

ASSESSING THE RELIABILITY AND VALIDITY OF THE
COMPETENT GROUP COMMUNICATOR
PROBLEM SOLVING ASSESSMENT
INSTRUMENT

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Master of ARTS

by

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ABSTRACT

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This research uniquely contributes to the group communication scholarship by investigating the validity and reliability of an assessment instrument, the *Competent Group Communicator Instrument: An Instrument to Assess Small Group Problem-Solving Discussion (CGC)*. Steven Beebe and Kevin Barge designed this instrument from the functional theoretical perspective which captures functions of problem-solving discussions within a small group. Through their research, Beebe and Barge (1994) identified nine problem-solving competencies that work within four relational and task functions of small group communication. The current investigation established evidence of validity and reliability of the CGC at the holistic group and individual group member

levels within the context of the small group communication. Eleven research questions were posed and findings suggest that participants were able to discriminate differences between an effective and an ineffective group interaction and among individual group members' competency levels using the CGC as the assessment tool. In addition, results indicated that the four task and relational functions, including the nine competencies, reliably assessed the group interactions.

CHAPTER I: INTRODUCTION

Hurricane Ike was pressing closer to the Galveston beach with alarming storm surges. Within a local engineering firm, the owners have called an immediate meeting with their managers. With the home office within hundred miles of the hurricane force winds, the employees along with the computer system and engineering records for multiple statewide projects is at risk. The looming crisis calls for effective problem-solving discussion in order to protect the safety of employees and the vital computer drawings. Effective team decisions resulted in the computer operation and data relocation to Austin. A power outage plan was devised and the employees were told to go home with the directive to put safety first and call the office daily to check on the power capabilities. Within one week of the hurricane devastation, this firm and their employees safety returned to working at full capacity.

Contrast this effective teamwork with the group work and communication surrounding the government's response to hurricane Katrina and the failure to prevent 9/11. Failures of group coordination and communication are well-documented throughout history from natural disaster responses, airline crashes, medical errors, and industrial accidents (Kozlowski & Ilgen, 2006). Each of our lives are impacted by communication within groups, whether through our own relationships and work or by the influence from organizations within our society. Effective group work and communication skills are essential and vital to our lives.

Conversations take on a distinct personality when three or more people come together to concentrate on finding an effective solution to a problem. The group conversation swirls around solving a problem and overcoming obstacles in order to achieve a collective goal. In this process the group communicates through a myriad of verbal and nonverbal messages that hold multiple levels of meaning surrounding the task of solving the problem and the relationships between group members. Small group communication is defined by Beebe and Masterson (2009) as “communication among a small group of people who share a common purpose or goal, who feel a sense of belonging to the group, and who exert influence on one another” (p. 4). Groups are part of the fabric of our society, coming together in social settings, family settings, and within organizations throughout the social environment. The question then arises: Where are these vital communication behavioral skills and cognitive processes learned?

One part of this answer is the colleges and universities who serve in the critical role of educating our future leaders of today’s global society in the skills necessary to overcome obstacles and meet collective objectives and goals within our organizations and social networks. A survey of 301 employers by the Association of American Colleges and Universities revealed that four out of five of business executives endorse skill-based exercises for college students with an emphasis on problem-solving analytic skills (Peter D. Hart Research Associates, Inc., 2008). This emphasis on experiential learning activities prepares college graduates for success within organizations by building problem-solving communication skills. Effective communication becomes the lubricant allowing groups to operate smoothly and productively (Hawkins & Fillion, 1999).

This demand from employers for competent college graduates to help achieve their corporate goals filters into the college classrooms and to the instructors who are furthering the learning process. The challenge for instructors in a small group communication class is combining instruction of task and relational skills in a structured fashion to foster creativity and create solutions to problems facing organizations. By providing the bridge between communication theory and competent skill attainment, instructors of group communication provide the task and relational skills that our society demands.

A competency-based curriculum became a trend in the late 1970s inspiring a call from for instructors and researchers to investigate the parts of messages in order to transfer these into learning objectives for small group communication classrooms (Knutson, Wheelless, & Divers, 1977). Thirty years later, these learning objectives are increasingly linked to assessment and are becoming what McCroskey (2007) refers to as the centerpieces for improving the quality of communication instruction.

Instruction in small group communication becomes of greater importance in order to prepare the student for the challenges of group work in our global economy (Albert, 2002; Hawkins & Fillion, 1999). Within the context of a small group communication classroom, students learn the skills of discussion within problem-solving groups that are appropriate and give impressions of competence (Beebe, Barge & McCormick, 1994). In addition to sharing the many components of how group competency appears and how it functions within a group, instructors of small group classrooms must assess student outcomes. The learning objective and its assessment within the classroom become the evidence of the degree to which the instruction in the

course was effective (McCroskey, 2007). Within this context the pedagogical question arises: How does one assess the effectiveness of communication for small groups and individual members?

An attempt to answer this question has been addressed by Steven Beebe and J. Kevin Barge (1994) in the creation of an instrument known as *The Competent Group Communicator: An Instrument to Assess Small Group Problem-Solving Discussion (CGC)*. This instrument answers a need in the communication field for a standardized method to assess small group communication discussions. The *CGC* offers a systematic focus to assess group discussions that surround problem solving. It helps clarify who within a group is communicating appropriately and effectively, thus providing a system to indicate communication competence. At the group level of analysis, this instrument clarifies whether the holistic group's communication is appropriate, effective and, thereby, competent. Presented below is an overview of the instruments' development process, the problem this thesis will attempt to address, and an outline of this thesis project.

CGC Historical Development

Ongoing research over the course of fifteen years by Beebe and Barge has been undertaken to develop a valid and reliable measure of group member and holistic group competence levels. Despite the "unchallenged importance" of small group communication problem-solving skills, there remains a need for a comprehensive group assessment tool (Beebe & Barge, 1994, p. 257). This process included the identification of competencies, instrument development, and pilot testing all with the goal to secure a valid and reliable standardized tool for the communication field. Ongoing research

continues with this thesis project serving as an additional test of the validity and reliability with application and use within the context for which the instrument is designed and by the audience members that will benefit by this tool.

Instrument Development

The authors modeled the *CGC* after the successful procedures used by National Communication Association's Committee on Assessment and Testing approach to assessing public speaking (*The Competent Speaker* by Morreale, Moore, Taylor, Surges-Tatum & Hulbert-Johnson, 1992). They identified competencies based upon research-validated group communication behaviors including Barge, 1990; Barge & Hirokawa, 1989; Hirokawa, 1985, 1988, 1990, Hirokawa & Rost, 1992. Beebe and Barge (2003) refer to this research as classical foundational principals that have roots in John Dewey's (1910) reflective thinking surrounding the steps involved in problem-solving.

To confirm the content validity and added face validity, the authors convened a panel at the 1994 National Communication Association Convention along with presentations at conferences to seek assistance in designing a user friendly instrument. Three groups of small group communication instructors evaluated the instrument and made recommendations that are reflected in the current form (Beebe, Barge & McCormick, 1994). Face validity was supported for the competencies identified through a survey of communication textbooks prescribing the task-oriented behaviors (Beebe, et al., 1994). These competencies were verified through a qualitative analysis of small group communication textbooks verified by research of Kerr (1990) and Warnamunde (1986).

As a result of panel discussions, the authors reworded the initial measure based on responses and examined its use for both relational and task problem-solving functions. Although face validity is seen as the weakest argument for validity (Frey, Botan, & Kreps, 2000), the content validity adds strength with virtually all of the small group textbooks reviewed making direct or indirect references to the specific group task and relational competencies identified by the authors.

Pilot Testing

The first pilot test using the *CGC* form led to modifications that enhanced the clarity of competency descriptions. A second pilot test was conducted at the University of Colorado (McCormick, 1996) to test the inter-rater reliability of the instrument replicating the psychometric testing model used to test the Competent Speaker Evaluation Form (Morreale, et al., 1992). Conclusions from this pilot test resulted in a change in the group size and length of the interaction used for evaluation. The pilot test was recreated a third time with a twenty minute discussion rated by nine students viewing and rating all group participants simultaneously using the revised *CGC* instrument (Cronbach alpha .7978). Following the three pilot tests and revisions, further research confirmed the instrument's reliability (Cronbach alpha .97) and lack of cultural bias (McCormick, 1996).

Field Testing

Following these initial tests of validity and reliability, a field test of the *CGC* instrument was conducted by Albert (2002) with 27 students enrolled in small group communication. Supporting the instrument's use as a pedagogical tool, Albert (2002) concluded that the training surrounding the competencies proved valuable as a

pedagogical tool with over half of the responses reporting no difficulty using the instrument.

Conducting research in a three phase process, Beebe, Barge, Mottet, & Justl (2006) tested the instrument for inter-rater reliability. Following training, viewing of a stimulus group discussion, and assessment, the percentage of agreement between the coders came to 44% to 67%. After a brief re-training, the percentage of agreement ranged from 78% to 89%. Based on this inter-rater reliability assessment study, the instrument appears to have an acceptable level of inter-rater reliability (Beebe, et al., 2006). These results were presented at the 2006 NCA Conference along with a training manual for instructors.

Problem Definition and Significance

The Council for Higher Education Accreditation recently encouraged higher education accreditation agencies to support the federal government's directives requiring colleges to show proof of their students' achievements (Basken, 2008). As small group communication is vital for students' future success within organizations (Peter D. Hart Research Associates, Inc., 2008), assessing and documenting the assessments of their language and skills is essential. Therefore, the increased pressure on institutions of higher education to develop and maintain objective standards for accreditation creates a need for small group communication instructors to have an instrument available that is practical to use and theoretically strong. This need calls for an instrument for use in the classroom that documents, with consistency and accuracy, the competency traits surfacing during group problem-solving discussions.

Small group discussions vary greatly within classroom contexts. In addition, they are complicated and full of constant and simultaneous interactions. In order for instructors to have a consistent and accurate assessment of their students' classroom performance in groups, the *CGC* must be generalizable to this context.

In addition to generalizability, the *CGC* instrument must reflect current research. As it has been in development for over fifteen years, it's based on classic small group research prior to 1994 (Beebe, Barge, & McCormick, 1994). In order to reconfirm the content validity, a review of contemporary research is needed. In addition, previous studies reported the *CGC* is reliable for a small number of participants enrolled in graduate small group communication courses and viewing only one group interaction stimulus (Beebe, et al., 1994).

In order to strengthen the reliability and usefulness of the *CGC* within the instructional setting, this current investigation will gather two sets of participants who will directly benefit. These are communication instructors and a large group of student participants who have completed the basic communication course and are enrolled in a small group course. In addition, two different group interactions with varying competency levels will be used as the stimulus for raters to code the nine group and individual communication competencies. By increasing the number of participants and varying the group stimulus for assessment, this research will empirically test the reliability of the *CGC* in discriminating differences among levels of competence.

