could be applied here, Symbolic Convergence Theory is

particularly well-suited to highlight this type of group behavior by bringing various disparate ideas together into one shared rhetorical vision.

Symbolic Convergence Theory (SCT), a theory of communication developed by Ernest Bormann, describes this phenomenon of "coming together" through an exchange of symbolic meanings. This theory was developed by the systematic observation of people communicating (Bormann, 1982a). The over-arching purpose achieved through SCT is to uncover emotions, values and motives, which are found in Fantasy Types (fantasy being meanings derived only within the group) which provides insight to the extent and the sort of symbolic convergence occurring within the group (Bormann, 1985).

Finding that element that creates group synergy and cohesiveness has been difficult for groups who do not converge. Identifying specific periods and conditions when a particular style of communication is happening can show how communication affects the forming of cohesiveness. When groups achieve cohesiveness, they work together more successfully to reach their goals, or in other words, groups need cohesiveness in order to achieve success. Groups can be superior to individuals, because of the characteristic of information sharing, which positively affects their ability to make effective and better informed decisions, and to then take action—based on the resulting group vision—that moves the group towards their goal (Poole & Roth, 1989).

Statement of the Problem

The current workforce requires group work, but groups are often unsuccessful. Successful groups use group communication skills to creatively solve problems, and because many different skillsets have been identified as critical for groups to do this, differing elements need to be examined. However, in creative problem-solving models,

communication skills are taken for granted (Isakson, Dorval, & Treffinger Model). In communication models, creative problem-solving skills are also taken for granted (Standard Model). There is also confusion about what are "group skills," the ability to establish roles and responsibilities, and to establish clear goals with an agenda; and what are "group communication skills," the way the group interacts through messages. More needs to be understood about the relationship between the skillsets that enhance group communication and the skillsets that contribute to the communication in the process of group creative problem-solving.

There is an "unrealistic picture" of group work commonly held, and as Bormann (1996) says, "We cannot stress too strongly that working together in a group is a most difficult and complicated communication task" (p. 81). Therefore, it is the communication of groups in process of working together that is in question. I am interested in what a group does when they communicate for the purpose of solving problems and how that communication affects the entire group. What makes a group motivated and cohesive enough to become converged?

Purpose of the Study

The purpose of the study is to describe the relationship between the skills that enhance group communication and the skills that contribute to group creative problem-solving communication. This relationship between the given variables will be examined by observing university-level creative problem-solving teams, both through the lenses of Symbolic Convergence Theory (SCT) and CAVE. CAVE is an acronym for communication terms (combine, analogue, visualize, evaluate) which identify creative

problem-solving activity in a group (J. Cragan & E. Cragan, personal communication, May 7, 2014).

Research Questions

1. How does SCT describe the communication involved in group creative problem-solving tasks?

2. How does CAVE explain group behavior affecting creative problem-solving?

3. How does SCT interact with CAVE?

Conceptual Framework

This research is driven by the need to know how communication affects team processes in specific ways within group creative problem-solving. Because each of these processes that impact on the other bears investigation, they must be studied simultaneously. Theoretical and practical scholarly literature explains these phenomena separately, but specific research about how communication develops, and then affects a group problem- solving occurrence is in question. Symbolic Convergence Theory (SCT), a qualitative communication theory, is specific to studying communication development in groups. This theory was chosen as a framework for the study because of its ability to expose a group's progression from individual divergent thinking to group identification and a converged vision that pulls group members together as a whole.

CAVE (combine, analogue, visualize, elaborate) has been used as a communication method to examine creative problem-solving done in groups (J. Cragan & E. Cragan, personal communication, May 7, 2014). Because CAVE is non-linear and allows for non-directional problem-solving through its use of communication terminology, CAVE works to illuminate the creative problem-solving process within the

theoretical framework of SCT. Qualitative means of observation are used to understand communication behavior in specific creative problem-solving groups.

Context of the Study

Destination Imagination (DI) is an organization designed to teach students how to use creative problem-solving in a group setting. Their mission states,

> The Destination Imagination program encourages teams of learners to have fun, take risks, focus and frame challenges while incorporating STEM (science, technology, engineering, and mathematics), the arts and service learning. The participants learn patience, flexibility, persistence, ethics, respect for others and their ideas, and the collaborative problem-solving process. Teams may showcase their solutions at a tournament. (Destination Imagination, 2013c)

The organization also says "Destination Imagination, Inc. is a non-profit, volunteer-led, cause-driven organization. We are cause-driven to inspire and equip students to become the next generation of innovators and leaders" (Destination Imagination, 2013c).

Destination Imagination is organized by regions and then by states. Team managers for every team are permitted to guide the organization of the team but are not in charge of the creative processes of the team. In the Destination Imagination (2004) *Phase 1 Report*, both team managers and regional managers rated "working together, and cooperating with each other" as the top ranked item of importance on a DI team. Teams need to use divergent thinking to creatively solve the challenges. At competition, synergy and cohesion are required for the teams to function adequately and to reach their goals.

Destination Imagination can be understood more clearly through their materials distributed for Team Managers to help navigate the team's stages of growth. Using the modes of creative thinking, critical thinking, and idea-generating tools, teams are encouraged to focus on several methods to accomplish the creative problem-solving

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process. These methods include five stages that take the team from basic understanding of the program, to celebrating having been able to compete, whether successful or not. The terminology used for these stages is taken from creative problem-solving models.

The *DI Roadmap* (Destination Imagination, 2013b) is a publication specifically designed to guide teams and team managers as they prepare to compete in DI events. This guide gives them the terminology, the stages, and the specific tools to coach a newly formed Destination Imagination team. It also describes the process that all teams must go through to go to competition. It includes an explanation of Instant Challenges (IC), or quick problems presented to the team to keep it actively engaged in creative problem-solving processes whenever members are together. Instant Challenges put team members through specific small trials. Instant Challenges are part of the competition process as well; the teams will do an Instant Challenge as part of the scoring at competition. IC also gets them ready to solve the Central Challenge, which is the problem the team will solve for competition. The *DI Roadmap* also emphasizes to the team managers that the challenges are a *team process;* the goal is for members to work together creatively; not necessarily by winning the competition but by participating actively in problem-solving (Destination Imagination, 2013b). The *DI Roadmap* also warns students that there will be bumps in the road, stating:

> Every team follows its own progression as it learns to work together, and every step of the progression is necessary. Be aware that some of these steps include conflict and conflict resolution, which are often integral parts of a team's development. (Destination Imagination, 2013b, p. 4)

Creative problem-solving research is clearly the foundation for the objectives of Destination Imagination. The *DI Roadmap* (Destination Imagination, 2013b) refers to each of the phases discussed in Treffinger and Isaksen's (2005) "Creative Problem-

solving: The History, Development, and Implications for Gifted Education and Talent Development" article. Treffinger and Isaksen outline how creative problem-solving has developed and changed over decades of research, and they identify the same specific recommendations that Destination Imagination (2013b) makes in the *DI Roadmap's* latest version of creative problem-solving process progression. The creative problem-solving models are further discussed in a later section of this paper. It is important to note at this stage that Destination Imagination bases its processes and practices on academic research.

Research Design

This study uses a qualitative design to describe how communication plays a role in problem-solving. Three case studies will be examined to identify patterns of communication used in the creative problem-solving process. This will be done in order to identify which skills are contributing to group creative problem-solving communication occurrence. I will employ Fantasy Theme Analysis to find types, themes, and analogues that will be used to illustrate group convergence. CAVE identification will be the tool to show how the group is creative problem-solving. These two methods will be used to see how team convergence is related to the creative problem- solving process.

The teams chosen will be university-level Destination Imagination teams who are preparing for competition. Their weekly meetings will be video recorded five times, one instant challenge will be recorded, and an interview at the end of the competition season will also be recorded.

Significance of the Study

Egolf (2001) notes that "the study of small group and team communication (skills) is important, because it is experienced by virtually everyone" (p. 4). This statement underscores the importance of looking into the kinds of communication used by groups in particular situations. Egolf (2001) also points out that we often rely on the cooperation of others in order to complete tasks or in making decisions. Virtually *everyone* is affected by the kind of communication skills used, that is, the *effectiveness* of a group's use of skills during problem-solving periods (p. 5).

It has been speculated that teams that work well together have a special recipe or combination of personalities (Eng, 2011). But in order to solve problems, groups need to communicate in a specific way. Since everyone is at some point in a group with problem-solving goals (Egolf, 2001), highlighting creative problem-solving process and communication could add success tools to any group. People assume that group talk is random, but group communication is structured and predictable, and there are specific communication forces that affect the outcome of group processes (Cragan, Kasch, & Wright, 2009). Because communication displays these necessary characteristics (perception, message intent, and interaction), it is possible to study the relationship between the communication and the skills (participation, messages, feedback) that result from these group processes.

Definition of Terms

The following definitions clarify key terms used in this study:

Analogue: "something that is similar to something else in design, origin, use, etc.: something that is analogous to something else (Merriam-Webster, 2015).

Creative Problem-solving: A proven method for approaching a problem or a challenge in an imaginative and innovative way (Creative Education, 2014).

Cohesiveness: The degree to which members identify with and desire to remain connected to a group (Rothwell, 2013).

Communication Climate: Emotional atmosphere, the pervading or enveloping tone that we create by the way we communicate with others (Rothwell, 2013).

Divergent Thinking: The out-of-the-ordinary patterns of thought as compared to normative cognition.

Dramatis Personae: The characters depicted in messages that give life to a rhetorical vision (Cragan & Shields, 1995).

Fantasy: "interpretations of situations brought about by some psychological or rhetorical exigency" (Bormann, Cragan, & Shields, 1994, p 259).

Fantasy Chain: A sequence of ideas, thoughts, or opinions which are used like building blocks to create symbols about the group that are conceptual only.

Fantasy Chaining: Progressing another's idea into a bigger idea or concept, building on the idea of the other.

Fantasy Theme: The initial and basic unit of analysis for the use of SCT (Cragan & Shields, 1995).

Fantasy Theme Analysis (FTA): The basic method to capture symbolic reality (Cragan & Shields, 1995).

Fantasy Theme Artistry: Centers on the rhetorical skill required to present scenarios in an attractive form so that others will come to share them (Cragan & Shields, 1995).

Fantasy Type: A repeated Fantasy Theme, repeated within a singular rhetorical vision and across diverse rhetorical visions (Cragan & Shields, 1995).

Group: A collection of individuals (three or more) who have regular contact and frequent interaction, who work together to achieve a common set of goals ("Group," 2014).

Group Communication: Interaction among three or more people who are connected through a common purpose, mutual influence, and a shared identity (Beebe & Masterson, 2006).

Group Problem-solving Communication: The messaging that is exchanged between group members when individual ideas, thoughts, and opinions are expressed toward meeting the goal, and those individual messages are then taken into group discourse to be considered from each group member's understanding and perspective, so that each member can add to the original contribution in order to reach a holistic rhetorical vision.

Groupthink: An ineffective process of group decision-making in which members stress cohesiveness and agreement instead of skepticism and optimum decision-making (Rothwell, 2013).

Instant Challenge: A challenge designed to give the teams a minute or 2 to plan a solution, and 3 to 5 minutes to carry out the solution.

Interpersonal Communication: Communication between two or three people predominantly consisting of self-disclosure.

Match-Lighting: The initial friction of ideas that ignites Fantasy Chaining.

Plot Line: Provides the action of a rhetorical vision (Cragan & Shields, 1995).

Pragmatic Master Analogue: A rhetorical vision that accentuates expediency, utility, efficiency, parsimony, simplicity, practicality, cost effectiveness, and whatever it takes to get the job done (Cragan & Shields, 1995).

Rule of Reciprocity: A positive response from the person with whom one is sharing information, whereby the person who has received the disclosure self-discloses in turn (Laurenceau, Barrett, & Rovine, 2005).

Rhetorical Vision: A composite drama that catches up large groups of people into a common symbolic reality (Cragan & Shields, 1995).

Rhetorical Vision Reality Link: Enables a viable rhetorical vision to account for the evidence of the senses and the authentic record (Cragan & Shields, 1995).

Righteous Master Analogue: A rhetorical vision that stresses the correct way of doing things with its concerns about right and wrong, proper and improper, superior and inferior, moral and immoral, and just and unjust (Cragan & Shields, 1995).

Saga: An oft-repeated telling of the achievements and events in the life of a person, group, organization, community, or nation (Cragan & Shields, 1995).

Sanctioning Agent: Legitimizes the symbolic reality portrayed by a rhetorical vision (Cragan & Shields, 1995).

Scene: Details the location of the action (Cragan & Shields, 1995).

Self-Disclosure: A process of communication through which one person reveals himself or herself to another. It comprises everything an individual chooses to tell the other person about himself or herself, making him or her known (Ignatius & Kokkonen, 2007).

Shared Group Consciousness: *Must* exist for SCT to be present (Cragan &
Shields, 1995).

Social Master Analogue: A rhetorical vision emphasizing primary human
relations as it keys on friendship, trust, caring, comradeship, compatibility, family ties,
brotherhood, sisterhood, and humaneness (Cragan & Shields, 1995).

Symbolic Cue: A code word, phrase, slogan, or nonverbal sign or gesture (Cragan
& Shields, 1995).

Synergy: When working as a group, the work of group members yields a greater
total effect than the sum of the individual members' efforts could have produced
(Rothwell, 2013).

Team: A group organized for a specific work or activity.

Assumptions

The primary assumption behind this research is the idea that there are patterns in
group communication and these patterns can be identified and studied. This research is
based on the assumption that groups working to problem-solve create different levels of
visions, and the type of communication used in those steps can describe whether or not
synergy and cohesion are achieved. It also could explain the bonding that does or does
not occur and motivational reasons for staying in a group, or for leaving a team.

SCT uses Fantasy Theme Analysis to look at "Fantasy Chaining" or interactions
of the group, which not only play off each other's creative ideas, but also drive the group
identity by providing bonds for the group to rely on as they go through group tasks. These
bonds of synergy and cohesion produce a common rhetorical vision required in order to

solve problems. For this reason, it can be assumed that SCT will be able to identify the ways that communication interacts with problem-solving in a group setting.

Delimitations

This study is delimited to university-level Destination Imagination teams in Virginia. The teams were chosen because they were actively participating in the creative problem-solving processes through an established Destination Imagination program by way of club membership or class registration.

Summary and Organization

Chapter 1 presents the introduction and background to the problem studied, the statement of the problem, the purpose of the study, the research questions, the research design, the theoretical framework, the significance of the study, the definitions of terms, the assumptions and the limitations of the study. Chapter 2 contains a review of the literature and research related to the problem under investigation. Chapter 2 also explores the Symbolic Convergence Theory of communication through Fantasy Theme Analysis of Destination Imagination teams in different stages of development. Chapter 3 presents the methodology and procedures used to gather data for the study. The results of analyses and findings from the study are contained in Chapters 4, 5, and 6. Chapter 7 summarizes the study and findings, and conclusions drawn from the findings. It includes a discussion of the findings and recommendations for further study of the problem.

CHAPTER 2

LITERATURE REVIEW

Introduction

In this chapter, four areas of literature will be examined: group behavior, Symbolic Convergence Theory, Creative Problem-solving, and Destination Imagination. The literature will address several overlaying frames of context in groups that occur simultaneously during group problem-solving.

Beginning with describing group behavior and function, the literature will shed light on the ways that groups work well together or fail. Group skills that enhance group success will be examined, and linked with expected outcomes from skills employed.

Symbolic Conversion Theory (SCT) will be explored with literature that explains how this theory functions and the methods by which it is used. This will shed light on how SCT applies to group communication in creative problem-solving. Since Fantasy Theme Analysis (FTA) is the method used to observe SCT happening in communication, the literature will also detail FTA usage and methods.

Creative Problem-solving models and processes will be examined through the literature. The importance of communication within that process will be noted, and literature will show that the CPS process is occurring at times when processes of SCT could be observed.

Lastly, the organization Destination Imagination will be defined and their policies and practices explained in order to clarify its procedures and goals. These are essential to understanding the makeup of the team's membership as well as the reasons for its behaviors. Typical Destination Imagination group behavior will be examined in order to clarify the specific techniques and processes used by that organization's teams, and to describe the goals of these teams. It will be important to understand the Destination Imagination goals in order to clearly understand the processes of the study. Also, the rules and regulations of the organization will direct the teams, and will be vital to understanding motivation and group function.

Group Communication Behavior

Definition of Group Communication

Group communication has been defined as interaction among three or more people who are connected through a common purpose, mutual influence, and a shared identity (Beebe & Masterson, 2006). Groups form for the purpose of meeting a goal. Group communication must occur for groups to meet their goals.

In this paper, group problem-solving communication is addressed separately from the general group communication definition. Also, the terms "group" and "team" will be used interchangeably, since we are looking at group communication behavior within a specialized team. To be clear, group problem-solving communication is the messaging that is exchanged between group members at the time that individual ideas, thoughts and opinions begin to be expressed toward meeting the goal. This behavior requires specific skills, which also will be addressed. Group creative problem-solving communication then continues as those individual messages are then taken into group discourse to be

considered from each group member's understanding and perspective, lasting until the goal is met. This is when the group's behavior or skills are in action. This is when individuals begin to actually act like one group instead of four or more people looking at the same problem at the same time.

Benefits of Groups

As previously noted, groups can often produce product or outcomes of a higher standard than can an individual alone (Dunne & Bennett, 1990; Gibbs & Oxford Centre for Staff Development, 1995). This happens only when groups are functioning well. Because workers often do not work on just a single, long-established team but on multiple teams, some of them work with and through multiple organizations (Avery, 2001); thus there is a need for adaptability and creative problem-solving skills in small groups. Each member needs to have the ability to adjust quickly to the task or problem at hand, working with others, and partaking in the roles and norms in a small group. Each member needs group skills. There are elements of group experience that contribute to the acquisition of those skills.

One of the benefits of being part of a group is that individual confidence can be higher in groups, and can lead to higher levels of active participation (Bennett & Dunne, 1992). Tasks that reinforce discussion, explanation, argument, justification of views, and more, in teams, may promote understanding, or inter-relationships between knowledge bases, rather than collections of disconnected information (Wertsch, 1985). This is referring specifically to interpersonal communication skills, which result in bonding among two to three people, and is the communication of friendship. Thus, friendship and membership of a community can be strengthened, with evidence of enhanced motivation

as a consequence of this group work (Weimer, 2002). Therefore, not only are group skills important in the workplace, but they are also important on a personal level. This could be linked to the level of personal commitment a group member has toward their group.

The vital element of self-concept is maintained and increasingly acquired while participating in groups. Thus when members come to a group with a self-concept, the group interaction assists in acquiring additional self-concept while maintaining the self-concept previously held. By creating social situations where we are forced to work with others, and sometimes with others whom we would not interact with outside the group, a social reality is created, and the interaction within that social reality through the completion of tasks, making decisions, and interpersonal communication, we add to our self-concept (Egolf, 2001). Self-concept contributes to how much willingness we have to participate with others in any social context because it produces self-esteem. According to Rothwell (2013), self-concept is descriptive but self-esteem is evaluative. For example, if self-concept is the picture of how I see myself, then self-esteem is how I feel about that picture. If I have a self-concept that gives me the idea that I am vital to a group in order to complete a task, I could develop self-esteem that makes me feel good about being important to the group, and in turn, makes me want to participate more.

Groups usually work within a context that is both relational and social (Beebe & Masterson, 2006); group members must get along and work well together in order to reach their goal. The relational context refers to the interpersonal aspect of group, and how the individuals build relationship within the group and without. The social context is how the group can interact as a group, not just one or two but at least three or more. In

order for the group to achieve competent communication, each member must actively and effectively participate in task and socio-emotional behaviors (Mifsud & Johnson, 2000).

Another benefit that groups and teams provide is a context in which communication for learning can be encouraged, since talking encourages learning (Dunne & Bennet, 1990). According to Avery (2001), teamwork is the engine that is driving the work being done in today's organizations. Teams are used to solve problems and get work done much more quickly than one person alone could accomplish. And they are common in the workforce. Because of this, once students enter the workforce, their skills must already be shaped.

> Now they will be attempting to solve messy, complex problems that are not pre-defined for them. It would be useful if they were exposed to this type of problem-solving while they still have the safety net provided by their college classroom. (Sternberg, 1990, p. 35)

Sometimes this is called real-life problem-solving. It is also real-life learning (Conti & Fellenz, 1991), situated cognition (Black & Schell, 1995; J. Brown, Collins, & Duguid, 1989; Wilson, 1993), situated learning (McLellan, 1993, 1994; Stein, 1998), or problem-based learning (Coombs & Elden, 2004; C. Peterson, 2006; T. Peterson, 2004). Learning by trial and error is easier in school than in a work situation.

Therefore, group skills are a benefit both in the workplace and in community, and also provide a social reality for our decision-making processes. In order to problem-solve, there is evidence that we need to foster creativity, and in order to share creativity, our communication needs to be effective.

Skills for Successful Group Function

In this section, I will compare and contrast group functions, or process skills, and group communication skills. As essential elements of group creative problem-solving communication, these two areas bear close attention.

Group Process Skills

In a group, communication constructs a climate for group function, or group process. It is part of every role and action performed by a group as they move towards their goals. The climate can be described as "the emotional atmosphere, the pervading or enveloping tone that we create by the way we communicate with others" (Rothwell, 2013, p. 25). Communication climate creates the parameters that hold the group together as they progress through group process, as well as encourages creativity. In other words, weak or minimal communication styles can cause confusion, misunderstandings, a lack of unity, and a lack of creativity. Conversely, strong, clear communication skill sets can result in more creativity, agreement and understanding, thus more unity. Rothwell notes that "some communication climates promote proficiency, and others promote deficiency in goal attainment" (p. 25).

As noted, group skills include an understanding of how to participate in group communication using messaging and feedback, while maintaining equity, role responsibility, and motivation to reach the group goal. Table 1 identifies these group communication behaviors which translate to skills needed within group, as well as what those skills produce.

Table 1

Group Skills and Benefits

Group Behavior	Benefit for Individual	Benefit for Group	Group Skill
Participation	Group members feel better when they feel included in discussion and a part of the functioning group.	Added participation brings more ideas, more energy, higher levels of productivity to the group.	Engagement, Discussion
Messages	Confirming messages help build relational dimensions within a group and clear, organized and relevant messages help build task dimensions within a group.	Build task dimensions within a group.	Interact and Probe, Compose Messages by encoding and decoding using channels for interaction
Feedback	Positive, constructive and relevant feedback contribute to group climate.	Positive group climate invites more communication and desire to work toward task.	Empathy, Empathic listening responses
Equity	A sense of fairness or justice within the group.	Group members also like to feel as if participation is managed equally within the group and that appropriate turn taking is used.	Group role management, Empathic listening responses
Clear and Accepted Roles	Helps each member be comfortable with and accept their role in the group.	Group members like to know how status and hierarchy operate within a group.	Leadership style, group role management
Motivation	Member motivation is activated by perceived connection to and relevance of the group's goals or purpose.	Group goals and purpose are personal and primary objective of many group members.	Group Identity, Group vision

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Each of these group behaviors, or process skills, creates a benefit for both the individual as well as for the group, and leads to group communication skills. The skills also build on each other; with participation, for example, comes messaging, and feedback, which adds to the idea of commitment to the group. Clearly individual behavior and input affect the ability of the group to reach creative problem-solving communication. Table 2 presents how the skills are like building blocks and are interrelated to the extent that if one is missing, all will be affected. In addition, the skills described here relate to the essential elements of a group that achieves synergy as described by Hargie (2001) as displayed in Table 3.

Table 2

Group Skill-to-Skill Relationship

Communication Skill	Connected Skill	Group Benefit
Participation	With Messaging	Participation/Messaging increase
Messages	With Feedback	Communication Clarity
Feedback	With Equity	Participants feel essential
Equity	With Roles	Clarity of necessary work
Roles	With Motivation	Desire to accomplish
Motivation	Results	Synergy

Group Communication Skills

There are basic models of communication. One of them, illustrating complete communication between two people, transactional communication, occurs between two

people when a sender sends a message to a receiver, who interprets meaning in the message and simultaneously sends messages (Rothwell, 2013). In this case, people pass meaning between each other. It can be seen that this process is somewhat complex, and messages could become entangled or lost in the noise, as illustrated in Figure 1. This relates to group communication because group communication includes this, but as more and more people engage within one message-building interaction, many meanings pass

Table 3

Group Behaviors Occurrence in Relation to Skills Essential for Synergy

Group Behavior	Participation	Messages	Feedback	Equity	Roles	Motivation
Set goals easily	X	X	X		X	
Exhibit a high commitment to achieving the purpose of the group	X	X	X	X		X
Are more productive	X	X	X		X	
Experience fewer attendance issues	X	X	X		X	X
Have more group members willing to stick with the group		X		X	X	X
Group members willing to listen, provide feedback, offer support and constructive criticism	X	X	X	X	X	
Experience less anger and tension						X

between more and more people. When that occurs, meanings can change and become an altogether different message from the original sender's intent. Group communication then

is including more than one simultaneous sender and receiver. When group

communication is successful, all involved will end up with the same message.

On the other hand, if the group problem-solving communication achieves

agreement merely among group members, the result can be groupthink, which would be

counter-productive to the group goal of problem-solving (Baron, 2005). Because of this,

successful group problem-solving communication must reach more than just agreement;

it must be carefully considered within group discourse, with collaborative comparisons of

the individual input, and critical evaluation of the input in order to be accepted and acted

upon by the group as a whole.
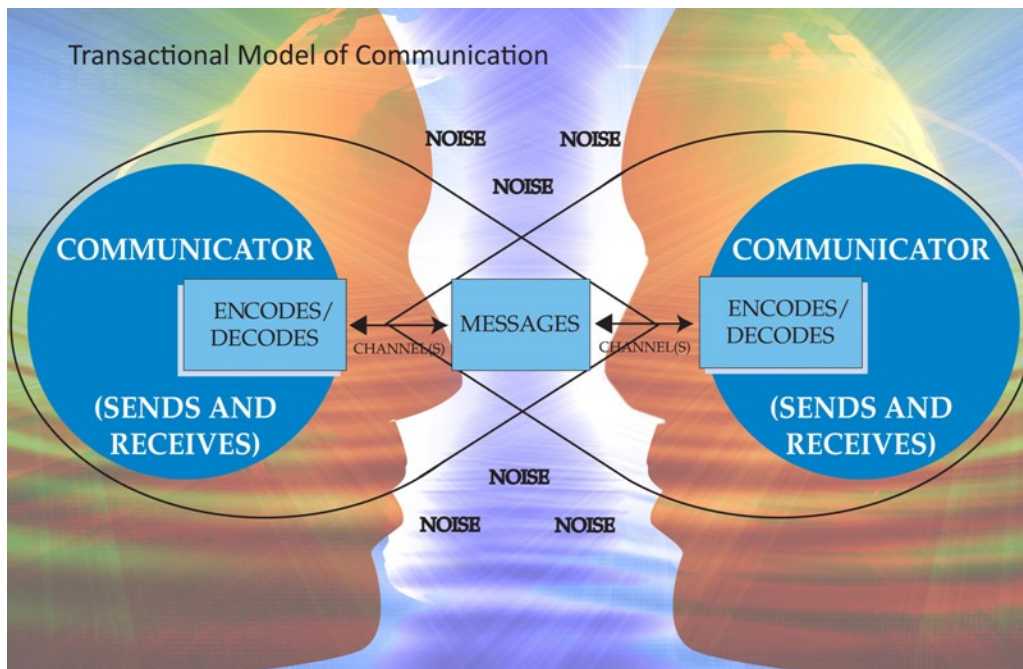
Figure 1. Transactional communication. From *What Is Communication*? By National
Communication Association (2014), retrieved from https://www.natcom.org/
uploadedImages/Resources_For/the_Public/Photo-transactional_model_of_
communication.jpg.

Groups must find ways to communicate completely and clearly in order to reach their goals. People assume that group talk is random, but group communication is structured, predictable, and there are specific communication forces that affect the outcome of group processes (Cragan et al., 2009).

Group communication skills are not innately acquired, but are a learned set of skills. It follows that group problem-solving requires communication that is able to be both divergent, creating many ideas within a group, and convergent, bringing all the ideas together into one agreed-upon solution. The theory I will be using to illustrate this kind of communication is Symbolic Convergence Theory.

Symbolic Convergence Theory

According to Cragan and Shields (1995), SCT looks at the collective sharing of fantasies and how group consciousness affects human action. SCT is useful for explaining that "meanings, emotions, values and the motives for actions" can be found in words and language. In common experiences, like group experiences, people use this kind of communication to find sense and meaning (Cragan et al., 2009, pp. 51-52). *The Handbook of Group Communication Theory and Research* (Frey, Gouran, & Poole, 1999) describes the heart of this theory as a "meeting of the minds." Since a united vision is required in order to make collaborative decisions, it is logical to assume the process can be followed and described.

History of SCT

Symbolic Convergence Theory (SCT) was introduced by Ernest G. Bormann in 1972, as a general communication theory that looks at group fantasies and analyzes how sharing those fantasies brings the group to a collective rhetorical vision (Bormann, 1972).

SCT is a useful theory for this study because of its emphasis on group consciousness as a

mode of convergence on the meaning of an event (Bormann, 1983, 1985). The theory

developed as a message-centered theory that originated from observation of group

communication. This was done using ethnographic case studies, content analysis,

surveys, Q-sorts, and discriminant analysis methods (Bormann, 1982a). Scholars began at

a common entry point, the message, and worked systematically toward discovering

generalizations about how human collectives use and become influenced by symbols

(Bormann, 1982b).

SCT Application

Fantasy Theme Analysis (FTA) is the method used to apply SCT. FTA is the

process of identifying Fantasy Chains, Fantasy Themes, and Fantasy Types. It is these

elements of SCT that, when identified through FTA, give us a Master Analogue. The

dramatistic nature of SCT allows the researcher to draw from these elements and thus

analyze the team dynamic.

When a group comes together in their understanding of meaning, or in other

words, "the way that two or more private symbolic worlds incline toward each other,

come more closely together, or even overlap during certain processes of communication"

convergence has occurred (Bormann, 1983, p. 102). This theory examines the words

humans use to explain the way common consciousness is formed, from which we derive

meaning, emotion and motive for action (Cragan & Shields, 1995). Therefore, this theory

can be used to look at how communication plays a role in a group's achievement of group

convergence. By tracking patterns of divergent thinking that produce connections and

bonds made through Fantasy Chaining, it is possible to see how new ideas form, and the

bonds of a group strengthen, or through the patterns of a lack of Fantasy Chaining, it could be possible to see where bonds do not form. SCT can describe the elements of communication that exhibit the way we come up with new ideas. The theory itself looks at the ways in which humans share a common symbolic reality (Bormann, 1982b). It can explain how worldviews are formed, common ideas and language that belong to groups like surfers, rock climbers, or feminists or musicians (Cragan & Shields, 1995).

SCT works to deeply expose how group communication, specifically telling stories, can lead people to trust others, and through that trust, begin to form a foundation for decision-making and idea formation. It provides a framework, which, within a rhetorical form of storytelling, centers on the sharing of narratives and on the dynamic elements of group process, in order to diagram how groups with a wide range of divergent ideas can come together within their own group narrative. In this way, it provides a means by which to study how people "construct meanings together," and "focus on the motives, emotions, and consciousness of group members" (Bullis, Putnam, & Van Hoeven, 1991, p. 87).

If Symbolic Convergence Theory (SCT) was applied through Fantasy Theme Analysis (FTA) to study the narratives of the group, it could explain a part of group process that may have been overlooked. SCT can be used to study this communication to reveal patterns in their communication behavior that may be common in creative problem-solving teams.

SCT helps us understand how group members interact and provides a way of examining small-group culture. There are some ways that groups communicate differently than in other social experiences. When in small groups, members develop

private code words and signals that only those inside the group understand. The groups achieve symbolic convergence when they have a sense of community based on common experiences and understandings. It also can be determined who is a group member and who is not depending on whether they are familiar with the group's Fantasy Themes, inside jokes, and rhetorical vision (Cragan & Shields, 1995).

Bormann (1983) says SCT can be useful for examining groups within organizations because it provides a way to compare them; similarities and differences in the rhetorical visions and fantasies of small groups are often significant. One of the strengths of SCT is the focus on group identity and the development of group consciousness. This theory is descriptive rather than predictive. SCT comes from the systematic observation of people communicating (Bormann, 1982b). Because of this, SCT is a good fit for the context and goals of this study.

SCT has been used to study groups in different ways. It has been shown to be an effective tool to analyze groups in order to analyze negotiation as in bargaining, to help implement strategic planning as a corporate strategic study did. The attitudes and effects of the global economy were the subject of an SCT study (Sovacool & Brossmann, 2010). And Duffy (1997) used SCT to study the public relations campaign of river boat gambling in Iowa. These examples show the breadth of SCT's versatility as a general theory, which effectively accounts for specific messaging behaviors in groups and the results of the communication studied.

SCT Used as Case Studies

As a general theory, SCT's breadth makes it applicable in many different kinds of situations. This can be seen by the diversity in the ways it has been applied. Four case studies were found that illustrate the broad application abilities of SCT.

The first case study examined "The Role of Rituals and Fantasy Themes in Teachers' Bargaining" by Bullis et al. (1991). In this case study, the process of collective bargaining as a ritualized activity, including legally binding decision-making by labor and management about salaries, benefits and working conditions, etc., is examined by using Fantasy Theme Analysis in order to study the social construction of reality. This study looked at negotiations, which are a part of decision-making processes. SCT played a vital role in describing how the social constructs of the groups played a part in their decision-making. It shows that SCT can be used for this purpose in any group.

Another case study considered is a study of Corporate Strategic Planning: "The Use of Symbolic Convergence Theory in Corporate Strategic Planning: A Case Study" (Cragan & Shields, 1992). In this study, SCT is used to "guide corporate positioning, market segmentation, and advertising and sales messaging" (Cragan & Shields, 1992, p. 109). This report describes how SCT data were used to intervene in corporate symbolic reality. Examples of this would include State Farm's slogan, "Like a Good Neighbor." This study demonstrates that SCT can be used to choose group strategy and describe group identity and social constructs.

A third study considered for exploration of SCT use is "Fantasy, Abundance, and Consumption in International Energy Policy: Symbolic Convergence and the Hydrogen Economy" (Sovacool & Brossmann, 2010). SCT is used here to investigate attitudes

towards an international energy policy. The study serves to show how group climate can be determined through Fantasy Theme Analysis.