Thesis Outline

Through their research, Beebe and Barge (1994) identified nine problem-solving competencies within the relational and task functions of small group communication.

The identified criteria for assessing the competencies, developed an instrument for assessment, and tested the instrument for validity and reliability. The current investigation will go a step further by establishing evidence of generalizability through further reliability testing within the context of the classroom and with significantly more participants. In Chapter two the content validity will be confirmed through a review of contemporary literature. This will be followed by the methods to confirm the validity and reliability of the *CGC* through its ability to discriminate the competencies between individual group members and among two different group interactions at different levels of competency. Chapter four presents the results from the use of the *CGC* for assessment of communication competencies in a classroom setting. Chapter five provides a discussion of the reliability and validity achieved with the *CGC* instrument and the implications, limitations, and directions for future research.

CHAPTER II: REVIEW OF LITERATURE

The purpose of this chapter is to take a critical survey of recent research by identifying characteristics that define a competent group communicator and problem solving group discussion. The goal of this review is to confirm the content validity of research that supports the creation of the *Competent Group Communicator (CGC)* (Beebe & Barge, 1994). In other words, the review of literature will seek to confirm with empirical evidence characteristics associated with group and individual group member's impression of competence incorporated in the *CGC*.

In the preceding chapter, an overview was presented on the purpose and development process surrounding the *CGC* Instrument (Beebe & Barge, 1994). In this chapter, foundational assumptions surrounding the instrument design and scoring parameters will be presented along with a description of group and individual group member competencies as they relate to communication. This description is followed by a research review that lends theoretical support surrounding the competencies included on the *CGC*. The review is further organized into three categories of the literature: theoretical approach, task competencies and relational competencies.

Foundational Assumptions

The basic assumptions established by Beebe and Barge (1994) that is incorporated in the foundation of the *CGC* instrument include the need for a standardized assessment tool designed for the context of small group communication. Outlined below is discussion surrounding this purpose and the measurement, method, and analysis assumptions that serve as support for the development of an assessment instrument.

Instrument Purpose

Over twenty years ago, the National Communication Association Committee on Assessment and Testing established objectives to create tools for identifying and assessing communication competencies in several contexts. This process included identification of context-specific competencies and development of an instrument to assess the competencies within each specific context (Beebe & Barge, 1994). With few systematic efforts to identify and assess small group communication competencies, Beebe and Barge began the process of creating an instrument to fulfill this need.

They began with a survey of the existing oral communication assessment measures and found that learning institutions and communication instructors applied tools in four key areas: course evaluation, placement and screening, class assessment, and teacher certification (Beebe & Barge, 1994). These four key areas required that a useful design of a diagnostic tool have both formative and summative measurement of group communication competencies.

A formative assessment tool could lend support and help shape the objectives of group communication curriculum (Beebe & Barge, 1994). By developing a consensus among educators about the core small group competencies, consistency will be

established and developed surrounding the instruction in the key behaviors. With identification of core competencies, instructors will be better able to identify group communication behaviors that are typically incompetent (Beebe & Barge, 1994). As a summative measure, an instrument can serve for documenting the assessment of student mastery of these key group communication competencies (Beebe & Barge, 1994).

Documenting their learning and competence is beneficial not only to the student, but also for instructors and the institutions who document learning outcomes for accreditation purposes. As assistance to educators, the development of a standardized instrument serves the purpose of identifying competencies and assessment measures impacting the classroom with direct application to student learning about small group communication.

Competency Selection

Building on the original purpose for the design of an assessment tool, the authors began a search to identify competencies surrounding group communication. This search included three primary components: 1) selection of competencies based upon research-validated communication behaviors, 2) competencies taught within communication textbooks and 3) competencies taken from the classroom and valued in organizational settings (Beebe & Barge, 1994). The researchers first selected group competencies that were defined within classical group communication literature, then established the criteria for what competency would look like, and finally created the unit of measurement. This research was furthered through an analysis of group communication textbooks to confirm which competencies were most frequently featured. The authors surveyed brochures of market training materials revealing organizational group measurement instruments that did not offer or document their validity and reliability

(Beebe & Barge, 1994). With this survey of literature, communication textbooks and organizational training materials the authors blended the competencies into the *CGC* instrument.

Measurement Parameters

The advantages to establishing a standardized assessment tool outlining communication competencies in the context of small group discussions are many as previously outlined. Yet, these advantages have been met with distinct measurement obstacles that the authors needed to address in order to establish both a reliable and valid instrument. Four overarching foundational measurement parameters are discussed below including defining what a group communication skill is, the criteria for determining competence within each of these skills, the appropriate unit of analysis, and the appropriate method for measuring the identified competencies.

The first measurement parameter that was established answered the following question: What is a group communication skill? The authors point to a definition established by Spitzberg and Hurt (1987) which differentiates skill into two levels—molecular and molar (Beebe & Barge, 1994). The molecular level includes skills to either performance or nonperformance of a specific behavior (Beebe & Barge, 1994). A group member would then be assessed as skilled if he or she were able to produce the actual behavior. The authors point to Spitzberg's (1983) contention that competence represents a performance of a molecular behavior which involves motivation, knowledge, and skill (Beebe & Barge, 1994). The molecular skills are grouped together forming a molar view comprising an impression of skill. Together these create an impression of

competence that an instructor (or other group members) attributes to an individual's skill level (Beebe & Barge, 1994).

The second measurement parameter established answered the question: What are the criteria for competent small group communication? In order to uncover evaluative standards that will guide the assessment of a group member's competence, the authors analyzed established competing models of group decision making processes. Pointing to Gouran's (1990) research, Beebe and Barge (1994) pulled from three major methods for assessing group decision making including the procedural model, the outcomes model, and task model. The procedural model assumes that effectiveness of decisions can be met by successfully following a set procedure (Beebe & Barge, 1994). The outcomes model asserts that a decision is effective if it produces a desired and intended result. Finally, the task model is based on the assumption that behaviors can be analyzed and described by explicit skills (Beebe & Barge, 1994). These competing models provided insight into the foundational assumption that established criteria for measurement and includes the degree of appropriateness and effectiveness to which individuals exhibit skills. These skills allow them to manage the task and/or obstacles the group encounters to reach the established outcome (Beebe & Barge, 1994).

The third measurement parameter that was established answered the question: What is the appropriate unit of analysis for group communication competence? To identify the answer to this parameter, the authors analyzed the relationship between the individual group member and the impact on the group processes. Within the interlinking of different individuals in a group, the performance of a group members is linked to the overall group performance (Beebe & Barge, 1994). This interlinking process increases

the complexity of group communication as well as the assessment process. By viewing competence as a systemic concept, the individual's behavior is viewed situationally within the confines of the group's task and culture (Beebe & Barge, 1994). So the answer to this question points to the direct impact of the individual's competence on a group's overall competence. The appropriate unit of analysis for group communication competence calls for assessment within an instrument of both the individual group member and the group's overall level of competence.

The final measurement parameter established answered the question: What is an appropriate method for measuring group communication competence? In order to establish an answer to the methodical approach, the authors sought answers to the behaviors that were to be measured, the type of measurement instrument, and the impact of timing and sequencing on the measurement.

The behaviors exhibited within the small group classroom include the student's attitudes, cognitive understandings, and behavioral outcomes of learning. Tools for measuring competence tap into the overt behaviors that are observed by others. Researchers often use behavioral coding systems in order to categorize interactions primarily through observation (Beebe & Barge, 1994). By coding a group member's ability to sequence communication, then the methods tap into the presence or absence of communication skill.

Measuring only frequency and intensity of conversations limits assessment of the adaptive nature of group communication. The authors point to a characteristic of group interaction that includes individual group members who may be competent and act appropriately within the group interaction, yet say very little (Beebe & Barge, 1994). In

order to consistently assess this adaptive nature, the response set on the questionnaire should be centered on appropriateness and effectiveness as key markers.

In addition, the authors propose a role-play methodology to assess an individual's competence (Beebe & Barge, 1994). This role play includes individual group members being assigned a specific task that calls for each member to adapt their responses to accommodate for obstacles that may confound outcome achievement. This allows researchers to get beyond the first response that individuals may give in trying to achieve a task, and to assess whether they are capable of adapting communication (Beebe & Barge, 1994). Together, role play with elements of timing and sequencing lend understanding to the methodical approach for the *CGC* instrument development.

With the purpose and competencies identified, the authors outlined the measurement criteria in order to develop a clear and easily adaptable instrument for use within the classroom. Building from these foundational assumptions, an instrument was developed to assess and document the adaptive nature of an individual and a holistic group assessment within the context of a particular group.

Instrument Design

The *Competent Group Communicator (CGC)* assessment instrument is designed to assess the presence or absence of small group communication competencies within group problem solving discussions (Beebe & Barge, 1994). This assessment instrument is organized around both task and relational functions. These two functions are further broken down into four general problem solving functions designed to assess the presence or absence of communication competencies within group problem solving: problem-oriented, solution-oriented, discussion management, and relational functions.

These four problem solving functions are further divided into nine distinct competencies: defining the problem, analyzing the problem, identifying criteria for an appropriate solution, generating solutions or strategies to solve the problem, evaluating the solution(s), maintaining task focus, managing group interaction, managing conflict in an appropriate and constructive manner, and maintaining the group climate with positive verbal and nonverbal expressions (Beebe & Barge, 1994). The *CGC* is intended to assess up to five group members on one form as well as provide the holistic group assessment. For groups over five members, the authors suggest using two of the *CGC* forms for the assessment. What follows is greater detail of the instrument along with the scoring parameters and score interpretation.

Four Functions and Nine Competencies

Within the instrument's design are the task and relational functions which are organized into four categories. Beebe and Barge's (1994) categories incorporate the nine competencies described as follows:

Problem-Oriented Competencies

- Competency One: Defined the problem by identifying the obstacles that prevent the group from achieving its goal; identified what the group wants more of or less of to achieve the goal.
- Competency Two: Analyzed the problem the group attempted to solve. Used relevant information or data, discussed the causes, history, symptoms, or significance of the problem.

Solution-Oriented Competencies

- Competency Three: Identified criteria for an appropriate solution to the problem; developed standards for an acceptable solution; identified ideal outcomes of the solution.
- Competency Four: Generated solutions or strategies that would solve the problem the group identified.
- Competency Five: Evaluated solution (s): Identified positive and/or negative consequences of the proposed solutions; considered the pros and cons of suggested solutions.