Lastly considered, the case study of "High Stakes: A Fantasy Theme Analysis of the Selling of River Boat Gambling in Iowa" (Duffy, 1997). This study uses SCT to "track the trail of influence used by one organization to influence media coverage of a controversial policy issue" (Duffy, 1997, p. 117). In other words, FTA was used to analyze strategies of a campaign to legalize riverboat gambling in Iowa. This study showcases the ability of SCT to look at communication for the purpose of illuminating underlying values, and how they can be moved or changed.

<div align="center">SCT Critical Elements</div>

These critical elements of SCT are discussed in this section; narratives, Fantasy Theme Analysis, and rhetorical vision. These three areas of SCT describe the basic application of the theory to small-group communication as viewed in this study.

Narratives

One way SCT works well for this is that the theory and method identify group stories. The group stories can provide meaning in many ways. One of the purposes of group stories is to socialize newcomers (M. Brown, 1985; Louis, 1980). Another reason groups tell stories is to solve problems within the group (Mitroff & Kilmann, 1976), but they also help the group to bond through identifying heroes and villains (Martin, 1982; Trujillo, 1985). M. Brown (1985) finds that stories function in three areas: reducing uncertainty, bonding and identification, and the management of meaning. According to Weick (1979), sense-making is shaped both by circumstances in the present as well as the

psychological and emotional state of the sense-maker. Specifically, actors' sense-making of the past is a reflexive practice, shaped more by circumstances in the present than a "Truth" residing in the past.

Fantasy Theme Analysis

When groups tell stories, it can lead to a group fantasy. Within this fantasy, there may be some dramatizing messages which link together forming imagery, or plot lines, characters, settings and, along with that, some emotional responses. Group members can be psychologically caught up in the *dramatis personae* of the story, and even feel anxious in the suspense of the outcome. A Fantasy Theme refers to the content of a group story that may spark Fantasy Chaining to occur (Bormann, 1986).

The term "fantasy" is not used as the conventional meaning for the word; instead here "fantasy" is referring to "interpretations of situations brought about by some psychological or rhetorical exigency" (Bormann, Cragan, & Shields, 1994, p. 259). Fantasy Themes then become an artistic form; instead of just an example or illustration of something, they then hold symbolic meaning (Bormann, 1986).

Fantasy is not defined as dreaming, or pretending a reality; instead fantasy in this analysis is a creative, sometimes imaginative interpretation of events. Symbolic convergence occurs when group members spontaneously create Fantasy Chains that show an energized, unified response to common themes.

These fantasies could be described as any message that does not refer to the immediate here and now of a group. It could be a joke, or a symbolic allusion, or an imagined future. If this dramatization is picked up and elaborated on by other group members, members come to share similar interpretations and emotions and to develop

common experiences. This communication behavior is known as Fantasy Chaining, as referenced above, and through this, the group can identify laudable and condemnable actions and spin out a common plot, and reinterpret the group's history, especially notable successes and failures. These recurring Fantasy Themes, when repeated and interfused with similar Fantasy Themes, can become a Fantasy Type. A Fantasy Type is a recurrent dramatization on which group members can call. A Fantasy Theme Analysis across several groups can reveal a rhetorical vision that contains motives to enact the joint fantasy (Griffin, 2011).

Fantasy Theme Analysis uses observation to look for, first, Fantasy Chaining, then a group's common reference to the chaining, which can be referred to as a Fantasy Theme, and then themes that recur often, which are referred to as Fantasy Types. The phenomenon called Fantasy Type has been described as "a repeated Fantasy Theme, repeated within a singular rhetorical vision and across diverse rhetorical visions" (Cragan & Shields, 1995, p. 45).

As an example of a Fantasy Type, consider phrases such as "the real deal," "spin doctors," and "DI." Fantasy Types provide known reference points for the group to framework with, gain understanding and make meaning out of future phenomena.

Rhetorical Vision

The concept of SCT then is brought to fruition, when Fantasy Types evolve into a rhetorical vision. A rhetorical vision is "a composite drama constructed from Fantasy Themes and Types that have recurred in the history of a group and may have chained out into a larger public through written works, media, or other public formats" (Cragan & Shields, 2005, p. 31). So the patterns that evolve in the group communication can be like

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stepping stones leading to a unified group direction, which is group convergence. Finding those patterns and studying them can enlighten the way the group moved as a whole.

Basically, SCT and FTA assume that communication creates reality instead of merely reflecting it. In this way, people in groups create meaning from events and dramatize reality by "chaining out," or building meaning off each other's meaning, in order to share what becomes a kind of world view, or "rhetorical vision." The actual Fantasy Theme is not something imaginary, but the interpretation of events as the group comes to see them (Duffy, 1997). Through sharing fantasies, organizational members become aware of their group identity particularly when fantasies distinguish the "we" from "them" (Bormann, 1983, p. 106).

Gudykunst (2001) said that the word "symbolic" was used within the label SCT because what was being observed were language, communication, fantasy, and also symbolic facts (as opposed to material and social). The word "convergence" was used because the "theory's basic theorem described the dynamic communicative process of sharing group fantasies as the cause of the union of the participants' symbolic world" (Frey et al., 1999).

This theory gives us a constructed means by which to study the shades of communication, and how each gradation can change the final result. SCT can show how multiple meanings can alter the outcome of an interaction as well as foster the interaction. Bormann believed that sharing common fantasies transforms a collection of individuals into a cohesive group. Group convergence begins with sharing group fantasies, something that was noted by Bales (1970). Bormann (1983) said that "organizational members who share Fantasy Themes begin to develop similar attitudes and emotional responses. Shared

fantasies provide members with coherent accounts of their past, visions of their future, and values and motives for actions" (p. 104). Fantasy Themes, then, provide the path for convergence or integration of the values, attitudes and meanings of group members.

Criticisms of SCT

This theory was used more prevalently in the 1990s and has fallen under some criticism in the last decade. An essay aimed at SCT's weaknesses was written in an attempt to discredit the theory as a whole (Gunn, 2003). In it, Gunn makes the accusation that "little attention has been given to conceptualizing the imagination from a rhetorical perspective" (p. 41).

Gunn (2003) goes on to say that while SCT was "the first to advance a more contingent understanding of rhetorical agency, suggesting fruitful directions for ideological criticism," he believes that "unfortunately [the directions] were derailed by misjudgments concerning the role of the unconscious in rhetorical invention" (p. 45).

In an essay response, Bormann, Cragan, and Shields (2003) directly answered Gunn's (2003) critique with specific listed responses. Over all, they say, Gunn "does not refer to the main body of SCT research that would blunt his critique" (p. 259). They continue their apologetics answering Gunn's claim that SCT is a flawed theory: "SCT has been classified and re-classified as a hybrid theory via many paradigmatic schemas. Initially, SCT's creators described it as a message-centered theory that displayed elements of a humanistic paradigm while being part of a social scientific paradigm" (p. 366).

The response meets the questions about the validity of the theory, as well as explaining why its critics have misunderstood its foundations.

As we have noted elsewhere, rhetorical fantasies are not Freudian fantasies, and the Freudian vocabulary is not SCT's vocabulary. A conscious fantasy, visibly present in the stuff we call communication, is not the same as a Freudian subconscious fantasy. Freud's theory of dreams is different from SCT. The Freudian psychoanalytic method of dream interpretation differs from Fantasy Theme analysis. Rhetorical motives differ from Freud's subconscious desires. Rhetorical fantasies are not deceptive; they are discoverable through Fantasy Theme analysis. They can be translated because meaning, emotion, value, and motive for action are present in the communication, not hidden in individual psyches. (Bormann et al., 2003)

Communication in groups is characterized by Fantasies, Themes, and Types, which lead to convergence through symbols that are shared towards accomplishing a rhetorical vision.

Bormann et al. (2003) conclude that Gunn has made a post-hoc mistake, faulting the theory instead of "paradigmatic sorting," which makes his conclusions of little consequence to SCT.

Other critics have charged that SCT produces formulaic analyses that uncover little new knowledge (e.g., Leff, 1980). Although for the most part, these charges have, been aimed at the applications of SCT in rhetorical studies, they apply as well to social-scientific group communication research.

Still others express concern that there are "areas of weaknesses which are described as (a) explanations for why humans dramatize and share fantasy, (b) a convergence ideology, and (c) characterization of membership in rhetorical communities" (Mohrmann, 1982, p. 110). Olufowote (2006) cites some of the weaknesses of the theory as "an implicit pro-social bias, egalitarian assumptions, and overly unified and conflict-free characterization of a rhetorical vision" (p. 451). These areas beg the question "why," or the "when" of occurrence. In other words, "why" do people dramatize reality and share stories, and when does it happen. Since this study is looking only at "how"

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communication is being used, the "why" they are saying it or "when" they are saying it will not be in question.

SCT defenders are quick to point out the flaws in the critics' reasoning, and argue effectively to support SCT's usefulness and relevance. Bormann et al. (1994) contend that the insights derived from applications of SCT depend heavily on a researcher's skills. Studies conducted by Bormann and others have used both qualitative and quantitative means to illustrate that the applications of SCT are reflecting the perspective of the participants. This is especially true through use of the Fantasy Types and rhetorical visions, which reflect the specific ideals and values of the groups in question. Because this provides the symbolic framework of the group, it then also exposits reasons for different functions, as well as outcomes for the group.

Creative Problem-Solving

Definitions of Creative Problem-Solving

The Creative Education Foundation (2014) defines creative problem-solving as "a proven method for approaching a problem or a challenge in an imaginative and innovative way. It's a tool that helps people re-define the problems they face, come up with breakthrough ideas and then take action on these new ideas" (*What Is CPS?*).

The president of the College Board, Gaston Caperton (2011), when contemplating the global applications of creative problem-solving (CPS), said:

> The challenge isn't just to have the most scientists; it's to have the most creative scientists, the most ingenious engineers and the most open-minded mathematicians. In the coming years, we will be forced to address long-simmering problems like climate change, pandemic illness, and energy production, but will also surely be met with new ones that require every ounce of our imagination and skill. For this, we will need to be at our best and our brightest. (para. 5)

Creativity also has been defined as producing novel and appropriate solutions to open-ended problems within a domain of knowledge (Amabile, 1997). The term *creativity* has been used in many ways, and was common outside of the social and behavioral sciences long before it was used as a concept for research and theory (Runco, 2009). According to Runco (2009), it also may be difficult to define because its meaning has changed a number of times through history, and there are cultural differences in many of the behaviors that are related to it. Yet the term *creativity* has also remained slightly ambiguous "because what is being labeled—actual creative behavior—is also varied and complex" (p. 200).

Attaining and Using Creativity

There have been ongoing efforts to train people to be more creative or to better access their innate creativity (DeTienne & Chandler, 2004; Fong, 2006) and how to become more creative when working in teams (Basadur & Head, 2001). Richard Florida popularized the role of creativity and its power to create innovative communities (Florida, 2003; Lee, Florida, & Acs, 2004).

Anderson (1992) addressed its importance in the business world by stating,

Creativity is the gift and discipline that provides the competitive edge—in marketing, production, finance, and all of the other aspects in an organization. Firms and managers crave it. Awards are given for it. Incentives encourage and cajole it. But it's still the most elusive weapon in an executive's arsenal. (p. 40)

This underscores the importance of CPS, its intrigue, and its practical use.

Eng (2011) noted that because creativity is so difficult to capture, this has propelled academic studies to look into how to optimize the relationship, including ways to improve employee creativity that leads to team or organizational creativity (Woodman,

Sawyer, & Griffin, 1993). Even studies that show how certain personalities can encourage or discourage creative behavior in organizational settings (George & Zhou, 2001) point to the fact that communication and climate affect creativity, the basis for CPS. Here there is a valid link between the studies of communication and creativity.

Student groups need to utilize creativity as well. Schilpzand, Herold, and Shalley (2011) found that graduate student teams with higher openness to experience had higher levels of team creativity. Prabhu, Sutton, and Sauser (2008) also found the kind of openness leading to creativity in a graduate setting, with intrinsic motivation, was a partially mediating role.

This links attitude, or openness to experience and roles within groups, to creativity and motivation. It also implies that creativity may encourage motivation. Creativity is an aspect that cannot be overlooked, because motivation to participate is an element of cohesiveness. High levels of engagement may well evidence an elevated level of intrinsic motivation that may lead to higher levels of creativity (Hennessey & Amabile, 1998). "Innovation is what drives today's economy, and our hopes for the future—as individuals and organizations—lie in finding creative solutions to pressing problems" (Sawyer, 2008, Kindle Locations 140-141). So in addition to attitude and roles, not only does the creativity of the team intensify motivation, all these elements add to group cohesiveness. More importantly, according to Sawyer, creativity also provides a need for groups to exist in the first place.

Team creativity leads to more efficient creative problem-solving, an essential task of groups. We can study the Creative Problem-Solving (CPS) process in order to gain insights into how groups achieve a solution to a problem through a specific creative

process, but creative problem-solving itself does not account for how the process of divergent thinking in a communication style may affect the process of successful group creative problem-solving, or how creativity affects the group convergence that bonds the teams.

Models of CPS

Both creativity and CPS have been argued as essential to the progress of humanity, and even to its very survival (Taylor, 1964; Taylor & Barron, 1963). CPS has been the interest of a wide variety of disciplines for a long time. As noted, CPS framework has been evolving for over 5 decades, and since 2005 has taken the shape of an approach that can be thought of as dynamic and flexible instead of sequential and prescriptive (Treffinger & Isaksen, 2005). This is important to note because it shows that CPS, having definite steps, is not linear or cyclical, but somewhat random in the occurrence of the steps. Because of this attribute, it has the ability to morph with the participants and renew itself.

Since groups inherently must problem-solve, we can go one step further and ask, "What is the connection between solving the problem and the communication used in that process?" This is the point where creativity becomes relevant. Within the group communication skills of engagement, discussion, probing, and action, original ideas are generated. Creativity itself has been defined as "the production of novel and appropriate solutions to open ended problems in a domain of knowledge" (Amabile, 1997, p. 18). It is an original thought, a birth of an idea, when we draw on previous knowledge to find a brand-new thing.

Creativity is a phenomenon by which something novel and valuable comes into existence (like an idea, a joke, a piece of artwork, a musical composition, a solution, etc.). The concepts that result have numerous ways to be experienced, but usually are things we can see, hear, smell, touch, or taste.

Creativity or the act of creating brings with it several distinct group behaviors:

1. A sense of satisfaction, or accomplishment, or even pleasure,

2. It can spawn the motivation needed for a group member to remain committed to the task, and

3. Can cause members to make effort to bond with others in the group.

Creativity also can be defined "as the process of producing something that is both original and worthwhile" or "characterized by originality and expressiveness and imaginative" (Sternberg & Lubart, 1991, p. 13). This is why creativity is vital to both problem-solving and group cohesiveness.

Because so much of what we do in everyday life includes solving problems, it follows that CPS would be of interest to the business community, the academic community, and the global community at large. Since I have established that all of us are affected by groups, and that groups need to essentially solve problems, CPS, in turn, is crucial to achieving success in these arenas.

A recent creative problem-solving model depicts problem-solving as a seven stage cycle that emphasizes the iterative nature of the cycle (Pretz, Naples, & Sternberg, 2003). The stages include:

1. recognize / identify the problem,

2. define and represent the problem mentally,

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3. develop a solution strategy,

4. organize knowledge about the problem,

5. allocate resources for solving the problem,

6. monitor progress toward the goals, and

7. evaluate the solution for accuracy.

While this structure gives a more complete view of the stages of problem-solving, in practice, there is much variability in how people approach the problem and how well each of the stages are completed, if at all (Wilson, 1993, p. 77).

So creative problem-solving has steps, but while listed as linear here, the steps are not required to occur in a specific order in application, and at times even some may be omitted. This seems to indicate there are two different things going on at the same time. If so, the two processes could be influenced by each other. In other words, while the group is communicating in order to problem-solve, the steps of the Creative Problem-Solving process could change in order, or in depth and breadth, according to the kind of communication used. Creative Problem-Solving models have addressed this process with vague reference to communication. This can be seen in the work of Treffinger and Isaksen (2005).

Treffinger and Isaksen

The framework of Treffinger and Isaksen (2005) includes stages that consist of constructing opportunities, exploring data, and framing problems. Destination Imagination uses CPS by identifying the stages of the creative process comparable to the Treffinger/Isaksen framework and also the Wilson stages in their instructional materials. They list the steps as:

1. Recognize–awareness of a challenge, problem or opportunity

2. Imagine–apply critical-thinking skills to develop options

3. Initiate–initiating behavior and committing to an option

4. Collaborate–using social intelligence

5. Assess–achieving the best solution

6. Evaluate–evaluating the results.

If we compare these skill sets to those listed as competent group skills (Table 1), we can see similarities. If each group member shared these steps with the group, using the skills previously described, the goal of problem-solving not only would be reached, but it would be novel, new, and innovative. Isaksen and Treffinger's (2004) model illustrates the process as nonlinear as seen in Figure 2.
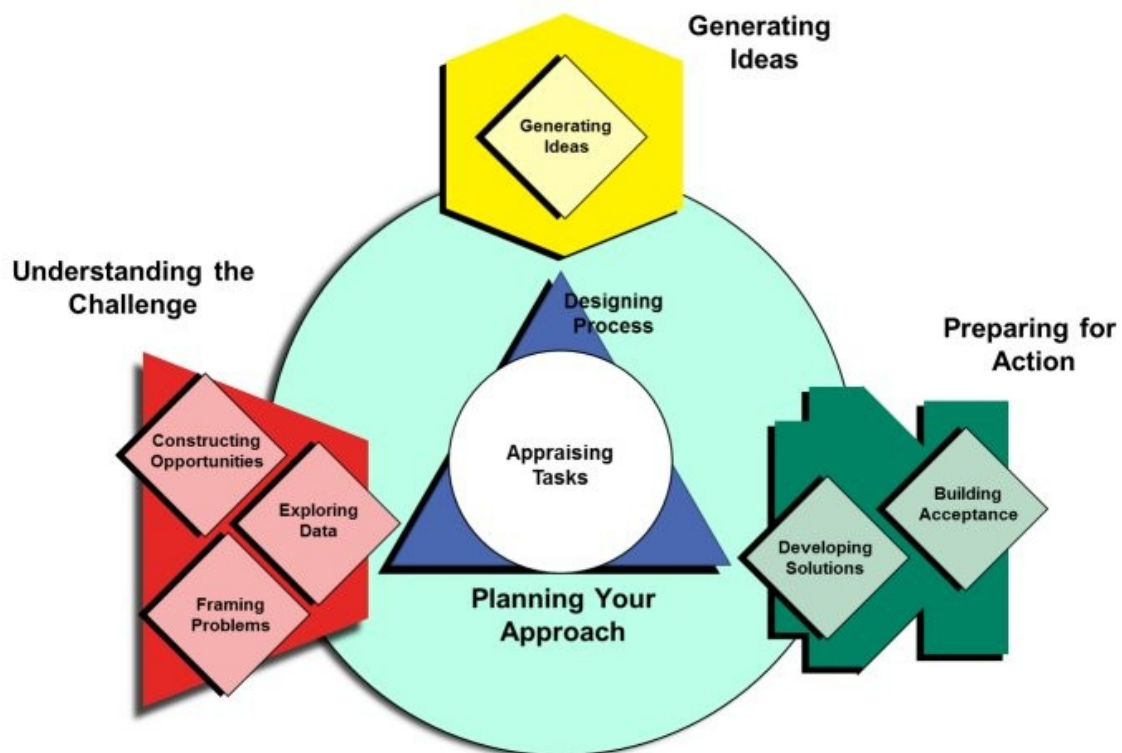
Figure 2. Framework model. From "Celebrating 50 Years of Reflective Practice: Versions of Creative Problem Solving," by S. G. Isaksen and D. Treffinger, 2004, *Journal of Creative Behavior, 38*(2); doi:10.1002/j.2162-6057.2004.tb01234.x

In spite of this, studies also show that, traditionally, business students and managers are not predisposed to creative thinking (Eisenman, 1969; Hoffman & Maier, 1961). Gowan, Demos, and Torrance (1967) and Dudek, Strobel, and Runco (1993) concluded that the school climate, with its imposition of "seriousness" and its rigid structure, had a decisive impact on students' divergent thinking and creative performance. It follows that any climate with these attributes would impact divergent thinking and creative performance.

Eng's Likert Scale

As part of a study looking at creativity and partially comparing divergent thinking and convergent thinking, Eng (2011) developed a Likert-type scale to study CPS and Family Processes. This was developed from Cho's Dynamic System Model of CPS (2003) and Treffinger's Creative Problem-Solving Model (Treffinger, Isaksen, & Firestein, 1983). This test was divided into the four sub-categories of

> Divergent thinking (e.g., lean towards thinking about solving problems in different ways); Convergent thinking (e.g., I try to find out main ideas of any problem), Motivation (e.g., I work hard and usually solve difficult problems by myself); and Environment (i.e., the combination of the above three and general knowledge/skills that parents nurture, such as My parents give me enough time to come up with many ideas when I am trying to solve a problem). (Eng, 2011, p. 45)

Hennessey and Amabile (1987) and Sternberg and Lubart (1991) suggested that intrinsic motivation is a necessary component of creativity, and that it can be hindered in the presence of extrinsic motivation.

Eng (2011) concluded that "measuring divergent thinking or output only is incomplete. Empirically measuring these attributes has become the first step in helping to predict and develop creative problem-solving abilities in the young that will be needed for future innovation" (p. 45). Recommendations resulting from this study indicated future studies were needed to see how divergent-thinking attributes affected the CPS process over time. This indicates that exploration of how divergent thinking works with communication and how they work together in creative problem-solving is needed.

CAVE Cragan Method

Another way to study creative problem-solving behavior is using the acronym CAVE. This creative problem-solving process acronym was developed by John Cragan and Elizabeth Cragan (J. Cragan, personal communication, January 3, 2014). In this communication-friendly description, the first problem-solving skill is termed "Combine." Combining is when the group members are engaging in combining two separate words or ideas and creating new meaning from the combination. The next skill "Analogue" is actually the dramatic structure, which has evolved into a new structure and is referred to by the group (e.g., when the group decides duct tape is now material for a costume, instead of tape).

Another skill, "Visualize," is the critical step where the group begins to agree about their ideas and begins to put them into a group vision. Lastly, just as in the group communication skill list, "Elaborate" is the stage when the entire team adds new life to an idea, growing and expanding on the evolving solution. At that point, the dialogue begins to add more and more detail on one solution, and the entire team is focused on one

solution (Cragan & Cragen, 2013). CAVE is a simple descriptive and specific way to communicate where a group or team may be in their creative problem-solving process.

The components of this way of describing problem-solving behavior have their roots in property and structure mapping. Taking two disparate concepts and attempting to merge the properties of each into one new concept is described in Sawyer's *Group Genius* (2008). Sawyer contends that modifying one property value while maintaining the others, and combinations of this kind of exercise, is the basic foundation for innovation. CAVE can be used to describe how creativity flourishes in a climate that: (a) triggers creative ideas; (b) encourages follow-up of creative ideas; and (c) evaluates and rewards creative ideas (Sternberg & Lubart, 1991).

Styles of CPS have been on the rise for study. These studies focus on the diverse contexts and methods in which CPS is being used. Creativity may not be the focus, but results of CPS are elevated in importance and the methods by which results were achieved (Selby, Shaw, & Houtz, 2005). This kind of information transfers more easily to other contexts for CPS to be used, and even can be applied to daily life problems (Chen & Kaufmann, 2008).

Destination Imagination

Destination Imagination chartered their organization in 1982 auspiciously as Odyssey of the Mind, and the name changed to Destination Imagination in 1999 (Destination Imagination, 2014b). DI was formed in order to provide a platform for students, Grades Kindergarten through University level, to practice a specific method of creative problem-solving that was designed to meet National Education Standards, STEM standards, ELA Common Core Standards, and Mathematics Common Core Standards.

One of the stated goals of this organization is to "construct fun and aging challenges that teach the creative process from imagination to innovation using inquiry-guided, team-based learning" (Destination Imagination, 2014a, para. 9).

Thus, teams formed to compete for this organization have a structured challenge to solve, and specific procedures to follow, two things that have been proven to be transferable to the workforce. Identifying the commonalities in communication styles among groups and stages could provide one more way to identify a skill conferring to the workforce through successful creative problem-solving.

This organization has been recognized as recently as 2013 by companies such as Motorola Solutions Foundation, who awarded DI a $1 million grant for their work in initiating challenges that teach the students both innovation and creative problem-solving skills. The methods DI employs in their team-based challenge program were specified in the grant reception as "integrating challenge-based learning—with emphasis on STEM concepts—into the classroom to reach more students in creative and dynamic ways" (Destination Imagination, 2014c, para. 1).

DI celebrated its 30th anniversary at the world's largest celebration of creativity for students in Grades Kindergarten through university, their Global Finals Competition in Knoxville, Tennessee, May 2013. This event was showcasing 1,250 teams comprised of 16,500 participants. Since those were only the winning teams from participating states and countries, DI also can boast that in 2013 over 200,000 students participated, and in addition, 38,000 volunteers were impacted by the DI program. DI's own statistics estimate that since they began their creative problem-solving competitions, they have affected over 1.5 million students. The efforts of this organization have been recognized

by many other organizations that include concerns for future leadership in their mission.

In addition to winning the grant from Motorola, the program has been recognized as a valuable asset to leadership training. Steven Paine, Ph.D., President of Partnership for 21st Century Skills, said,

> Destination Imagination's Global Finals event is a fantastic exhibition of the 4Cs of Creativity, Communication, Collaboration, and Critical Thinking in action. We are proud to count DI among members of P21, and celebrate their efforts to bring the power of creativity to students around the globe. (Destination Imagination, 2013a, para. 4)

DI Procedures

The organization issues five challenges per year and holds competitions in regional, state, and then global levels. Each challenge is designed to highlight one or more of the STEM, or other standardized concepts, and all five challenges are the same for every participant. In addition to the subject matter of the challenge, each challenge incorporates a skit, a set, a timed performance, and specified materials (DI Program Materials, Appendix B). In this way, the students must not only solve the challenge, but must solve it in multiple mediums, in multiple ways.

Teams are comprised of two to seven members with one or more team managers. At least one team manager must be 18 years old or older. Team managers are the 'adults' who drive the experience, but are not permitted to add to the students' process at all (DI Program Materials, Appendix B). The students must follow a set of guidelines, specified for their challenge, and general rules called the "Rules of the Road," which are strictly enforced at competition. These rules indicate behavior, dress, budget, paperwork, and any particulars of competition such as the use of electrical extension cords or technical equipment. Often there are also restrictions placed on the teams as to materials that may

be used both in the solution and in the skit, and also how they must present the materials (DI Program Materials, Appendix B).

Thus, the parameters are individual to the challenge, but every team must meet their challenge's parameters. In the competition, then, the focus for the teams is to be the one with not only the solution that precisely meets the requirements, but also is outstanding because of its creativity.

Appraising a Challenge

Since the teams are preparing for competition, the manner by which they are appraised and scored is a factor in their group processes. Teams must consider all angles of communication in order to attempt to relate the solution effectively to the team of appraisers. DI trains volunteer appraisers, and assigns at least five appraisers to each challenge for the competition. The scoring system is Objective, Subjective, and Zero. Teams receive Objective scores based on whether or not they have met a challenge requirement. Teams receive Subjective scores based on an appraiser's opinion of how well or creatively a challenge requirement was met. Third, teams can receive a Zero score based on whether a challenge requirement is missing, or if a time limit is surpassed. Challenges can incorporate any number of scored elements, and it is the team's job to carefully assess the challenge in order to be sure they meet all the scored components (DI Program Materials, Appendix B). Because all the appraisers are scoring different elements of the challenge, part of the issue for the team is to have the ability to produce similar reactions from all the judges. All participants are appraised by the same appraisers on the same day of competition in order to reduce subjectivity.

DI Recommendations for Teams

DI provides a CPS recommendation on its website. Team managers are encouraged to use the DI materials. As they are not permitted to interact in the CPS itself, they are encouraged to point the students to these DI-created documents and suggestions.

A team forms voluntarily, according to interest or skill in a STEM area to which the challenge relates. Teams can consist of two to seven members. This means teams will always fall into the communication category of small group. Also, there are no input requirements from any given team member. Teams can meet as often as they like, or not at all. The group structure is recommended to the team manager by DI, but is not enforced. The team manager then can set up the team meetings and help with the agenda, as well as bring in materials the students may use for research. However, every part of the solution *must* come solely from the team.

CPS and DI

In order for groups to start a process of brainstorming, they often will take one idea to jump to another. As each group member jumps off another member's idea, a process called "match-lighting" occurs (Cragan & Shields, 1995). Random conversation begins to become common symbolic language as the members find commonalities through identifying features in the random talk. They begin to joke about their unique situation within the group context, and tell stories that will add depth perception to their group experiences. In this way the group begins to form new ideas, or words and symbols that have meaning only to the group.

As group match-lighting escalates, more options for problem solutions appear. Creativity is not only what drives the brainstorming, but it is also needed in the next step,

when groups must choose from all the options they have come up with, and critically evaluate them to see which one will fit the solution best (Table 4).

Table 4

Fantasy Theme Analysis Related to Convergence

	Divergence	Match-lighting	Fantasy Chain	Convergence
Random talk	Individual experience	Sparks others ideas	Shared experience	Combined experience
Jokes	Individual humor	Sparks others humor	Shared humor	Combined humor
Stories	Individual knowledge	Sparks others stories	Shared knowledge	Combined knowledge

Summary

The literature suggests that groups and teams are becoming more vital to the world economy and business sphere. There is also evidence that how to use groups and teams effectively is a broad field among researchers, and also that the elements of group process which are essential to the recipe of a successful team are still in question. The literature also shows that there are very specific group skills that are required to ensure group performance, and that communication is the key to group success or failure.

These skills are inherent in SCT. The literature refers to phenomena which occur when using the skills described as successful group behaviors. The literature also indicates that SCT tracks the symbolic meanings derived from group behavior and communication patterns. These patterns illustrate the way the group problem-solving progresses, and show where creativity enters the picture.

The literature indicates that the group's ability to use creativity in problem-solving in a specific way is indicative of their cohesiveness and synergy, and also can predict success or failure. This study attempts to fill a gap by describing the communication processes of a group during the creative problem-solving process to see how the kind of communication used by the group affects the convergence of the group.

CHAPTER 3

METHODOLOGY

Introduction

My goal was to identify key communication interactions of groups engaged in creative problem-solving. This chapter will review the methodology used to describe interactions showing how they build and change the group's rhetorical vision (Symbolic Convergence), or how the absence of these interactions affects the group's rhetorical vision.

As recommended for the use of SCT investigation, this study drew its data from Destination Imagination team meetings, instant challenge practice, and interviews with participants. It focused primarily on group fantasies, Fantasy Themes, and Fantasy Types (Bullis et al., 1991).

The first section reviews my research design. The second section reviews self as the research instrument. The third section covers purposive sample, and the fourth reviews my procedures. Then I detail my data collection. I discuss how I analyzed the data and how trustworthy the method for this study is, how generalizable it is, and in the last section, what ethical procedures were followed to ensure credibility.

Research Design

This study used a qualitative research design. Fantasy Theme Analysis (FTA) is the mechanism this theory used to find the symbolic messages that constitute SCT

(Cragan & Shields, 1995). In FTA, Fantasy Chains, Themes, and Types are identified, grouped, and analyzed in order to find the underlying roots of the group's self-building identity as a unit, which then can be used to expose the group values and motivation as well as their level of bonding. Three case studies were used to identify the creative problem-solving process and the elements of SCT. Group meetings were video recorded and analyzed using FTA to find Fantasy Types, Themes, and analogues that will illuminate the cohesion the group has achieved, as well as the climate and creativity of the group.

Field notes were taken as the opportunity arose, and artifacts were collected. Interviews were conducted with each team at the end of the season to determine their awareness of the process. Observation surveys (see Appendix A) were used to map the communication observed on video recording.

One interview was conducted to collect qualitative data about team perceptions, with team members voluntarily participating to discuss their perceptions of team communication and its relationship to their CPS. Interview questions are included in Appendix A. The interview was employed with the intent of in-depth investigation of perceptions, benefits, and limitations of the CPS process from the perspective of each student.

This research design gave a view of the steps, linear or non-linear, that groups go through as they solve problems. In practice, there is much variability in how people approach the problem and how well each of the stages is completed, if at all (Wilson, 1993).

Self as the Research Instrument

I have been teaching a course called Basic Human Communication Groups (GCOM 123) for 16 years in the School of Communication Studies at James Madison University (JMU). This class introduces the fundamental concepts of communication and group work. Areas of group presentation and group projects are addressed, as well as documentation of group interaction.

I also have been co-teaching a course in creative problem-solving for the College of Integrated Science and Engineering at James Madison University. This course is interdisciplinary and cross-listed as several different classes, and I am responsible for the group function and communication aspects of the class. I have been co-teaching that course for 8 years.

Additionally, I have been the advisor for the official JMU organization *JMU Destination Imagination* for the past 9 years. In this capacity, I help the students organize and fundraise, as well as act as a team manager when needed. Through these roles, I have become well acquainted with Destination Imagination's rules and regulations as well as their mission and goals for participants.

My familiarity with Destination Imagination's team objectives and my classroom experience of the use of communication theory (SCT) were useful in analyzing the questions of this study.

Purposive Sample

I chose university-level teams from Virginia. The teams were chosen due to the fact that they had varying membership time-frames, and were at different places of group development, which means they might use CPS differently and would provide

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opportunity to see if all groups, regardless of time spent together, would behave similarly in coming to group convergence. In this way I could look at their levels of function and cohesiveness.

Criteria for the teams chosen were:

1. Registered teams for Destination Imagination university-level competition

2. Students enrolled in at least one university-level course

3. Teams that were available for video recording that could be analyzed in Spring of 2014

4. Teams that planned to participate in regional, state, and global competition 2014

5. Teams that met on a weekly basis

6. Teams with members of any level of experience

7. Teams that have been able to successfully compete at Global Finals 2014.

Research participants in this study were selected because they were members of Destination Imagination teams that would participate by volunteering in a regional competition and performing an exhibition at state competition. Finally the participants competed at an event at the global level, and in that event they were fully judged in their problem-solving skills.

Advanced Communication in Multidisciplinary Teams
ISAT/ENGR 280 and SCOM 318

ISAT/ENGR 280/SCOM 318 was offered in the Spring semester of 2014, meeting every Thursday evening from 7:00 p.m. to 9:00 p.m. It is a cross-listed course intended to meet interdisciplinary goals. Teams were required to meet at class time minimally.

Meeting outside class time was recommended, and some teams did meet at times other than class. Recordings were made only during class.

As a graded component of the course, the teams were required to attend and participate in DI Regional Competition at Western Albemarle High School, in March 2014, and then to perform at DI State Competition, produced by Destination Imagination Virginia (DIVA) hosted at Spotswood High School in Rockingham County, VA, in April 2014. Regional competition participation was achieved by acting as volunteers for the younger level teams. This encouraged the university-level teams to gain new perspectives on their own challenges, as all levels in DI are given the same challenges to choose from. The performance at state competition was to give the teams opportunity to do the challenge under the conditions of competition, and be judged according to their performance, although they did not compete against any other university teams at that time.

Teams were also required to perform at global competition at the University of Tennessee (UT) in Knoxville, Tennessee, the third week of May 2014. This was true competition for the teams, as 14 other universities participated in Global Finals. Teams arrived in Tennessee in four university vans around midnight on Tuesday of that week, and were housed in UT dorms for the week. Since group dynamics are affected by all these variables, teams were kept together as much as possible during these times. More than 17,000 participants were attending the Global Finals event, and there were 1,412 teams included in all levels of participation there.

All James Madison University (JMU) teams were required to abide by the JMU DI schedule, to attend all JMU team performances, and to attend opening and closing

ceremonies, as well as any university-level events planned. For example, such Destination Imagination sponsors as National Geographic, 3M, IBM, and Caterpillar had executives who met with university-level teams to discuss how they could put their problem-solving skills to work in a company.

Teams were required to wear JMU DI t-shirts, and sit with their team members. In other words, they were expected to identify themselves as a team of their own as well as identify with the larger group of delegates from JMU. This was important for their group dynamic as well as for the team support they brought to the event with them.

Team Instructions

The first week of the course, each team was instructed to thoroughly read their challenge, and determine the best way to earn points at competition. Determining points is accomplished by considering what elements of the challenge are both easily attainable and should affect the time schedule. Each team was given a checklist for each member with dates showing a timeline for completion of projects, and competition. For example, the plot was due on a specific date, the set pieces were due on a specific date, dress-rehearsal was due by a specific date, and so forth. Competition was mandatory. Teams were subject to the budget restrictions as listed in the individual challenges.

The team manager was instructed to participate in team creative process only if he/she planned to go to Global Finals Competition as a team member. The team manager was given the responsibility of making sure team deliverables were met, and ensuring clear communication within the team about where, when, and how expectations would be met. This could include meeting minutes and team schedules.

Team Goals/ Problem

The course checklist provided timeline goals for teams. Each challenge included a skit that was to be performed with a set, and story lines that would meet specific aspects of the challenge. The story line/skit was due in class first, the written description of how the team would solve the challenge was due next, and the set had to be completed by a certain date. Two dress-rehearsal dates were set, the first to be performed in front of all the other teams in order to assess the accuracy and completeness of the challenge solution, and for feedback from all. The second dress rehearsal was required to ensure any issues were fixed before competition. This order of events was a product of club and class organization for team progress, and was necessarily the preference of the individual teams. The challenge description provided a set of particular goals, and the individual team's goal was to be successful at competition. Teams had been subject to multiple Instant Challenges in order to practice CPS within their own group.

Procedures

Participants were presented with the Destination Imagination Central Challenge (2013) of their choice, within the context of the class and club (see Appendix B for complete challenge information), and asked to proceed as usual in order to solve the challenge. More detailed information on these challenges is provided in the description of the organization.

Participants were asked to conduct their meetings per normal procedure, and meetings would be video recorded. Although students were informed that they were participating in a study, no specific aspects of the nature of the study were given to them

until the interview process, after their competition was complete. The teams were also asked to complete Instant Challenges while being video recorded.

Data Collection

Four sources of data collection were used to investigate the lived experiences of these participants during a CPS process. Video recordings, field notes, and artifacts were taken, and an interview was conducted for each team. Similar to Termed Methods triangulation, this approach to data collection allows relation of data from differing sources and facilitates the internal validity of qualitative research (Berg, 2007).

Video Recordings

A total of five video-recorded sessions were made of each team throughout the process, including planning phases, Instant Challenges, and some building sets and rehearsal meetings. These meetings took place from April 1, 2014, to May 25, 2014, and were conducted in the James Madison University Warehouse or classroom meeting place. There were 27 students participating, ages 18 through 23, and all were current students at James Madison University. A total of 5 hours for each team was observed. Field notes were taken during meetings to record any live observations by the researcher if present.

Video recordings were used instead of audio in order to capture as many communication interactions as possible. This provided more nuanced information including nonverbal and contextual information for the researcher. At any time during the recordings if clarification was needed and the researcher was present, notes were taken to clarify the context of a communication.

Artifacts

Team memos and paperwork were considered. Team norms were noted, as well as opening and closing procedures. The artifacts collected included meeting agendas, schedules, and goals, as well as check lists, due dates, and competition schedules.

Interview

Each team was video-taped in an interview after the last competition event was done. The interviews averaged 20 to 30 minutes, and each interview was also video recorded for coding. The purpose of the interview was to determine the awareness and perception of the participants of the processes studied.

In the interview, I concentrated on the inside story, or how the group members viewed their story. I asked what they attributed their outcomes to, and when or if awareness of convergence became obvious to them. This is an important aspect of the interview because I hoped to be able to confirm my observations and perceptions of their group communication behaviors with the answers they gave me in the interview. This gave me information about the internal awareness of group growth.

Students were informed that the interview would include questions about the CPS process and the group communication used, and would ask for descriptions of their personal experience. They were also assured that they had the right to refuse to answer any question that caused discomfort or end the interview at their discretion, and that participation or lack thereof would not have any impact on their course grade.

Data Analysis

I used observation surveys (see Appendix A) to divide the videos into 15-minute segments in order to examine the dialogue in detail. These surveys gave specific

examples of both CAVE and SCT as they happened, showing if they occurred simultaneously, or in a cyclical pattern, or in any pattern at all. I looked for evidence in the surveys that showed the groups converging. The use of video recording allowed me to observe the actual process instead of merely depending on the participant's perception of the process.

Observation Surveys

The observation surveys (Appendix A) were developed to use as overlays of time segments of the videos. With this coding system, each phrase unit was coded for the following;

1. Source: Indicates the person speaking, that is, consultant, consultee-co-group member, consultee-team manager, and purpose of the utterance (indicates the four behavioral categories of CAVE).

2. Fantasy Chaining: Indicates chaining is occurring, and gives indication if it is within a chain that turns into a Fantasy Type.

3. Fantasy Type (emerges from repeated Fantasy Chaining).

4. Analogues (emerging from repeated use of Fantasy Types).

5. Rhetorical Vision: Evidence that the group has morphed ideas into one collaborative solution to elements of the challenge.

In the initial stage of analysis, I read through the team meetings' field notes, and watched the videos of the meetings and interviews to find the scope and level of symbolic communication indicating the elements of SCT. Video data analysis began with careful observation of the videotaped Destination Imagination team meetings. Identifiable phrases were noted, using the observation surveys, and any correlating information that

occurred within the segment was also noted. Then using FTA, I extracted and analyzed the dramatic messages, which was done through noting stories or points of match-lighting or brainstorming moments, essentially when the team began to interact as they engaged the CPS process.

For example, if a participant began to chain an idea, the phrase was noted, as well as the other participant's use of the phrasing, showing the occurrence of chaining. Repeated use of phrase chaining was noted as Fantasy Themes. Fantasy Themes are seen in stories that are shared by more than one group member or idea originator, and then repeated themes were identified as Fantasy Types. Fantasy Types include recurring themes, abbreviated references to fantasies, inside jokes, and shorthand language. The emergence of analogues was then noted on the observation survey, with relationship to the original chained phrase.

Non-Fantasy Themes were noted as any interactions that did not chain out in the group or between the team members, and this was noted on the observation surveys with the time of occurrence and team member identification.

Then, continuing with my FTA, I looked to see if plot lines became apparent; these were the characters and scenes of the Fantasy Themes and Types that emerged in the team meeting transcripts. In each case, Fantasy Theme or Type was identified by team number as well as team member identifiers.

I looked for routine procedures of communication within the team that were related to CAVE. This may have included any rituals, opening and closing behaviors of the meetings, language, or coded behaviors that signal a stage of creative problem-solving.

CAVE is the acronym for the creative problem-solving process: (a) Combine—combining two different ideas for solutions, (b) Analogue—team dialogue that determines new meaning for team recognition, (c) Visualize—the team dialogue and behavior addressing what the idea has morphed into, and how that would work in stories, and (d) Elaborate—team dialogue when the whole group embraces the idea and puts the finishing details on the rhetorical vision of the solution in order to make the best fit to the specific problem at hand. The four elements of CAVE do not need to occur in order, but are related to each other, and the relationship is also shown in the instrument. This is addressed in an overlay of occurrence concurrent with Fantasy Chaining, Theming, Typing, and Analogues.

I plotted the Fantasy Themes and rituals that I found during CAVE activity, and tracked them for each team in each meeting where the elements of SCT had been observed. I also looked for any emotions, motives, and values represented in the Fantasy Themes and Types. In this way I hoped to be able to describe the relationship of the communication and the creative problem-solving process, as well as to identify the communication in progress when the groups began to use their individual ideas to converge as a group.

I isolated routinized procedures or rituals that characterized the way each team enacted the events through CAVE. Lastly, I examined emotions, motives, and values represented in the Fantasy Themes and Types. This second-order data provided evidence of symbolic convergence, with divergent interpretations of how CAVE was both being used and affecting the creative problem-solving process. The similarities and differences in symbolic convergence within team use of CAVE were then examined.

Trustworthiness

Credibility, dependability, and confirmability (Krefting, 1991) were given careful consideration in this study in order to ensure trustworthiness, which is vital to research validity. According to Krefting, credibility in the research process is an aspect of internal validity that attends to the truthfulness of the research, both in terms of the subjects and also the environment.

Consistency or reliability measures the "dependability" of the study, and the objectivity or neutrality of the researcher provides "confirmability" (Krefting, 1991).

These aspects of internal validity were addressed in the following ways:

As primary researcher, I did not serve as instructor-of-record for the teams used in the study, therefore the teams were not subject to consequence of my opinions. I also was very careful to not interrupt the dynamics of the teams. To decrease inference, verbatim quotes will be used to facilitate transparency and descriptive validity in theme recognition (Johnson, 1997).

Finally, this study was completed under the auspices of a rigorous peer examination process in which methodology and validity were carefully assessed.

Generalizability

According to Eisner (1991), generalization is transferring knowledge from one situation to another. In other words, learning is generalizing. We can generalize to life experiences from life experiences. Because humans have the ability to learn from others' stories and history, we can see how generalizable learning situations are. When using case studies, the description of the case itself may not be exactly like any other case;

however, application of the lessons derived from that case may be applicable in multiple situations.

Eisner (1991) points out that the ideas come in the form of skills and images. Skills can generalize as they are applied, and in these cases, they are specifically noted. But skills are forms of thinking. They show patterns of thought. Images, on the other hand, can be explicit examples of a phenomenon. They are "transactional" and give us "empirical qualities" to learn from (Eisner, 1991).

The qualitative paradigm gives us a process by which to understand social interaction from the viewpoint of those involved in transaction. This can be accomplished through their own detailed descriptions of their cognitive and symbolic actions, as well as through the researcher's ability to systematically find meaning through observable behavior (Wildemuth, 1993). In this paradigm, research *must* include the social context of any data (Munhall, 1989). Because qualitative research asserts that people assign meaning to the objective world, and that people's valued experiences are sources of historical and social context, this means that multiple realities can exist (Tesch, 1990). Basically each person experiences reality independently, and can give a dimension of context to a phenomenon.

Transferability, then, relates to the external validity or applicability of the study (Krefting, 1991). Since learning is generalizable, then the observations made in this study can be transferred as examples of ideas put to use. We can see this through skills and imagery of the teams' experiences (Eisner, 1991). As such, any group with goals can generalize the findings of this study to their own situation and experience.

Ethics

Identities of participants were hidden to ensure anonymity from the start of the study, and remain hidden through the dissemination of the results. Any data obtained from participants were available only to the researcher and the academic supervisor. All data were stored on the researcher's personal computer hard drive.

Participants were allowed to refuse to participate or withdraw from the study at any time, without consequences, including impact on the grade for the course taken. If a participant in part two of the study does not want any of his/her student work used in the data set, then it is to be removed by the researcher.

There is no anticipated harm to the participants.

Summary

In this chapter I discussed the research design. I gave reasons why I am qualified to be the instrument of research, and how the sample was purposive. I detailed the course that was used to recruit the subjects, and how the course demands would influence what the subject's activity was. Then I explained the procedures of data collection, and talked about the data collection itself. I explained how the data were analyzed, and how the instruments used were designed in order to obtain the data. I addressed how trustworthy these methods were and how generalizable the results would be. And lastly I touched on the ethical aspects of the study.

CHAPTER 4

CASE ONE: STRUCTURE CHALLENGE

Introduction

In this chapter I will describe Case One, the Structure Challenge. Case Two (Scientific Team) and Case Three (Fine Arts Team) will be structured similarly, and will be covered in subsequent chapters. I will detail the challenge and break down each of the goals as specified by DI. I will introduce the team demographics and individual differences. Team processes like skit development and set build will be discussed and the team's self-perception described. I will also include field notes gathered on site while the recordings were taken.

Then I will report and relate artifacts and the evidence of the components of SCT and the elements of CAVE as seen in the video recordings, documented in field notes, and observed in interviews.

Structure Challenge: The Tension Builds

The 2014 Structure Challenge was called "The Tension Builds," and as in every structure challenge, one of the central objectives was to build a structure. This challenge called for the structure to be constructed from wood, glue, and/or monofilament fishing line. There were specifications as to how the structure had to be tested, with only the structure base touching a pyramid base (pyramid base provided by DI), and the structure had to be made as one piece as opposed to several pieces free-standing.

The structure was to be tested by two different forces, and had to be tested on the DI pyramid-testing base. Standard testing mechanisms were used consisting of a wooden apparatus, with a column at each corner, a center pole, which had to go through the structure, and a board designed to rest on top of the structure, also with the pole through it, so that weights would be placed on the board until the structure broke. The goal was for the structure to hold as much weight as possible. The score for the structure element of the challenge was determined by the ratio of weight held divided by weight of the structure.

In addition to the structure, the team also had to create a skit in which the story line would address "tension as a threat to stability, and the tension is overcome in some way." This tension could be "dramatic, muscular, mechanical, artistic, emotional, etc." (DI Challenge Information, Appendix B) The story could be completely imaginary, or real, and the testing of the structure had to be incorporated into the story.

Another requirement of the challenge was that a prop had to be assembled on the stage, and all materials had to be transported to the stage in a 25" x 25" x 37" container. Points were available for the team's meeting the specifications. The team had 8 minutes to set up the props, as well as deliver the skit, and put the weights on the structure.

Team choice elements were available as well. These are two graded elements the team can choose on their own, in which the team can creatively show off their individual "interests, skills, strengths and talents" (DI Challenge Information, Appendix B). This means the team could use a talent like whistling or whatever as a graded element if they used whistling creatively in the skit, related it to the challenge, and included it in their paperwork as a team choice element.

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The Team

This team was comprised of students from the "Advanced Communication and Creative Problem-Solving in Multi-Disciplinary Groups" JMU class. As part of the class structure, teams were specifically using the 2014 DI Challenges. This team chose the Structure Challenge.

Team Members

There were seven members on this team. They were a mix of members who had done DI challenges before, and even competed at Global Finals before, as well as members who were new to the DI program. This team was all males: one 21-year-old, two 20-year-olds, and four 19-year-olds. The team manager was 20 years old. The academic major areas of discipline represented were: Engineering, Integrated Science and Technology, Justice Studies, Business Management, and Biology. The team manager was female, whose major was Communication Studies. The members are identified as STM1, STM2, STM3, STM4, STM5, STM6, STM7, and the team manager, STTM.

This team manager was not involved in any of the creative process. She handled the paperwork, made sure all checklists were turned in on time, notified members of due dates and deliverables, and took care of the DI paperwork as well. DI paperwork included the team's signed "Declaration of Independence," which is the signed evidence that no one helped the team with their creative process, and also included the DI-mandated budget, which the team had to stay within.

Team Story

Team members were not friends before joining class, but became friends through the team membership and even hung out together outside the team meetings. They

socialized in contexts other than their creative problem-solving group. Within the group, they did not assign roles, but had definite task roles. The member with the most experience in DI was the unofficial leader of the team. However no one team member had more power than another on the team. The group met once per week, and then on an "as needed" basis when the competition dates were close. If there was dysfunction within the group, none of them were aware of it.

There was no formal structure to the meetings. Their group function was casual. They just agreed on the time, showed up, and went to work on the tasks. The team manager had no power within the group, and was not usually present at the meetings. The members self-assigned tasks, and all were committed to finishing them well and on time.

In the social structure of the group there was respect between the team members, there was not a lot of conflict, and while agreement came, it was not groupthink because there was critical evaluation of ideas before they were accepted or put into the solution. Also, the solution evolved as the members built their ideas on each other's input. This group was aware that they needed to build on others' divergent ideas (Chain) in order to come to the best idea (Theme) and find something they could all agree on (Convergence, or group vision). Their conversation regularly turned to girls and either flirting or dating.

Self-Descriptions

The team referred to themselves as the "Seven Dudes." They thought of themselves as one unified group. They felt they shared the same value of work; for example, no one procrastinated or was termed a slacker. Because of that, they felt they shared the same value of work, and they felt their work "flowed." They attributed these characteristics to their ability to be spontaneous and to joke around with each other.

The team spent whatever time was needed in meetings to accomplish the task due for that time period. The way that they knew the meetings were "done" is that the goals they set for the meeting were accomplished. They recognized chaining and divergent ideas when these concepts were introduced to them in the interview, and they said they blended the two.

The team also readily admitted to code words and nicknames. They shared their meanings, which aided in identifying the Fantasy Chains and Themes. In the interview, the team collectively agreed they were not specifically aware of their communication processes. That is to say, they used group creative problem-solving communication without ever being aware of using it.

Field Notes

This group's conversation style was chatty as they planned the solution for their challenge. Casual conversation about things other than goals (classes, exams, girls) was interwoven with conversation about the challenge and solution. They worked efficiently in their self-designated roles and self-imposed rules such as: no one leaves until tonight's project is done. Their norms were to gather together at first and discuss and then split up into pairs to work. When brainstorming, ideas came quickly and were shared; then they built off those ideas in order to find an agreement.

The Tasks

Each of the DI challenges presents multiple aspects to be judged at competition. This challenge required the team members to build a set, and also build a structure that would hold as much weight as possible under the conditions listed in the challenge, and also write a skit and perform it while the structure was being tested.

Set Build

The rules of the challenge dictated that the set be carried out to the stage in a container of specific size. The team did not realize this until just before the State competition. This resulted in a poorly constructed container for State performance, and then re-constructing the container in the few days before Global competition. The set was planned early, and pieces were self-assigned. STM5 designated himself as the "painter" since, as he expressed, he was better at that than at writing the skit or building the structure. While the entire team was involved in the set planning, two of the members did most of the actual set build.

Structure Build

The challenge stipulated specific parameters and weight for the structure. At the university-level competition, the structure had to weigh in at 20 grams or less. The height of the structure had to be at least 7 1/2 inches when on a pyramid base (pyramid base provided by DI) and no taller than 9 inches. Three team members took special interest in the structure build.

Skit Development

The team agreed in the interview that the skit began development in the first meeting. After that, each time they sat down to work on the skit, they would ask the question, "Do you have any ideas." They would then build on the new ideas, and did not stray far from the original skit basic story. They used a white board to write the ideas, and the team said that no one's ideas got "shot down." They considered all input. They also

took notes of their brainstorming sessions, and used them whenever they were writing the skit.

The team regularly referred back to the pyramid theme, since the challenge required a pyramid structure base; they immediately went to a "pyramids and Egypt" idea. Even though there were no girls on the team, they decided the skit needed a princess, and the princess needed admirers who would win her heart by bringing presents. The princess and admirers' theme can be seen throughout this group's chaining (as seen in Table 5) and was a variation of their regular interaction, which was pre-occupied with girls, how to meet girls, how to hook up with girls and so on.

The ideas for props came out of the team members' skit planning, and also out of what the team thought was needed to portray the basic story.

Applied Theory

When observing the videos of the team meetings, I was looking for examples that showed the relationship between group communication, and the group skills that contribute to the communication in group creative problem-solving behavior. After finding these, I was looking for the ways that creative problem-solving fits within the dramatistic story telling that SCT highlights.

SCT Observed

In watching the videos of the group meetings, FTA was applied and noted per the observation surveys. Once Fantasy Chaining was noted, the Fantasy Themes emerged and were sorted into Fantasy Types. The Fantasy Types were analyzed for any story lines and characters that were represented. From these findings Master Analogues were identified. These Analogues give us a picture of the group vision and illustrate whether the group

has come to convergence or has not been able to achieve convergence. This is seen in how successfully the group reaches its goals.

Fantasy Chains

In the examples here, the team was brainstorming their skit. They were attempting to come up with a story that would meet the challenge requirements, and still be their own. Their Chains sometimes run together, because the team works together effectively, as can be seen in Table 5.

Table 5

Structure Team Fantasy Chaining Example A

1. Who will our suitors be? →	They should be super-admirers →	a bunch for one princess	↩
like Chuck Norris →	Bat Man →	Darth Vader	↩
I need a ginger wig and a ginger beard!	We need costumes	Prince Ali!	
Aladdin →	The princess can be Cleopatra		
2. Agraba. What's Agraba? →	That's the city Aladdin is from →	Aaaagrabaaa!	↩
I did not know that →	I loved that song →	Prince Ali, mighty is he, Ali Ababua—Agraba? That's not even a word	↩
It's supposed to be funny →	"Oh, where's the princess??" →	He should be Aladdin on steroids	

There are two Fantasy Chains represented in this table. They flow together, one right after another, but changed the language. This example shows how the theme was developing about the "ideal guy." In Fantasy Chain one, they were brainstorming about super heroes for a story line; by Fantasy Chain two, they had a preference for a story line, and were zeroing in on the specific characteristics of that story line. They ended Fantasy

Chain two with a definite idea of how the ideal guy should appear to the audience. "He should be Aladdin on steroids!" In other words, a nice guy, trying to get a girl, but they wanted him to also appear very masculine.

The next Fantasy Chain example (Figure 3) displays the team's ideas about the depth of this character. It also reveals their ideas about courting a girl and the way to a girl's heart by exposing emotions.
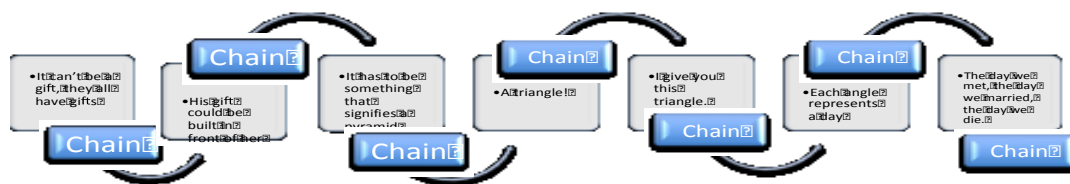
Figure 3. Structure team fantasy chaining model.

This chain makes the guy special. "They all have gifts," is an observation that shows competitive structure to their planning. They want the character that the princess picks to give the most special gift. This is one of the examples that illuminates the development of the behavior leading to the "courting theme," or the competitive aspect of courting. This Fantasy Chain contains the team's ideal romantic gesture. "The day we met, the day we married, and the day we die." And then, they continue on to practical ideas (building a tiara, or a house) before moving on to fantasy and magic (a magic carpet). The entire Fantasy Chain looks like Table 6. This Fantasy Chain is the dialogue in which the observer can see how the team views ideals or values. They consistently refer to their DI challenge parameters (prop assembled on stage, it needs to reflect a

pyramid) but they build the skit based on their own views of what men need to *do* to be

chosen by the girl.

Table 6

Structure Team Fantasy Chaining Example B

STM1		STM3		STM4	
We have to build a prop that is assembled on stage	⇨	Like a sword?	⇨		
Like a jack in the box?	⇨	Couldn't he give her something?	⇨	He could give her something he made, cause the gift signifies selfless love	↩
It can't be a gift because they all have gifts	⇨	His gift could be a bunch of crap and he builds it in front of her?	⇨		
It has to be something that signifies a pyramid	⇨	A Triangle	⇨	I give you this triangle (laughs)	↩
Each angle represents a day	⇨	The day we met, the day we marry, the day we die.		Or build her a tiara	↩
He should build her something over the top, like a house	⇨		⇨	Like a magic carpet	

This example shows the team is grounded in the DI challenge by brainstorming

within the limits of the challenge, but they brought their own story to it. Cragan and

Shields (1995) give SCT credit for the ability explain symbolic phenomena by

"indicating how people become caught up in a group consciousness that provides shared

meaning, emotion and motive for action" (p. 30). Here, the team shares a fantasy that is

imbued with their individual ideas of how to effectively court a girl (motive for action)

and they find agreement in refining those ideas into one basic idea that becomes the

theme for their skit. But it is based on the individual values each of them added to the dialogue through Fantasy Chains.

The team also developed words they could use with other group members, whose meanings would be held only within the group member circle. These words, or symbolic cues, also revealed the Fantasy Themes that were held by this team, seen in Table 7.

Table 7

Structure Team Code Words Identified

Symbolic Cue		Explained by group		Researcher
Code Word		Meaning		Observed
Type O	➡	Regular Girl	➡	Used in skit construction
Square, 4Square	➡	Built right/ She's built right	➡	Used to describe structure for challenge And in social use
Sandwiches	➡	Putting the moves on a girl "He's makin' sandwiches"	➡	Used in describing characters for skit And in social use
Beans	➡	Attraction count of a girl "She's got like 120 beans."	➡	Used in describing the princess character And in social use
Scroll	➡	Team manager nick-name "She roll like a scroll" (she's attractive)	➡	Used in team dialogue and about team business

Fantasy Themes

The themes that emerged from the Fantasy Chains and symbolic cues were about courting. This included discussion about the behavior that would make each individual a contender for the girl's heart, but was focused on behavior and not the result of the behavior. The themes that emerged from group chat, non-goal talk, when the team was just fraternizing, were still about ways to court a girl.

So the chaining about the skit all ended up about how to get the girl. There was a shift in the chaining when it became about actually winning the quest. The Fantasy Chains then were focused on the girl's reaction to the suitor behavior.

Their code words, as explained by the team, took the place of words that would give the team's social goals away if not secret. Beans, sandwiches, and square all had connotation to getting the girl. Even the name they used for the team manager, who was a girl, had a sexual connotation. The Symbolic Cues are illustrated in Table 8.

Table 8

Structure Team Symbolic Cues Example

Fantasy Theme	Examples from Symbolic Cues and Fantasy Chains
Courting	Code word, "Now, THAT's makin' sandwiches"
Get the Girl	Inside joke "Shes got beans, like 120 beans."
Ideal Guy	Chaining about the way a true gentleman behaves "He could give her something he made, cause the gift signifies selfless love."

Fantasy Types

The team chose characters for their skit whose personas were already in the "super" category as seen in Figure 4. Super-Suitors, the kind of suitors that are heroes, are powerful physically and able to fight for their cause. The team refers to them as characters who may not be fighting for good, but seem to get what they want. When looking for a reason for the characters to interact with the main character in their skit, the team came up with gifts. The kinds of gifts discussed became types of suitors who would give those gifts, because they assigned meaning to the gifts as they chose them or rejected

them as ideas. Thus the gifts represented values the team thought suitors should have. The theme of gifting included the idea that each of them had to have meaning. The team members had very specific ideas about the gifts and all through the brainstorming wanted the gifts to mean something more than just a material object.

When developing characters, the team members also wanted to keep the characters who were traditional, courteous, and who would work in traditional ways to win a girl's attention. Gallant or ideal acts were assigned to the characters in order to make them all seem attractive, and characters who could not appear ideal were done away with. All of these ideas culminated into the Aladdin type.

These Fantasy Types showed up in their non-goal dialogue as well. As seen in this all-male team's code language, hooking up with girls was a constant subject, whether writing the skit or working on the set, or just chatting.

Master Analogues

The first Master Analogue identified for this team is the Pragmatic Master Analogue (Figure 4). The team usually used dialogue that focused on their goal for the challenge. The importance of following the rules is apparent in their Fantasy Themes, as seen in the careful planning of how the super admirer should appear and act. The team had a time frame included in their themes, which can be seen in their chaining about how much behavior is needed, and the point at which the skit should conclude. This Pragmatic Master Analogue included the team's rhetorical vision of reaching the challenge goal by using their personal interpretations of how to win a girl. The Social Master Analogue was identified second as a competing analogue. Once they were established as a team and the goals were set, the team members all interacted with each other on a social basis. They

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met outside of required meetings for social purposes. This rhetorical vision also reflected their value of the importance of social bonds, social protocol, and social benefits.
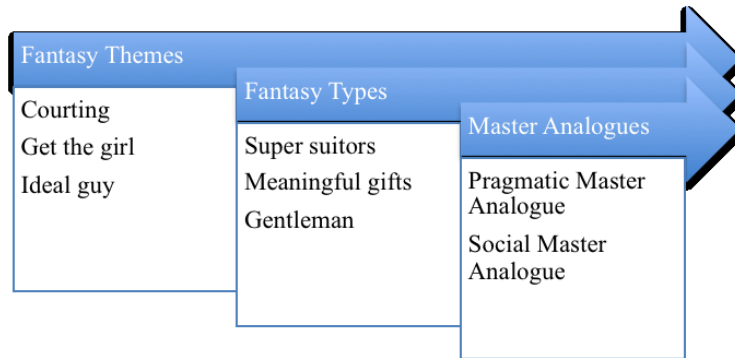
Figure 4. Fantasy Themes, Fantasy Types, and Master Analogue.

CAVE Observed

The team used brainstorming as a regular activity in order to plan the solution to the DI challenge. This consisted of throwing out ideas to the group that would fit the challenge, and attempts to find an original story line for the skit. Also included were the ideas for the structure design. They continued with creative language even outside of planning thought, and the entire team was not always aware they were engaging in the creative problem-solving process. CAVE can be seen in the conversation during group meetings and was noted outside the meetings as well. An example of how the team used CAVE can be seen in Figure 5.

Combining
Super Heroes-
Admirers

Analogue
Aladdin:
Super Admirer

Visualizing:
He should be
Aladdin on steroids

Elaborating:
I need a ginger
beard and a ginger
wig
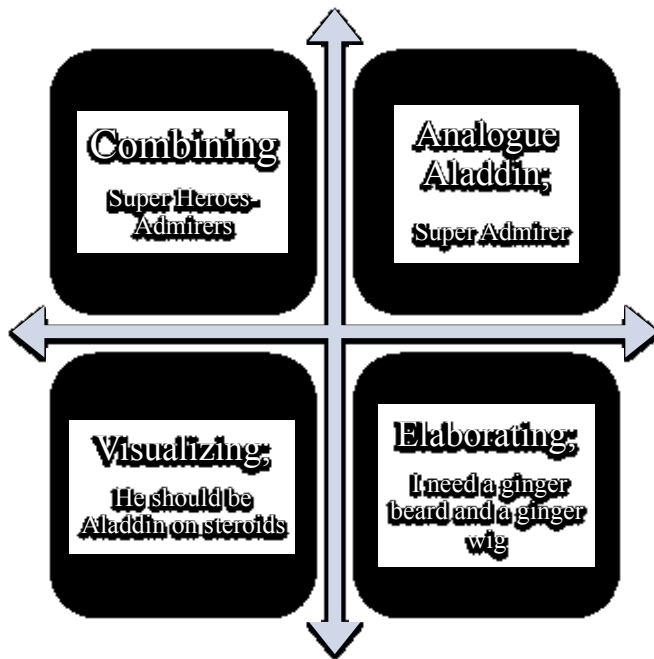
Figure 5. Structure team CAVE example model.

Combine

In the combine phase, the team used the two different concepts of admirer and super-hero. They combine these two to create their "super-admirers," which becomes an analogue for the characters in their skit. The team was specific in their description of what a "super-admirer" was, and used many examples of how one would behave, the intent behind the behavior, and how that could be shown. Their created concept of "Aladdin, the super-admirer" had depth and values, and was a carefully thought-out aspect of the CAVE process.

Analogue

The model in Figure 5 illustrates how CAVE occurred for this team in a non-linear fashion, and still exhibits the creative problem-solving process when it is occurring.

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The team used combining concepts to come up with SuperHero-Admirers. After that, the characters were refered to as "Super Admirers," and then was settled on a character based on Aladdin. Landing on this character was also how the team began to fuse symbolic language and creative process. Aladdin was the Fantasy Type for the team, and in the creative process was the Analogue for their super-admirer. The team then elaborated on how the character would dress and appear, as well as visualizing details about how a Super Admirer would be perceived by others.

Elaborate

In order to come to that concept, the team elaborated what a "super-admirer" would look like. They used the elaboration phase of CAVE to do that.

Visualize

The team also used the visualization phase of CAVE in the form of Fantasy Chaining, as they detailed the characteristics of the skit. By visualizing the mandatory element of the pyramid in the skit, the team began to highlight their own values, as they brainstorm what a pyramid could be represented by and what that would mean to their princess.

FTA was used to find the incidence of CAVE occurrence in the transcripts. For example, the story lines that were identified by FTA also were components of CAVE, as seen in Tables 9 and 10.

These excerpts from evidence of story lines show that CAVE and the symbolic language described by SCT were interactive and occurring simultaneously in the creative problem-solving process. Because they were not taken from one meeting, but are from

various points in the team's process, it also shows that group problem-solving

communication is not linear, and does not occur in a predictable linear way, but the

dialogue revisits the favorite themes to tie up loose ends. In other words, since the story

lines come from several different meeting occasions, they mark asymmetrical dialogue.

Table 9

Structure Team Fantasy Chain Exhibiting CAVE Elaboration

I need a ginger wig and beard	→	I have a batman mask at home	↩
I could wear a cape	→	Dude, you need a voice moderator	↩
No, just a breathing thing			

Table 10

Structure Team Fantasy Chain Exhibiting CAVE Visualization

It has to be something that signifies a pyramid	→	A Triangle	→	I give you this triangle (laughs)	↩
Each angle represents a day	→	The day we met, the day we marry, the day we die.			

Cragan and Shields (1996) say that groups of people who share a Fantasy Theme

have "charged their emotional and memory banks with meanings and emotions that can

be set off by a commonly agreed upon cryptic symbolic cue" (p. 6). Symbolic language

and CAVE are inter-twined here with FTA serving to highlight the CAVE occurrence,

and CAVE occurrence highlighting the story lines that will be used in FTA to find group

convergence.