Discussion Management Competencies:

- Competency Six: Maintained task focus: Helped the group stay on or return to the task, issue, or agenda item the group was discussing.
- Competency Seven: Managed group interaction: Appropriately initiated and ended discussion, contributed to the discussion, or invited others to contribute to the discussion.

Relational Competencies:

- Competency Eight: Managed conflict: Appropriately and constructively helped the group to stay focused on issues rather than personalities when conflict occurred.
- Competency Nine: Maintained climate: Offered positive verbal comments and/or nonverbal expressions to help maintain a positive group climate.

Together, these nine competencies provide an impression of the competency of the individual group member and a holistic assessment of the group's competency (See Appendix A for *CGC Instrument*).

CGC Scoring

When using the instrument, a trained evaluator determines and codes whether group members have performed each competency. The scale consists of five interval scale choices anchored by “no” (0) competency not observed and “yes” (3) overall excellent performance of competency. If the coder does not observe a competency within one of the four functions, they circle “no” with a score of zero (0) assigned. If a competency is observed within a function, then “yes” is circled and the number of times this competency is rated up to a total of three (3). A low score is represented by two categories: 1) No observance of the competency by the individual group member. 2) Yes, observed the competency but the skill was inappropriate or inadequate. A high score is anchored by an overall excellent performance with three or more overservances of an individual performing the competency. To further describe the criteria for “yes” observed competencies, the general description is as follows:

- | | |
|---------|---|
| Yes = 0 | Overall inappropriate or inadequate performance of competency. Subject was observed inappropriately or inadequately performing the competency. Subject's behavior hindered the group's overall goal of solving the problem. |
| Yes = 1 | Overall Adequate Performance of Competency. Subject was observed clearly and appropriately performing the |

competency at least once.

Yes = 2 Overall Good Performance of Competency. Subject was observed performing the competency clearly and appropriately at least two times.

Yes = 3 Overall Excellent Performance of Competency. Subject was observed performing the competency three or more times.

In addition to the individual group member competencies, the overall impression of a group's ability to perform the nine competencies is evaluated. There is a column on the evaluation form for "group assessment" where the group holistic assessment is recorded. Like individual member observations, the coder circles the "yes" or "no" if any one in the group performed a competency within the function. After assessing whether the behavior was evident, the the coder determines the level of effectiveness with which the entire group performed this competency (0 – 3).

Interpreting the scores

Once each of the nine competencies are independently scored, the subtotals are calculated for each individual group member according to the four functions (problem-oriented, solution-oriented, discussion management and relational competencies). In order for an individual to be minimally competent in each of the nine competencies, a group member should receive, at a minimum, a score of one (1). This indicates minimal competence while three (3) indicates an excellent level of competence (Beebe, et al., 2006).

Assessment of the entire group on each of the nine competencies is recorded in the last column as an impression of overall competency. A group receives a score of zero (0) if the group was observed inappropriately or was inadequately performing the competency. The scale is designed so that a rating of “adequate” would indicate some evidence of the observed behavior of the group and suggests minimum competence was achieved (Beebe & Barge, 1994). In other words, one group member may have performed a competent behavior, but had minimal impact on the group level assessment of competence. A group receiving a score of three (3) demonstrates and gives an overall impression of excellent group competency behaviors.

Summary

This chapter has included a review of the foundational assumptions surrounding the *CGC* design and scoring parameters along with a description of group and individual group member competencies as they relate to communication. What follows is a review of research that lends empirical support of the *CGC*. The review is presented and organized into three categories of the literature: theoretical approach, task competencies, and relational competencies.

Theoretical Approach

Clarifying the role of impressions of communication competence within the context of a group is a difficult process. This process combines the hidden inner motivation of the individual group member with the group member's cognitive knowledge and behavioral skills (Beebe & Barge, 1994). These three factors powerfully interact with one another to project an impression of competence (Beebe & Barge, 2003).

One way to understand the impression formation process within the context of a group interaction is to view it from the functional theoretical perspective.

The functional theoretical approach grew from Dewey's (1910) reflective thinking where a discussion sequence of a problem is followed by discussion of a solution. Functionalism is concerned with patterns that emphasize the conversational system and subsequent consequences (Graham, Papa, & McPherson, 1997). This theoretical perspective was clarified within Barnlund and Haiman's (1960) research application to the group context where critical thinking, attention to structure, and effective interpersonal relations were emphasized.

Findings of empirical investigations, especially within the field of communication studies, have offered support for the functional perspective in building an understanding of group performance effectiveness (Orlitzky & Hirokawa, 2001; Wittenbaum, Hollingshead, Paulus, Hirokawa, et al., 2004). Essentially communication within group discussions is functional to the extent that the conversation serves a purpose and works together to accomplish goals of the individual group members as well as the group holistically (Keeley, 2007). Orlitzky and Hirokawa (2001) point to the core notion of functional theory surrounding effective group decision making as dependent on interactions contributing to the satisfaction of critical task requirements. Therefore, communication functions within patterns of behavior that works to build understanding of the process of complex group dynamics.

Classic research by Benne and Sheats (1948) and Bales (1950) defined the two functions of group interaction as relational and task dynamics. The task functions within a problem solving group discussion include behaviors associated with making a decision,

solving a problem, and performing a specific role (Beebe, Barge & McCormick, 1994). The relational functions are those behaviors that help manage group member attitudes along with the feelings that group members have for one another (Barker, Abrams, Tiyaamornwong, Seibold, & et al., 2000). The influential power of relational messages is intertwined throughout the process of group work (Anderson & Martin, 1999). The influence of verbal and nonverbal messages facilitates the group through the process of discussion to the achievement of a mutual goal.

Small group instruction and research supports the separation of behaviors into task and relational dimensions. Based on the functional theoretical approach, the creation of the *CGC* instrument (Beebe & Barge, 1994) separates task functions from relational functions. Substantial research confirms a functional theoretical approach for organizing problem solving frameworks into functional categories in order to accomplish the goals of the group members (Graham, Papa, & McPherson, 1997; Orlitzky & Hirokawa, 2001; Rousseau, Aube, & Savoie, 2006). A meta-analysis of small group research reviewing over 31 empirical studies confirmed the distinguishing characteristics of task and relationship predictors and criteria (Halfhill, Sundstrom, Lahner, Calderone, & Nielsen, 2005). The underlying assumption is that a group must satisfy specific task and relational requirements in order to reach an effective decision.

Functionalist approaches to group discussions maintain that groups make effective decisions if they perform key functions that include the establishment of operating procedures, definition and analysis of the problem, generation and development of solutions, and solution evaluation (Beebe & Barge, 1994; Orlitzky & Hirokawa, 2001). Researchers using a functionalist approach typically code individual messages into one of

these categories and emphasizing whether the message fulfills the specific function (Beebe & Barge, 1994). True to the functionalistic theoretical framework, the *CGC* instrument highlights the perceptions and judgments of verbal and nonverbal cues and their function in forming impressions of competence within a group interaction.

Messages within a group are multichanneled and involve what is said verbally and what is left unsaid and conveyed via nonverbal cues (Beebe & Barge, 2003). With this multichanneled characteristic of group communication along with classic and contemporary research confirming the value of task and relational functions, the functional theory supports the *CGC* instrument's approach, foundation, and organization. Presented below is empirical research surrounding the cognitive task functions and the affective relational functions within a small group problem solving discussion.

Task Functions

The competent group member who is solving a task related problem is concerned with a process that includes defining the goal or outcome of the discussion, needed changes, options to achieving the goal, and consequences of the options (Hirokawa, 1985, 1987). The task competencies are cognitive in that they involve good decision making through generating possible solutions and defining the problem creatively (Wittenbaum, Hollinghead, Paulus, et al., 2004). The *CGC* instrument includes two task categories: problem-oriented and solution-oriented competencies. These categories are further broken into five task related competencies that include defining the problem, analyzing the problem, identifying criteria, generating solutions, and evaluating solutions. What follows next is an integration of classical research from which the *CGC* was developed

with contemporary research uncovering task related competencies surrounding the group problem solution discussions.

Problem-Oriented Research. This first general task related function is the problem-oriented function that focuses on the definition and the analysis of the problem that the group faces (Beebe & Barge, 1994). These first two competencies assessed in the CGC incorporate discussion surrounding what the problem is, what the problem is not, and what caused the problem to occur. In a meta-analysis of empirical research testing the functional theory of small-group decision-making effectiveness, Orlitzky and Hirokawa (2001) confirm the importance of a thorough problem analysis on group effectiveness. This research correlates the problem analysis function with group effectiveness ($r = .55$) and establishing evaluation criteria ($r = .27$) with the authors concluding that a thorough understanding of the task is vital to the group's outcome. After the group discusses aspects surrounding the problem under discussion, the task discussion continues with analyzing solutions that hold potential to solve the problem at hand.

Solution-Oriented Research. The next three competencies fall within the solution-oriented function and include identifying criteria for the solution, generating possible solutions, and evaluating the solution (Beebe & Barge, 1994). Design of the CGC was based on classic research that asserts effective communicators make the choice to offer clear and appropriate comments that work to focus the group on the goal of solving the problem at hand (Beebe & Barge, 2003).

Solution-oriented function includes the identification of clear criteria and standards that result in an appropriate outcome and solution. Larson (2007) reiterates that

problems involve multiple solutions with varying degrees of value. The effective group (or group with strong synergy) is composed of highly attentive members who are verbalizing throughout every step of their own process (Larson, 2007). This highly attentive member is simultaneously keeping mindful of other group members and the progress to identifying the solution (Larson, 2007).

Individual group members who want to be perceived as effective and competent within task oriented problem solving contexts are advised to stay open-minded and adopt solution-oriented strategies in order to accomplish their goals (Gross, Guerrero, & Alberts, 2004). Research highlights solution-oriented strategies as tactics that include listening actively and brainstorming new alternatives while simultaneously striving to reach a compromise (Coopman, 2001; Gross, et al., 2004). Prior to brainstorming possible solutions Larson (2007) highlights the importance of identification and analysis of what the solution will look like. However in Orlitzky and Hirokawa's (2001) meta-analysis the time spent on brainstorming decision alternatives surfaced as the least important of all the problem and solution functions in relation to the outcome ($r=.20$). The authors surmised that the time spent on brainstorming could be taking valuable time from the other task-relevant communication functions that positively increase the quality of the decision (Orlitzky & Hirokawa, 2001).

Although there may be debate about the importance and value of brainstorming within the literature, there still remains evidence that brainstorming leads to effective problem solving group discussions (Graham, et al., 1997; Larson, 2007). Orlitzky and Hirokawa (2001) meta-analysis confirmed that the most important process function related to the group outcome is the group members' assessment of the negative

consequences of alternative solutions (mean correlation of .71). This confirms the importance of thoroughly discussing the negative consequences of solutions in order to maximize group production. Although group outcome and production is not a variable the *CGC* assesses, this research confirms why performing this competency is of great importance for the group member to learn in the classroom and competently perform in natural group contexts.