Analysis of Instant Challenge

During the Instant Challenge there is also evidence of CAVE. The Instant

Challenge instructions were to build a structure from the materials (three varying sized

PVC pipes, two straws, two chenille sticks, a balloon, a rubber band, two address labels

and a plate). The structure was required to pass through the PVC pipe and touch the table

on either end of the pipe, but could not touch the pipe. The team had 2 minutes to plan,

and 2 minutes to build.

All team members engaged immediately when time was called. STM1 seemed to

lead the discussion, while STM3 and STM4 also initiated ideas. When the planning time

was done, STM2, STM5, STM6 and STM7 joined in and all added to the ideas and

actively built the materials towards the goal. Their conversation exhibits both CAVE and

symbolic communication. The conversation examples are seen in Table 11.

The Fantasy Chaining here exists in the planning aspect of team dialogue.

Because it is a reference to the future, or things that have not yet occurred, the plans exist

in hypothesis, or fantasy. As the team continues to use CAVE, the discussion built on

hypothetical dialogue takes meaning and transforms ideas while sparking new ideas.

Since CAVE relies on collaboration of the group in order to generate ideas and to find the

solution, the team must interact quickly here due to the time constraint, shown in Table

12. As Sawyer (2008) puts it:

> When we collaborate, creativity unfolds across people; the sparks fly faster, and
> the whole is greater than the sum of its parts. Collaboration drives creativity
> because innovation always emerges from a series of sparks— never a single
> flash of insight. (Kindle Locations 214-216)

Table 11

Structure Team SCT Story Lines Related to CAVE

Story line identifying phrase	CAVE relevance
"Are we still super admirers?"	Relating to the prowess of the admirers – Combining
"So I will always be Batman—one of the super admirers?…"	Relating to the Super Admirers - Analogue
"They should bring gifts…"	Relating to what constitutes a super admirer- Elaborating
"He should be Aladdin on steroids…"	Relating to the prowess of super admirers – Visualizing

Through the entire Instant Challenge, the team used their brainstorming skills through Fantasy Chaining, and at the same time was exhibiting all the aspects of CAVE. This exhibits CAVE's aspects used in a non-linear fashion, as it occurs throughout the brainstorming timeframe as well as SCT's interaction with the brainstorming process. The team was successful at building one structure and got the most points of all the participating teams.

Team Communication Skills for Problem-Solving

The team members' skills are related to their group creative problem-solving communication because communication skills appear when the team uses that kind of communication. In this case, when the team was Fantasy Chaining, I saw CAVE, which gave me evidence that creative process was occurring. When creative process was occurring, skills were employed in order to make the process work. For example, if we look at the CAVE example in Figure 5, combining can be overlaid with messages,

Table 12

Structure Team FTA and CAVE Simultaneous Occurrence

FTA	CAVE	Identifying Element
Fantasy Chains about possible solutions (communication used to plan)		
Put the straws on the pipe cleaners, use the ends	combining	Straw and pipe cleaner becomes the "thing"
Use the pencil to hold down the "thing"	analoguing	Using the "thing" as one concept
Ok, use the paper plate and put the rubber bands around it for the base	combining	Using two different materials to create one element of the challenge, the "base"
We could put it in there, like this, through the long pipe	visualizing	Description of placement of the "thing"
The "thing" can't touch the tube	analoguing	"Thing" word now used for the straws and pipe cleaner
I think we should just go straight	visualizing	Description of placement of the "thing"
Yah, no way it's gonna touch if we go straight	elaborating	Detailing the placement of the "thing"
We can use 2 tubes now	visualizing	Expanding the challenge solution
Disconnect it in the middle, it can't touch	elaborating	Detailing the challenge solution

feedback, and participation, and in visualizing and elaborating you can overlay the skills of participating equally, as well as clear accepted roles (seen in their elaboration for the skit characters). In what could be described as a symbiotic relationship, the skills like motivation (team members committed to the task), role emergence (team members self-assigning tasks), and messaging and participation (team members' consistent messaging and participation) all worked together to create synergy. Feedback and equality were by-products of the team members' engagement in the other skills.

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Team Outcome

This team was ready on time for DI Global Finals Competition. Their set needed little touch up, their skit was complete, they came to Global Finals with three structures for their challenge, in other words, they were well prepared. In their competition, their skit went smoothly, they knew their lines, and had practiced bringing the entire set out in a box. They had rebuilt the box and it was sturdy. Their structure held 480 pounds, and the ratio was 30. This was the tipping point value for them, and the team won first place in their challenge category.

They also won first place in Instant Challenge at Global Finals, which indicates that their ability to work well together extended beyond just the DI Central Challenge.

The team exhibited synergy and cohesion through the group skills that were used in these ways:

1. All the team members participated equally and willfully, as seen in their meeting inside and outside of class, as well as their work done in the meetings.

2. The team messages were complete, they relied on group creative problem-solving communication in order to meet their challenge, and they were consciously creating messages that would add to discourse about the solution to the problem, which was shared among all group members. They did not engage in messages that would interrupt or negate the flow of creative process.

3. They gave each other consistent feedback; this made each group member vital to the communication, as each idea or opinion was considered in the solution.

4. They used clear and accepted roles, which were self-assigned and held value to each group member. Their conversation indicated each of them felt important because each had a job and was needed on the team.

5. They were very motivated to meet the goal of winning first place; this was often the context in which the brainstorming took place.

Summary

This team was composed of students in a similar age range, all male with a female team manager. They were not friends before the team formed, but became friends while working on the challenge as a team, and spent time together even when not working on the challenge. They were not aware of conflict because their conflict resolution method was to talk things through before it became an issue. The unofficial team leader was the one member who had DI experience, the other team members deferred to his judgment on any challenge issues.

When FTA was applied to the videos of team meetings, it revealed that this team used Fantasy Chaining to brainstorm and to connect with other members of the team. The Fantasy Chains revealed Fantasy Themes of courting, ways to impress or get the girl, and what the ideal guy would be. From this the Fantasy Type "Aladdin, the super-admirer" emerged. This fantasy typified the team's Pragmatic Master Analogue as well as their Social Master Analogue. Aladdin is seen as the guy who knows how to get it done, and gets the girl to fly away on his magic carpet. So Aladdin wins the competition. This parallels the team's desires to be the guys who can get the challenge done and win the prize as well.

Through the plentiful Fantasy Chaining episodes, symbolic language worked to describe the communication through FTA, and those descriptions provided the means to identify first the Fantasy Themes (Get the Girl, Ideal Guy) and then brought the Fantasy Types (Super Admirer/ Aladdin) to the surface. FTA gave a clear picture of the team

story, and described how the use of group creative problem-solving communication created an atmosphere where the skill sets could be used effectively to come to convergence or synergy.

CAVE was found through looking at Fantasy Chains, and clearly highlights the brainstorming or creative process occurring in the Fantasy Chaining. CAVE interacts with the symbolic structure of SCT because "Analogue" in CAVE is the same element as the Fantasy Type in SCT, which indicates the two methods were connected and need to be used together when looking for group creative problem-solving communication.

Because CAVE is found this way, it affects the problem-solving behavior by telling us creative process is happening. It serves as an alert, or a flag, and gives the team opportunity to take advantage of the fantasy aspect that encourages creativity.

The team outcome was successful group creative problem-solving as seen by their victory in the DI official challenge at Global Competition. It is important to note that the challenges are written to highlight the creative problem-solving process as represented in literature.

CHAPTER 5

CASE TWO: SCIENTIFIC CHALLENGE

Introduction

This chapter will detail the DI challenge, and describe team goals and objectives. Team composition will be noted, and team norms and rules will be discussed. In order to give a clear picture of team interaction, the team's approach to the set build, the skit development, and this team's own self-descriptions will be included. Then, I will add field notes in order to give my view on the group dynamic, before I discuss how the theory was applied, as well as how the theory relates to CAVE.

Scientific Challenge: Going to Extremes

This challenge was entitled "Going to Extremes." There were four areas that had to be addressed: extreme gear, technical methods, technical design, and technical innovation. The team had to research an extreme environment, and find ways to adapt to living there. The story line for the skit had to include characters who had to adapt to the extreme environment and show how they did this. There were points available for the creativity of how the team incorporated their research into the story. Adaptations could be real or made up. The characters also needed to use extreme gear in order to survive. The extreme gear could not be the team members themselves and had to be used in a technological way. Points were available for creativity and technology of extreme gear and how it was used.

Team choice elements were available for this challenge. The team could choose two talents or skills on which they wished to be judged and graded.

The Team

The team members were all enrolled in the JMU course "Advanced Communication and Creative Problem-Solving in Multi-Disciplinary Teams." In accordance with course requirements, the team chose a 2014 DI Challenge designed to be judged at competition. This team chose the Scientific Challenge.

Team Members

This team was comprised of seven members. One of the team members had DI experience in high school, and including that member, four of the team members had previous experience with DI at the university level. Three of these had consistently been on teams together, and had won Global competition in their category before. There were three males and four female members. The ages were 18 to 22. Their majors were IDLS (Education), Music Performance, English, Physics, Engineering, and two Media Arts and Design.

The team manager was a male, 21 years old, and a Communication Studies Major. He was not involved in the creative process of the team; he handled the schedule and all the paperwork. He kept a notebook with all the checklists for each team member. He also reviewed the requirements for the challenge and made sure the team was meeting them. He encouraged his team to take strengths tests at the beginning of the term and helped them choose roles according to the results. He was organized and on time with all of the team deliverables.

Team Story

This team had members with a history, and had to incorporate members new to DI as well as new to their team. The members chose the challenge according to their own interests, not because of team membership. This seemed to fracture the group a bit, as the old members had a history to build on, and some members were not familiar with the jokes they used, or the flow they used in the creative process. One of the newer members was very aggressive in her desire to use her own ideas. One of the more experienced members got "stuck" on a particular character in the creative process, and to the distress of others in the group would not let go of her concept.

Everyone on this team enjoyed the creative process. They seemed to identify with anything "weird" or akin to "Dr. Who." They felt that one team member, a new one and new to DI, was the originator of most of their creative story lines.

The team acknowledged the team manager as their leader. This team manager was also new to DI, but his organizational skills were cited as being of great help to the team. He managed the schedule and the projects, checked on them, and emailed with deadlines and timeframes. The team said he did not micro-manage, but guided them.

The structure of their meetings was not planned. They discussed jobs, then "divided and conquered." They did have an agenda each week. The team manager and skit writers set the agenda. The entire team worked on the set often.

Some on this team met regularly, 4 or 5 hours a day for the last few weeks. They described knowing they were done with a particular project when the set was done, as the skit was written first, and the set was planned by what the skit called for in any scene.

The team reported that they read the challenge over and over, and that repeated exposure to the problems seemed to help the creativity. While the challenge dictated the parameters of the story, they would use a white board and write their ideas down to build on.

One example of their creative process, which they gave in the interview, was the team name. They called themselves "Orcas for Hire." They said they settled on that name because everyone liked how "weird" that was.

The team said that the work on the challenge, outside of class, was bonding for them. They would chat and joke with each other while waiting on set pieces to dry. They felt their communication styles were similar, and they liked how much they all were loyal to their own ideas. For example, one member was determined to include a "space shark" in the story line. Even with the limits of time, and the mandatory elements of the challenge made this difficult, she steadfastly insisted that "Alfred the Space Shark" be included. At some points this did become a contention, as she worked almost exclusively on the life-size shark, but in the end only the head was used. The team saw this compromise as their ability to work together, with individual ideas in spite of differences.

Self-Descriptions

This team said they loved anything that made them different. They said they liked to speak in foreign accents for no reason. They would reference many shows or pop culture often. For example, they sang the songs from Disney's *Frozen* together frequently; they quoted movie lines, and used "geeky" show characters or sayings to spark a brainstorming session.

In the interview the team revealed some code words and inside jokes that they recognized as being unique to their group. The nicknames that developed were based on a previous nickname of an individual who had been on the team with other members before. He continued to be called "Other Johnny" even though there was no other Johnny, but there were two "Allen's" on the team, and so the team began to call one of them "Other Allen" as well. They referred to things other than just their set piece (which contained blue balls) as "blue balls." This would indicate something was getting complicated.

Aside from one team member's private venting about a lack of communication, the team felt, in the interview, that they had great communication technique, and that they brainstormed well together. They felt they were skilled at the process of critically evaluating ideas after they had fleshed them out, and skilled in their ability to adapt those ideas to the challenge.

The team also felt that they worked best under pressure, so deadlines worked well for them. This team collectively agreed, in the interview, that they had some awareness of their use of group creative problem-solving communication. However, they were not able to give any examples of using that type of communication.

<div align="center">Field Notes</div>

The team members seem to function independently rather than relying on the group roles. One member in particular repeatedly tells the others she has "got it," she "knows," and assures everyone she will get that done. She is not receptive to group process, and would like to get it done on her own.

The team delights in anything different or odd. All are captivated by language or ideas that portray uniqueness. This and other similarities in personality seem to be a factor in their group dynamic. All of them love sarcasm, puns, and caricatures. They incorporated a character into their skit whose name was "Punny-man" who spoke only in puns. Another odd character was added as "Hashtag-guy," a character who made up hashtags for every reference to pop culture that any character made in the skit.

Another team member seemed to need the spotlight (ScF2). While ideas were shared, credit was not. Combining seemed to come from ScM3. More experienced team members (ScM1 and ScM2, ScF4) engaged regularly in the creative process and Fantasy Chained more between themselves than the others.

The Tasks

Each DI Challenge has specific requirements for a skit, set, and creative presentation, as well as technical elements. The team is judged on how creatively they solve the problem presented in the challenge through their skit, set, and any specified elements. This team's challenge was to be set in an extreme environment.

Set Build

The team met every day for several weeks, and the ideas grew as they worked on the set or the story. As noted, SCF1 was fixated on the 8-foot shark, made from chicken wire and papier-mâché. The time and effort to accomplish making the shark was extensive and the other team members had difficulty getting her to work on anything else.

The team had a set piece for the technical requirement, which dropped about 50 blue balls at once. The construction on this set piece required a re-build after State competition because it did not have enough technical "pizazz" to grab the judges.

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Skit Development

The extreme environment the team settled on was the Larson shelf, under water, which used to be in Antarctica. One person on the team was the idea originator (ScM2) and the rest of the team worked off his original suggestions. ScF1 worked on the script at the same time, and the two had some conflicting ideas about the story line. They tried to stay within the parameters of the challenge, using a white board, and writing down their brainstorming sessions.

There was an admission of a lack of communication later, as one of the skit developers vented some frustration on the skit's lack of clarity and lack of strength in structure. It became cumbersome and difficult for team members to follow for a time. The team did not allow this to deteriorate their dynamic, and remained committed and close until their script was workable again.

Due to conversations that seemed to be going in several directions at one time, when the whole team was together, it seemed the team was not completely bonding. They had a sense of independence, as seen in the inability to accept others' ideas or help at times. They were polite and got along well socially, but maintained independent standings on specific aspects of the challenge.

Theory Applied

When observing the videos of the team meetings, I looked for examples that showed the relationship between group communication, and the group skills that contribute to the communication in group-creative problem-solving behavior. I did this by employing Symbolic Convergence Theory's FTA to see when and if I could identify CAVE phases to show how the communication affected the group convergence.

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SCT Observed

This team was comprised of older and newer members, and SCT was easier to identify between the older members. This could have been due to a pre-existence of symbolic cues like nicknames, code words, and inside jokes. The newer members were not excluded, and as the symbolic cues were explained to the newer members by the older members, some of these became the basis for new symbolic cues within the group.

Fantasy Chains

This team began working on the DI challenge with the advantage of prior knowledge from members who had been part of a previous team that had performed successfully at competition. Fantasy Chaining was plentiful and apparent immediately. One example, seen in Table 13, of long chaining episodes is the team trying to decide on a team name.

This team's Fantasy Chaining was long and almost constant in members' interaction. Since they enjoyed using imagination and fantasy for any aspect of the challenge, they fed off each other's ideas and finished each other's sentences often. As seen in Table 12, the team dialogue was lengthy, and team members who had a history referred to their history regularly. This added to the collective imagery for the process of creating a name for the team. A closer look at that aspect is shown in Figure 6.

This excerpt of the Fantasy Chain exemplifies how the team interacted with old ideas and new ones. The older team members reminisced about how good they felt about the name, and then how to find a name for the new team that would make them feel the same. Newer team members' attempts at chaining were ignored by the older team members at this point.

Table 13

Scientific Challenge Team Fantasy Chaining Example A

What's our team name?	➡	Oh that's right, we have to come up with a name!	➡	I think your name can be Hashtag Aquatraz	↩	
It shouldn't be the name of the script, it should be completely unrelated to what we are doing	➡	why?	➡	Because that's always better! It's always funnier!	↩	
Remember, our first team was "Rumblefish?"	➡	Yeeaaaah…	➡	And it made no sense at all!	↩	
AND it was awesome!	➡	Exactly and that's why we do that.	➡	I mean if you guys can come up with a really funny random name, that would be awesome.	↩	
Team Watermelon.	➡	Iceburg Ducks	➡	What about Team DI?	↩	
Noooooooooo.	➡	That's been used		What about "Balls of Madness?"		
Don't you want it to be related to the story??	➡	We don't want to, that's the point	➡	We don't want it to be related at all.	↩	
We need it—we *want* it to be funny	➡	But we also don't want it to be related	➡	Should it be intimidating or something to do with DI?	↩	
No, not about DI	➡	Our first team name was "Rumblefish"	➡	What about when they say "Are you ready?" We can say "We are 'Extremely Ready."	↩	
I feel like we should say…	➡	They say "Team are you ready"	➡	And we should say "eahh."	↩	
So, "Orcas for Hire?"	➡	I actually kinda like that	➡	I saw the stuffed whale, and….	↩	
it reminded you of orcas for hire??	➡					
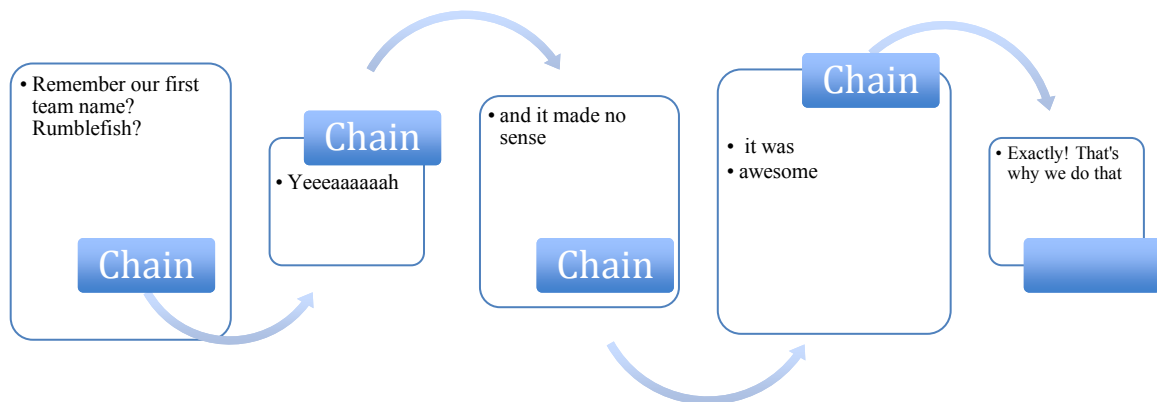
Figure 6. Scientific challenge team older members' fantasy chain example.

In Table 13, different new team members threw out suggestions for team names, but there was not any response from the older members until they heard one they had a negative reaction to, and felt they needed to explain how naming the team should work. Three of the four team-name suggestions did not chain out and became Non-Fantasy Chains. It is important to note this because of who the suggestions came from, new members, and also important to note that the Fantasy Chaining that was happening was occurring between older team members. This could be a factor in the way this team's bonding occurred.

Another example (Table 14) of Fantasy Chaining was the creation of characters for the skit. In this example, the character of the shark, which became an issue later, was developed.

Fantasy Themes

Once all the Fantasy Chains and symbolic cues were extracted and organized, the themes that emerged for this team were sci-fi (space suit and gadgets), pop-culture sarcasm (Hashtag-guy and Punny-man), and serious students (referring to and checking the challenge over and over, also asking themselves if they were meeting challenge goals). There were competitive participants (statements about what will give them the winning advantage) and independence loyalty (ScF2's refusal to give up on the shark).

Table 14

Scientific Team Fantasy Chaining Example B

ScF3		ScF2		ScF1	
The shark has to be built right, with paper-mache?	➡	Yah, pretty much, and chicken wire	➡	We'll do it life-size, we could potentially make it move.	↩
That would be a cool thing	➡	Did we want the shark to have dialogue?	➡	I mean we can if he's a magical shark.	↩
Yah, that would be really cool.	➡	I'll be like "Why is my prison getting bad reviews?"	➡	Well it's because of the wi-fi and the Space Shark!	↩
We have to work that Space Shark in.	➡	The Space Shark has wi-fi!!	➡	I don't know….he's a Space Shark.	↩
He's a Space Shark that has a field around him that lets him handle all pressures.	➡	And he has wi-fi capacity	➡	Hmm.	

Fantasy Types

The sci-fi themes developed into Dr. Who types (Figure 7). The team used Dr. Who lines, names, and references for any of their gadgetry. They seemed to use these references within the group, as well as independently. A "Weird Al" type emerged as the creative process brought the team's love of pop culture into the skit writing and conversation multiple times. Because they wanted to satire real life and real pop culture, the same way Weird Al Yankovich did, this Fantasy Type usually made fun of reality and movies by twisting lines or imitating celebrities.

From the dialogue about what elements would help them win came the Winners Fantasy Type. This was often visualization about how to use their uniqueness, their sci-fi, and their reality twists to win the competition. The team talked about how to get points and how to win regularly.

The Lone Shark Fantasy Type was contributed by several of the team members. It was the determination to stick to ideas that might not work, and the evidence that they would not compromise their individual ideas. There was a determination about this "lone-sharking" behavior that said "We need *my idea* in order to make this skit *awesome*," in a way that meant that the Lone Shark's idea was the *piece-de-la-resistance* for the challenge. This Fantasy Type found its way into the skit as well, because the characters they created were as individual as the team members themselves, and often had lines that referred to an independent idea.

Master Analogues

The resulting Master Analogue was a Pragmatic Master Analogue as displayed in Figure 7. All the types pointed to the team's intent of reaching the goal. While the goal may have been different for each of the team members, they all were still focused on being ready for competition. This indicates a Pragmatic Master Analogue. While the team enjoyed the creative process together, they all did not socialize together outside of class. The older team members met together more often than the newer members, which seemed to exclude the idea that they entertained a Social Master Analogue.

CAVE Observed

I noticed fairly quickly that CAVE was occurring within Fantasy Chaining, and the creative process was also driving the dialogue. The two processes were interactive as shown in Figure 8.
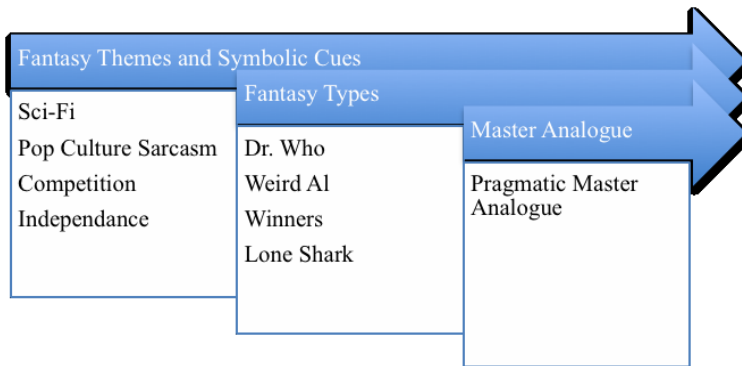
Figure 7. Scientific team Master Analogue.
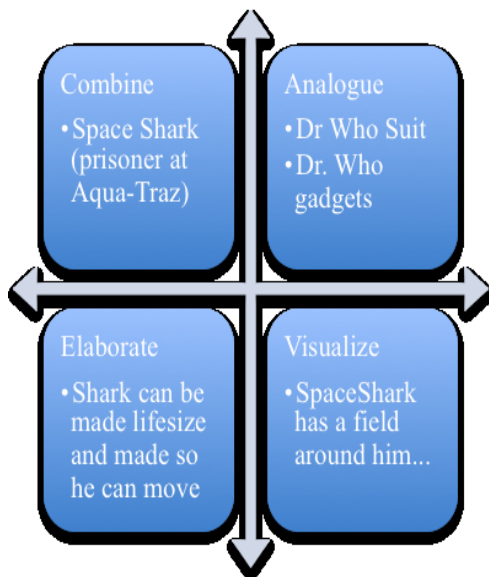
Figure 8. Scientific team CAVE model.

Combine

In the example of naming the team, combining sparked names (Team-Watermelon, Ice-burg Ducks), and eventually the Visualization of what a team name needed to consist of ("We don't want it related at all to the skit or DI") and then referring back to an older Analogue, "Rumble-fish," which had been combined by the previous team, then adopted, then gained status as an identity.

Analogue

The older team members still identified with the analogue, "Rumble-fish." They felt a sense of satisfaction remembering the success of that team, and were longing for the team story they shared there. Because of this, they referenced the older analogue. Eventually a new analogue developed from the current team's story. A member of the team said a stuffed whale inspired him to elaborate "Orcas for Hire." This new name fit into the Dr. Who analogue because of the reasoning that went into choosing it. The name creates puzzlement, and sets it apart from the normal team names. They wanted it to be so different it made people say "Whaaat?" And they could make up an explanation that would sound spacey.

Also there was a time lapse of about 10 minutes between the first three elements of CAVE and the last one, again demonstrating that CAVE occurs as long as the creative process is occurring. It also indicates that creative process is continuing even when everyone is not engaged, but thinking on their own. The creative process progresses again when the team picks back up on the same Chaining topic.

The Analogue of Dr. Who, which is also one of this team's Fantasy Types, was a reference to the kind of communication and technology they were using. Using Dr. Who language this way, the team had a reference point to both their story and their creative intent, both of which showed off their self-identifying style and the way they were infusing that style into their creative process.

Visualize

Another excerpt from the same conversation, shown in Table 15, shows visualization and elaboration Fantasy Chains.

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Table 15

Scientific Team Elaboration/Visualization Fantasy Chain

That would be a cool thing	⇨ Did we want the shark to have dialogue?	⇨ I mean we can if he's a magical shark.	↪
Yah, that would be really cool.	⇨ I'll be like "Why is my prison getting bad reviews?"	⇨ Well it's because of the wi-fi and the Space Shark!	↪
We have to work that Space Shark in.	⇨ The Space Shark has wi-fi!!	I don't know….he's a Space Shark.	↪
He's a Space Shark that has a field around him that lets him handle all pressures.	⇨ And he has wi-fi capacity?	⇨ Hmm.	

Elaborate

This example of CAVE and SCT interaction through elaboration is this creation of "Alfred the Space Shark" character for the skit. It is the same communication as in Table 15, this time noting the element of "Elaborate" in CAVE.

Alfred came from ScF3's obsession with sharks. She developed the specifics of the character by combining her character (a "Space Pirate") with her love of sharks and came up with a "Space-Shark." She worked with ScF1 and ScF2 to incorporate him into the skit, and they used the team's analogue of "Aqua-Traz" (also a Fantasy Type for the extreme environment planning), the name of the extreme-environment setting, in order to describe where Alfred would be, how he would interact, and what he would look like. An excerpt of their elaboration Fantasy Chaining looked like this (Table 16).

Table 16

Scientific Team Elaboration Fantasy Chain

The shark has to be built right, with paper mache?	➡	Yah, pretty much, and chicken wire	➡	We'll do it life-size, we could potentially make it move.

These specific examples display how CAVE and SCT are working to both further the creative process and expose a Fantasy Theme at the same time. The independence loyalty Fantasy Theme is evident here because ScF3 wants to continue to make the character fit into the skit, but ScF1 is not as sure. The independent loyalty theme is ScF3's contribution to the Fantasy Type, Lone Shark, as she refuses to give up her shark character. This example is only one of her many attempts to incorporate the shark into the skit.

Analysis of Instant Challenge

During the Instant Challenge there is also evidence of CAVE. The Instant Challenge instructions were to build a structure from the materials (three varying sized PVC pipes, two straws, two chenille sticks, a balloon, a rubber band, two address labels and a plate). The structure had to go through the PVC pipe and touch the table on either end of it, but could not touch the pipe. The team had 2 minutes to plan and 2 minutes to build.

In this instance, as seen in Table 17, the Fantasy Chain looks more like regular group dialogue, but since it is referring to future events, it is symbolic. In this way, this example expands the definition of Fantasy Chain to include the phenomenon of planning where the language is symbolic and future tense or not in reality yet—but is conveying

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group ideas that are building meaning as they go. Because of this, I see their discourse as Fantasy Chaining.

The result of this Instant Challenge was the team did complete two structures, and got points, but still did not get the most points of all the teams participating in Instant Challenge that night. They exhibited a lot of teamwork, as they quickly divided the work into pairs, and then shared materials. They worked well together as shown by the results, but they also worked independently in pairs, which may shed light on their team dynamic that contributed to their level of cohesiveness.

<p style="text-align:center">Team Communication Skills for Problem-Solving</p>

This team members' skills can be seen as related to their group creative problem-solving communication because the use of communication skills appears consistent with the use of that kind of communication. In this case, when the team was Fantasy Chaining, I saw CAVE, which gave me evidence that creative process was occurring. When creative process is occurring, skills (messaging, feedback, participation, roles) were employed in order to make the process work. Since the older members may have affected the equality skills when they used non-chaining during brainstorming, the entire list of skills wasn't employed. When non-chaining occurs, the skills like messaging and feedback are diminished also, which, in the end, affects the bonding somewhat.

Skills like motivation (team members committed to the task), role emergence (team members self-assigning tasks), messaging and participation (team members' consistent messaging and participation) all worked together to create some synergy when the team was using creative process. The way the team used creative problem-solving communication meant that while some bonding can be seen in the meetings, it was not a

Table 17

Scientific Team CAVE Interaction With SCT Example

FTA	CAVE	Identifying Element
Fantasy Chain (discussion about events to take place)		
I feel like we could easily get the longer tube	Analogue	Tube = Structure
I think we can get this one too.	Visualizing	Identifying strategy
How about just putting the pipes together into one big long one?	Combining	Connecting the 3 separate structures into one
Hey, why don't you guys take that one, you guys take that one, and we'll take this one?	Visualizing	Identifying strategy
OK and we'll share materials	Elaborating	Explaining strategy
We'll put materials in a central location.	Elaborating	
		First paired team members working on small PVC
		Analogue is understood, as they have already identified the pipes as the structure and now use nonverbal reference.
1. OK let's look, we have to make sure it doesn't touch (structure)	Visualizing	Examining the materials traveling through the structure
This has a straight element to it	Visualizing	
Do you guys need the plate?	Elaborating	Adding to materials
Tell me if you need a wider base	Elaborating	
Do you guys have more materials?	Elaborating	
I think we can tape the strips together	Combining	Connecting materials
		Second pair of team members working on medium PVC Structure. Analogue is again understood from previous use, and is referred to nonverbally.
2. OK try this	Visualizing	
Stop stop stop, it's barely working	Elaborating	Instructions about materials use
It'll barely be touching (the structure)	Visualizing	Describing the material placement
It's working don't touch the tube!	Elaborating	Instructions about behavior
		Third pair of team members working on long PVC pipe/structure. Analogue again is now nonverbal.
3. We're trying to make something long enough to go through the long tube. (structure)	Combining	Connecting materials
You got the little ones, right?	Elaborating	Behavior reference
Tie this to this and try it.	Visualizing	Material use
Doesn't look like we'll get this one.	Elaborating	Conclusion

high enough level to create the desire for the entire team to meet socially outside of the group, and then, for the lessened synergy which affected the team outcome.

Team Outcome

This team won a second place at Global Finals Competition. They were successful in many ways, but there were some criticisms by the judges that could explain how the dynamic and cohesion affected the team. The judges felt the skit did not completely and clearly meet the specifications of the challenge. The technical aspect of the challenge (the team's Blue Ball Contraption) did not score as well as expected. The team performance, while well received by the judges and audience, fell short of the desired outcome.

The team interaction employed some of the skills required for synergy and cohesion. They were:

1. Motivated and eager to participate, however, they participated based on their own perception of what was needed, and while willing to work, worked on individual aspects of the challenge.

2. The team's messaging was well developed, and they used group creative problem-solving communication frequently; however, as seen in the Fantasy Chain examples, they did not always include all members in the process. Additionally, some members were deaf to ideas that were contrary to their own.

3. The team used plentiful feedback, but older team members used more than newer members.

4. Roles were accepted and clear. All team members were happy with the self-chosen roles, and this supported their individual independence.

5. The team was very motivated to win, therefore motivated to meet and get work done.

Summary

This team was comprised of seven team members, several who had been on a DI team together before. The new members had never been on a DI team before. The ages ranged from 18–22, the team had four females and three males and a male team manager, 22 years old. The team manager did not participate in the creative process, but the team reported he was very good at keeping them on schedule, he kept all the paper work in order, and they had no problems with him.

This team practiced extreme individualistic styles of brainstorming. The areas of commonality were where they agreed on how they should be different. They liked to be geeky, nerdy, or not normal. Because of their love of pop culture and science fiction, their skit followed suit.

A Dr. Who type emerged through applied SCT. The team liked being quirky scientists who were not confined to conventional thought. Like Dr. Who, the characters they created using SCT also found themselves in difficult situations, which required science technology to find a solution. SCT also revealed the team's use of CAVE and their creative process. It is clear that Fantasy Chaining and CAVE occur simultaneously. Again, the analogue in CAVE is the same element as the Fantasy Type. This again is clear evidence that SCT and CAVE occur simultaneously; the creative problem-solving was all about the same subject matter as the SCT.

In this case, SCT described the group creative problem-solving communication by highlighting the discourse that was contributed for the purpose of solving the challenge.

This was seen in the Fantasy Chain about finding a name for the group. The Fantasy Chains provided a means by which to identify the themes of off-beat characters and pop-culture stories in the group's communication. The Fantasy Types emerged as the alter egos of the team (Dr. Who). These types were characters in the team drama (Scientists). Coincidently the types are also the Analogues (Dr. Who). This is where CAVE and SCT intersect in the communication and explain how the two work together towards the solution for the group challenge. These two methods used together also identify meaningful changes in the group communication. For example, CAVE shows the group's progression through the problem-solving process, while SCT builds the group story, providing the reflected reality of the group dynamic (independently working together).

This team's outcome was a level of successful creative problem-solving. The team won a second place at Global Finals in their challenge-level division. This outcome was not as successful as the team had hoped. Judges at competition noted some issues that can be explained by the team's individual resistance to convergence, since some of the skills were affected by their kind of creative problem-solving communication.

I felt that while the team achieved a high degree of creative problem-solving, the skill sets may have been more complete if the team had used more group creative problem-solving communication, that is, the group members could have been more committed to the goal of convergence than the individual goals of self-fulfillment.

CHAPTER 6

CASE THREE: FINE ARTS CHALLENGE

Introduction

The Fine Arts Challenge is usually known as a theatrical challenge, but it also has

several technical components. It usually also includes research in the area of the Fine

Arts.

Fine Arts Challenge: Laugh Art Loud

The Fine Arts Challenge issued by DI to all participants regardless of the level

they were participating was entitled (by DI), "Laugh Art Loud." DI's challenge intent was

for the team to "create and theatrically present a live Comic Strip Story that is based on a

team-selected work of art" (Destination Imagination Fine Arts Challenge, Appendix B).

The team's Comic Strip Story had to be original and contain three Panels, an "ARTifact"

and a "Caption Contraption."

The story had to be told in a series of pictures like a comic strip. The pictures

were to be each on their own panel, so the team had to research visual styles and think of

creative ways to present the panels. Also comic strips were not considered only the

"funnies" but included all art forms, which could be used to tell a story. The comic strip

story was to be based on a work of art, created by an "artist who was born in a nation

other than the team's own" (DI Fine Arts Challenge, Appendix B). Points were available

for creativity of the team's visual elements found in comics and transferred to their

presentation. The team was to create an original piece of art for display, and also a contraption that would in some technical way highlight or present the phrases representing the art. Points were also available for creativity in the story, and also points were available for clear and effective storytelling, meaning the comic strip would be easily comprehended.

The original work of art was to be integrated into the comic strip. And the work of art that the strip was based on had to have been hung in a museum or gallery in order to qualify; it could not include motion or sound. This work of art had points attached to how well and creatively it was integrated into the comic strip.

The Team

This team was also made up of members of the class "Advanced Communication and Creative Problem-Solving in Multi-Disciplinary Groups." The team was required by the class to choose a 2014 DI Challenge to perform at competition.

Team Members

On this team, all of the original team members were new to DI. There were five team members, two females and three males, and a team manager, male. Two members were 19 years old, two were 20 years old, one was 21 years old, and the team manager was 23 years old. None of the team members had been acquainted before joining this team. Several academic disciplines were represented: two Communication Studies, two Media Arts and Design, one Computer Sciences, and one Biology/Pre-Veterinary Medicine. Team members are identified as FAM1, FAM2, FAM3, and FAM4, then FAF1 and FAF2 and after FAM1 left the team, FAF3 joined. All male members of the team, as

well as the team manager, were in a JMU-sanctioned fraternity organization. The fraternities were not the same for each of the members.

The team member who was integrated 1 month before Global Competition was female (FAF3), a Theatre and Fine Arts major, with 14 years' experience in preparing for and competing in Destination Imagination challenges. She was not acquainted with any of the team members before joining the team, and met with the team only once prior to traveling to Global Competition. Once on site at the competition, the team had numerous last-minute meetings and changes.

Team Story

The team manager chose not to participate in Global Competition, and should not have participated in the group creative process, as that is against the rules of DI. He not only participated, but instructed the team what to include and what not to include. The team later described the team manager as someone who used "manic screaming" to lead with. The team did not read their challenge as they were instructed to do, and in addition, did not discover an error even when judging and watching other teams at regional and state competition perform. The team manager made minority decisions for the team without the team's consent. For example he decided they should not use the ocean god theme, and should use stereotypical frat names: "Chad, Brad, and Mitch."

Five members of the team were 2 hours late arriving to the state competition. Immediately after their performance, even though the requirements for all JMU DI participants was to stay and watch the other teams, as well as help load and unload the sets on the trailer, all the members except one disappeared from the site. Two members

even asked if they had to stay and were told "yes, you have to stay," but these two also left anyway.

A few weeks later, the newest member (FAF3) discovered, several days before competing at the Global event, that no one on the team had thoroughly read or understood the challenge, and they were missing a crucially graded element of their central challenge. Because of this, the structure of the solution had to be changed, the story line adapted, changes made to the set, and most of the elements shifted.

Self-Descriptions

In the interview, the team described themselves as "more creative" than others they knew, they felt they worked well together, and they preferred "free-form structure" to their meeting, meaning they did not follow any specific procedures. They freely admitted that brainstorming was "difficult" for them because each preferred their own ideas, and they encouraged divergent thinking within their group.

When asked the second question in the interview, "Are there special communication techniques your team has adopted in order to better reach your goals?" (see Appendix A for complete interview questions) the team members agreed they not only could not remember using any techniques, but that they had hastily agreed on a solution without giving it any critical evaluation, and that this caused them to "resent" the solution at later dates, resulting in a "lack of interest," a reluctant work ethic, and irritated dynamic within the group. When the term "groupthink" was then defined for them, they overwhelmingly agreed this had been a part of their process and had led to their outcome.

Field Notes

It was noted that the team seemed to underestimate the workload for the challenge completion. The team was not looking to the materials of DI for help with the process. There was not much structure for the meetings. They described "brainstorming" as "whenever the energy level got frenzied, and everyone was loud." They lost sight of their goals easily and quickly during the meetings. And they seemed to converge more in conflict than in solving the problem. As a rule, the team manager seemed to override any other opinions or ideas. There were multiple times ideas were ignored, and input was ignored, or declined. While brainstorming did occur, the results of it were difficult to find in their challenge solution.

The Tasks

For each DI Challenge, there are various requirements included that must be addressed to be judged at competition. Each DI Challenge nestles those requirements within a skit, a set, and technical or sometimes theatrical components.

Set Build

FAM3 and FAM4, FAF1 and FAF2 collaborated in building the frame and placing the painted backdrop on the frame. FAF1 painted the art-piece, FAF2 painted the backdrop. These four members of the team spent about 1 1/2 hours total over 4 weeks, working on making the set together. One team member (FAM4) made repeated attempts to incorporate himself into the group planning, but was ignored most of the time. This was a factor in group dynamics on this team.

The set was poorly constructed, as seen in the way it quickly came apart in transport to competition. When taken to state competition, the frame for the backdrop

scenes broke as it was taken from the trailer into the competition site. The team attempted to duct tape it together, but it was visibly broken and had to be supported during the competition performance. This affected the skit because team members were not able to stand in the designated places for the skit while they supported the frame and kept the backdrop in place.

For Global Finals competition, a new frame had been built. Global Finals competition was 8 weeks after regional competition, and in addition to the new frame, the backdrop needed repair as it had been painted on a shower curtain, and was peeling off. This was repaired, but visibly tattered for Global Finals competition.

Since the team was missing an original piece of artwork, another set piece had to be constructed as well. The team left these details until the day the club left Harrisonburg to go to Knoxville for the Global Finals Competition and used any spare time they could find at Global Finals to work on their set.

This was a problem, because their skit had to be adjusted and changed, a new member was with them, and they needed rehearsal time, which was instead spent repairing the set.

Skit Development

FAM1 and FAM2 worked together on the skit often and occasionally included FAM3 in the planning. FAF1 and FAF2 worked successfully together, but as a whole, the team did not spend much time all working together. FAM4 tried to integrate into the brainstorming process several times, but was stonewalled. Eventually, FAM1 even ignored FAM2's attempts to brainstorm, and either talked about his own social

engagements for the evening, or about his girlfriend, without acknowledging the attempts made by FAM2.

Applied Theory

When observing the videos of the team meetings, I looked for examples that showed the relationship between group communication, and the group skills that contribute to the communication in group creative problem-solving behavior. I did this by employing Symbolic Convergence Theory's FTA to see when and if I could identify CAVE aspects to show how the communication affected the group convergence.

SCT Observed

In watching the videos of the group meetings, FTA was applied and noted per the observation surveys. Once Fantasy Chaining was noted, Fantasy Themes emerged and were sorted into Fantasy Types. Fantasy Types were analyzed for any story lines and characters that were represented. From these findings, Righteous, Social or Pragmatic Master Analogues were identified. These analogues give us a picture of the group vision and illustrate how the group convergence or lack of convergence affected the group outcome.

Fantasy Chains

The example used here also will be used in the CAVE section in order to show the relationship between SCT and CAVE. In what became the Greek god theme, here were the chains leading up to that.

So the Fantasy Chaining began with someone sparking the idea of naming the characters in the skit they were writing. Jumping off that idea, another group member

brought in the idea of fraternity influence on the characters, and that led to Greek names, and because one of the members liked the sound of Greek gods (Table 18), they added that to the naming process. Greek gods became "Greek gods of the sea!" which led to the invention of new names combined with "brother" in reference to the fraternity, and Greek gods, in the theme of Greek life. In a model, it would look like Figure 9.

Table 18

Fine Arts Team Fantasy Chaining Example A

FAM1		FAM2
We need names….	➡	Yeah, Frat Names….
I'll be Brad, you be Chad… We should do Greek…	➡	Yeah, gods of the sea… Brosidon
Or just Greek gods	➡	Br-eus….. Bro-cules

This example shows how the language in this Fantasy Chain creates the group reality as seen in Figure 10. It takes an idea and grows it into a concept with a completely different ending than beginning; in other words it took on a life of its own. The communication at that point is creating reality instead of reflecting it. This chain is also a good example of how Fantasy Chaining shapes growth in group-dialogue. This Fantasy Chain was foundational in the development of the skit.

Another example of Fantasy Chaining that led to a theme is the "College Party Games" theme, shown in Table 19.
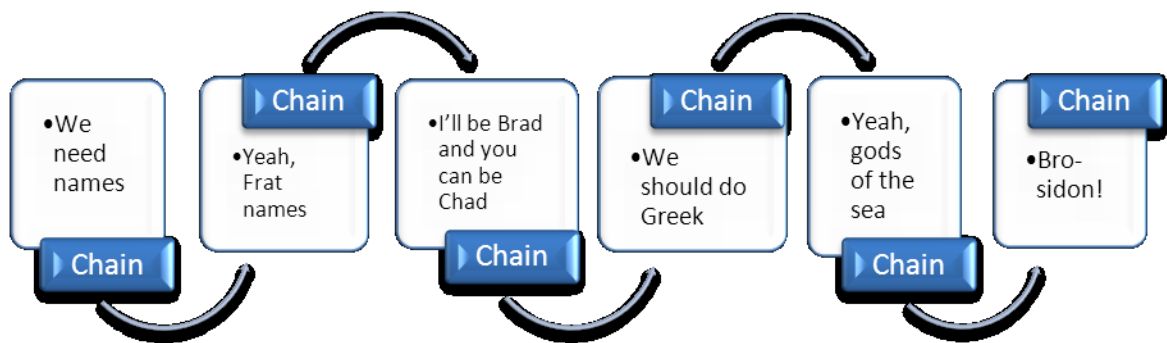
Figure 9. Fine arts team fantasy chaining model.
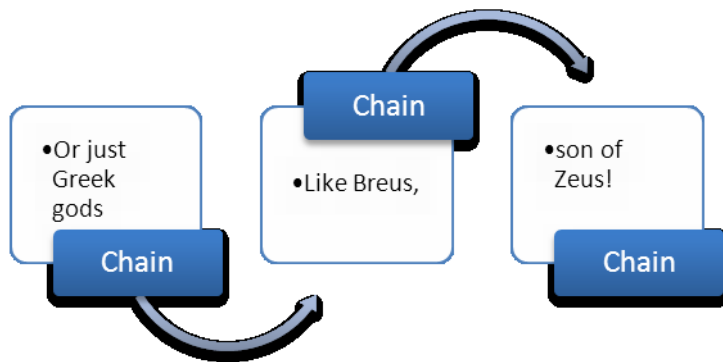
Figure 10. Fantasy chain creating group reality.

Table 19

Fine Arts Team Fantasy Chaining Example B

Play clean and fair…	Shoot off in the middle of the game…	No cheating or smuggling or meth lab
Smuggle it in for our friends….	Shooting including meth	Shooting including heroin
No cheating or shooting or no hard drugs….	He should just be twirling around staring at nothing and saying "you're beautiful"	He should be staring at the ball and saying "it's so round."

This example also shows the elaboration phase of CAVE. Some of it includes the Visualization phase as well. However, all of the chaining did not become themes for the skit, instead, remained themes for the team. Because some attempts to chain were ignored, or off topic of the goal, these chains did not go far. They illustrate the team's inability to remain focused, and their inability to become cohesive or converge (Table 20).

Table 20

Fine Arts Team Off-Goal Topic Chaining

FAM3	FAM2	FAM1
Did they teach you that in politician school?	Can you imagine if there was a school just to be politicians?	I have a friend who wants to be governor of Illinois…
He wants to be governor of Maryland?	My cousin…was a state senator…	

And then there are numerous times when non-chaining occurred on this team. This can be seen in Table 21. Usually the team manager did the ignoring, as he made most of the decisions without the team input. There was one particular team member who attempted regularly to include his ideas in the brainstorming and creative process, but was ignored. Each time the team member was ignored, the progression of a negative group dynamic with that team member spiraled. By the time the team went to competition, that team member was almost completely disengaged from the team.

And eventually (Table 22), there was another team member attempting to spark the brainstorming process but was also repeatedly ignored.

Table 21

Fine Arts Team Non-Chaining Examples A

Chaining attempt	Chain reaction	Group result
"Here's the thing,…"	Ignored by all	Group dynamic lessened
"Four canvases could be a good thing…"	Ignored by all	Group dynamic suffered
"Because if someone makes a mistake…"	Ignored by all	Group dynamic (relationship) damaged
"Guys, remember, parents and children"	Ignored by all	Group member disengaged

Table 22

Fine Arts Team Non-Chaining Examples B

Chaining Attempt	Reaction	Group result
"Wait, (FAM4) is going to come out and say something nice?"	Ignored by FAM1: "You know my girl just invited me to a party."	Group dynamic lessened.
"So (FAM4)'s gonna, I mean I don't think we should say anything yet, I don't want it to be obvious"	Ignored by FAM1: "I'm not even sure how to get to her house."	Group dynamic suffered.
"Most of it will be the same, but I think (FAF1) should say…"	Ignored by FAM1: "I'm really going to get s***faced at this party"	Relationship damaged.

These examples show a consistent divergence within the team. They show that

communication within the group is affecting the team even when the team is not

problem-solving. When ignored or negatively responded to, negative communication or

the lack of it fragmented the team's cohesiveness and synergy; in other words, the group

relationships as shown in Table 18. This team brainstormed together, but they were

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unwilling to integrate their ideas together. The few group skills they exhibited did not bring them to convergence.

The team had many hours of off-topic conversation. When the discourse was not focused on solving the challenge, which was the group goal, the Fantasy Themes did not change. They still chained about parties, about dating, and about college and Greek life. The Fantasy Themes and types that emerged from off-topic conversation analyzed by FTA were the same as the Fantasy Themes and types occurring in goal-centered communication, that is, group creative problem-solving communication, the communication used to solve the DI challenge.

Fantasy Themes

The Fantasy Themes that emerged from the Fantasy Chains examined were Fraternity/Greek life, Partying, College life, and Dating. These themes were clearly exhibited in both conversation and in the skit and the set the team was developing as a solution for their challenge, as seen in Table 23. The themes pointed the way the team interacted in a disjointed fashion, common ground being partying, but they all partied separately. This was adding to the bonding problems because without the kind of communication that brought them together, they were drifting in all different directions, and thus had little motivation for participation in the creative problem-solving process. These themes became Fantasy Types, which were seen in characterizations of the themes.

Table 23

Fine Arts Team Fantasy Themes

Themes	Examples
Fraternities	Chaining about stereotypical frat names
Greek life	Chaining about Greek gods mash up Style of set Skit
Party	Chaining about drinking, drugs and being stoned Passing out in skit
College life	Chaining about class difficulties, exams and tight schedules
Dating	Chaining when brainstorming about skit and about how boys see girls also about Art painting chosen for skit theme.

Fantasy Types

The Type of Fraternities began to be illustrated by themes of Fraternity Brothers and their behaviors as shown in Figure 11. The Greek life theme became more about partying and being a part of the party behavior. So the Party Type included themes of both fraternities and Greek life. A College Student Type emerged from themes of difficulty in managing their schedules and pressure from classes. The Eligible Date Type was in the skit, as the boys represented how "boys" see themselves as potential "Dates," and was evident in other non-goal chaining, when team members were discussing their own social lives. Because these types were going in different directions, an overarching type emerged as a Perfect Storm.

This type "Perfect Storm" was obvious because the team members had no commitment to their team or their goal. The perfect storm existed because the team was creating the conditions for perfect failure. When three or more elements that create poor

conditions are put together, this will lead to the perfect storm, where the perfect disaster is about to occur. This team displayed more than three poor communication behaviors (J. Cragan, personal communication, October 14, 2014).

Master Analogues

The resulting Master Analogue was a Social Master Analogue (Figure 11). This rhetorical vision emphasizes primary human relations. It keys on friendship, trust, caring, comradeship, compatibility, family ties, brotherhood, sisterhood, and humaneness (Cragan & Shields, 1995). This Master Analogue was in competition with a Pragmatic Master Analogue. The primary goal of the team was to solve the challenge and be ready for competition, but the Social Master Analogue was primary, and it was difficult for this team to get work done, consequently, they were consistently unprepared for competition.

Fantasy Themes

Fraternities
Party-er
Dating
College Life

Fantasy Types

Frat brothers
College student
Eligible Date

Analogues

Social Master
Analogue
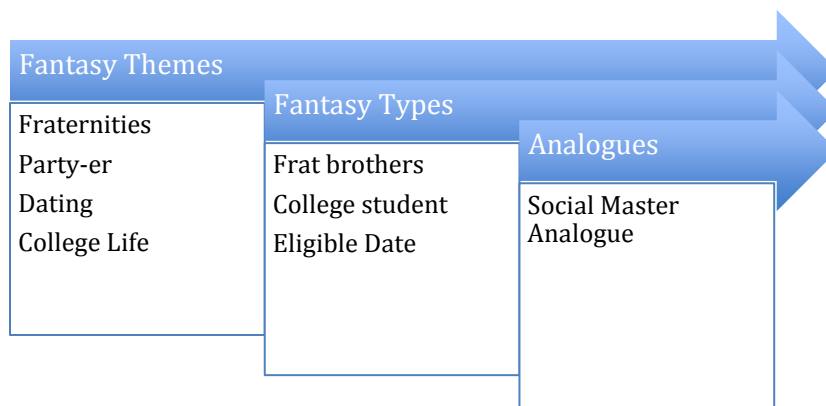
Figure 11. Fine arts team SCT progression from fantasy chains.

While all the team members' themes and types fall into this category of Master Analogues, they do not ever display this within the team itself. In other words, these are the values prominently displayed in their drama, but the loyalties are attached to things

outside the group. In fact, the loyalties to fraternity obligations and college parties show where the team members' commitments lie, and when those commitments conflicted with their DI team commitments, they chose to abandon their team every time.

CAVE Observed

Group behavior during group problem-solving was seen through the skills exhibited within the group. FTA was used to look for indications that CAVE was occurring. As in the previous cases, CAVE was found here by using FTA.

Combine

CAVE phases often began with Combining. There were splinters of the group doing this. FAM1 and FAM2 worked together exclusively, and brainstormed about the skit. The skit was about Fraternity Brothers at a party. FAM1 thought of ideas and shared them. Combining is seen in the chaining of the names. FAM2 began putting together Greek gods or gods of the sea with "brother." "Bro-sidon….Bro-cules….Br-eus, brother of Zeus."

Analogue

Analogue was seen here as the team members referred to these names after that as "bro-frat names." The Analogue of Bro-names represented how the team identified with fraternity culture. The girls were on-board with the themes of fraternities and parties, but it was not clear if this was because they belonged to Greek organizations, or if they thought all college boys acted this way. Either way, the entire team used Analogue to deepen their ideas of behavior as seen in Figure 12.

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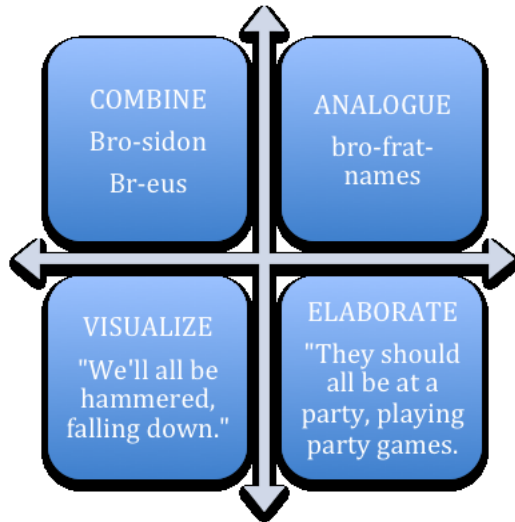
Figure 12. Fine arts team CAVE example.

So CAVE was easy to find in this team's communication in conjunction with FTA. As seen in Table 17, *Fine Arts Team Fantasy Chaining A,* this is the same conversation used to exhibit Fantasy Chaining. It can also be seen through the phases of CAVE that they were brainstorming, creating ideas for the solution of the challenge.

This example also shows that CAVE does not occur in a linear fashion, but each element has a relationship with the other elements.

After this productive and useful brainstorming dialogue, FAM1 chose the Frat names to be used, and decided to abandon the Greek-god-name idea for a while. This theme returned in conversation (Table 24) only but did not end up in the skit, rather it became an SCT story line.

These were lines that occurred throughout the video sessions, not just in one conversation, showing that their fraternity story continued whenever they were together.

Table 24

Fine Arts Team SCT Story Lines Related to CAVE

"Bro-sidon (laughing)…that's the best one!"	Combine
"My brotha of tha Sea…."	Analogue
"You're in a fraternity?" "Yeah" "Which one, dude?"	Visualize
"My initiation is that weekend."	Elaborate
"Help a brother out."	Analogue

Visualize

Visualizing occurred when the team discussed set building. This was accomplished through FTA as well. The Fantasy Chain (Table 25) was visualizing about the set.

Table 25

Fine Arts Team Fantasy Chain Exhibiting CAVE Visualization

"Should we use wheels?" ⮕	"It has to be able to open and move." ⮕	"We need to make a pattern on that one." ↩
"What are we going to do stripes?" ⮕	"We can do like diamonds." ⮕	"We can do stripes, stripes look more like a frat basement."

Elaborate

Elaboration also was plentiful during the set-designing phase, and some in the skit-writing phase. When the team found an element of the solution they liked, they

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would fine-tune it with details. The exchange about "shooting" was an example of elaboration (Table 26). The team built the idea by elaborating through Fantasy Chaining.

Table 26

Fine Arts Team Fantasy Chain Exhibiting CAVE Elaboration

"Shoot off in the middle of the game…"	"No cheating or smuggling or meth lab…"	"Smuggle it in for our friends…."	"Shooting including meth…"
"Shooting including heroin…"	"No Cheating or Shooting or Hard drugs…"		

Though they did elaborate, their elaborations were quick short chains, which they would use to settle on an answer within a matter of minutes. Many of the Fantasy Chains never reached the skit, or the planning, but were completely abandoned.

Analysis of the Instant Challenge

During the Instant Challenge there is further evidence of CAVE. The Instant Challenge was to build a structure from the materials (three varying-sized PVC pipes, two straws, two chenille sticks, a balloon, a rubber band, two address labels and a plate). The structure had to pass through the PVC pipe and touch the table on either end of the pipe, but could not touch the pipe. The team had 2 minutes to plan and 2 minutes to build.

The team first asked for clarifications of the directions. FAM3 asked lots of questions, but appeared to continue to be confused about challenge. FAM4 asked no questions. FAF1 clarified rules. FAM2 actively listened. The team was given 2 minutes to plan a solution without touching the materials. In the planning phase the team discussed

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materials and possible ways to use them. One team member touched materials when the directions specifically stated not to.

In the build phase the team continued to use Combining and Visualizing, and also needed to clarify rules, asking the Challenge master questions. This would not be permitted at competition. The team interaction included all of the phases of CAVE and was found by identifying the Fantasy Chains and code words in their interaction. This can be seen in the example of their conversation shown in Table 27. Fantasy Chains here again include the planning discourse, as the language is not present tense, but future tense, which makes the symbolic cues work together for new meanings as the team works to find a solution.

Table 27

FTA and CAVE Simultaneous Occurrence

FTA	CAVE	Identifying Element
Fantasy Chains		
We can use the straw and the paper plate, that will be our structure	Combining	"Straw-plate-structure"
and if we tape it to the table like this, it wouldn't have to touch the tube	Visualizing	Building a story for the straw-plate-structure
What if it touches the tube, what's our "fall back-option"?	Analoging	"fall back option" code word for the team, meaning how do we get at least the lowest score
Like we could just use the structure, with the smallest PVC.	Visualize	"structure" code word referring to the plate and straw
Yeah. We could build a 10-pointer, and then work on the bigger points.	Elaborate	"10-pointer" code word used for the method to maintain a score

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Team Communication Skills for Problem-solving

This team exhibits communication skills only when group creative problem-solving communication is present, but they do not consistently use group creative problem-solving communication, and consequently communication skills are not in use, bonding is minimal, and the group does not achieve synergy. For example, when the team was Fantasy Chaining about Greek gods of the sea and fraternity names (this was also combining), they seem to use messaging and feedback well, they come up with an analogue, but then the team manager decides to discard it without ever consulting (feedback, equality, roles) the team. When the team was using Fantasy Chaining to visualize, or elaborate, they came together, they said their energy was high, and they enjoyed being together, but the visualization was not put to use, and the elaboration was changed by other team members, again without consulting the entire team. The decision-making process showed a lack of participation and equality on the team, as well as a problem with clear roles. The result of this behavior or lack of communication skills was: the team commitment to participation was weak and they often found reasons to be gone from meetings. Messages were present, but feedback was incomplete (non- chaining) and motivation to work towards the goal did not materialize when equality was not recognized (members expressed feeling oppressed by the team manager, and one member was disengaged).

Because team members did not use Fantasy Chaining to bring creative process all the way to fruition, they did not exercise the amount of skills or level of skills that a successful team does. This indicates that the amount of time spent in creative process affected the outcome for the team.

Team Outcome

This team worked hard together for many hours in the day or two before competition, but were still unprepared at competition time. Their skit, their set, and their lack of completion at competition time affected the way they communicated and negatively changed their group dynamic. There were expressions of anger and blame and avoidance of responsibility at this point. However, it was here they achieved a Pragmatic Master Analogue, as the rhetorical vision became about achieving the team's original goal of being ready for competition. Unfortunately, they did not converge, even while agreeing on this one thing. They had not spent the time together or developed the skills needed to achieve synergy. Individual team members continued to hold their own priorities above team priorities. Evidence of this is seen in their dialogue during the interview. While the team did accomplish a successful Instant Challenge at Global Finals Competition, they did not score enough points in either the Instant Challenge or the Central Challenge to score higher than last place in their category.

The addition of a new team member, integrated the week of Global Finals competition, changed the dynamic of the team, as well as how the team saw their goal. The team did not employ many of the skill sets described as essential for cohesion.

When observed in order to find skills, I found this team was lacking overall:

1. Participation; members of the team actively talked about not wanting to be there at the meetings, or left early in order to go to a party or study for a test in another class.

2. Messages were consistently incomplete and not heard as examples of non-Fantasy Chaining show, as well as the lack of interpreting the challenge parameters and instructions; also the team's late arrival to competition.

3. Feedback was not heard, as members expressed later they felt they could not penetrate the team manager's style of creative problem-solving process.

4. Equity was not present, as one member completely disengaged from the team.

5. Roles were not clearly defined, as the team manager was not supposed to be involved in the creative process at all if he was not going to Global Competition.

6. Motivation was clearly low, and as two team members regularly asked the teacher about their grades, seemed to come only from desire to pass.

Summary

This team was made up of members all new to DI. There were four boys and two girls at the beginning. Their ages ranged from 19 years old to 23 years old. The team manager was not planning to go to the Global Finals Competition, and did not follow directions to excuse himself from the creative problem-solving process. The team manager was perceived by the team to be overbearing, bossy, and difficult to work with.

The team as a whole was consistently late to competition. They did not fully read or interpret their challenge, and missed several crucial graded elements for competition. They brainstormed well for short periods of time, but came to quick decisions that were made merely in order to finish the job. The team later admitted this was groupthink, which hurt their overall goal.

When applied, FTA revealed that one group member was being completely left out, and another was repeatedly ignoring Fantasy Chain attempts. The group dynamic visibly deteriorated while this kind of communication was occurring. When the team manager left the team and another member was introduced, the team did not spend enough time together to fix the damage.

This is an example of how employing SCT can describe the kind of communication that adds to or detracts from successful creative problem-solving. This also addresses the team commitment as seen through the skills of motivation and participation. The team had 8 weeks to work with the new member but chose to wait until the last week to work with her.

CAVE was observed through both the Fantasy Chaining and the Fantasy Types that emerged. Fantasy Chains about Greek god names and party life showed an atmosphere of "out of control" circumstances, which led to a type of a storm within the group drama. When successive Non-Chaining occurred, along with abandonment of themes that were working for the skit, the "Perfect Storm" emerged. This Fantasy Type best describes the team's dynamic. Creative process was present, but stunted, as the Fantasy Chains were short and some attempts ignored. In this way, CAVE explains how group problem-solving is affected by communication. While CAVE is seen as attempted, it was not successful due to a lack of connection for the CAVE analogue and the Fantasy Type they displayed. A lack of communication skills was observed for this team. As seen in the non-fantasy examples and the minority decisions made by the team manager, no one on this team took the initiative to talk it out and discuss the problems. They also readily admitted that they used groupthink to make decisions.

The interaction of SCT and CAVE in this case is seen in the lack of a real connection between analogue and Fantasy Type, and explains how the group communication may have been the factor that took this team to an unsuccessful outcome.

This team failed to meet the goal, came in last place, and scored the lowest of all the competitors in their level division for Global Finals. Even though the team used

Fantasy Chaining, they leveled the effects of the Fantasy Chaining with Non-Chaining events. This caused them to abandon the Themes they began developing, and they were not able to construct a rhetorical vision that the whole team shared. As seen in Figure 13, the team came away from the group in a negative way, because of the negative elements exhibited.
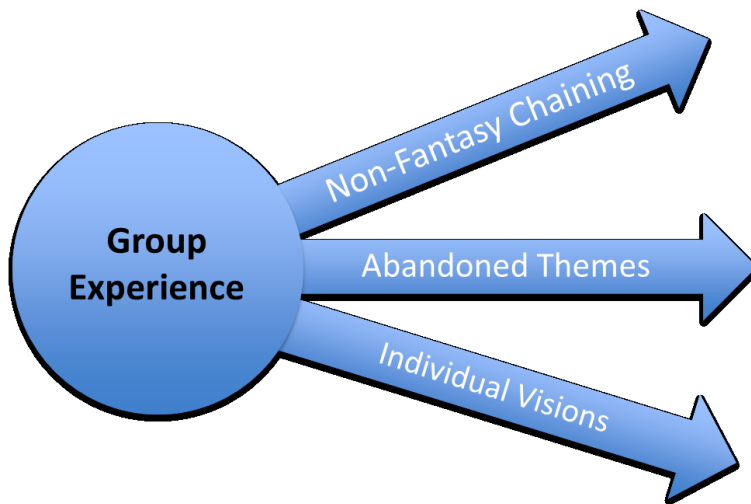
Figure 13. Fine arts team DI experience.

Because these elements were a large part of the group's communication, in turn, the group creative process suffered, and the team's efforts could not out-weigh the negative effects these processes created for the group interaction. Figure 14 illustrates how these negative elements of group process affected the team outcome.
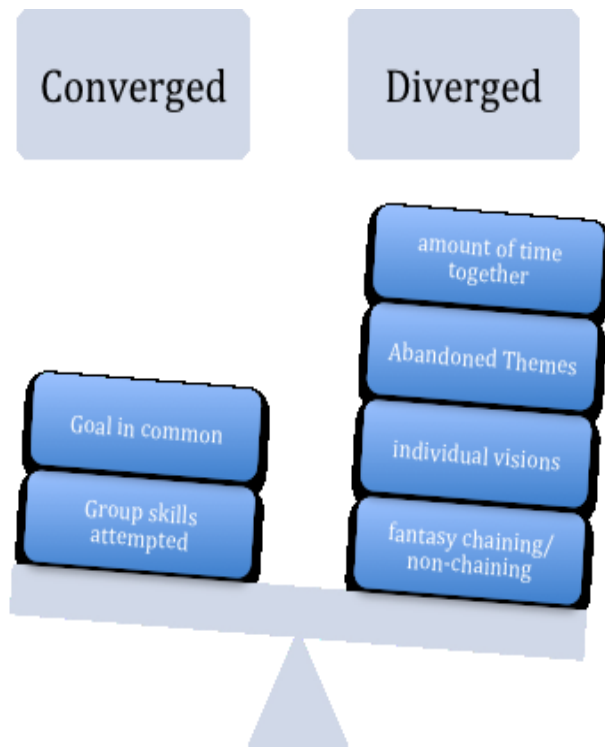
Figure 14. Fine arts team convergence and divergence elements.

CHAPTER 7

CROSS-CASE ANALYSIS AND SUMMARY

Introduction

By definition, groups inherently must problem-solve. Studying the communication that occurs during group problem-solving can reveal strategies to help groups achieve their goals with better results.

In this chapter I will relay the findings of the study in relation to how the elements of SCT worked across all three cases, and how SCT described the communication involved in group problem-solving. Then I will report the findings of how CAVE performed in team creative problem-solving, and contrast the findings across the three cases. I will note how CAVE explains group behavior in creative problem- solving. I will then link the team's communication skills to these processes, and note how the communication and skills used in different ways in similar situations influenced the team outcomes. I also will report how the integration of SCT and CAVE affected the teams. Then I will discuss what this means for groups who must use creative problem- solving.

The Teams

The teams were made up of students, ages 19–23, enrolled in the class "Advanced Communication and Creative Problem-Solving in Multi-Disciplinary Groups" at James Madison University. All teams had 20 weeks to prepare their central challenge solution and learn how to work together productively.

The Tasks

Each team had to meet the specifications of the 2014 DI Challenge of their choice, which included building a set, writing and performing a skit, as well as creatively displaying a solution to elements that were individual to each challenge. The teams also were judged on how well the team exhibited creativity and synergy.