The *CGC* captures brainstorming as one of three solution-oriented strategies including identifying criteria for the solution, generating possible solutions, and evaluating the solution. Contemporary literature confirms the establishment of evaluation criteria and a positive evaluation of alternative solutions as ingredients that indicate group competence (Graham, et al., 1997). Graham and associates (1997) reported effective and ineffective groups differed significantly with respect to behaviors that establish evaluation criteria. In addition the authors found significant differences between effective and ineffective group behaviors contributing to evaluation of alternative solutions. These solution-oriented processes have been shown to serve as a precursor to increased perceptions of group effectiveness which in turn leads to increased team productivity and team member satisfaction (Coopman, 2001; Orlitzky & Hirokawa, 2001). Together effective use of solution-oriented competencies including identifying criteria, generating solutions, and evaluation of ideas will produce an impression of group member competency.

Assessing the components of competency in communication is illuminated by the characteristics of the ineffective group members (Larson, 2007). This group member does not clarify the goal or establish criteria for solving the problem (Beebe & Barge,

2003). The ineffective group member gives the impression of being lost and simply unsure what they are looking for in a solution or outcome. In addition ineffective group members contribute fewer solutions, tend to rush to a decision without considering other options, make decisions before defining and analyzing the problem, and fail to thoroughly examine both the positive and negative consequences of the solution (Beebe & Barge, 2003). These extremes within the solution-oriented task competencies are captured and assessed within the *CGC* instrument. The research outlined above supports the role of communication functions that allow groups to accomplish their problem solving goals.

Classic research inspired by Dewey's (1910) reflective thinking processes evolved into functional theoretical foundations that have resulted in considerable empirical evidence supporting the task role that takes place within the problem and solution stages. This research serves as the foundation that supports the classification of the problem and solution competencies created by Beebe and Barge's *CGC* instrument. Research from the past ten years has further confirmed the components of effective task discussion competencies surrounding the problem and solution.

Prior to the creation of this instrument, researchers in small group communication were primarily comprised of men who focused on task related functions (Barker, et al., 2000). Until ten years ago, this research tended to highlight the relational components of group discussions as negative influences on group problem solving discussions (Barker, et al., 2000). What follows is current research from the past ten years that has focused on the relational components in groups.

Relational Functions

Relational dynamics in group communication include the verbal and nonverbal messages which promote relationships between group members (Keyton, 2006). These messages act as the affective dimension of group communication and have the power to complement the group's progress or disrupt task related communication (Keyton, 2006). Research in contemporary group settings confirms the historical contributions and value of relational dynamics (Barker, et al., 2000). The interaction and conversation becomes the mediating force where group competencies come to light.

Beebe and Barge (2003) indicate that effective group members keep focused on the task at hand while managing interaction. The effective group member does not monopolize the group interaction; instead they actively work at including the quieter members into the conversation (Beebe & Barge, 2003). The ineffective group member, on the other hand, rarely contributes to the conversation and has difficulty staying on track and focused to the task at hand.

Managing the relational components comprises four competencies that are organized in two functional categories of competencies: discussion management function and relational function. The discussion management competencies include maintaining the task focus and managing group interaction. The relational competencies include managing conflict and maintaining a positive climate. Outlined below is a review of literature highlighting the relational functions within the problem solving group interaction.

Discussion Competencies Research. Based on a functional perspective, research has demonstrated that discussion behaviors of group members function in ways that

impact the effectiveness of group and individual outcomes (Kramer, Benoit, Dixon, & Benoit-Bryan, 2007). Effective groups maintain the focus on the problem being discussed and appropriately help everyone stay on the group task, issue, or agenda item (Beebe et al., 2006). As opposed to members who are confused about what is under discussion and frequently digress from the discussion issues, effective group members summarize what the group is discussing to keep the group oriented (Beebe, et. al., 2006).

The second category of discussion competencies captured on the CGC is the management of the group interaction (Beebe & Barge, 1994). Effective group members appropriately manage interactions by initiating and terminating discussion, contributing to the discussion, and inviting others to contribute to the discussion (Beebe, et al., 2006). This discussion competency includes looking for opportunities to include the quieter members of the group and ways to tactfully decrease the contributions of the group member who monopolize the discussion (Beebe, et al., 2006). As an added benefit to the group process, the management of the conversations among group members helps create a climate that is encouraging and supportive.

More recently, researchers have examined the impact of group members sharing information known only to them versus discussing information known by everyone (Bonito, 2003). The information a group member chooses to share with fellow group members is a focus of numerous studies linking to perceptions of effectiveness (Bonito, 2006; Coopman, 2001; Wittenbaum, Hollingshead, & Botero, 2004). Each group member makes a cognitive choice to participate, which impacts others' perceptions of their competence (Bonito, 2003), fostering more speaking opportunities (Bonito, 2006), and ultimately leading to more influence on the group decision (Bonito, 2006).

As discussed earlier, this internal decision to participate in a group conversation is not captured by the *CGC* instrument. An individual group member's internal feelings and attitudes towards their group's task and goals are influenced by factors such as the level of difficulty of the task and the outcome and performance (Whiteoak, Chalip, & Hort, 2004). The internal drives of group members are subject to many different contextual situations that are outside the scope of the *CGC* Instrument (Beebe & Barge, 1994). Yet the consequences of a group member's behavioral decision are captured through outward displays including participating in the discussion and managing the interaction.

Just because the group member participates in the conversation, however, does not necessarily mean that they demonstrate competencies (Beebe & Barge, 1994). For instance, they could be monopolizing the conversation, diverging to other topics, or simply not on the task that requires a solution. Kramer and associates (2007) conducted research on group discussion in a natural context of a teacher's retreat comparing eight different groups focusing on the relational community building behaviors. Their research confirmed domination of conversation by a group member led to negative perceptions whereas equality of participation was confirmed as an important predictor of members' perceptions of group effectiveness (Kramer et al., 2007). The results suggest that appropriate participations involved a willingness to participate openly, discussing ideas, and by listening and supporting each other during the group discussions (Kramer et al., 2007). Discussion oriented competencies become affective responses leading to behavioral and cognitive evidence within the group interaction.

Research suggests that groups consciously develop explicit and implicit rules of communication in order to encourage all team members to participate in decision making and thereby increase shared information (Coopman, 2001; Wittenbaum, Hollingshead, & Botero, 2004). Yet, those group members who contribute less to the group discussion have been frequently labeled a “social loafer” by other group members (Limon & Boster, 2003). This negative label, linked to competency of the group member, is not necessarily accurate when the contributions of group members are analyzed. Limon and Boster (2003), for example discovered perceived loafing pertains to perceptions of group members’ contributions that are not necessarily accurate. The choice to participate in discussion and work to include quieter members is a complicated process that research has consistently linked to individual and group effectiveness and fostering of the group’s climate.

Relational Management Research. The development of a positive and supportive group climate along with managing conflict as it arises are assessed within the fourth major category of the *CGC* instrument: relational management. Beebe and Barge (2003) assert effective group members are sensitive to other group members personalities but maintain that when conflict occurs it remain focused on the issues, information, and evidence. In addition effective group members look for opportunities to encourage and support other group members. In the form of verbal and nonverbal confirmations, this support works to improve the group climate while maintaining positive relationships. This category within the *CGC* captures the all important affective parameters building a group climate.

Classic research conducted by Hirokawa and Rost (1992) and confirmed by Kuhn and Poole (2000) assert that conflict provides a clear direction for groups by allowing them to analyze the problems, negotiate goals, and assess consequences of decisions. Argumentative members improve decision making by analyzing both sides of an issue, problem, and solution and thereby sustain the communication process (Anderson & Martin, 1999). Argumentativeness refers to positive, constructive trait involving an individual group member's willingness to argue issues with another group member (Anderson & Martin, 1999). This is not necessarily the same as aggressive communication, for research here focuses on verbal messages within the group and confirms a negative relationship on group member cohesion, consensus, and satisfaction (Anderson and Martin, 1999). Argumentative communication is more effective than aggressive communication style that utilizes tactics that involve personal evaluative attacks.

To understand the impact of conflict management style on the effectiveness of problem solving, Kuhn and Poole (2000) gathered and analyzed conflict management patterns established early in a group's history and how it subsequently influenced decision-making behaviors. The authors concluded that effective groups must entertain alternatives, respond to others' objections, work out compromise positions, and coordinate collective action (Kuhn & Poole, 2000). These findings confirm the prescribed actions proposed by Gross and associates (2004) suggesting group members steer away from nonconfrontational tactics that include avoiding or changing the subject, giving in to a group member's demands, and attempting to minimize disagreements. Groups who were vigilant in their pursuit of resolutions to problems confronted conflict

instead of avoiding the topics of contention (Anderson & Martin, 1999; Kramer et al., 2007).

The relational functions described within the *CGC* include both the management of conflict and the group climate. Beebe and Barge (1994) highlight the supportive comments and verbal encouragement, along with positive nonverbal expressions to indicate competence. More specifically an individual's nonverbal choices reflect how an individual "spins" nonlanguage cues to obtain social goals (Keating, 2005). The power of nonverbal messages can work to transform group discussions into positive climate interactions as well as the opposite nonproductive atmosphere full of negative messages.

Positive verbal messages are captured within the *CGC*'s relational competency which includes offering appropriate comments including humor that reinforced good work and helped to maintain positive group relationships (Beebe & Barge, 1994). The inclusion of this competency is confirmed by research including Romero and Pescosolido (2008) meta-analysis of humor and group effectiveness. This survey included over 100 literature sources across disciplines including management, psychology, social sciences, popular press, and communication beginning with Freud's (1928) suggestion that humor releases emotions (Romero & Pescosolido, 2008). From this analysis, the authors conclude that humor impacts group communication in six distinct ways all leading to group effectiveness: promotion of quantity and quality of group communication, empowerment of leaders within groups, promotion of a strong performance oriented group culture, higher levels of consensus surrounding group goals, perception of psychological safety which leads to higher learning within the group, and last humor

generates positive affect. Successful use of humor by group members influences group processes through the positive impact on the impression of competency.

The conscious communication choices made by group members involve not only the verbal comments but also the nonverbal expressions. Nonverbal communication is multimodal in that people engage in several cues simultaneously as opposed to verbal messages that are expressed one at a time (Keating, 2005). Individuals' choice of clothing, where they chose to seat in a group setting, and choice of vocal tones are conscious choices and easily manipulated nonverbal cues (Curhan & Pentland, 2007). These nonverbal elements are vital and important signals within the group communication context, but they are generally conscious, subject to manipulation, and indicators of competence. Relational messages act as antecedent influences on the group interaction, are entwined within the group discussion, and affect the outcomes including the impression of competence (Barker et al., 2000).