Findings

When looking at the cases side by side, I will compare the skill sets described, as related to the CAVE found and FTA as it was employed. I found it was not difficult to employ the theory in any of the cases. As Bormann noted, the groups used fantasy in order to relate to each other, and the true nature of the group's values and dynamic showed up in the stories they created (Bormann, Cragan, & Shields, 2001). This can be seen in all three cases through the Fantasy Chaining, Fantasy Themes, and Fantasy Types. Additionally, it was noted that these three processes of symbolic convergence exposed the creative process occurrence, as well as caused the creative process to progress.

SCT Observed

The first research question was "How does SCT describe the communication involved in group creative problem-solving?" SCT was employed through the use of FTA, to find the elements of Fantasy Chaining, Fantasy Themes, and Fantasy Types, which in turn, being dramatistic, formed a symbolic reality or rhetorical vision (Cragan & Shields, 1995) that told the team story and led to a Master Analogue, which exposed the team's values and dynamic.

Fantasy Chaining

Fantasy Chains were plentiful in all three cases. Examples were chosen from the most common recurring Fantasy Chaining topics or the ones that were foundational to the story, like Case One's (Structure Team) chains about the super-admirer's characteristics, or Case Two's (Scientific Team) chains about the shark. In both these examples, the team's topic was repeated subject matter on multiple occasions, leading to Fantasy Themes. In Case Three (Fine Arts Team), the examples were chosen because they exhibit times when the team was actually communicating. It also shows how the diversity of Fantasy Chaining topics highlighted the problem or the perfect problem theme emerging. In other words, the team in Case Three (Fine Arts Team) did not create strong themes from their chaining, and the examples show why.

Fantasy Themes

Fantasy Themes lent insight to the team's group story. Because "SCT explains such symbolic phenomena by indicating how people become caught up in a group consciousness that provides shared meaning, emotion, and motive for action" (Cragan & Shields, 1995, p. 30), the Fantasy Themes reflected values the team held in common. For example, in Case One (Structure Team), the team's conversation seemed superficial and silly at times when they were playing around, but a regular return to creating suitors who had real depth, who were gentlemen and were sincere at heart, revealed that all the team members shared a basic belief that a super-admirer (a real admirer, in real life) would have specific characteristics. They even agreed on what those characteristics were, showing the values of chivalry, which they tried to give the characters in the skit.

In Case Two (Scientific Team), the Themes came from Chaining that revealed very individualistic people, who loved being odd, and related themselves to pop culture. They were actually united in their individuality. Their communication regularly agreed about Dr. Who references most often, and they were not always connected to the here and now. This Theme exposes the commonly held value of individual creativity. Since Themes lead to Fantasy Types, the "Dr. Who" as a Fantasy Type exhibits the team's passion for divergent thinking.

The Fantasy Themes in Case Three (Fine Arts Team) were present, though they were not found as much in similar Chaining, as they were found in similar trends of Chaining. This team's trend was to start strong, and then wander off into their own topics. When they were brainstorming, they had great ideas, but since no one ever took care of the ideas, they were lost in the next session. The Themes coalesced into a vortex of ideas that never came together. This phenomenon showed a lack of structure and instability for the team. This is how the "Perfect Storm" Fantasy Type was created.

Fantasy Types

Bormann calls the Fantasy Type the "workhorse" of SCT (Bormann et al., 2001, p. 284). That's because here is where fantasy can explain reality. When the Aladdin type developed in Case One (Structure Team), we know that the character Aladdin was a good guy, he was adventurous and competitive, he wanted to get the girl, and tried his best to find the way to do that. The reason this is the Fantasy Type for this team is because their theme of Fantasy Chains fits into that description of Aladdin. Aladdin typifies their team story.

In Case Two (Scientific Team), it was Dr. Who that the team typified. This team's theme of Fantasy Chains exhibits a bit of mad scientist coupled with gadgets and some time travel, all the while interacting with reality as if it were very normal to need to use space-age language to problem solve at all times. They were very happy to have the excuse to "live" fantasy.

The first two cases contrast sharply with Case Three (Fine Arts Team). The Fantasy Type that Case Three created was the "Perfect Storm," because they worked together just enough to make a mess. The paradigm this team formed with their group was doomed because of its construction. The patterns in their communication reveal that they were not listening to the teacher or to each other. The type that emerged from these themes of short Chaining, or Non-Chaining, was that the only thing the team created was the Perfect Storm, a situation perfect for failure.

Master Analogues

The first two cases came to Pragmatic Master Analogues. They were most converged on the vision of winning. The communication they used was focused on how to win, whether it was about the characters, or about tasks, or even conflict. They seemed to recognize that the goal was the most important thing whenever they were together. This shows in the Fantasy Types. Aladdin gets the girl. Dr. Who finds another time warp. These teams wanted to win.

In Case Three (Fine Arts Team), as already exhibited, the communication never got to the point of creating the situation to win. As evident in the Chaining examples, the group task was cumbersome because the members did not have intrinsic motivation to be there. Their motivation for attending the meetings was also extrinsic; they were there

because they had to be, for class. Their conversations were strained and divergent. Most members tolerated each other at best, and one member was an outcast. This is seen in the Chaining that led to the Fantasy Type, the Perfect Storm.

This team exhibited a Social Master Analogue. Their concerns were social, but not social with their group. They were committed to social spheres outside the team and the goal; this is what pulled them from even desiring to pull together to form any convergence.

CAVE Observed

The second research question was "How does CAVE explain group behavior affecting creative problem-solving?" CAVE explains the behavior by identifying the components of CAVE, as well as looking for results of communication behavior. Creativity was easily found through Fantasy Chains that were noted. When using CAVE to describe the creativity in the teams, many of the Fantasy Chains exhibited the creative process of combining (brainstorming), visualizing (framing), and elaborating (building on each other's ideas). In each of the elements of CAVE, compared across the cases, the Fantasy Chains highlight communication that is creating the team story.

Combine

Case One (Structure Team) was using combining to come up with a concept of the best admirer. They used super, as in super hero, and combined it with admirer to indicate that this is not just a regular old admirer, this guy admires the girl with super power. In Case Two (Scientific Team), the team was looking for an extreme environment as a requirement of their challenge. In thinking of two extreme environments, prison and

the depths of the ocean by Antarctica, they thought they had found the most extreme of all extremes. Prison was an extreme, the "depths of the ocean" was an extreme, and Antarctica was an extreme. So they combined these three concepts into "AquaTraz," the undersea prison.

Combining seemed to be the element most enjoyed by all three teams. They were delighted with their combinations. Even Case Three (Fine Arts Team) liked their ideas. Combining brothers (as in Fraternity) and Greek gods (as in Fraternity/Greek Life) the team in Case Three got to combine two concepts of their one favorite topic, fraternities. It is surprising they allowed these combined names to go by the wayside: Bro-sidon, Br-eus, son of Zeus, and Bro-cules. Those names were exactly what the team needed.

These are all examples of how creativity is enjoyable. It is expressed as "fun" when original thoughts or ideas are contributed to the story. Having "fun" or using language skills like original messaging and feedback can boost motivation. With enough of these experiences, this element of CAVE can pull the team together in a meaningful way. The combinations created often became symbolic cues for the team, which help secure the team identity. This can be seen in Case Two's (Scientific Team) older team members who had bonded in their previous team "Rumble-fish." "Rumble-fish" was a combination they had morphed into an analogue for a successful team which they were once a part of. Its strength is exhibited in the emotional attachment the older members displayed when it appeared in Chains. They did not want to share their owning of "Rumble-fish," they merely wanted to reference it in order to express the kind of bonding they were desiring from the newer team of which they were now a part.

Analogue

Analogue is the strongest element that ties the processes of fantasy to CAVE. The teams verbalized here what their Fantasy Type actually was. Aladdin represents that perfect super-admirer for the team in Case One (Structure Team). Dr. Who is who the team in Case Two (Scientific Team) wanted to be, and without ever saying it, the Perfect Storm was the analogue used by the team in Case Three because of their communication behavior.

Because analogue is the same element as the Fantasy Type, it is a concept representative of the team's collective story. The team story influences team direction, and here also influences how the creative process progresses. For example, Case One's team members (Structure Team) were all boys. They took on a male perspective for their story, and made their hero to be like themselves. This story influenced the direction of the skit and also the social interaction between the boys. The story also influenced their creative process because it gives the reason Aladdin won the girl in the skit. The team used the rest of the elements of CAVE to make it look like the least likely boy would win the girl, and then in a twist (showing their preference for wit and surprise, and magic, just as in their team story) made the most "masculine" character win the girl.

Visualize

In all three cases, the teams visualized how their combined concepts would exist. They used language to paint a picture of the idea. While visualizing, the teams were moving towards each other through conversation. They were constructing the form and structure of what the newly formed concept would appear to be. This element requires taking others' thoughts and ideas into one's own consideration before agreeing or adding

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to it. This is an essential part of the definition of group creative problem-solving communication.

Examples of visualizing are in Case One (Structure Team), when the team members were picturing the super admirer (he should be Aladdin on steroids), or in Case Two (Scientific Team) when they were picturing the Space-Shark (he has a field around him). Even Case Three (Fine Arts Team) had examples of visualizing in this way, when they pictured how they would behave at a party (we would be all hammered).

Visualizing gives the opportunity for the team to be united on what they see as their goal. They use words to frame the picture of how the solution will appear. Framing is a characteristic of language that is a powerful tool when used to help others see our perspective. It was important in order to meet the requirements of the challenge, so the framing was carefully planned. More specifically, this appears in Case Two's (Scientific Team) example of how the shark would exist, and as they discussed what properties this character should possess, team members were framing. This example gives the audience the opportunity to understand depth in the skit, and it is shaping the direction of the Fantasy Chaining as the team members ponder how to show the judges that the character meets a specification. They visualize until they find a way to fit the shark into the challenge.

Elaborate

Once the concept has been agreed upon, the team members can then add to it. It is at this point the team members begin to converge. Through elaboration, they are able to refine the picture, to adjust and re-adjust. This is the part of the definition of group

creative problem-solving communication that refers to "so that each member can add to the original contribution in order to reach a holistic rhetorical vision."

Examples of this would be when in Case One (Structure Team), team members began to dress their super-admirers. In Case Two (Scientific Team), details about the Space-Shark began to materialize. And briefly in Case Three (Fine Arts Team), more details about behavior of the fraternity boys emerged.

Integration of SCT and CAVE

The third research question is "How does SCT interact with CAVE?" Since FTA was the mechanism used to find CAVE, first, SCT and CAVE interact through the kind of communication that is occurring. Whenever CAVE was active, Fantasy Chaining was also active, in a symbiotic relationship. Fantasy Chaining drives CAVE, and when CAVE begins to occur, more Fantasy Chaining is seen. Subsequently, Fantasy Themes appear that lead to the Fantasy Type, which as demonstrated is the Analogue in CAVE. This means the two processes are simultaneous.

The two processes in concert enhance communication skills that propel the group toward synergy. It is important to note that the skills are a result of specific kinds of communication processes. When SCT and CAVE are active in group communication, bonding and motivation of the group are increased. Group creative problem-solving communication is active, and this can lead to an increase in other skills identified as critical for group convergence as well.

In order for the teams to be able to solve their challenges, they had to use communication skills. These skills are the same as referenced in Table 1, but as applied to the cases, the components of SCT and CAVE are included in the skill sets now.

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The Structure Team (Case One) displayed all the skill sets identified as components of a team with synergy. They quickly developed symbolic cues, which helped them bond and increase their comfort level with each other. They had secret language, which was a binding factor, and the fact that the secret language was all related to their very similar interests gave them even more bonding. Because they used Fantasy Chaining in conversation as well as when working, it was easy for them to write their skit and find the solution elements of their challenge. It also added to their conflict resolution.

In contrast, the Fine Arts Team (Case Three) had very few of the skill sets Hargie (2001) identified as components of a synergistic team. While they did brainstorm, Fantasy Chaining towards the goal of the team was sparse, and when they did Chain, they used short Chains, which were quickly brought to conclusion. This team's outcome was weak and their communication skill sets were weak. They did not want to participate, they had an equity problem, they did not clearly define their roles, and they regularly shut one member out. The team manager made command decisions, first, without consulting the team, and second, when he was not supposed to be involved in those decisions. This is nothing like the other two teams studied. Skill sets can be aligned with communication behaviors, as shown in Table 28.

Table 28

Team Communication Skills and Benefits with SCT and CAVE Integrated

Group Behavior	Group Skill	SCT	CAVE	Benefit for Individual	Benefit for Group
Participation E.g.: Meetings	Engagement, Discussion	Fantasy Chaining, Fantasy Types, Fantasy Theme emergence	Combining Elaboration Visualization Analogue	Group members feel better when they feel included in discussion and a part of the functioning group.	Added participation brings more ideas, more energy, higher levels of productivity to the group.
Messages E.g.: Group Creative Problem-solving Communication	Interact and Probe	Fantasy Chaining, Fantasy Theme Fantasy Type emergence	Analogue Combine Elaborate Visualize	Confirming messages help build relational dimensions within a group and clear, organized and relevant messages help build task dimensions within a group.	Build task dimensions within a group.
Feedback	Empathy, Empathic listening responses	Master Analogue emergence	Combine Analogue Visualize Elaborate	Positive, constructive and relevant feedback contribute to group climate.	Positive group climate invites more communication and desire to work toward task.
Equity	Group role management, Empathic listening responses	Master Analogue emergence	Elaborate	A sense of fairness or justice within the group.	Group members also like to feel as if participation is managed equally within the group and that appropriate turn taking is used.
Clear and Accepted Roles	Leadership style, group role management	Master Analogue emergence		Helps each member be comfortable with and accept their role in the group.	Group members like to know how status and hierarchy operate within a group.
Motivation	Group Identity, Group vision	Group Convergence	Creative Process	Member motivation is activated by perceived connection to and relevance of the group's goals or purpose.	Group goals and purpose are personal and primary objective of many group members.

Because the Scientific Team (Case Two) was a bit lacking in their

communication, I see this as the difference between Case Two (Scientific Team) and

Case One (Structure Team) as can be seen in Table 29. While both teams used fantasy to

create team reality, the Scientific Team (Case Two) resisted working together. They

listened less, and talked more. They were as committed to their goal as the Structure Team (Case One) and as concerned about following the challenge directions as the Structure Team, but they did not socialize as much as the Structure Team. That is to say, they did not extend the creative process to their social interaction as much as the Structure Team did. There were not as many symbolic cues developed within their group. This makes me wonder if the amount of time spent together has an impact on the Fantasy Chaining, and therefore the CAVE process as well.

Table 29

Communication Skills Level Cross Cases

Comm Skills	Case One	Case Two	Case Three
Participation	High	High	Low
Messages	High	High	Medium
Feedback	High	Medium	Medium
Equity	High	Medium	Low
Roles	High	High	Low
Motivation	High	High	Medium

In all three cases studied (Table 29), the components of SCT were used to find CAVE. Using FTA, the observation surveys identified Fantasy Chaining, Fantasy Themes, and Fantasy Types. These Types were used to describe the stories and story lines of the group creative problem-solving process. In turn, the story lines described the connections between the Fantasy Chains, Themes and Types, and CAVE. These connections exist within group problem-solving communication. Specifically, when

group members are actively exchanging ideas, thoughts and opinions are expressed toward meeting their goal so that each member can add to the original contribution in order to reach a holistic rhetorical vision.

CAVE is able to explain the group behavior that affects creative problem-solving with the process of Fantasy Chaining. Fantasy Chaining produces communication behaviors that translate as the skills of messaging, feedback, and equity. The Fantasy Chains are the basis for finding the Themes and Types that create the Master Analogue of the team's dynamic, but the Chaining is also where you find the specific aspects of creative problem-solving as seen in CAVE. When the team is using Fantasy Chaining as a means to brainstorm, the relationship, which has been described as bonding, occurs during that communication because of self-disclosure. CAVE drives this process because of the Fantasy Types that eventually emerge, which are identified as Analogue in CAVE. This means time is an issue as well because a Fantasy Type must emerge in order for this to happen, and that emergence takes some time. After that happens, the two processes are interchangeable.

As the results have shown, the symbolic processes that occur in SCT and the creative processes that occur in CAVE are occurring simultaneously and can influence each other. For example, in the Fine Arts Case, when the team members were actively pursuing a Fantasy Chain about frat names, the members were active and exchanging messages about individual ideas, thoughts, and opinions towards the solution. They were sparking off the other members' ideas and considering all input and perspectives as they Chained, and were at the same time using all the elements of CAVE. They came up with a good, creative element to use in their skit. However, when that process was abandoned

for commitments and loyalties outside the group, the group dynamic immediately suffered. This shows the importance of group communication to the cohesiveness of a group. When they used group creative problem-solving communication, they had high levels of participation, motivation, equity, and roles. When they stopped using group creative problem-solving communication, their use of skills stopped as well.

In this model, connections are made between the creative problem-solving side to each of the SCT and CAVE side. "Constructing opportunities" is connected to "Combine," "Exploring Data" connected to "Elaborate," and "Framing the Problem" to "Visualize." In the next section, "Planning" is related to "Fantasy Chains and Themes," "Reason for Action" with "Analogue/Fantasy Type," and "Preparing for Action" with "Rhetorical Vision." This model integrates communication models with creative problem-solving models, and begins to acknowledge how the two depend on each other.

The symbolic processes of SCT also interact with CAVE because as the idea of collaboration from Sawyer (2008) says, the "whole is greater than the sum of its parts," meaning, when people build on others' ideas or fantasies, new meaning becomes infused in the symbolic cues (Kindle Location.214). The elements of CAVE are also present, describing the specific aspect of the creative process that is happening simultaneously. This ability to describe the simultaneous occurrence means that FTA can identify when CAVE is occurring, marking the occurrence of the brainstorming process.

By connecting the concepts of Analogue (CAVE) and Fantasy Types (FTA), along with understanding the process of symbolic convergence, groups can identify their best group creative problem-solving communication strategy. Strategy can be identified this way because the rhetorical vision explains the group dynamic, which gives voice to

the group's motivation and the ideals that hold the group together. Because Analogue in CAVE is the same element as Fantasy Type in SCT, the two can be looked at as one element, and this element adds to the creative process by linking the group's collective drama, or story, as a collective (converged) piece, to the developing saga or solution. This link is the critical finding of this study. The connection of these two elements is the way FTA can be used to describe the communication involved in group creative problem-solving. This same connection is the way CAVE explains group behavior affecting group creative problem-solving. The elements of SCT, Fantasy Chaining, Fantasy Themes, and Fantasy Types interact with CAVE in order to accomplish this.

When the skill sets that are produced by this kind of group creative problem-solving communication are put to use, as seen in Case One (Structure Team) and Case Two (Scientific Team), the group exhibits convergence. As observed in Case Three (Fine Arts Team), when the group creative problem-solving communication is not complete, or does not exhibit the connection between symbolic convergence and CAVE, there is not a resulting rhetorical vision, the skills do not appear, and group convergence does not occur.

Symbolic processes provide the opportunity for group bonding. CAVE provides the opportunity for group motivation. Bonding comes from the group identity derived from Fantasy Chaining and Theming. For example, in Case One (Structure Team), the team bonded over how to get girls, they developed code words and private jokes, they wrote their skit about that, and the Type that emerged was a boy who had the aid of magic to get the girl. The team values, which were seen in the type, were also their collective idea of how a boy should appear, act, and behave when he is trying to get a girl.

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By using Fantasy Chaining about their values, the team was bonding individual views and ideas and beliefs. It was this self-disclosure through Fantasy Chaining that brought the team members together.

CAVE provides opportunity for group motivation. At the same time as the team was bonding through Fantasy Chaining and self-disclosure, they were also simultaneously using creative process, as we saw in CAVE. Because the act of being creative is an exhilarating and pleasurable activity, it can produce a desire to repeat the activity over and over. Since Fantasy Chaining sparks that creative process, the team members, when bonding has begun, can trust each other enough (self-disclosure rules) to expose their creative thoughts and ideas without consequence. It is easier then to find good solutions, and the team is motivated to participate more and more often. The result is more creative ideas and better problem-solving. I could say the symbolic components of SCT fuel CAVE and the two processes used together can produce a kind of bonding that strengthens team skills and the ability to reach synergy.

In Case Two (Scientific Team), the team bonded over creativity. Not the creative process, they merely bonded through their ability to bounce off each other and continue onto more spacey, out-there paths. The more they Chained, the farther out it got, and they liked each other more because of that. Again, it was self-disclosure, but it was the disclosure of "I get it, like you do," not their own personal value systems (personal information). Because of the lack of personal information, this team did not bond to the extent of the team in Case One (Structure Team), due to the Rule of Reciprocity. The older team members did hold on to their previous bonding experience, as seen in their continued Chaining about old times. While they explained their meaning to newer

members, they did not include them in the Chains about old times. This again shows how the Fantasy Chaining affects bonding, since the team did not bond as well as the example of the team in Case One (Structure Team), where self-disclosure Chaining was frequent. Since Fantasy Chaining develops self-disclosure, it would also create more Fantasy Chaining opportunities. This would be why applying SCT can help a team see where the communication they are using will aid their creative problem-solving processes. The kind of communication is what provides the impetus for more ideas to be generated. With more ideas, comes more Fantasy Chaining, Theming, and CAVE. Sawyer (2008) noted this productivity as important to creative process as well by saying;

> The testimony of innovators across domains amply supports the idea that creativity emerges from high productivity. Linus Pauling, the Nobel Laureate, famously said, "I am constantly asked by students how I get good ideas. My answer is simple: First, have a lot of ideas. Then, throw away the bad ones." (Kindle Locations 1651-1653)

CAVE showed how this team (Case Two, Scientific Team) was motivated. They were very committed to the goals of the challenge. They used creative process often, and as seen in the Space-Shark development example, they used critical thinking to find ways to make their outlandish ideas fit into the solution. They loved the creative aspect so much that they made up many words, or puns, and specific references just for the team. When an individual felt they were not being heard, though, like when the girl who wanted the shark would not give up her ideas when others pointed out its weakness, the team let some frustration get in the way of motivation.

Team communication skills suffered in that instance, because there was a lack of ability to use Chaining to address the problem without injuring the feelings of another team member. This upset the balance of equality and participation within the team, and

ultimately may have been the reason they did not perform as well as they would have liked.

Discussion

As noted by Bales (1970), symbolic convergence begins with the sharing of group fantasies. I found that creative processes are affected by this symbolic communication. When symbolic communication is being used in creative process, the two interact to produce an outcome better than either would produce alone. This sounds a lot like synergy. In fact, these two processes affect synergy. The study shows they can produce synergy or negative synergy depending on the amount of group creative problem-solving communication used.

Because the two processes in concert enhance communication skills that propel the group toward synergy, it is important to note that the skills are a result of specific kinds of communication processes. When SCT and CAVE are active in group communication, bonding and motivation of the group are increased. Group creative problem-solving communication is active, and this can lead to an increase in other skills identified as critical for group convergence as well.

The overlap for how SCT as a theory describes the communication involved in group creative problem-solving and how CAVE explains group behavior in group creative problem-solving is the Fantasy Type. Because the Fantasy Type is a dramatic structure, it can be re-imaged or paralleled as an analogy. This provides description of team dynamic, which can be seen through fantasy. The Dramatic Personae for the team, which comes from the Fantasy Themes, builds a Fantasy Type, and this becomes the

Analogue in CAVE. These two elements in common provide context for all the other aspects of the relationship between the two.

For example, Aladdin is the Fantasy Type for Case One. He is also the Analogue for that team. The team revisits the characteristics of Aladdin in order to use combining, visualizing, and elaborating. The Fantasy Type/Analogue thus drives the creative process. In Case Two, the Fantasy Type/Analogue is Dr. Who. The team's interaction, Fantasy Chains, and Themes pivoted on Dr. Who language and story lines. Their creative process was driven by what Dr. Who might have done. These are both examples of how the Fantasy Type/Analogue influences both the symbolic communication and the creative process. The relationship described by this example can be seen in the illustration in Figure 15.
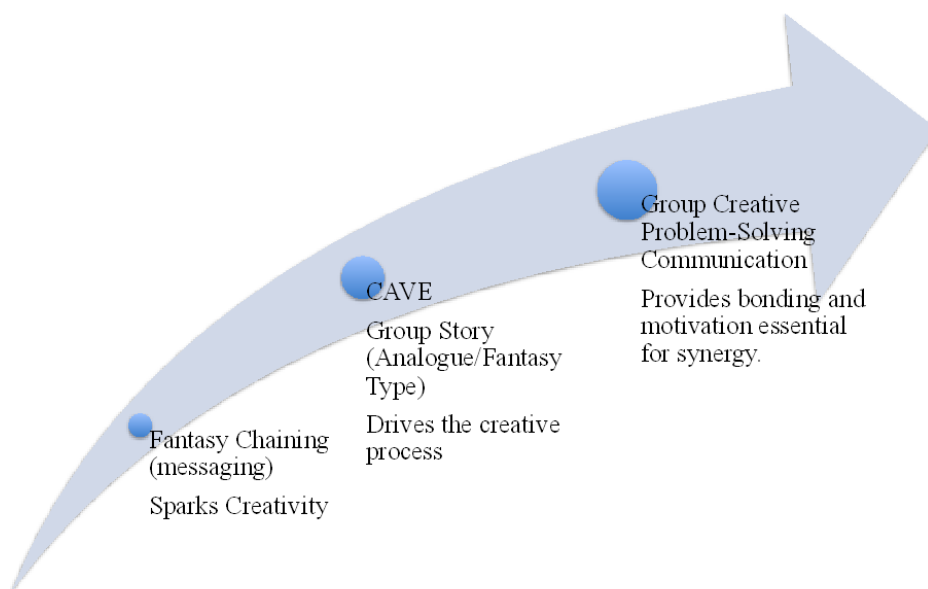
Figure 15. Results of components of SCT and CAVE's relationship with group creative problem-solving communication.

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Groups can use symbolic language (Fantasy Chain) for self-disclosure (trust) to combine two disparate ideas (Combine), which motivates the group to communicate more (Fantasy Themes), creating a climate where they can find a group identity (Fantasy Type, Analogue), with details (Visualization, Elaboration), in order to come to agreement (rhetorical vision). At that point, the group story can expose the group values and dynamic (Master Analogue) which can bring them to convergence.

The study addressed several aspects of group work that were affected by the communication. For example, team dynamic suffered when Non-Chaining was present (Case Three, Fine Arts Team), but thrived with acknowledged chaining (Case One, Structure Team). I wonder if the time component (amount of time spent together) is connected to the kind of motivation that can result. For example, a group is given a task to accomplish or a goal to reach. This gives the members of the group extrinsic motivation. Only when the team cares enough either about the other members of the team or the success of the team will that motivation become intrinsic motivation. For Case One (Structure Team) the motivation is intrinsic because they cared about not only winning but how winning looks as a team. Additionally they spent hours together, as a creative problem-solving group, and in addition to that time, they socialized together outside of class. This study did not attempt to determine whether that time affected the move from extrinsic to intrinsic motivation. Clearly, though, the other two teams did not spend as much time together outside of class in using this kind of communication as the team in Case One (Structure Team).

These findings reveal the holistic nature of communication. Past investigation of the group creative process has looked at pieces of the communication influence, but as I

have noted, all the pieces must engage in order for the process to work successfully. This speaks to the basic building blocks of communication. We know that the basic elements of communication are essential to human life. Babies develop "Failure to Thrive" syndrome when they are not held (haptics) (Rosenn, Loeb, & Jura, 1980), and the health status of elderly people in nursing homes is improved with appropriate touch (Bush, 2001). This illustrates how the most basic forms of communication are part of our human makeup. The elements are all connected.

This study involves perception, one of those basic blocks of communication. Within perception is found self-disclosure, self-identity, and self-esteem, all of which make up group identity, the essential piece of group creative problem-solving, which Fantasy Type and Analogue together co-create.

The skills required for this to happen are shown to be enhanced by the symbolic language used and the creative process employed. If conscious awareness was practiced and feedback provided, groups could take advantage of their fantasies to create more solutions and to reach goals in a more innovative way.

Towards a Model

What emerges from the data is that nonlinear discourse is how group creative problem-solving works. This is important to note because it also shows us that, as seen in group creative problem-solving dialogue, Tuckman's model of Forming Storming Norming and Performing does not apply in creative problem-solving groups. Creative problem-solving groups will be using the elements of CAVE when together and also when alone. The group growth is not linear, but asymmetric.

In the Treffinger/Isaksen model of creative problem-solving (Figure 2), on which DI bases its challenges, there is reference to "Understanding, Planning, and Designing," all terms that make a vague reference to communication involved, but do not explain any of it. If CAVE and the components of SCT were integrated into the model, it would look like Figure 16.

In order to address the issue of communication models missing the creative problem-solving process, and creative problem-solving models barely referencing communication processes, a new model is needed. The new model would integrate the two processes to illustrate the importance of their influence on each other. It would stress that the kind of communication used, not merely messaging, but Fantasy Chaining, Theming, and Types, drives the CAVE process, producing more options for solution.

CAVE and the symbolic processes of SCT occur again and again in the group meetings, in a non-linear pattern, and in direct opposition to the model Tuckman developed. This emerging model appears more like cogs in a machine, where when one turns and is engaged with one or any of the others, it changes the others, and all are dependent on each other to make the whole machine function. All the cogs spin independently, but need to move with each other in order to be complete.

This concept is similar to Sawyer's (2008) ideas about collaboration:

> All great inventions emerge from a long sequence of small sparks; the first idea often isn't all that good, but thanks to collaboration it later sparks another idea, or it's reinterpreted in an unexpected way. Collaboration brings small sparks together to generate breakthrough innovation. (Kindle Locations 1555- 1557)
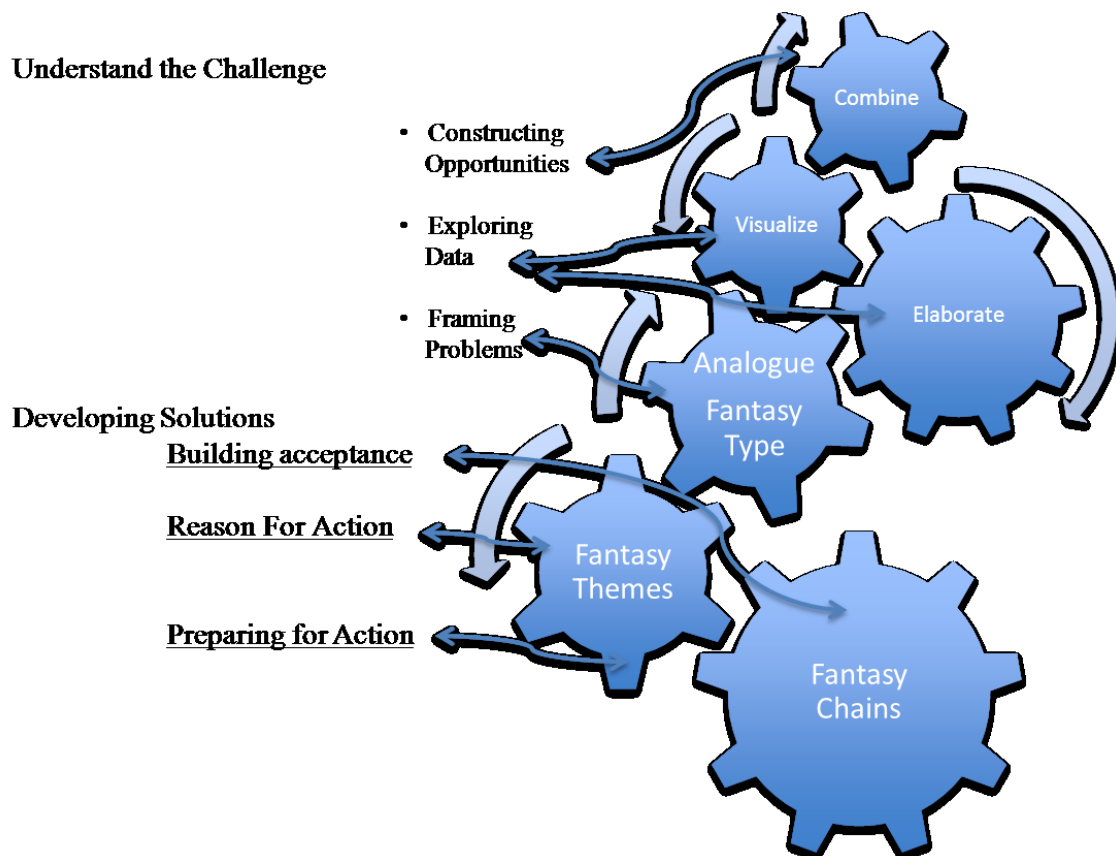
Figure 16. Armstrong model of communication and CPS interaction during group creative problem-solving.

In this same way, group creative problem-solving communication does not occur only when the group is together and brainstorming, but occurs outside of group meetings, sometimes when group members are alone; and these ideas, sparks, are brought back to the group and plugged into the continuing conversation about how to solve the problem.

It is when all members are involved in the symbolic processes of SCT and CAVE occurring together that group creative problem-solving communication commences, or the team suffers, as seen in the Fine Arts (Case Three). The group creative problem-solving communication occurs only when symbolic language is creating meaning solely for the group members. This means the members become a part of a drama they create,

and the drama influences—creates--the resulting group rhetorical vision. This kind of communication is the foundation that builds the bonds exhibited by skills described as essential for synergy. Evidence for this is seen in the Structure Team (Case One) and the Fine Arts Team (Case Three).

Another finding to note is that Bormann's original definitions of the components of SCT need to address some specific aspects of how the elements of SCT interact with creative problem-solving. When applying FTA to creative problem-solving groups, there are several ways the theory of SCT is expanded. First, the definition of Fantasy Chaining must include terms like "planning dialogue." This is essential, because the Chains that are used in creative problem-solving are symbolic and do not yet exist as reality, but have specific short-term goals that will be applied almost immediately in reality. The definition should specify dialogue that plans, using symbolic language to find new meaning and new course of action in problem-solving communication. Chaining also becomes a verb, because it is an action or behavior of the group.

The definition of Fantasy Type also must be expanded to include analogous properties. This component of SCT is clearly mirrored by Analogue in CAVE, and as all groups must problem-solve to reach their goals, this is the component that will be used to link their creative processes with their communication processes.

Limitations

This study was conducted on a specific kind of group, teams that were constructed for the purpose of competitive creative problem-solving, within the boundaries of the organization DI. The teams were chosen from a university class, and all team members were students at James Madison University.

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Recommendations

Researchers must continue to study the relationship between communication and creative problem-solving in order to make more connections that can improve group effectiveness. Specifically, they should be looking for ways to use the creative process to form stronger bonds within a group, and to produce not only a better group experience for the members, but better results of group creative problem-solving.