Research confirms that nonverbal behaviors possess affective meanings that are associated with impression formation based on the potency of the expression and the amount of the expression (Rashotte, 2002). Add these nonverbal behaviors to verbal feedback of encouragement, positive use of humor, and the group climate and effectiveness are impacted (Limon & Boster, 2003; Romero & Pescosolido, 2008). Positive feedback in the form of verbal and nonverbal expressiveness has been linked to higher ratings of group cohesion (Limon & Boster, 2003). Research supports the combination of conflict management style characteristics along with verbal and nonverbal expressions to create the group's relational communication climate.

Summary and Research Questions

The *CGC* instrument is designed to be used by instructors to evaluate individual and group communication behaviors to determine the impression of competency. This literature review presented current research to support the content validity of the elements and characteristics of individual and group competencies in small group problem solving discussions. General findings of the literature review yielded twenty-one contemporary, empirical studies confirming characteristics of an effective individual in a group and team along with a holistic assessment of group competency. Contemporary literature supports the nine competencies as communication functions that create impressions of group and individual competency.

Validity Establishment

The literature and established content validity of the *CGC* instrument cannot be generalized to one of the most vital contexts: the teaching environment. This study will build upon prior pilot testing and research supporting the validity of the *CGC* competencies by testing the *CGC* within the context of a classroom. Measurement of validity refers to how well the researcher measures the intended variable (Frey, Botan & Kreps, 2000). The more closely the analyzed data reflect the observable characteristics of the research concepts, the more valid the measurement technique is considered to be (Frey, et al., 2000). In other words, the validity of the construct refers to the capturing and measurements of the communication competencies under investigation within the context of the classroom.

As stated earlier, the instructor in the college classroom has many outside pressures from the department, the university, the academic accrediting agencies, and

forces within government to document student learning. The goal of this study will be to determine whether the *CGC* instrument can discriminate between effective and ineffective groups and thereby providing a vital assessment tool for use by instructors. The following research question will address the predictive validity of the instrument:

RQ1: Does the *CGC* Instrument discriminate between effective and ineffective group and individual group member competencies (problem-oriented, solution-oriented, discussion management and relational competencies) in the classroom context?

For validity to be sufficiently established and RQ1 answered, a significant difference between individual and group level competency scores should emerge. The total competency scores for each of the functions and the group level assessment for the ineffective group and the effective group will be examined. Results should address the universal application of the *CGC* Instrument within the classroom and its ability to differentiate individual and group level competencies thereby establishing predictive validity.

Reliability Establishment

The second goal of this research is to determine the reliability of the *CGC* instrument. According to Frey and associates (2000), a measurement first must demonstrate reliability before consideration of measurement validity. A reliable gauge should give the same measurement when reapplied to a similar context, individual, and/or group (Whiteoak, Chalip, & Hort, 2004). This research will extend prior studies in order to strengthen the value of the instrument to uncover consistently and accurately the level of competency of individual group members and the holistic group competency. The

following research questions are put forth to examine the reliability or consistency of the *CGC* Instrument. The goal will be to determine if the participants consistently evaluate the competencies performed by the five individual group members.

RQ2: Are participants able to consistently identify the competency of individual group members with the *CGC* instrument?

In order to determine if each of the competencies within the four functions (problem-oriented, solution-oriented, discussion management, and relational management) is reliable for discriminating differences within individual group member's communication behaviors, the following research questions are put forth:

RQ2A: Are participants able to consistently evaluate individual group member's *problem-oriented* competencies (problem definition and problem analysis) in the *CGC* instrument?

RQ2B: Are participants able to consistently evaluate individual group member's *solution-oriented* competencies (solution criteria, generation of possible solutions, and evaluation of the solutions) in the *CGC* instrument?

RQ2C: Are participants able to consistently evaluate individual group member's *discussion management* competencies (maintenance of task focus and management of group interaction) in the *CGC* instrument?

RQ2D: Are participants able to consistently evaluate individual group member's *solution-oriented* competencies (management of conflict, maintenance of group climate) in the *CGC* instrument?

In order to determine whether the *CGC* instrument is reliable and participants are consistent in evaluating the competencies within the holistic group, the following research question is asked:

RQ3: Are participants able to consistently evaluate the holistic group competence with the *CGC* instrument?

In order to determine if each of the competencies within four functions is reliable or consistent in discriminating differences within the holistic group impression of competence, the following research questions are asked:

RQ3A: Are participants able to consistently identify the holistic group impression of competence in the *problem-oriented* function of the *CGC* instrument?

RQ3B: Are participants able to consistently identify the holistic group impression of competence in the *solution-oriented* function of the *CGC* instrument?

RQ3C: Are participants able to consistently identify the holistic group impression of competence in the *discussion management* function of the *CGC* instrument?

RQ3D: Are participants able to consistently identify the holistic group impression of competence in the *relational management* function of the *CGC* instrument?

CHAPTER III: METHODOLOGY

Chapter one introduced the *CGC* and provided an overview of the purpose and instrument development process. Research that lends support to the instrument's validity and reliability was also discussed along with the significance of the problem addressed in this study. Chapter two presented the foundational assumptions surrounding the instrument design and scoring parameters, and the organization and general description of group and individual member competencies captured in the *CGC*. Chapter two also advanced the established research further by lending functional theoretical support to the communication competencies incorporated within the *CGC*. Finally, chapter two established the rationale for the study with research questions driving the methodology.

Chapter three presents the methodology for the study. The purpose of this study is to determine and develop answers to the proposed research questions in order to demonstrate the reliability and validity of the *CGC* instrument in the classroom. The stimulus group interactions were created and a pilot study was conducted to verify the training and stimulus interactions were developed accurately. From this initial research, changes were made to the methodological approach, including changes to the stimulus interactions, the training provided, and the recruited sample. Important components of this research are presented in the following sections, including descriptions of the

stimulus video with the effective and ineffective group interactions, training on the use of the *CGC*, the outcome and impact from the pilot study, and the research design.

Stimulus Video

To accurately examine the reliability and validity of the *CGC* instrument in the classroom, two group interactions of students in a problem solving discussion was created. In order to create a script reflecting dialogue that would appropriately depict a group discussion by undergraduates in class (the target group for this study), a convenience sample of fifteen students was assembled. The goal in this process was to ultimately select fifteen students (three groups of five) to participate in the creation of the three stimulus videos. The students were recruited from a basic core communication course and offered extra credit for their participation. All fifteen students had just completed an exam over principles of small group problem solving discussions within their course. Each student selected a group session that was convenient for their schedule.

The group session began first with a review of the following basic communication principles and group problem solving steps: defining and analysis of the problem and solution definition, generating ideas, and finally evaluating the solutions. The group was then given a topic considered to be culturally relevant and familiar: congestion within a small over-populated corridor on campus. Problem solving discussions by each group were videotaped and transcribed. The transcripts were analyzed and three scripts were created reflecting three levels of productivity in problem solving discussion: excellent, fair, and inadequate.

From the sample of fifteen students, five were selected and paid \$25 for participation in creating three stimuli for group problem solving discussion. The actors

were presented with three separate scripts to memorize. The first script, labeled the *blue* group, captured an excellent and competent group discussion. The script's dialogue contained a minimum of two competencies within each *CGC* category of the problem solving functions (problem-oriented, solution-oriented, discussion, and relational functions) for each group member to perform clearly and appropriately.

The second script, labeled the *yellow* group interaction, reflected a fair group interaction. This script's dialogue was very similar to the *blue* group, except, in this case, each group member's dialogue included only one competency within each problem-solving category that was presented clearly and appropriately. In addition, the *yellow* group's script included off-the-topic dialogue.

The third script, labeled the *orange* group interaction, reflected an inadequate group discussion. Similar to the *yellow* group interaction, this script reflected additional off-the-topic dialogue, presented unresolved conflict, and had no clear or appropriate discussion around the problem or the solution.

Within the problem-solving scripted conversations, each of the individual group members was assigned a specific role as a member of a social group meeting on campus (facilitator as member of President's Council, member of honor society, psychology interest group, business fraternity, ROTC, and criminal justice fraternity). The stimulus discussion included each of the five students representing several different organizations on a college campus and meeting to come up with suggestions for a University policy change requested by the President's Council. The group was to address and present solutions to a campus problem of congestion within a small, centralized, and over-populated corridor. In order to reflect a small group communication class assignment, each of the videotaped interactions lasted approximately 20 minutes. The scripts and

objectives for each group interaction can be found in Appendix B. In addition to the three groups' discussion stimuli used for assessment within this research project, a training program was designed for using the *CGC* instrument. This is consistent with past pilot and field tests where all participants were trained prior to using the instrument for assessment (Albert, 2002; Beebe et al., 1994; Beebe et al., 2006; McCormick, 1996).

Training on the *CGC*

Research supports the need for training to increase the knowledge and skills needed in group, team, and pedagogical contexts (Graham, Papa, & McPherson, 1997; Lievens & Sanchez, 2007; Rapp & Mathieu, 2007; Salas, Nichols, & Driskell, 2007). Because group work varies with the number of group members and task difficulty (Larson, 2007), training with a consistent and uniform assessment tool becomes invaluable. Therefore training is a vital component for the *CGC* instrument in order to provide universal application and adoption across contexts.

Prior research confirms that training on the use of the *CGC* instrument serves multiple purposes. The first purpose of the training includes instruction on the specific characteristics of group problem solving competencies (Beebe et al., 2006). This was confirmed when a prior field test in an undergraduate small group classroom indicated that training students on the use of the *CGC* allowed them to self-evaluate their strengths and weaknesses in group problem-solving competencies (Albert, 2002). With research supporting the necessity of training, creators of the *CGC* instrument developed a specific training program that was fashioned after one presented at the 2006 National Communication Association Convention (Beebe et al., 2006). With a standardized training program emphasizing problem-solving competencies and the use of the *CGC* for assessing those competencies, a pilot study was conducted in the present study to

confirm the effectiveness of the training program and the group interaction stimulus videos created.

Pilot Study

A pilot study was conducted to ensure that the three group stimulus interactions (*blue*=good, *yellow*=fair & *orange*=bad) performed at the competency level for which they were designed. An additional goal of the pilot study was to assess the training provided to the students to detect the level of sufficiency for preparing students to use the *CGC* and, in turn, determine the validity and reliability of the instrument.

Prior to beginning the pilot study all three stimulus videos were reviewed by a small group communication instructor with over ten years of experience assessing group interactions. After this review, the *orange* stimulus interaction (illustrating a poor competency level) was eliminated due to the distraction and clear lack of purpose of the group interaction. Although this group stimulus was at the inadequate level of competency, the dialogue simply did not represent an interaction that would likely be seen in a classroom setting. The conflict was mean-spirited and not representative of students in a group discussion with their peers. As stated earlier, the *yellow* interaction included dialogue similar to the *orange* group, thus after a preliminary review it was decided the *yellow* group competency level fell within the inadequate scoring parameters.

The final two stimulus videos were assessed by students in four undergraduate small group communication classes at the end of the fall semester. The timing was to ensure they were sufficiently aware of productive group interactions and could discriminate differences between competency levels within group interactions. These students were taught by three different instructors, all using the same small group communication textbook. The two student groups viewing the *blue* group interaction

(N=51) were enrolled in two different classes with different instructors. Students from the remaining two sections (N=54) assessed the *yellow* group interaction and were also in two different classes with different instructors.

During a regular class session, each group along with their instructor received approximately twenty minutes of training on the design, components, and use of the *CGC* instrument to assess group problem-solving. The students were randomly assigned one of the five group members to assess in the stimulus video. Each student was instructed to assess their assigned group member as well as the entire group (holistic analysis) using the *CGC*. The classroom instructors assessed all five members of the group as well as the holistic group using the *CGC*.

The assessment took approximately twenty minutes and once completed, students participated in a discussion surrounding the stimulus group discussion and their perceptions of the ease of using the *CGC*. Each group of students was asked the following questions and notes were taken of their collective responses: “Was the group discussion by the undergraduate students in the video realistic to those you have experienced within a communication classroom? Was there any dialogue that distracted you from the assessment process? Are you familiar with any of the student actors in the stimulus group discussion? Do you feel you were adequately trained to use the *CGC* instrument? After the training, was the instrument easy to follow and use?” The students and instructors were thanked for their participation in the study and the follow-up discussion.

Pilot Study Results

To determine whether students’ assessments of the *blue* and *yellow* stimulus group interactions were in fact different (good vs. inadequate), an independent samples

t-test was conducted. Of the total participant responses (N=103), sixteen did not include a complete analysis of the individual group member's use of all nine competencies.

After eliminating the sixteen incomplete assessments, results of the pilot study indicated that the two groups (within four classes) found significant differences between the two group interactions ($t(87) = 2.278, p < .05$). This difference, however, was only based on the holistic impression of group competency. Additional *t*-test analyses were also conducted on individual group member's competency levels in order to determine possible differences. Participants perceived no significant differences existed between the individual group members in the two stimulus group videos. The competency levels are indicated in Table 1.

Table 1.1: Pilot Test Results

Group Member	Group Competency Level	N	Mean	Std. Deviation	<i>t</i>	Significance
#1	Blue Group	11	23.27	6.69	326	.748
	Yellow Group	10	22.40	5.42		
#2	Blue Group	11	21.82	3.84	883	.388
	Yellow Group	11	20.09	5.22		
#3	Blue Group	10	20.00	4.74	-1.25	.229
	Yellow Group	8	22.50	3.42		
#4	Blue Group	9	27.33	5.09	.000	1.0
	Yellow Group	6	27.33	4.13		
#5	Blue Group	8	21.38	4.87	.183	.857
	Yellow Group	10	20.90	5.90		
Holistic Group	Group Competency Level	N	Mean	Std. Deviation	<i>t</i>	Significance
	Blue Group	46	26.91	4.55	2.278	.025
	Yellow Group	43	24.40	5.84		

Note: **Blue Group** = Good Competency Level **Yellow Group** = Inadequate Competency Level

Pilot Study Discussion

The pilot study provided valuable information leading to procedural changes in the actual study in order to assess the reliability and validity of the CGC. The fact that students and their instructors perceived holistic differences in the groups but no

significant differences between the competencies of the individual members of the two groups was confusing. These mixed results may have occurred for several reasons. First the number of participants assessing the holistic group was five times greater than the number of students assessing the competencies of each individual group member. Secondly, due to the students' inexperience using assessment tools, the brief training may simply have been inadequate. Finally, the mixed results may point to a lack of clear distinction between individual members of the two videotaped groups used for the pilot study assessment. Outlined below is a detailed analysis of the pilot study outcomes and the resulting procedural changes instituted for the research study.

Number of Participants. One reason for the lack of significant differences between each of the individual group member's competency assessment may have been the number of assessments conducted. Each participant was assigned one group member to assess. Additionally each participant assessed the group holistically. This means each group member was assessed by less than eleven participants, whereas the entire group's performance was assessed by 89 participants. Dividing the participant sample size into five parts could result in a loss of the 95% confidence level leading to a sampling error (Keyton, 2006). In order to increase generalizability to the population that could use the *CGC* as a tool in the classroom, each participant in the research study will be asked to assess all five group members as well as the holistic group competency level.

Participant Training and Experience. The undergraduate students selected for this pilot study had each completed a basic communication course and a small group communication course. A possible reason for insignificant differences in individual assessment results could be the insufficient training of the participants in the use of the *CGC*. After completing a small group communication course, the undergraduate

participants simply may have required more training in assessment than the allocated time the class session allowed. Thus they may not have acquired the necessary assessment skills to use the *CGC* accurately and consistently. The participants obtained the necessary group communication skills to locate significant and holistic group competency differences, but were not able to discriminate differences among the individual group members. A reliable measure should provide the same measurement when repeated with other participants (Whiteoak et al., 2004), and the understanding that all the participants have the same training and ability. These results could indicate that students in the pilot study simply did not have the necessary assessment skills and abilities that instructors skilled in small group communication maintain.

As a result of these pilot study findings, two changes to the actual study were implemented. Participants recruited from undergraduate small group communication courses were eliminated from this project. The group of communication instructors utilized in the pilot study was expanded and others were recruited from surrounding colleges and universities. Limiting the sample to the population of communication instructors, should result in participants with similar abilities and assessment skills. In addition the change in the sample will include a population who may benefit from first-hand knowledge and usage of this assessment tool in the classroom. With skilled instructors who are well-trained, assessing differences between effective and ineffective groups may result in a more accurate determination of the reliability and validity of the *CGC*.

Stimulus Group Interactions. Another possible explanation for a lack of significant differences between individual group members could have been the stimulus group interaction. Perhaps there was not a clear distinction between each of the

competency levels for the individual actors in the videos. The class discussion after each of the assessments confirmed that the students viewed the stimulus group discussion as accurately reflecting undergraduate small group problem-solving interactions. The instructors in each of the classes confirmed that the group discussion was indeed reflective of the group work within communication classrooms. The instructor's holistic assessment did accurately reflect the stimulus videos' targeted levels of competency. Yet the individual group members were assessed with similar competencies on both interactions.

Based on the results of the pilot study and discussion, further examination of each of the individual group member's competency levels was conducted. The *yellow* group interaction reflected accurate levels of individual competencies for all five individuals however similar levels were displayed by three of the group members within the *blue* interaction. This led to the conclusion that the script for the *blue* stimulus video needed to be redone.

Each of the actors reconvened with the exception of one male group member who became ill and was replaced by another male graduate student. After additional training and practice on effective problem-solving discussion, the videotaping of the *blue* interaction was redone. In this stimulus video, the dialogue for the discussion was similar to the first *blue* group interaction but with several changes. In order to produce distinct member differences, the dialogue surrounding the problem and the solution was expanded to more clearly meet parameters reflecting a good competency level. This resulted in changes to each individual group member's dialogue with several distracting comments eliminated.

With the change of an actor and clearer dialogue, it was expected that the group interaction would more accurately reflect good competency levels for each of the individual group members. In order to verify that both of the holistic group interactions accurately reflected differences and each of the actor's performances were different, four experienced and highly trained instructors were recruited to assess the stimulus group discussion using the *CGC*. The analysis of their assessment using an independent samples *t*-test found significant differences between the two group interactions ($t(2) = -10.50, p < .01$; *blue* group $M=33.00$ $SD=2.83$ *yellow* group $M=12.00$ $SD=.000$). In addition differences were significant between three of the five group members. The table below (Table 2.1) presents the results from two assessments confirming differences at both the group level and individual level.

Table 2.1: Pilot Study Stimulus Discussion Assessment

Group Member	Group Competency Level	N	Mean	Std. Deviation	<i>t</i>	Significance
#1	Blue Group	2	33.00	2.82	.326	.016
	Yellow Group	2	13.50	2.12		
#2	Blue Group	2	26.00	9.90	2.066	.175
	Yellow Group	2	11.50	.71		
#3	Blue Group	2	27.00	11.31	2.25	.153
	Yellow Group	2	9.00	.00		
#4	Blue Group	2	35.50	.71	29.70	.001
	Yellow Group	2	14.50	.71		
#5	Blue Group	2	31.00	7.07	4.315	.050
	Yellow Group	2	9.00	1.41		
Holistic Group	Group Competency Level	N	Mean	Std. Deviation	<i>t</i>	Significance
	Blue Group	2	33.00	2.83	-10.50	.009
	Yellow Group	2	12.00	.000		

Note: **Blue Group** = Good Competency Level **Yellow Group** = Inadequate Competency Level

Pilot Study Summary

The pilot study provided a clearer understanding of the complexity of group communication assessment and differentiating competency levels. Several reasons help to explain the mixed results from the pilot study including the number of participants, experience assessing communication, training, and a problematic group interaction stimulus video. Together, these procedural changes to the methodology and research design of the project should assist in assessing the reliability and validity of the *CGC*.

Research Design

A quasi-experimental research design is outlined with the primary goal to establish instrument validity and reliability of the *CGC* within the context of the small group communication classroom. Specifically, this section includes a discussion of the participants used for the data collection, highlights the research design, instruments, and procedures and training used in this study.

Participants

Participants for the study were recruited from the Communication Studies Department at Texas State University-San Marcos. They included thirteen graduate student instructors and/or teaching assistants. In addition, participants included eight instructors/professors and adjunct faculty from the Communication Studies Department. Participants also included three communication instructors at a local community college and six post-graduate students from a doctoral small group communication course located at a large university in the vicinity of Texas State.

This resulted in a total of thirty participants all of whom had differing expertise, training, and assessment skills in the communication classroom. A survey of level of experience within a communication classroom indicated that seven participants were

highly experienced with over four years experience, nine were moderately experienced (three to four years), and fourteen had low experience with one year or less. Participant sex was considered irrelevant to this study as research has consistently reported that sex of the participants was not significantly related to the accuracy of predictions (Ambady & Rosenthal, 1993; Rashotte, 2002).