This study can be replicated with any group desiring to increase their cohesion and meet a goal of convergence. Possible beneficiaries could be boards, school administration groups, school classrooms, church administration groups, committees, both ad hoc and assigned, church groups, community groups, and so forth.

Groups that are driven for success need to know how to look for rhetorical vision, how to find the group identity or group story, and will need to be able to see the collective strengths of the team. They also will need to be able to recognize when group communication is breaking down and when the group is diverging. Therefore, training in group skills and recognition of these characteristics is necessary for these groups.

Group communication can then be defined and identified, and with this, group communication skills also can be identified as the tools for the group to use as they move forward.

Recommendations for DI

DI uses academic research in order to be sure the program and challenges are learning experiences that include school objectives. Because DI emphasizes the empirical knowledge by promoting current creative problem-solving models, this study can add to

what they are already using. Clearly communication type is an overlooked aspect of current creative problem-solving models, and DI can benefit from this study by:

1. Integrating the model that integrates SCT and CPS and explaining the processes of Fantasy Chaining, Theming, and Types, and CAVE in their literature and training materials.

2. Providing practice sessions in their team manager training to help the team managers identify the processes. Assessment tools could be developed that will make it easier for team managers to see symbolic communication happening.

3. Including activities for exploring CAVE in Instant Challenge books.

4. Providing assessment tools for team managers to use in order to analyze Instant Challenges using this method.

5. Writing challenges that enhance the use of the symbolic elements of SCT and encourage communication about CAVE which drives creative activity.

Recommendations for Any Problem-Solving Groups

As shown, groups will inherently problem-solve in order to meet their goals. Therefore, groups should be made aware of the two methods to find their creative process and examine its success rate.

They need to learn to identify Fantasy Chaining, Themes and Types to learn how to recognize the symbolic and creative processes so they can connect more, and recognize the skills needed to achieve more synergy in order to be more successful in reaching their goal.

Problem-solving activities like the Instant Challenge build team dynamics and should be used for that purpose. In addition, this will stimulate the group's creative problem-solving growth.

I recommend that at least one member of the group be designated to learn about group skills and identification of group processes including creative problem-solving with group creative problem-solving communication, and that person would be on task in the group to alert the entire group of its own movement.

Seminars could be developed for this purpose, and user-friendly materials produced from this study could train group leaders to use the knowledge of symbolic and creative processes to analyze and advance their team's creative process. With that knowledge the leaders could pinpoint times of highly creative activity and areas of communication breakdown. This knowledge also could help team leaders to match specific team members to task.

<div align="center">Recommendations for Further Study</div>

Gender studies on this kind of group communication need to be done. Since the case that was most successful was mono-gendered, this begs investigation. Also, in the case where the team was the least successful, there was an "overbearing" gender issue.

Several aspects of SCT need to be reconsidered. Bormann's (1972, 1982c) definition of what a Fantasy Chain is needs examining in order to include not only the noun definition, but a verbal definition as well. What does a Fantasy Chain look like? How many ways does it behave? What can it produce? The definition of Fantasy Type should include a description of its connection to the Analogue process in CAVE. This not only would expand the power of SCT, but it integrates communication and creative

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problem-solving. With more investigation, more could be found out about the critical places where SCT and creative problem-solving intersect.

More needs to be understood about how time spent together overall affects the teams and motivation. It is still unclear how much time and how much Fantasy Chaining is required (with self-disclosure) during the brainstorming process in order to form the bonds that build motivation and commitment to the group.

Summary and Conclusions

This study answered the questions of how SCT describes communication in creative problem-solving through the careful documentation of the Fantasy Chaining, Fantasy Themes, and Fantasy Types. Groups with very specific creative problem-solving goals were identified and studied. From the observations of the occurrence of the elements of SCT, CAVE was identified. The team story evolved from the Fantasy Chains, Themes, and Types, and the dramatistic sagas that emerged exposed the teams' rhetorical vision. The rhetorical vision reflected the teams' ability to bond or inability to bond. This is how the divergence or convergence was revealed.

The way that CAVE affects creative problem-solving behavior was also established by notation of changes in communication that was occurring during CAVE, and changes in the activity the team was working on. When teams were engaged in CAVE, they displayed heightened activity, more communication, and more self-disclosure. The teams self-described this activity as being high energy and fun. This illustrates how creativity increases pleasure, and can be the element that boosts motivation.

Through understanding the function of Analogue and Fantasy Type, a connection was revealed. This connection is a critical finding because it connects communication to creative problem-solving. This is the piece that was missing from the current models. This new information will be able to inform team leaders, managers, and teachers about the critical element of the two. This piece is pivotal because this is where one process drives the other. This will allow groups that are using creative problem-solving processes to use their communication skills in a more effective way.

The end result is that group dynamic can be improved, motivation to participate is increased, and, as in Case One, creative problem-solving will be more successful.

APPENDIX A

OBSERVATION SURVEYS AND INTERVIEW QUESTIONS

OBSERVATION SURVEYS

CAVE identifiers:

Compare; comparing two elements of an idea for solutions
        EX;   What about…
              Or we could make it…..
              I like the other one…..

Analogue: team dialogue that determines a new meaning for old terms combined
        EX;   We could just DI it…..
              Use the Duct tape method…..
              We need another Side Trip…..

Visualize; the team dialogue addressing what the idea has morphed into, and how that would work stories and pictures
        EX: My costume will look like….
              The backdrop will be…..
              We'll get the most points because we…..

Elaborate; team dialogue reaching rhetorical vision, when the whole group embraces the idea and puts the finishing details on the rhetorical vision in order to make the solution the best fit to the problem adding new life to an old idea.
        EX: So we're going with….and meeting the points…..(this way)
              We'll be able to….. because…..
              I love this solution, it's falling into place because…..

TEAM A, Rec 1, JMU Warehouse, Apr. 2014 Table 1a 1st 15 minute segment

1 hr video	Compare	Analogue	Visualize	Elaborate	
Source					
Source					
Source					
Source					
Source					

Story identifiers; examples

Phrases like; One time I….
It's like when…..
I remember….
I used to…..
A friend of mine did….

Plot line:
Problem phrases:
And then_____happens…..
But _____ character doesn't go to…..
Instead, _____character has unexpected circumstance
Resolution:
Solution/ending statements:
That's all we have to do.
Character leaves.
Just in TIME.

Non-Fantasy Themes are any interactions that do not chain out in the group, or between the team members.

Fantasy Themes will be the kinds of stories that were shared and chained group members

Fantasy Types will include:
recurring themes
abbreviated references to fantasies
inside jokes
and any dialogue that becomes symbolic.

Rhetorical Vision will be seen by the unified, agreed solution to a specific problem in the group.

TEAM A, Rec 1, JMU Warehouse, April 2014 Table 1b 1st 15 minute segment

Stories	Identifying phrase	Non Fantasy Themes	Fantasy Chains and Themes	Fantasy Types	Analogue
1st example source			A.	A.	
2nd example source			B.	B.	
3rd example source			C.	C.	
4th example source			D.	D.	

TEAM A, Rec 1, JMU Warehouse, Apr 2014 Table 1c 1st 15 minute segment

Story 1	Plot lines	Characters	scenes	
Fantasy Chain A CAVE element				
Fantasy Theme A CAVE element				
Fantasy Type A CAVE element				
Rhetorical Vision				

TEAM A, Rec 1, JMU Warehouse, Apr 2014 1st 15 minute segment

Story 2	Plot lines	Video segment	Characters	Scenes	
Fantasy Chain B CAVE element					
Fantasy Theme B CAVE element					
Fantasy Type B CAVE element					
Rhetorical Vision					

INTERVIEW QUESTIONS

1. Discuss the ways your team communicates differently than you would communicate with others

2. Are there special communication techniques your team has adopted in order to better reach your goals? If so please give examples of use and also results.

3. When is your team best at thinking outside the box?

4. What are the factors that contribute to the team's ability to think outside the box?

5. How many ways does your team use communication in the CPS process?

6. How does your team create language as part of brainstorming?

APPENDIX B

STRUCTURAL, SCIENTIFIC, AND FINE ARTS CHALLENGES

STRUCTURAL CHALLENGE

"Like" us on Facebook at Destination Imagination, Inc. to share content and interact with the DI community.

Follow us @IDODI for program updates

Follow us on Pinterest for inspiration and creative ideas.

Share your photos @boxandball

LEARNING OUTCOMES

Force and Tension Research

Technical Design Process

Geometric Principles

Architectural Design Process

Structural Engineering and Construction

Material Science

Budget Management

Effective Storytelling

Theater Arts Skills

Critical Thinking

Team Collaboration

Interpersonal Communication

Presentation Skills

Time Management

Perseverance

Risk Taking

Stages of the Creative Process

Self-directed Learning

POINTS OF INTEREST

Build a structure that will be tested against two forces at the same time.

Design a prop that will be assembled during your presentation. The prop's parts must fit completely inside a measured space.

Create a story in which tension is a threat to stability and is overcome in some way.

Create and present two Team Choice Elements that show off the team's interests, skills, areas of strength, and talents.

SPONSORED BY

Time Limit
The team must complete the Presentation (including setting up) in 8 minutes or less.

Team Budget:
The total value of the materials used may not exceed $125US.

Approaching this Challenge
This Challenge can be solved on many levels, ranging from the simple to the complex. We recognize that there are many different ways to be creative. Please approach this Challenge in the true spirit of Destination Imagination: try foremost to solve the Challenge. If you find the intent or any of the details of the Challenge unclear, we encourage you to ask for a Clarification. (See the Rules of the Road.) Remember—if it doesn't say you can't, then you can. However, if it says you "must" perform specific requirements, then those requirements have to be met.

Team Number
Teams and individuals using these Program Materials must hold a 2013-2014 Team Number. The Destination Imagination Team Number is a license to compete in sanctioned tournaments and/or to use the Program Materials for educational purposes within your team, school, group, or organization. Online access to Program Materials for teams who have purchased Team Numbers is on www.DestinationImagination.org.

My 2013-14 Team Number is:

___ ___ ___ - ___ ___ ___ ___ ___

My team is planning to compete in a sanctioned tournament.

I have registered for that tournament with the:

Regional Director or   Affiliate Director

In order to successfully solve this Challenge, teams must read and follow:

Team Challenge

A. The Central Challenge (240 points)

B. Team Choice Elements (60 points)

C. Reward Points

D. At the Tournament

Rules of the Road

Published Clarifications
(online at DestinationImagination.org)

The information in these materials is binding for all teams.

Recommended Resources:

Roadmap

Instant Challenge Practice Set
(available online in the Resource Area at DestinationImagination.org)

Travel Guide for Teams
(available online after Jan. 1, 2014)

facebook.com/destinationimagination

twitter.com/idodi

Training at DIuniversity.org

1. Intent of the Challenge: To solve this Challenge, the team must build a Structure made entirely from Wood, Glue, and/or Monofilament Fishing Line. The team must test the Structure's strength under stress from two forces. The team must create and present a Story in which tension is a threat to stability and this tension is overcome in some way. Additionally, the team must design a prop that will be assembled on-site at the tournament during its Presentation from materials transported in a team-provided container that fits entirely within a 25in x 25in x 37in (63.5cm x 63.5cm x 94cm) space.

2. Designing and Building the Structure:

   a. The team must design and build a Structure made entirely from Wood, Glue, and/or Monofilament Fishing Line. The Structure will be tested on-site at the tournament during the team's Presentation. Teams are encouraged to build and test many structures before competing at the tournament.

   b. The team must design the Structure so that it can be placed on the tournament-provided Structure Tester at the tournament for testing. The team will test how much weight the Structure can hold by stacking a Pressure Board and weights on it. Section D.4.a shows a diagram of a Structure Tester. For the purpose of this Challenge, a modification has been made to the standard tester base which includes a four-sided pyramid (see figures in D.4 and Table 1 for dimensions). This Pyramid Tester Base is used to apply tension to the Structure.

   c. Team members must do all tooling and/or shaping of the Structure. The team must not use any type of technology that designs, creates, or aids in the testing of the Structure based on input of the Challenge specifications. Some examples of this technology are Computer Aided Design (CAD) or Structural Analysis Systems.

   d. A jig is a template or guide the team uses to help in building the Structure. If a jig is used in the construction of the Structure, the jig must be team-created and built.

3. Structure Specifications:

   a. Materials: The Structure must be made entirely from Wood, Glue, and/or Monofilament Fishing Line in any combination.

      i. Any type of natural Wood (see definition) is allowed.

      ii. Any commercially available Glue (see definition) is allowed.

      iii. Any Monofilament Fishing Line (see definition) is allowed.

      iv. More than one type of Glue, and/or Monofilament Fishing Line, and/or more than one species of Wood may be used.

      v. Markings made with pencil, ink, pen and markers, in any color, may be applied to the Structure. The Structure may not be painted or have any other coatings applied. Glue should only be used to bind the Structure components. Glue may not be used as a coating.

      vi. Appraisers will inspect the materials used in the Structure during Structure Check-In (see D.2). If necessary, the Appraisers will examine the materials again after the team tests the Structure.

Safety Note: Teams must read and follow all instructions and precautions on the labels of any Glues they use. If teams use Epoxy glue or "super glues," they must use them in ventilated areas, with a de-bonder close at hand. Team members must be careful not to touch their eyes or anything else if Glue gets on their hands. Teams should have adult supervision while using Glue.

Wood

A natural substance found under the bark of any type of tree. The Wood used in the Structure must be 100% natural. The following are NOT acceptable: Cork, man-made substances that simulate natural wood (e.g., plywood, commercially available laminates, or fiberboard), or are made from Wood and any other material (e.g., paper, cardboard); and tree-like substances (e.g., bamboo, grasses).

Glue

Any commercially available adhesive material applied in liquid form capable of creating a permanent bond (e.g., two-part epoxy, Gorilla Glue, super Glues, wood glues, hot glue, and glues that use an accelerant).

Monofilament Fishing Line

Any commercially available single-strand non-metallic fishing line, of any weight or diameter.

b. Weight of the Structure:

    i. The total weight of the Structure for Elementary Level teams must not exceed 120 grams.

    ii. The total weight of the Structure for Middle Level teams must not exceed 80 grams.

    iii. The total weight of the Structure for Secondary Level teams must not exceed 40 grams.

    iv. The total weight of the Structure for University Level teams must not exceed 20 grams.

c. Height of the Structure: The Structure, when placed upon the Pyramid Tester Base (PTB), must be at least 7.5in (19.1cm) and no more than 9in (22.9cm) tall (including any height added by the PTB), as measured from the top (flat) surface of the Structure Tester base.

d. The Structure must be a single unit. Multiple free-standing pieces placed on the Structure Tester will not meet the Challenge requirements.

e. The Structure must fit on the Structure Tester. (see D.4) An opening that can easily accept a circular column with an outside diameter of 2in (5.1cm) must run the entire vertical height of the Structure. This is so the Structure will fit easily around the Safety Pole on the Structure Tester, but not through the 2in (5.1cm) hole in the Pressure Board.

f. The Structure may only touch the Structure Tester on the top surface (angled sides) of the Pyramid Tester Base, the bottom surface of the Pressure Board, and the Safety Pole.

4. Weight Held Measurement Procedure:

   a. After Presentation time begins, the team will place the Structure over the Safety Pole so that the Structure rests only on the Pyramid Tester Base. The Structure may touch the Safety Pole.

   b. The team may start weight placement at any time after the Presentation time begins. (See D.4. for weight placement details.)

   c. After Presentation time ends, the Weight Placement Appraiser will verify the weight held by the Structure. This is called the Official Weight Held, which includes the weights and the Pressure Board. Only the weights that are physically on the Pressure Board when weight placement ends, and have been there for 3 seconds or more, are counted in the Official Weight Held.

   d. The Weight Held Ratio (WHR) is the Official Weight Held in pounds divided by the Structure's weight in grams (measured to the nearest tenth of a gram), rounded to two decimal places.

   e. Weight Held Ratio = Official Weight Held in pounds ÷ the Structure's weight in grams

   Example: If the Official Weight Held is 195 pounds and the Structure's weight is 52.3 grams, the Weight Held Ratio is 3.73 (WHR = 195 ÷ 52.3 = 3.73).

5. Structure Scoring: It is the intent of the Challenge that the team will create a Structure according to the specifications in A.2 and A.3, and that the team will test the Structure at the tournament during its tournament Presentation time.

   a. If the Structure does not meet the specifications in A.2 and A.3, and if the team is unable to bring the Structure into compliance with these specifications, the Official Weight Held will be zero. However, the team may present its solution and earn points for other Challenge requirements.

   b. Any team that does not make a "good faith" attempt to present a Structure for testing may earn points for other Challenge requirements, but may not advance to the next level of tournament competition. The Appraisers will make this determination, and their decision is final.

   c. The team will earn points for the Structure based on the Weight Held Ratio (C.1).

6. The Story

   a. The team will create and present a Story where tension of any sort is a threat to stability and how that tension is overcome. Examples of tension are dramatic, muscular, mechanical, artistic, emotional, etc.

      i. The Story can be set in any location, real or imaginary, and in any time period. There are no restrictions on character(s). They may be historic or original; human or non-human; real or imaginary.

      ii. The team should integrate the Structure testing into their Story.

   b. The team will earn points for:

      i. Creative depiction of tension as a threat to stability (C.3.a).

      ii. Creative depiction of how tension is overcome in the Story (C.3.b).

      iii. Creative integration of Structure testing into the Story (C.3.c).

7. The Site-Assembled Prop

    a. The team will design a Prop (see definition) to be assembled on-site during its Presentation, using parts which must initially fit into a team-provided container.

    i. This container may be team built or be a commercially available container (for example, cardboard box, crate, plastic crate). Note that commercially available containers are typically sized by inside dimensions.

    ii. This container must have outside dimensions that fit entirely within a 25in x 25in x 37in (63.5cm x 63.5cm x 94cm) measured space. The entire container, including any external features on the container added to help in transport, such as casters, handles, etc., must fit in the measured space. These dimensions will be verified by the Prep Area Appraiser before the Presentation. The team will earn 10 points for meeting this requirement (C.2).

    iii. The parts that make up the Prop must be removed from the container and assembled during the 8-minute Presentation time. The container may not be used as part of the Site-Assembled Prop or any part of the Presentation and cannot receive score. The cost of the container should be listed as exempt on the Expense Report. There are no other restrictions on the container.

    b. The team will earn points for:

    i. Integration of the Site-Assembled Prop into the Story (C.4.a).

    ii. Creativity of the assembly process of the Site-Assembled Prop. This includes theatrical, engineering or other creative assembly processes (C.4.b).

    iii. Technical Design and Engineering Innovation (see definitions) of the Site-Assembled Prop (C.4.c).

Prop

A portable object other than a costume or scenery, which is used to enhance the performance of the Story.

Technical Design

The result of a plan for carrying out or accomplishing a task. A well-designed technical design shows careful planning, and it performs its task using effective, efficient and reliable technical methods.

Engineering Innovation

A new, unique or creative way to solve a problem, accomplish a task, or combine objects and elements.

8. Team Identification Sign: The team should provide a free-standing Identification Sign of approximately 2ft. x 3ft. (0.6m x 0.9m) displaying your team's Team Name, Team Number, School/Organization (if different from Team Name), and Level. The team cannot use the sign as a scoring element. See "Team Identification Sign" section in Rules of the Road for further information.

In addition to the above requirements, the team must present TWO creations called "Team Choice Elements" that show off their interests, skills, areas of strength, and talents. The team may create anything they wish for Team Choice Elements including props, music, technical gadgets, costumes, physical actions, etc.

1. The team must present both Team Choice Elements as part of the 8-minute Presentation and each Team Choice Element should have a meaningful connection to the team's Central Challenge solution. Each Team Choice Element must be described briefly on the Tournament Data Form found at the end of this Challenge.

2. A Team Choice Element may not be a specific item that is required in the Central Challenge and is already being evaluated. A Team Choice Element MAY be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. Both Team Choice Elements may be presented at the same time ONLY IF both can be easily identified and scored separately. Examples of these can be found in Rules of the Road.

3. Each Team Choice Element will be evaluated in three ways: for the creativity and originality of the Team Choice Element, for the quality, workmanship, or effort that is evident, and for the integration into the Presentation. Evaluation of Team Choice Elements is subjective.

ELEMENT	POINTS	DETAIL
Central Challenge	**Up to 240**	**A**
1. The Structure's Weight Held Ratio	Up to 140	A.4.e

highest Weight Held Ratio will receive 140 points.

based on the percentage of its Structure's WHR
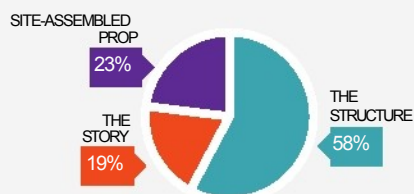compared to the highest WHR in that level.

Team's score = (WHR ÷ highest WHR in Level) × 140

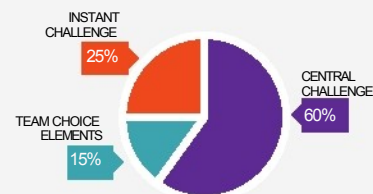items listed below will equal the total Raw Score.

ELEMENT	POINTS	DETAIL
2. Prop container and contents fit completely inside a 25in x 25in x 37in (63.5cm x 63.5cm x 94cm) measured space	0 or 10	A.7.a.ii
3. Story	Up to 45	
a. Creative depiction of tension as a threat to stability	Up to 15	A.6.b.i
b. Creative depiction of how tension is overcome	Up to 15	A.6.b.ii
c. Creative integration of Structure testing into the Story	Up to 15	A.6.b.iii
4. Site-Assembled Prop	Up to 45	
a. Integration of the Site-Assembled Prop into the Story	Up to 15	A.7.b.i
b. Creativity of assembly process of the Site-Assembled Prop	Up to 15	A.7.b.ii
c. Technical Design & Engineering Innovation of the Site-Assembled Prop	Up to 15	A.7.b.iii
Team Choice Elements	**Up to 60**	**B**
1. Team Choice Element 1	Up to 30	
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3
2. Team Choice Element 2	Up to 30	
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3

CENTRAL CHALLENGE SCORING

SITE-ASSEMBLED PROP 23%
THE STORY 19%
THE STRUCTURE 58%

PUTTING IT ALL TOGETHER

INSTANT CHALLENGE 25%
TEAM CHOICE ELEMENTS 15%
CENTRAL CHALLENGE 60%

At the Tournament: Special Procedures for the Structure Challenge

1. The Presentation Site:

    a. The minimum dimensions of the Presentation Site will be 16ft x 16ft (4.9m x 4.9m). In most cases, this area will not be marked on the floor. When possible, the tournament may provide a larger Presentation Site. The team may use all of the Presentation space available at its site, but it must be prepared to present in the minimum area specified. The team should keep in mind that the weights and Structure Tester will occupy a portion of the Presentation Site.

    b. The team must not move the Structure Tester from its location or alter it in any way.

    c. A single 3-prong AC electrical outlet will be provided at least to the edge of the Presentation Site.

2. The Structure Check-In Procedure: Prior to the team's Presentation time, at a time designated by the Tournament Director, the team will bring its Structure and a completed copy of Page 2 of the Tournament Data Form to the Structure Check-In Area. The purpose of Structure Check-In is to determine whether the Structure meets the Challenge specifications. The Structure Check-In Area may be at a separate location from the Presentation Site.

    a. The Structure Check-In Appraisers will always avoid touching the Structure.

    b. The Structure Check-In Appraisers will instruct the team to place its Structure on the scale. Once the scale reading stabilizes, the Structure Check-In Appraisers will verify that it does not exceed the weight limit for their competition Level. They will record the official Structure weight to the nearest tenth of a gram on the Structure Check-In Form.

    c. Next, the Structure Check-In Appraisers will make sure that the team can legitimately test the Structure using a representation of the Tester Base, including the Pyramid Tester Base. A team member must place the Structure on the representation of the Tester Base so that a 2in (5cm) outside diameter cylinder easily passes through the Structure vertically. The Structure must be able to stand on the representation of the Tester Base without team members holding it. The Appraisers will validate that the Structure does not touch the Safety Supports, Safety Shields, or anywhere other than the top surface of the Pyramid Tester Base.

    d. While the Structure rests on the representation of the Pyramid Tester Base, the Appraisers will measure it. They will verify that the Structure is at least 7.5in (19 cm) and not more than 9in (23 cm) tall, including the height added by the PTB, as measured from the top (flat) surface of the Tester Base.

    e. The Check-In Appraisers will make sure that teams have constructed their Structure using only Wood, Glue, and/or Monofilament Fishing Line. They may recall the Structure to the Check-In Area after the team's Presentation to verify the team used only those materials that meet the Challenge requirements. If the Check-In Appraisers want the Structure returned following the Presentation, they will note it on the Structure Check-In Form.

    f. The Structure Check-In Appraisers will make every effort, within reasonable scheduling constraints, to allow the team the time to bring their Structure into compliance with the above specifications. Any team whose Structure does not meet the above specifications will receive an Official Weight

Held of zero. However, the team may still present its solution and earn points for other Challenge requirements.

g. When Structure Check-In is complete, the team will place its Structure into a team-provided storage container and the Structure Check-In Appraisers will seal the container. The Structure and the Structure Check-In Form must remain in a designated place in the Structure Check-In Area until approximately 20 minutes before the team's scheduled Presentation time.

h. Approximately 20 minutes before the team's scheduled Presentation time, one or more team members must return to the Structure Check-In Area to collect the Structure and carry it to the Prep Area at the Presentation Site. Team members must not break the seal on the storage container until the Prep Area Appraiser directs the team to do so.

i. If a team arrives in the Prep Area with a Structure storage container with a broken seal, the team will be required to return to Check-in to have the Structure re-checked.

3. Placement of the Structure on the Structure Tester: During the Presentation, the team will demonstrate the Structure's ability to support weight using the Structure Tester and weights that the Tournament Director provides.

a. After the Presentation time begins, the team will place the Structure around the Safety Pole and on the Pyramid Tester Base. The team may adjust its Structure on the Tester Base as needed to place the Structure to its satisfaction before beginning weight placement.

b. The team members may remove the Safety Shields as they place their Structure on the Structure Tester. They must put them back after the Pressure Board is placed, and before they begin weight placement.

c. The Structure Tester will sit within the Presentation Area. The team must not move the Structure Tester from its location, or alter it in any way. The team must not use the weights or the Structure Tester for any purpose other than testing the Structure during the Presentation.

4. Weight Placement Specifics:

a. Structure Tester and Weights: The tournament will provide a Structure Tester shown below in Figures A, B, and C and with the dimensions listed in Table One. All weights will be Olympic style plates with a 2in (5 cm) hole in the center. The range of weights available may vary from tournament to tournament. The team may check with their Tournament Director for specific weights available. The Pressure Board counts as the first weight. Figures below not to scale.
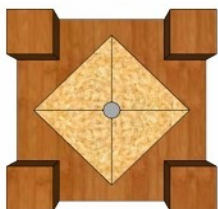
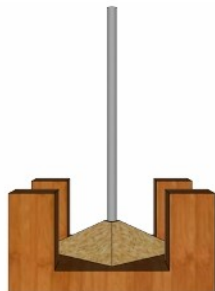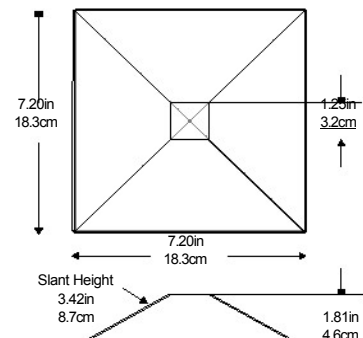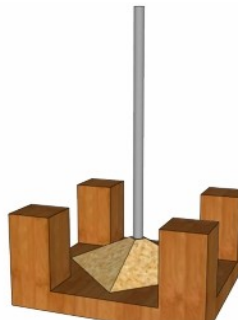Figure A: Top View   Figure B: Side View   Figure C: Isometric View

7.20in
18.3cm

1.25in
3.2cm

7.20in
18.3cm

Slant Height
3.42in
8.7cm

1.81in
4.6cm

Table One: Dimensions of Tester
All Structure Testers should meet these specifications

Tester Component	Inches	Centimeters	Notes
Tester Base	18in x 18in	45.7cm x 45.7cm	The thickness may vary at different tournaments. Typically 3in - 4in (7.6cm - 10.2cm) thick.
Pressure Board	18in x 18in	45.7cm x 45.7cm	The thickness may vary at different tournaments. Typically 1.5in (3.8cm) thick.
Pressure Board hole	2in	5.1cm	
Safety Support height	7in	17.8cm	Measured from the top surface of the Tester Base to the top of the Support.
Safety Support width	3.25in-4in	8.3cm-10.2cm	
Safety Pole height	24in	61cm	Measured from the top surface of the Tester Base to the top of the pole.
Safety Pole diameter	1in	2.5cm	The Representation of the Tester Base used in Structure Check-In will use a 2in. (5.1cm) cylinder.
Pyramid Base Width	7.2in x 7.2in	18.3cm x 18.3cm	
Pyramid Base Height	1.81in	4.6cm	
Pyramid Slant Height	3.42in	8.7cm	
Pyramid Top Face	1.25in x 1.25in	3.2cm x 3.2cm	

NOTE: The Pyramid Tester Base is a removable modification to the Structure Tester. The team may purchase a pre-made metal Pyramid Tester Base on www.ShopDI.org. The team may find instructions on how to build both the Structure Tester and the Pyramid Tester Base at www.DestinationImagination.org.

   b. During the weight placement, team members must:

      i. Use the Structure Tester and weights the Tournament Director provides.

      ii. Determine the order in which they will place weights on the Structure Tester.

      iii. Select the weights they will place on the Structure Tester.

      iv. Place weights over the Safety Pole one at a time onto the Structure Tester.

   c. The Pressure Board must be the first weight the team places upon the Structure. The Pressure Board will be clearly marked with its official weight, rounded to the nearest pound. One or more team members may touch the Structure while they place the Pressure Board upon the Structure. Note: If the team wishes to know the specifics of the Structure Tester for their tournament (e.g., the height of the Tester Base, the thickness of the Pressure Board, and/or the actual weight of the Pressure Board), they may check with their Tournament Director.

   d. Team members must not touch the Structure or the Structure Tester after placing the Pressure Board unless they first remove all weights (including the Pressure Board). If the team wants to make any adjustment to the Structure's placement during the Presentation, the team must first remove all weights (including the Pressure Board). Presentation time will not stop.

Safety Notes:

> When team members and/or any Adult Assistants are placing weights, they must wear protective eyewear for safety. The team must provide its own protective eyewear. Because it is used only for safety, protective eyewear is exempt from cost on the Expense Report form.
>
> Under no circumstances may a team member touch or come into contact with a weight stack that is rotating or moving.
>
> Team members and any Adult Assistants who are placing weights must wear closed-toe shoes.
>
> When placing a weight, team members should keep their fingers on the sides of the weight so they do not pinch their fingers.
>
> When moving weights, teams should check that there is a clear path to the Structure Tester.

e. The Structure must support a weight for a minimum of 3 seconds, as counted by an Appraiser, for that weight to be included in the Structure's Official Weight Held. The 3-second count for a weight that has been placed begins when no hands are touching any weight on the weight stack. The team does not need to wait 3 seconds before adding additional weights. The Appraiser's count is final.

f. Safety Pole Extension Pipes:

   i. At Regional Level tournaments, the team may use no extension pipes.

   ii. At Affiliate Level tournaments, the team may use one 12in (30.5cm) extension pipe.

   iii. At the Global Finals tournament, the team may use two 12in. (30.5cm) extension pipes.

   iv. At no time may step stools, ramps or similar devices be used in weight placement.

   v. For safety, teams must add the extension pipe, if allowed as stated above, to the top of the Safety Pole once the weight stack reaches the 1-inch (2.5cm) mark on the original Safety Pole or the extension pipe.

g. Adult Assistant: Only Elementary Level and Middle Level teams may elect to use an Adult Assistant to help place or remove weights of 25lbs (11.3kg) or more. Team members must direct the placement or removal and support the weight to the best of their ability if they use an Adult Assistant. The Adult Assistant:

   i. May assist in the placement or removal of weights weighing 25lbs (11.3kg) or more. For the purpose of this Challenge, assist means that the adult may help a team member lift, move, and set a weight that he/she might not otherwise be able to handle alone.

   ii. Must wait in an area the Appraisers designate until a team member directs him or her to move towards the weights. The team member will direct the Adult Assistant to the specific weight for which he or she wants assistance.

   iii. Must return to the designated waiting area at any time that a team member is not actively directing him or her to assist with placement or removal of a weight.

iv. Must only respond to directions from team members or Appraisers.

v. Must not direct weight placement or removal in any way. If, in the opinion of the Appraisers, the Adult Assistant is directing ANY aspect of weight selection or placement or removal, the Appraisers will halt weight placement or removal, warn the Adult Assistant of the inappropriate action and remind him/her of the team's responsibility. The Appraiser will instruct the team to remove any weight(s) that they placed with excess adult assistance or direction. Weight placement or removal will then resume. Presentation time will not stop.

vi. If the Adult Assistant engages in any further inappropriate activity, the Appraisers will direct him/her to withdraw from the Presentation Site. Team members must then place or remove any additional weights without the aid of an Adult Assistant.

vii. Weights placed with inappropriate adult assistance or direction will not count toward the calculation of the Official Weight Held. The Appraisers' decision is final.

h. The weight placement portion for the testing of the Structure will end when any of the following occur:

i. The team elects to stop weight placement. The team may do this at any time during the 8-minute Presentation. If the team indicates that testing is completed before the end of the 8-minute time limit, the weights must remain on the Structure Tester until counted by an Appraiser.

ii. The Pressure Board or the Structure touches any of the four Safety Supports or any of the Safety Shields of the Structure Tester. A weight that causes the Pressure Board or the Structure to touch the Safety Supports prior to the completion of the 3-second count will not count towards the Official Weight Held total. If the Weight Placement Appraiser cannot slide a single sheet of paper between the Pressure Board and the Safety Support, this means that the Pressure Board is touching the Safety Supports.

iii. The placed weights reach the mark that is 1in (2.5cm) below the top of the Safety Pole or the extension pipes, when used. The team must not place any further weights on the stack once the weights reach the 1in (2.5cm) mark below the top of the original safety pole or the topmost extension pipe, when used. The mark does not have to be visible at that point, but the team must not add any more weights once the weight stack is at or above the mark.

iv. Any part of the Structure touches anything other than the Pyramid Base of the Tester, the Pressure Board, or the Safety Pole. This means that if any part of the Structure touches the original flat base of the tester, weight placement will end. Pieces of the Structure that incidentally fall off and touch the base or sides of the Structure Tester will not cause weight placement to end.

v. The 8-minute time limit ends.