Procedures

Similar to past tests with the *CGC* instrument (McCormick, 1996; Beebe et al., 2006), this study recruited participants to assess a stimulus group interaction using the *CGC*. Each participant was randomly provided a DVD containing a stimulus group discussion illustrating one of two levels of the group competencies - inadequate (*Yellow*) and good (*Blue*) performances. Training was provided in order to review individual and group competencies as well as the criteria for assessing competency using the *CGC*. Outlined next are the procedures for training and gathering data.

CGC Training. Participants were solicited to participate in three different training opportunities. The training included an experiential learning activity that exposed the trainees to video clips of group interactions that demonstrated various levels of competency (effective and ineffective) along the four categories and nine functions of group problem-solving competencies. In addition, the training included an overview of the *CGC*, how to use the form for assessment, and scoring parameters. The participants were each given a copy of the training manual created and presented by the authors at the 2006 NCA Convention (Beebe, et al., 2006). During the training process, participants referred to the official training manual for further written clarification of the problem-solving competencies. They were instructed to keep the training manual for later reference should additional clarification be necessary.

Following the training exercise, each participant received a twenty minute small group interaction on a DVD labeled *blue* group or *yellow* group. Each participant received a *CGC* Instrument, a survey, and a copy of the consent form with IRB contact information. Participants were asked to assess the stimulus group problem-solving discussion using the *CGC*. They were to assess each of the five group members on all nine of the problem-solving competencies captured on the *CGC*. In addition participants were asked to assess the holistic group impression of competency. They were asked to keep track of how long the assessment process took them. The answers to the time needed for the assessment process will lend further understanding and support for this instruments use within the context of a classroom by the instructors who have multiple groups to assess.

In an effort to confirm the data and achieve greater predictive validity, participants were instructed to complete a survey on the reverse side of their *CGC* instrument. The survey included two open-ended questions asking for their opinions and observations concerning the assessment of group interactions using the *CGC*. In addition they were asked questions regarding their experience level within the classroom reported earlier. In a previous classroom study, this surveying technique was successful for determining a student's ability to use the instrument correctly (Albert, 2002). Answers to these survey questions provide qualitative data to gain insight for the instrument's adaptability and predictive validity in the context of a classroom assessment. Each instructor was asked to return the completed *CGC* and survey returned for data compilation. Appendix C includes the open ended survey questions and IRB form provided each participant.

Instrument

In order to test the research questions presented, the competency levels will be measured using the *Competent Group Communicator Instrument* (Beebe & Barge, 1994). In Chapter two a description of the *CGC*'s taxonomy was provided with the following competency levels: excellent, good, adequate, inadequate, and not observed. Outlined below is a discussion of the measurement of group and individual competency levels along with scoring details and interpretations.

Measurement

A ten-item scale assessing impressions of competency levels within the individual small group communication competencies includes six relating to group task, three relating to group-relational, and one relating to general group competency. For all items on the scale, respondents indicate on a five-point Likert-type scale their perceptions of the use of each competency. For each of the competencies, a set of specific criteria is provided for rating the five dimensions of behavior: no, did not use the skill = 0; yes, did use the skill but incorrectly = 0; yes, did use the skill but inadequate = 1; yes, did use the skill at a good level = 2; yes, did use the skill at an excellent level = 3. The participants were asked to rate the frequency and quality of discussion within the ten problem-solving measurement parameters.

If the participant does not observe a competency within one of the categories of problem solving competencies, they circle "no" with a score of zero (0) assigned. If a competency is observed within a function, then "yes" is circled and the number of times this competency is rated up to a total of three (3). After assessing the five individual group members within the group interaction, participants were instructed to record the impression of competency of the entire group interaction on the instrument. Assessment

of the entire group on each of the nine competencies is recorded in the last column as an impression of overall competency. A group receives a score of zero (0) if the group performed competencies inappropriately or inadequately. The *CGC* is designed so that a rating of “adequate” would indicate at least minimal evidence of the competency of the group (Beebe & Barge, 1994). In some instances, for example, one group member may have performed a competent behavior, but had minimal impact on the group level assessment of competence. A group receiving a score of three (3) indicates the group gives the overall impression of excellent group competency behaviors.

Scoring Interpretations

Perceptions of ability include both quantity and quality of information (Bonito, 2003). Together these measure the competency level by placing a value on each group member. The competency level of each of the individual group members is the sum of the competency scores across the nine levels of performance. Group level impression of competence is calculated by summing group level scores across each of the nine levels of performance.

Once each of the nine competencies are independently scored, the subtotals are calculated for each individual group member according to the four functions (problem-oriented, solution-oriented, discussion management and relational competencies). The subtotals form an index indicating a competency level. In order to determine reliability within this study, the subtotals are summed into one composite score for indexing and statistical analysis. The higher the summed score, the higher the level of competency for the individual group member and the overall group impression.

Summary

The current research investigation uniquely contributes to the group communication scholarship by investigating the context and content of the *CGC* assessment instrument. Following data collection, the analysis will begin by applying one of the most popular internal consistency methods: Cronbach's alpha. If reliability is to be sufficiently established for the *CGC* instrument, 70% agreement among participants from both studies should be achieved. If sufficient reliability is not achieved ($\alpha > .70$), then analysis to uncover any problematic competency will proceed. Each competency within its category function (problem-oriented, solution-oriented, discussion, and relational) should achieve $\alpha = .70$ for participants viewing the effective or ineffective individual group members and the holistic group assessment. The reliability of each individual competency, a total of nine within the four functions, along with the holistic group level competency will be examined and dissected to locate the weakly related items with a recommendation that these items be reexamined and clarified in a future examination of the instrument. This chapter has outlined the methodology including the pilot test and research procedures employed in the study. The following chapter presents the results of the research procedures developed to assess the reliability and validity of the *CGC* instrument.

CHAPTER IV: RESULTS

In the first chapter, the scope and rationale for this study were introduced and the importance of assessing communication competencies within the small group classroom was outlined. The second chapter further explained each of the foundational assumptions and components surrounding the design of a standardized assessment instrument designed to capture group problem solving competencies. Empirical evidence supporting the functional theoretical foundation was presented along with additional research lending support in identifying competencies within group problem solving discussions. The third chapter described the *CGC* instrument and the design of the research investigation.

The present chapter presents the results for each of the three major research questions (and their functions which include individual competency questions) outlined in chapter two. The results are presented and are organized according to the three major research questions developed for this study. In addition to an analysis of the research questions, a summary of the follow-up survey questions and open-ended responses is presented. Following the presentation of the data analysis results, chapter five will discuss the implications for these findings, limitations of the study, and directions for future research.

Research Questions and Results

One goal of this research study is to measure the group communication competencies within the context of the classroom. In addition a second goal is to extend prior studies in order to strengthen the value of the *CGC* Instrument to uncover consistently and accurately the level of competency of individual group members and the holistic group. Outlined below are the results from this investigation including the predictive validity and support for establishment of reliability.

Predictive Validity Results

In order to ascertain predictive validity, the first research question addresses the universal application of the *CGC* instrument within the classroom and its ability to differentiate individual and group level competencies. The answer to this research question builds on past empirical findings supporting the face and content validity of the *CGC*. In order to confirm the content and face validity, the authors convened a panel at the 1994 NCA Convention with three groups of small group communication instructors evaluating the instrument. Although face validity is seen as the weakest type of validity (Frey, et al., 2000), the content validity adds strength with the authors reviewing virtually all of the small group textbooks to confirm the specific attributes that intuitively reflects group communication competence. Their review uncovered direct or indirect references to the specific group task and relational competencies identified within the *CGC* (Beebe & Barge, 1994). The present study lends support and strengthens the face and content validity of the *CGC* by examining the predictive validity. The first research question asks:

RQ1: Does the *CGC* Instrument discriminate between effective and ineffective group and individual group member competencies (problem-oriented solution-oriented, discussion management and relational competencies) in the classroom context?

In order for the results to be deemed significant, the probability level (p) was set at .05, representing an acceptable standard for social science research (Frey, et al., 2000). The results of the independent samples t -test investigating differences between effective (*blue* group) $M=31.00$, $SD=3.27$ and ineffective (*yellow* group) $M=20.50$ $SD=6.07$ group interactions was significant ($t(28) = 6.004$, $p < .001$). Additional t -test analyses conducted on individual group member's competency levels within the effective and ineffective groups also revealed significant differences. The specific differences in individual group member competency levels are summarized in Table 4.1.

Table 4.1: RQ 1 Results – Predictive Validity Differences

Group Member	Group Competency Level	N	Mean	Std. Deviation	t	Significance
#1	Blue Group	16	30.13	4.92	4.67	.000
	Yellow Group	14	19.29	7.66		
#2	Blue Group	16	25.44	5.73	2.76	.010
	Yellow Group	14	18.07	8.76		
#3	Blue Group	16	23.31	6.11	2.86	.008
	Yellow Group	14	15.93	8.02		
#4	Blue Group	16	27.63	5.91	3.47	.002
	Yellow Group	14	19.36	7.15		
#5	Blue Group	16	25.13	5.32	5.03	.000
	Yellow Group	14	13.64	7.15		
Holistic Group	Group Competency Level	N	Mean	Std. Deviation	T	Significance
	Blue Group	16	31.00	3.27	6.00	.000
	Yellow Group	14	20.50	6.07		

Note: **Blue Group** = Good Competency Level **Yellow Group** = Inadequate Competency Level

These findings suggest that the communication instructors participating in the study are able to discriminate between effective and ineffective group and individual group member competencies (problem-oriented, solution-oriented, discussion management and relational competencies) in the classroom context using the *CGC* instrument.

Reliability Results

The second goal of this research is to determine the reliability of the *CGC* instrument. Prior pilot testing and revisions to the original instrument design established the instrument reliability ($\alpha=.97$) and lack of cultural bias (McCormick, 1996). An inter-rater reliability assessment study established the importance of training in the use of the instrument (Beebe et al., 2006). In order to extend research and thereby strengthen the value of the *CGC* instrument for uncovering consistently and accurately the level of competency of individual group members and the holistic group competency the following research question asks:

RQ2: Are participants able to consistently identify the competency of individual group members with the *CGC* instrument?

In order to determine if each of the nine competencies within the four functions (problem-oriented, solution-oriented, discussion management, and relational functions) are reliable measures for the individual group members, research question two was further broken into four separate questions. Each individual group member's assessment score was subtotaled according to the four functions (problem-oriented, solution-oriented, discussion management, and relational competencies). In order to determine reliability and answer RQ2, the subtotals are summed into one composite score for indexing and

statistical analysis. Using Cronbach's Alpha (α) test of reliability (Cronbach, 1951; Frey, Botan, & Kreps, 2000), results for RQ2 indicated the *CGC* instrument consistently and reliably identified each of the nine competencies within the problem solving discussion for the individual members ($\alpha=.85$; $M=22.09$, $SD=8.25$). This alpha reliability ($\alpha=.85$) reflects all nine of the communication competencies evaluated and added together for each of the individual group members. In order to determine if each of the competencies within the four functions (problem-oriented, solution-oriented, discussion management, and relational management) of the scale are reliable, analysis of each function must be examined. Table 4.2 indicates the results from the reliability analysis of each sub-question of RQ2 examining the four problem solving functions and their corresponding competencies.