Note: Teams may use the entire 8-minute Presentation time for weight placement, regardless of whether or not they have ended the performance of their Story. They may use the entire 8-minute Presentation time for their performance, regardless of whether or not their Structure has failed.

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

To the teams and Team Managers: Help the Appraisers identify the required elements of your Challenge solution so they can award all of the points your team has earned. Please fill this 3-page form out completely and neatly.

For Elementary Level teams only:

Team Managers MAY write the words dictated by the team in the appropriate spaces of the form.

PART ONE: Required Paperwork and Materials

Required Paperwork: At the tournament Presentation site, the Prep Area Appraiser will ask for your team's forms. A complete checklist of the required forms is below. None of the forms listed below can be used as a scoring item.

Your team needs:

Five copies of the completed PAGE ONE and PAGE TWO of the Tournament Data Form. This is PAGE ONE of the form.

One Copy of the completed PAGE THREE of the Tournament Data Form. This page helps your team reflect on how you experienced the creative process.

Two Copies of the completed Declaration of Independence. Blank copies of this form can be found in the Rules of the Road. One copy of this form is for Team Challenge, the other copy of is for you to take to Instant Challenge.

One Copy of the completed Expense Report. This form can be found in the Rules of the Road. Be sure to bring copies of your receipts in case you are asked for them, but it is not necessary to attach them to the form.

One Copy of Team Clarifications issued to your team.

Team Identification Sign: This will tell the Appraisers and the audience who you are. It must list your Team Name, Team Number, School/Organization (if different from Team Name), and Level. It cannot be scored. See the Rules of the Road for more information.

Published Clarifications: We have read and are aware of the Published Clarifications for this Challenge available on www.DestinationImagination.org.

PART TWO: Brief Description of Team Choice Elements

Team Choice Element 1: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

_____

Team Choice Element 2: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

PART THREE

This Challenge requires the team to supply the following information to help the Appraisers evaluate your solution. This is PAGE TWO of the form. Be sure to fill in all pages.

Structure Specifications: Check to make sure your Structure meets these specifications (see Part A).

The Structure is constructed only of Natural Wood, Glue, and/or Monofilament Fishing Line (A.3.a).

The weight of the Structure does not exceed 120 grams (EL), 80 grams (ML), 40 grams (SL), 20 grams (UL) (A.3.b).

The Structure is at least 7.5in (19.1cm) and no more than 9in (22.9cm) tall (including any height added by the PTB), as measured from the top (flat) surface of the Structure Tester base. (A.3.c)

The Structure is a single unit (A.3.d).

The Structure has an opening running its entire height which can accept a circular column with an outside diameter of 2in (5.1cm) (A.3.e).

The Structure can rest upon the Pyramid Tester Base and fit around the Safety Pole (A.3.f).

1. The Story about tension.

    a. Describe the tension in your Story. (A.6.a)

    b. How does tension threaten stability in your Story and how is the tension overcome? (A.6.a)

    c. How is Structure testing integrated into the performance of your Story? (A.6.a.ii)

2. The Site-Assembled Prop

    a. Describe your Site-Assembled Prop. (A.7)

    b. Do the parts of your Site-Assembled Prop fit entirely within a 25in x 25in x 37in (63.5cm x 63.5cm x 94cm) measured space? (A.7.a.ii)   Yes____ or No____

    c. How is your Site-Assembled Prop assembled in your Story? (A.7.b.ii)

    d. Describe the Technical Design and Engineering Innovation of your Site-Assembled Prop. (A.7.b.iii)

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Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

THE CREATIVE PROCESS: Reflect on how your team experienced each stage of the creative process as you solved the Team Challenge:

1. RECOGNIZE: Understanding all the issues or points of the Challenge:

2. IMAGINE: Using your imagination to explore new ideas about possible solutions to the Challenge:

3. INITIATE: Taking risks and going beyond the minimum as you commit to a solution:

4. COLLABORATE: Understanding and using different problem-solving styles. Listening to all team ideas before judging them:

5. ASSESS: Assessing the solution as it is being created and after it is finished:

6. EVALUATE: Reflecting on the experience, thinking about what was learned, celebrating the team's journey and accomplishments:

SCIENTIFIC CHALLENGE

GOING TO EXTREMES

"Like" us on Facebook at Destination Imagination, Inc. to share content and interact with the DI community.

Follow us @IDODI for program updates

Follow us on Pinterest for inspiration and creative ideas.

Share your photos @boxandball

LEARNING OUTCOMES

Environmental Science

Research of Extreme Environments

Development of Artistic Representations

Effective Storytelling

Theater Arts Skills

Budget Management

Technical Design Process

Engineering Concepts: Mechanical, Structural, Electrical, Chemical

Critical Thinking

Team Collaboration

Interpersonal Communication

Presentation Skills

Time Management

Perseverance

Risk Taking

Stages of the Creative Process

Self-directed Learning

POINTS OF INTEREST

Learn about an extreme environment that exists in our universe.

Present a story about characters who attempt to adapt to conditions in order to survive in the extreme environment.

Design and create extreme gear that is demonstrated by using technical methods.

Design and create a depiction of the extreme environment.

Create and present two Team Choice Elements that show off the team's interests, skills, areas of strength, and talents.

DESTINATION IMAGINATION.

Time Limit

The team must complete the Presentation (including setting up) in 8 minutes or less.

Team Budget

The total value of the materials used may not exceed $150US.

Approaching This Challenge

This Challenge can be solved on many levels, ranging from the simple to the complex. We recognize that there are many different ways to be creative. Please approach this Challenge in the true spirit of Destination Imagination: try foremost to solve the Challenge. If you find the intent or any of the details of the Challenge unclear, we encourage you to ask for a Clarification. (See the Rules of the Road.) Remember—if it doesn't say you can't, then you can. However, if it says you "must" perform specific requirements, then those requirements have to be met.

Team Number

Teams and individuals using these Program Materials must hold a 2013-2014 Team Number. The Destination Imagination Team Number is a license to compete in sanctioned tournaments and/or to use the Program Materials for educational purposes within your team, school, group, or organization. Online access to Program Materials for teams who have purchased Team Numbers is on DestinationImagination.org.

My 2013-14 Team Number is:

___ ___ ___ - ___ ___ ___ ___ ___

My team is planning to compete in a sanctioned tournament.

I have registered for that tournament with the:

Regional Director or   Affiliate Director

In order to successfully solve this Challenge, teams must read and follow:

Team Challenge

A. The Central Challenge (240 points)

B. Team Choice Elements (60 points)

C. Presentation Site

D. Reward Points

Rules of the Road

Published Clarifications
(online at DestinationImagination.org)

The information in these materials is binding for all teams.

Recommended Resources:

Roadmap

Instant Challenge Practice Set
(available online in the Resource Area at DestinationImagination.org)

Travel Guide for Teams
(available online after Jan. 1, 2014)

facebook.com/destinationimagination

twitter.com/idodi

Training at DIuniversity.org

1. The Intent of the Challenge: To solve this Challenge, the team must research an Extreme Environment and present a Story about the need to adapt to survive there. One or more characters will use Extreme Gear to help them adapt to the extreme conditions. The team will also design and create an Environmental Depiction of their Extreme Environment.

2. The Story: The team will present an original Story about one or more characters as they attempt to survive conditions in an Extreme Environment (see definition).

   a. The Extreme Environment in the Story must be a real, physical place in our universe. It may not be fictional or imaginary. Teams must identify the location of the Extreme Environment and explain the extreme conditions that exist there on the Tournament Data Form. The Story may be set in the past, present or future. The team will earn points for the creativity of the Story. A Story is more creative when there is novel development of the characters and the storyline, including the plot and the ending (D.1.a).

   b. The Story will include the reason(s) why and how the characters came to be in the Extreme Environment. The team will earn points for clear and effective storytelling. Clear and effective storytelling means the Story has a beginning, middle and end and is presented in a way that is easy to understand (D.1.b).

   c. The team will share information about the conditions in the Extreme Environment in the Story. Information learned from the team's research may be integrated into the Story through props, scenery, dialogue or actions of the characters, or by any other means the team chooses. The team will earn points for the creative integration of the team's research into the Story (D.1.c).

   d. The Story must portray character(s) attempting to adapt to conditions in the Extreme Environment in order to survive there. Adaptations may be realistic or imaginative. At least one character in the Story must be human. The team will earn points for the creativity of the adaptation(s) used by characters to survive the conditions in the Extreme Environment (D.1.d).

Extreme Environment

A physical location where unprotected humans and/or other organisms typically cannot exist because of extreme conditions. (i.e. levels of oxygen, air or water pressure, temperature, radiation, pH, availability of water or lack of light, etc.)

---

3. Extreme Gear: When humans and/or other organisms are in Extreme Environments, they often need special gear to help them to adapt and survive the extreme conditions.

   a. The team will design and create one piece of Extreme Gear (see definition) that is used by a character or characters in the Story in their attempt to adapt to the conditions and survive in the Extreme Environment. Teams may design and create more than one piece of Extreme Gear, but only one piece may be listed on the Tournament Data Form to be scored.

   b. Extreme Gear may be a fully operational device, or it may be a prototype. A prototype is a team-designed and team-built model that looks real for demonstration purposes, but it is not required to be fully functioning. It may be full-sized or scaled to a larger or smaller size to show its features and functions. The Extreme Gear must be team built and demonstrated during the Presentation by using Technical Methods (see definition).

   c. A team member may be involved with the operation of the Extreme Gear, but they may not be the Extreme Gear. The Extreme Gear may not be included as part of the Environmental Depiction in any way.

   d. On the Tournament Data Form, the team will explain how the Extreme Gear helps a character or characters adapt to the conditions and survive in the Extreme Environment, how it is designed to operate and how it uses Technical Methods in its demonstration during the Presentation.

   e. The team will earn points for the successful demonstration of the Extreme Gear using Technical Methods (D.2.a) and for the Technical Design (see definition) (D.2.b) and Technical Innovation (see definition) (D.2.c) of the Extreme Gear. If the Extreme Gear does not work as described during the 8-minute Presentation, it will not receive a score for successful demonstration, but can still earn points for Technical Design and Technical Innovation.

Extreme Gear

Any type of equipment, clothing, or tool(s) that can be used to protect or sustain life in an Extreme Environment.

Technical Methods

The use of principles from fields such as chemistry, computer science, electricity, hydraulics, mathematics, mechanical engineering, physics, or structural engineering. Other technical fields are also acceptable.

Technical Design

A plan for carrying out or accomplishing a task. Well-designed Extreme Gear shows careful planning and can be demonstrated using effective, efficient and reliable Technical Methods.

Technical Innovation

A new, unique, original or creative manner in which to carry out or accomplish a task using Technical Methods.

4. The Environmental Depiction: Extreme Environments have many characteristics that can be extreme to humans and/or other organisms. Teams will use technical and/or artistic methods to portray these extreme conditions in their Story.

    a. The Environmental Depiction should represent what the Extreme Environment is like and portray the way(s) in which it is extreme.

    b. The Environmental Depiction may be any size or shape the team chooses. It may include any of the following: set pieces, props, backdrops, projections, computer graphics, video, audio, animation, or any other method the team chooses. Team members may be used as part of the Environmental Depiction. The team will earn points for the effectiveness of the Environmental Depiction (D.3.a). This score includes how well the Environmental Depiction portrays the extreme conditions of the Extreme Environment.

    c. The team must list and describe all elements of their Environmental Depiction on the Tournament Data Form. The team will earn points for the quality and workmanship of the Environmental Depiction as well as the creative use of materials and/or creative Technical Methods used to represent its Environmental Depiction (D.3.b & c).

In addition to the above requirements, the team must present TWO creations called "Team Choice Elements" that show off their interests, skills, areas of strength, and talents. The team may create anything they wish for Team Choice Elements including props, music, technical gadgets, costumes, physical actions, etc.

1. The team must present both Team Choice Elements as part of the 8-minute Presentation and each Team Choice Element should have a meaningful connection to the team's Central Challenge solution. Each Team Choice Element must be described briefly on the Tournament Data Form found at the end of this Challenge.

2. A Team Choice Element may not be a specific item that is required in the Central Challenge and is already being evaluated. A Team Choice Element MAY be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. Both Team Choice Elements may be presented at the same time ONLY IF both can be easily identified and scored separately. Examples of these can be found in Rules of the Road.

3. Each Team Choice Element will be evaluated in three ways: for the creativity and originality of the Team Choice Element, for the quality, workmanship, or effort that is evident, and for the integration into the Presentation. Evaluation of Team Choice Elements is subjective.

1. Floor Surface: Destination Imagination strongly suggests that the Presentation Site be a large space with a hard floor such as wood, linoleum, concrete or very short-napped carpet. Teams should be prepared to deal with a variety of floor surfaces.

2. Site Size: The minimum required overall size of the Presentation Site is 8ft x 10ft (2.44m x 3.05m), but teams may use any additional space that tournament officials designate as available.

3. Electrical Power: A single 3-prong electrical outlet will be provided at the edge of each Presentation Site for the team's use.

ELEMENT	POINTS	DETAIL
Central Challenge	**Up to 240**	**A**
1. Story	Up to 110 points	
a. Creativity of the Story	Up to 30 points	A.2.a
b. Clear and effective storytelling	Up to 30 points	A.2.b
c. Creative integration of research of the Extreme Environment	Up to 20 points	A.2.c
d. Creativity of the adaptation(s) used to attempt to survive in the Extreme Environment	Up to 30 points	A.2.d
2. The Extreme Gear	Up to 70 points	
a. Successful demonstration using Technical Methods	0 or 10 points	A.3.e
b. Technical Design of the Extreme Gear	Up to 30 points	A.3.e
c. Technical Innovation of the Extreme Gear	Up to 30 points	A.3.e
3. The Environmental Depiction	Up to 60 points	
a. Effectiveness of the Environmental Depiction	Up to 20 points	A.4.b
b. Quality and workmanship of the Environmental Depiction	Up to 20 points	A.4.c
c. Creative use of materials and/or creative technical methods used to represent Environmental Depiction	Up to 20 points	A.4.c

ELEMENT	POINTS	DETAIL
Team Choice Elements	**Up to 60**	**B**
1. Team Choice Element 1	Up to 30	B.3
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3
2. Team Choice Element 2	Up to 30	B.3
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3

CENTRAL CHALLENGE SCORING

THE ENVIRONMENTAL DEPICTION 29%
STORY 46%
THE EXTREME GEAR 29%

PUTTING IT ALL TOGETHER

INSTANT CHALLENGE 25%
CENTRAL CHALLENGE 60%
TEAM CHOICE ELEMENTS 15%

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

To the teams and Team Managers: Help the Appraisers identify the required elements of your Challenge solution so they can award all of the points your team has earned. Please fill this 3-page form out completely and neatly.

For Elementary Level teams only:

Team Managers MAY write the words dictated by the team in the appropriate spaces of the form.

PART ONE: Required Paperwork and Materials

Required Paperwork: At the tournament Presentation site, the Prep Area Appraiser will ask for your team's forms. A complete checklist of the required forms is below. None of the forms listed below can be used as a scoring item.

Your team needs:

Five copies of the completed PAGE ONE and PAGE TWO of the Tournament Data Form. This is PAGE ONE of the form.

One Copy of the completed PAGE THREE of the Tournament Data Form. This page helps your team reflect on how you experienced the creative process.

Two Copies of the completed Declaration of Independence. Blank copies of this form can be found in the Rules of the Road. One copy of this form is for Team Challenge, the other copy of is for you to take to Instant Challenge.

One Copy of the completed Expense Report. This form can be found in the Rules of the Road. Be sure to bring copies of your receipts in case you are asked for them, but it is not necessary to attach them to the form.

One Copy of Team Clarifications issued to your team.

Team Identification Sign: This will tell the Appraisers and the audience who you are. It must list your Team Name, Team Number, School/Organization (if different from Team Name), and Level. It cannot be scored. See the Rules of the Road for more information.

Published Clarifications: We have read and are aware of the Published Clarifications for this Challenge available on www.DestinationImagination.org.

PART TWO: Brief Description of Team Choice Elements

Team Choice Element 1: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

_____

Team Choice Element 2: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

_____

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Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

PART THREE

This Challenge requires the team to supply the following information to help the Appraisers evaluate your solution. This is PAGE TWO of the form. Be sure to fill in all three pages.

1. Identify the location of your Extreme Environment.

2. Explain the extreme conditions that exist there:

3. What is the one piece of Extreme Gear that you are choosing to be scored by the Appraisers?

4. Explain how your Extreme Gear helps a character or characters to adapt to the extreme conditions?

5. Explain how the Extreme Gear is designed to operate:

6. Explain how your Extreme Gear uses Technical Methods when it is demonstrated during the Presentation.

7. List and describe all elements of your Environmental Depiction.

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Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

PART FOUR

THE CREATIVE PROCESS: Reflect on how your team experienced each stage of the creative process as you solved the Team Challenge:

1. RECOGNIZE: Understanding all the issues or points of the Challenge:

2. IMAGINE: Using your imagination to explore new ideas about possible solutions to the Challenge:

3. INITIATE: Taking risks and going beyond the minimum as you commit to a solution:

4. COLLABORATE: Understanding and using different problem-solving styles. Listening to all team ideas before judging them:

5. ASSESS: Assessing the solution as it is being created and after it is finished:

6. EVALUATE: Reflecting on the experience, thinking about what was learned, celebrating the team's journey and accomplishments:

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FINE ARTS CHALLENGE

LEARNING OUTCOMES

Comic Book Styles

Research Works of Art

Cultural Studies

Effective Storytelling

Theater Arts Skills

Technical Design Process

Budget Management

Engineering Concepts: Mechanical, Structural, Electrical, Chemical

Critical Thinking

Team Collaboration

Interpersonal Communication

Presentation Skills

Time Management

Perseverance

Risk Taking

Stages of the Creative Process

Self-directed Learning

POINTS OF INTEREST

Research a work of art created by an artist who was born in a nation other than the team's own.

Theatrically present a comic strip that is based on the team-selected work of art.

Create three live comic strip panels.

Create an ARTifact that is inspired by the work of art.

Design and create a caption contraption for one of the comic strip panels.

Create and present two Team Choice Elements that show off the team's interests, skills, areas of strength, and talents.

DESTINATION IMAGINATION.

Time Limit
The team must complete the Presentation (including setting up) in 8 minutes or less.

Team Budget
The total value of the materials used may not exceed $150US.

Approaching This Challenge
This Challenge can be solved on many levels, ranging from the simple to the complex. We recognize that there are many different ways to be creative. Please approach this Challenge in the true spirit of Destination Imagination: try foremost to solve the Challenge. If you find the intent or any of the details of the Challenge unclear, we encourage you to ask for a Clarification. (See the Rules of the Road.) Remember—if it doesn't say you can't, then you can. However, if it says you "must" perform specific requirements, then those requirements have to be met.

Team Number

Teams and individuals using these Program Materials must hold a 2013-2014 Team Number. The Destination Imagination Team Number is a license to compete in sanctioned tournaments and/or to use the Program Materials for educational purposes within your team, school, group, or organization. Online access to Program Materials for teams who have purchased Team Numbers is on DestinationImagination.org.

My 2013-14 Team Number is:

___ ___ ___ - ___ ___ ___ ___ ___

My team is planning to compete in a sanctioned tournament.

I have registered for that tournament with the:

        Regional Director or   Affiliate Director

In order to successfully solve this Challenge, teams must read and follow:

Team Challenge

A. The Central Challenge (240 points)

B. Team Choice Elements (60 points)

C. Presentation Site

D. Reward Points

Rules of the Road

Published Clarifications
(online at DestinationImagination.org)

The information in these materials is binding for all teams.

Recommended Resources:

Roadmap

Instant Challenge Practice Set
(available online in the Resource Area at DestinationImagination.org)

Travel Guide for Teams
(available online after Jan. 1, 2014)

facebook.com/destinationimagination

twitter.com/idodi

Training at DIuniversity.org

1. Intent of the Challenge: The intent of this Challenge is for the team to create and theatrically present a live Comic Strip Story that is based on a team-selected work of art. The team's Comic Strip Story must be an original story containing three Panels, an ARTifact and a Caption Contraption.

2. Comic Strip Story: Think of a story and tell it in pictures. That is what comics do! They tell stories that are about adventures, heroes, villains and everyday life. What will your story be?

   a. Comic strips tell stories through a series of drawings that show characters, settings and actions. Each drawing is called a panel. It is up to the viewer to imagine what events and actions happen between each panel. In this Challenge, the team will research the visual style of comic strips and will theatrically present a live Comic Strip Story. The team will bring a comic to life and fill in the rest of the story!

      i. For the purpose of this Challenge, Comic Strips include all art forms in which a series of printed illustrations are used to convey a story. This includes, but is not limited to, comic books, comic strips, graphic novels, political cartoons, etc.

   b. The Comic Strip Story must be based on a team-selected work of art that was created by an artist who was born in a Nation other than the team's own. The team should include elements from the work of art throughout the Presentation (See A.3).

   c. The setting(s) in the Comic Strip Story can be real or imaginary, in any period of time: past, present or future.

   d. The team will earn points for the overall visual style of a comic (D.1.a). This means how creatively the team uses visual elements found in comics to enhance its Presentation.

   e. The team will earn points for the originality and creativity of the Comic Strip Story (D.1.b).

   f. The team will also earn points for clear and effective storytelling (D.1.c). Clear and effective storytelling means the Comic Strip Story has a beginning, middle and end and is presented in a way that is easy to understand.

3. Work of Art: Art can be inspirational. It can cause strong emotions and deep thoughts. It can thrill, motivate, challenge and uplift.

   a. In this Challenge, the team will select a work of art and integrate elements of it into the Comic Strip Story. This includes, but is not limited to, using characters, settings or other visual elements from the work of art in the Comic Strip Story.

   b. The artist who created the work of art must have been born in a different Nation than the one in which the team is registered. For the purpose of this Challenge, a Nation is any real country that is clearly identified on a current or past geopolitical map.

   c. The work of art must be a work of visual art that has been displayed by an art museum or gallery. It cannot be animated or involve any motion or sound.

   d. The team will earn points for the integration of elements of the work of art into the Comic Strip Story (D.1.d). Integrating means that the work of art is incorporated into the Presentation in a way that makes it an important part of the Comic Strip Story.

e. The team may include more than one work of art in its Presentation, but only the one listed on the Tournament Data Form will earn points for the integration of the work of art into the Comic Strip Story.

f. The team must provide five color copies of an image of the team-selected work of art along with the Tournament Data Form. If the team does not provide five copies, it will receive a zero score for integration of the work of art (D.1.d).

4. The ARTifact: Your team has been inspired by a work of art. Now it's your turn to take that inspiration and create art of your own.

a. The team will create and integrate an ARTifact into the Presentation. An ARTifact is a team-created piece of art that uses one of the Artistic Media found in Table 1.

b. The team must use elements of the artistic style of the work of art (A.3) in the creation of its ARTifact. The artistic style is the combination of visual characteristics from a piece of art that makes it special or unique to an artist or time period. The team will earn points for creative use of artistic style of the work of art in the ARTifact (D.2.a).

c. The ARTifact should not be a reproduction of the work of art. Reproductions of the work of art may earn a lower score for the creative use of artistic style.

d. The team will earn points for the integration of the ARTifact into the Comic Strip Story and for the quality, workmanship and effort of the ARTifact (D.2.b & c).

   i. No part of the ARTifact can be used as a Team Choice Element.

Table 1: Artistic Media

Painting	Drawing	Mosaic	Printmaking
Fiber Art/Textiles	Photography	Sculpture	Fashion

5. Panels: Comics strips tell a story through still drawings. Each illustration gives the viewer a snapshot of that one specific moment in the Story.

a. For the purpose of this Challenge, a Panel is a moment in time during the Presentation in which everything in the scene becomes motionless and silent, using only comic strip text or other visual techniques to show dialogue or action.

b. During the Presentation, teams will present three different Panels that help to tell the Story. They may be presented at any time during the Presentation. The length of time between the Panels is up to the team. The team may use sets, props, costumes, team members, or any other theatrical technique to create their Panels.

c. It is the team's decision as to how long each Panel will be held. However, the motionless Panels must be presented long enough so that they are evident and very obvious to the Appraisers. If a Panel goes by too quickly, the score for theatrical effect of that Panel may be affected.

d. At least one Panel must include some kind of visual comic strip text. Comic strip text can either be in the form of captions, thought bubbles, or speech bubbles. The team can include words, letters,

symbols, or numbers in the comic strip text. The team will earn points for the inclusion of comic strip text in at least one Panel (D.3.a).

e. The team will earn points for the theatrical effect of each Panel. This means how well the still and silent Panels and other visual elements from comics enhance the Comic Strip Story (D.3.b-d). The team may include more than three Panels during their Presentation, but only the three described on the Tournament Data Form will earn points for theatrical effect.

6. Caption Contraption: Making an impact in a Comic Strip Panel is quite a feat! Your team will use its technical know-how to help create a Caption Contraption for one of the Panels.

a. The team must use Technical Methods (see definition) to create a Caption Contraption that will assist in presenting the comic strip text in one of the Panels (see A.5.d).

b. After the Caption Contraption has presented the comic strip text, it must become motionless and silent along with the rest of the Panel. If it does not become motionless and silent, the team may lose points for Technical Design (D.4.a).

c. The team will earn points for the Technical Design (see definition) and Technical Innovation (see definition) of the Caption Contraption (D.4.a & b). Teams may include a Caption Contraption in more than one Panel, but only the Caption Contraption listed on the Tournament Data Form will earn points for Technical Design and Technical Innovation.

Technical Methods

Refers to the use of principles in fields such as chemistry, computer science, electricity, hydraulics, mathematics, mechanical engineering, physics or structural engineering. Other technical fields are also acceptable.

Technical Design

The result of a plan for carrying out or accomplishing a task. A well-designed Technical Design shows careful planning, and it performs its task using effective, efficient and reliable Technical Methods.

Technical Innovation

A new, unique, original, or creative way to carry out or accomplish a task using Technical Methods.

In addition to the above requirements, the team must present TWO creations called "Team Choice Elements" that show off their interests, skills, areas of strength, and talents. The team may create anything they wish for Team Choice Elements including props, music, technical gadgets, costumes, physical actions, etc.

1. The team must present both Team Choice Elements as part of the 8-minute Presentation and each Team Choice Element should have a meaningful connection to the team's Central Challenge solution. Each Team Choice Element must be described briefly on the Tournament Data Form found at the end of this Challenge.

2. A Team Choice Element may not be a specific item that is required in the Central Challenge and is already being evaluated. A Team Choice Element MAY be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. Both Team Choice Elements may be presented at the same time ONLY IF both can be easily identified and scored separately. Examples of these can be found in the Rules of the Road.

3. Each Team Choice Element will be evaluated in three ways: for the creativity and originality of the Team Choice Element, for the quality, workmanship or effort that is evident, and for the integration into the Presentation. Evaluation of Team Choice Elements is subjective.
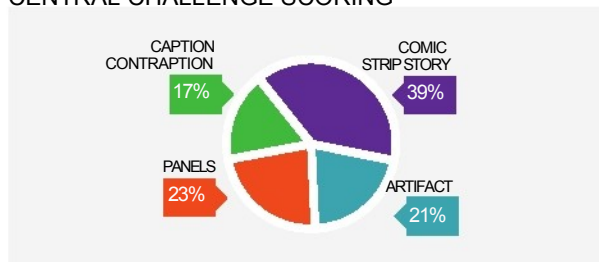
1. Floor Surface: Destination Imagination strongly suggests that the Presentation Site be a large space with a hard floor such as wood, linoleum, concrete or very short-napped carpet. Teams should be prepared to deal with a variety of floor surfaces.

2. Site Size: The minimum required overall size of the Presentation Site is 8ft x 10ft (2.44m x 3.05m), but teams may use any additional space that tournament officials designate as available.

3. Electrical Power: A 3-prong electrical outlet will be provided at the edge of each Presentation Site for the team's use.

ELEMENT	POINTS	DETAIL
Central Challenge	**Up to 240**	**A**
1. Comic Strip Story	Up to 95 points	
a. Overall visual style of a comic	Up to 30	A.2.d
b. Originality and creativity of the Comic Strip Story	Up to 20	A.2.e
c. Clear and effective storytelling	Up to 15	A.2.f
d. Integration of elements of the work of art into the Comic Strip Story	Up to 30	A.3.d
2. ARTifact	Up to 50 points	
a. Creative use of artistic style of the work of art in the ARTifact	Up to 20	A.4.b
b. Integration of the ARTifact into the Comic Strip Story	Up to 10	A.4.d
c. Quality, workmanship and effort of the ARTifact	Up to 20	A.4.d
3. Panels	Up to 55 points	
a. Inclusion of Comic Strip text in at least one Panel	0 or 10	A.5.d
b. Theatrical effect of Panel One c.	Up to 15	A.5.e
Theatrical effect of Panel Two	Up to 15	A.5.e
d. Theatrical effect of Panel Three	Up to 15	A.5.e
4. Caption Contraption	Up to 40 points	
a. Technical Design of the Caption Contraption	Up to 20	A.6.c
b. Technical Innovation of the Caption Contraption	Up to 20	A.6.c

ELEMENT	POINTS	DETAIL
Team Choice Elements	**Up to 60**	**B**
1. Team Choice Element 1	Up to 30	B.3
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3
2. Team Choice Element 2	Up to 30	B.3
a. Creativity and originality	Up to 10	B.3
b. Quality, workmanship, or effort that is evident	Up to 10	B.3
c. Integration into the Presentation	Up to 10	B.3

CENTRAL CHALLENGE SCORING

CAPTION CONTRAPTION 17%
COMIC STRIP STORY 39%
PANELS 23%
ARTIFACT 21%

PUTTING IT ALL TOGETHER

INSTANT CHALLENGE 25%
CENTRAL CHALLENGE 60%
TEAM CHOICE ELEMENTS 15%

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

To the teams and Team Managers: Help the Appraisers identify the required elements of your Challenge solution so they can award all of the points your team has earned. Please fill this 3-page form out completely and neatly.

For Elementary Level teams only:

Team Managers MAY write the words dictated by the team in the appropriate spaces of the form.

PART ONE: Required Paperwork and Materials

Required Paperwork: At the tournament Presentation site, the Prep Area Appraiser will ask for your team's forms. A complete checklist of the required forms is below. None of the forms listed below can be used as a scoring item.

Your team needs:

Five color copies of an image of the team-selected work of art. (See A.3.f)

Five copies of the completed PAGE ONE and PAGE TWO of the Tournament Data Form. This is PAGE ONE of the form.

One Copy of the completed PAGE THREE of the Tournament Data Form. This page helps your team reflect on how you experienced the creative process.

Two Copies of the completed Declaration of Independence. Blank copies of this form can be found in the Rules of the Road. One copy of this form is for Team Challenge, the other copy of is for you to take to Instant Challenge.

One Copy of the completed Expense Report. This form can be found in the Rules of the Road. Be sure to bring copies of your receipts in case you are asked for them, but it is not necessary to attach them to the form.

One Copy of Team Clarifications issued to your team.

Team Identification Sign: This will tell the Appraisers and the audience who you are. It must list your Team Name, Team Number, School/Organization (if different from Team Name), and Level. It cannot be scored. See the Rules of the Road for more information.

Published Clarifications: We have read and are aware of the Published Clarifications for this Challenge available on www.DestinationImagination.org.

PART TWO: Brief Description of Team Choice Elements

Team Choice Element 1: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

_____

Team Choice Element 2: What is your Team Choice Element?

_____

Please write a brief description of your Team Choice Element. Make sure that Appraisers know exactly what you want them to evaluate. What would you like them to know about the Team Choice Element?

_____

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

PART THREE

This Challenge requires the team to supply the following information to help the Appraisers evaluate your solution. This is PAGE TWO of the form. Be sure to fill in all three pages.

1. What is your team's work of art? Be sure to include the artist's name, place of birth, and the art museum or gallery where it has been displayed.

2. Briefly summarize the Comic Strip Story.

3. What visual elements from comics have you used in your Comic Strip Story?

4. Describe the ARTifact. Be sure to include what Artistic Media your team used to create it and how your team used the Artistic Styles of the work of art in the creation of the ARTifact.

5. Describe or draw each of your team's Panels.

Panel One	Panel Two	Panel Three

6. Describe your Caption Contraption:

7. During which Panel does the Caption Contraption occur? (circle one)

Panel One   Panel Two   209   Panel Three

Team Name: _____ Team Number: ___ ___ ___ - ___ ___ ___ ___ ___

School/Organization: _____ Level: EL   ML   SL   UL

PART FOUR

THE CREATIVE PROCESS: Reflect on how your team experienced each stage of the creative process as you solved the Team Challenge:

1. RECOGNIZE: Understanding all the issues or points of the Challenge:

2. IMAGINE: Using your imagination to explore new ideas about possible solutions to the Challenge:

3. INITIATE: Taking risks and going beyond the minimum as you commit to a solution:

4. COLLABORATE: Understanding and using different problem-solving styles. Listening to all team ideas before judging them:

5. ASSESS: Assessing the solution as it is being created and after it is finished:

6. EVALUATE: Reflecting on the experience, thinking about what was learned, celebrating the team's journey and accomplishments:

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REFERENCE LIST

REFERENCE LIST

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VITA

Curriculum Vita

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Education

- **Doctor of Philosophy, Educational Leadership, In Progress**
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- **Master of Arts in Interdisciplinary Communication and Education**
  Andrews University, Berrien Springs MI, 1990

- **Bachelor of Science in Public Relations,**
  Andrews University, Berrien Springs MI, 1988: Minor Graphic Arts

Professional Profile

Lecturer in School of Communication Studies, James Madison University (JMU),
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Adjunct Faculty Member in School of Speech Communication, JMU, Harrisonburg,
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Secondary School English, Sandia View Academy, Corrales, NM; 1990-1991

Secondary School Newspaper Writing, Sandia View Academy, Corrales, NM; 1990-
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Secondary School Remedial Studies, Sandia View Academy, Corrales, NM; 1990-1991

Graduate Assistant, Andrews University Communications Department, Berrien Springs
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JMU Destination Imagination Advisor: Initiated and Sponsored the first Destination
  Imagination Club at JMU; 2005

JMU Destination Imagination Class Instructor: team taught with Jonathon Spindel
  PhD, ISAT; 2005 – present

Academic Honors and Awards

Elaine Giddings Scholarship, 1988.

Professional Memberships

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