Table 4.2: RQ 2 Results – Scale Reliability

Research Question	Problem Solving Function	Problem Solving Competencies	N	M	SD	(α)
2A	Problem-Oriented	problem definition	150	5.43	1.94	.42
		problem analysis				
2B	Solution-Oriented	solution criteria	150	7.62	2.90	.63
		generation of solutions evaluation of solutions				
2C	Discussion Management	maintenance of task focus management of interaction	150	4.81	2.60	.73
2D	Relational Management	management of conflict maintenance of climate	150	4.23	2.64	.76

Results indicate that three of the four functions consistently and reliably identified competencies within the problem solving group discussion. While researchers desire the highest reliability possible, a complex variable such as group communication competence, with a coefficient of .70 or greater is considered respectable and less than .70 and more than .60 fall within the minimally acceptable range (Frey, et al., 2000; Wrench, Thomas-Maddox, Richmond, & McCroskey, 2008).

Research sub-question 2B, evaluating the problem-oriented functions (problem definition and problem analysis), did not consistently and reliably identify problem solving discussion competencies ($\alpha = .42$). The alpha coefficient of .42 indicates that if an instructor were to use the *CGC* for ten assessments, he or she would assess the same degree of problem-oriented competencies only four times. Participants overall familiarity with assessment tools and assessment techniques could help to explain measurement variance (Frey, et al., 2000). After removing the evaluations from participants who reported less than three years of teaching experience within the small group classroom, reliability increased for the problem-oriented function ($\alpha = .64$). In addition with the removal of inexperienced participants reliability for the entire scale increased ($\alpha = .88$) along with the remaining three functions as indicated in table 4.3. This might indicate that with increased training in the use of the *CGC* as well as instructional experience, the scale is more effective for discriminating specific problem-oriented functions. In past pilot and field tests (Beebe, et al., 1994; McCormick, 1996), the authors trained all participants prior to their using the instrument for assessment. In addition the authors emphasized the need for training with the development of a standardized training program emphasizing problem-solving competencies and the use of the *CGC* for

assessing those competencies (Beebe, et al., 2006). The reliability results emphasize the value of training and familiarity with the CGC in order to obtain consistent assessment measurements.

Table 4.3: RQ 2 Results – Scale Reliability - Highly Experienced Instructors Only

Research Question	Problem Solving Function	Problem Solving Competencies	N	M	SD	(α)
2A	Problem-Oriented	problem definition problem analysis	40	5.02	2.31	.64
2B	Solution-Oriented	solution criteria generation of solutions evaluation of solutions	40	6.78	3.31	.60
2C	Discussion Management	maintenance of task focus management of interaction	40	4.78	2.82	.77
2D	Relational Management	management of conflict maintenance of climate	40	4.50	2.86	.76

Group Holistic Reliability Results. The CGC is designed as both a formative and summative measurement of group communication competencies. Along with assessing each group member's communication competence (addressed in RQ2), the impression of the overall group competence is assessed. In order to determine the reliability of measurements of effective and ineffective groups at the holistic level, the following overarching research question is asked:

RQ3: Are participants able to consistently evaluate the holistic group competence with the CGC instrument?

Answer to the research question using the Cronbach's (1951) Alpha Reliability (α) test indicate the *CGC* instrument consistently and reliably identified the group holistic competencies within the problem solving discussion ($\alpha=.88$; $M=26.10$, $SD=7.10$). The results are comparable to the individual member assessment with the Cronbach's Alpha falling within the interpretation of a good reliability score ($\alpha=.80-.90$) (Wrench, et al., 2008).

Research question three was further divided into four separate questions to determine if each of the four functions (problem-oriented, solution-oriented, discussion management, and relational functions) consistently measure the holistic group competency. The results of the four research sub-questions indicate each of the functions reliably measure group holistic competencies within the problem solving discussion. The findings for each of RQ3's sub-questions, examining the reliability of each function and nine corresponding competencies, are reported in Table 4.4.

Table 4.4: RQ 3 Results – Group Holistic Scale Reliability

Research Question	Problem Solving Function	Problem Solving Competencies	N	M	SD	(α)
3A	Problem-Oriented	problem definition	30	6.30	1.49	.83
		problem analysis				
3B	Solution-Oriented	solution criteria generation	30	8.97	2.61	.70
		of solutions evaluation of solutions				
3C	Discussion Management	maintenance of task focus management of interaction	30	5.73	2.0	.85
3D	Relational Management	management of conflict	30	5.10	2.56	.80
		maintenance of climate				

Survey Open-Ended Response

Following the completion of the CGC instrument, participants were asked to complete a brief survey regarding their experience in assessing group interactions. They were also asked about any previous experience using instruments to assess small group communication competency. In addition, the survey asked for general feedback regarding the assessment of group interactions using the *CGC*. This included two open-ended response questions surrounding the participant challenges when assessing a group interaction using the *CGC*. Of the 30 participants in the study 24 (80%) completed the survey. Narrative analyses of the responses to the open-ended questions surrounded four themes including *timing of the group interaction*, *consistency of assessment*, *space on the CGC form*, and *reliability of capturing all elements within the conversation*. Results of the survey responses and an analysis of the open-ended questions are located in the tables below. Together the survey responses lend rich data for interpretation of the group assessment process and the CGC instrument.

Table 4.5: Survey Responses

	Always	Usually	Sometimes	Rarely	Never
Currently Use Instrument for assessment of groups	5 (21%)	2 (8%)	4 (16%)	5 (21%)	8 (33%)
	Always	Usually	Sometimes	Rarely	Never
Videotape Group Interaction for Assessment later	0	2 (8%)	4 (16%)	7 (29%)	11 (46%)
	Very	Good	Neutral	Slightly Uncomfortable	Uncomfortable
Comfortable Using <i>CGC</i>	2 (8%)	6 (25%)	11 (46%)	3 (12%)	2 (8%)
	Over 5 yrs	3-4 yrs	2 yrs	1 yr or less	None
Level of Classroom Experience	5 (21%)	1 (4%)	4 (16%)	9 (38%)	5 (21%)

Table 4.6: Survey Open-item Responses

What are the most important challenges you experience when you assess a student participating in a group problem-solving discussion using the <i>CGC</i> ?		
N=7	Time	the interaction goes so quickly, couldn't determine who said which comment
N=6	Consistency	Determining the variance of contributions within the categories, so closely related
N=4	Space to write	Not enough room to write notes about student performance
N=2	Fear miss interaction	Fear that I missed some interaction/conversation
What are the most important challenges you experience when you holistically assess a group interaction using the <i>CGC</i> ?		
N=3	Reliability	Individuals had only adequate competency, yet the overall group did well.
N=11	Consistency	Consistency of my assessments; fair and accurate

Summary

These findings suggest that measuring problem solving competence using the *CGC* instrument can lend consistent and reliable results. In addition to establishing reliability, these findings lend support for the predictive validity. Though a relatively small sample was utilized in the study, results indicate that instructors using the *CGC* instrument may be able to more consistently discriminate between effective and ineffective group and individual group member competencies (problem-oriented, solution-oriented, discussion management and relational competencies) in the classroom context. Chapter five will present a discussion of the implications and limitations of the study, as well as directions for future research.

CHAPTER V: DISCUSSION

This thesis began with an overview of the need within the communication discipline for a standardized method to assess communication competency within the context of the small group classroom. Chapter one included an introduction of the *CGC* along with an overview of the development process and past research supporting the instrument's validity and reliability. Discussion within chapter two identified foundational assumptions that included criteria for assessing the group problem-solving competencies along with the instrument design. Building on these foundational assumptions and the instrument development, a review of research was presented that incorporated support of functional theory along with the identification of task and relational competencies of the *CGC*.

Chapter three addressed the research design and methodology. The first component presented in the chapter was the development of two stimulus group interactions. Following this research design component a discussion was presented on the need of a training program designed to give participants assessment skill using the *CGC*. A discussion of the pilot study, the results, and the necessary changes to the research design was presented. Finally chapter three included a description of the participants and the instrument used in the methodology. Chapter four included the research outcomes and summative results. The current chapter, chapter five, will provide discussion and explanations for the validity and reliability results presented in the

previous chapter. In addition, implications of the results, limitations of the present study, and directions for future research will be discussed.

Establishment of Validity

One of the primary goals of this quasi-experimental research design was to establish the *CGC*'s validity within the context of the small group communication classroom. The validity of the construct refers to the ability to capture and measure group communication competence within the context of the classroom. The more valid the measurement technique is considered to be, the more closely the analyzed data reflects the observable characteristics of the research concepts (Frey, et al., 2000). Measurement of validity is argued at a conceptual level such that the instrument assesses accurately what it is supposed to evaluate. Arguments at this level fall within the measurement procedures demonstrating content, face, and predictive criterion-related validity (Frey, et al., 2000). The review of literature outlined within chapter two and prior pilot studies (Albert, 2002; Beebe, Barge & McCormick, 1994; Beebe, et al., 2006) lend support to the earlier establishment of content and face validity. Predictive validity, which was examined in this study, points to how well a measurement instrument forecasts an outcome and thus predicts what will occur (Frey, et al., 2000).

The first research question specifically addressed the predictive validity of using the *CGC* within the context of the small group classroom. Data analysis affirming the first research question reflected 150 assessments of individual group members (five assessments per group interaction) by 30 participants. From these 150 assessments, 4500 problem solving competencies (150 individual assessments of nine competencies within four functions) were evaluated and measured. In addition, these participants assessed the

overall impression of group competence for a total of 270 assessments (30 group level assessments and nine competencies within four functions). Together these captured measures support the predictive validity of the *CGC*, indicating a strong significance level of $p < .0001$ for the group level analysis.

This result would appear to indicate that the *CGC* is accurately measuring the competence level of individuals within a group problem solving discussion. Instructors were able to discriminate a competent group member and the group from incompetent ones. This instrument is designed to predict the level of competence of group members along with the holistic group impression of competency based on the four functions and their nine corresponding competencies. The functional theoretical perspective suggests that a high summative competence score should be accompanied by a high competency level of communication skill and behavior, whereas a moderate summative score would be less associated with that skill and behavior and a low score would not be associated with the competence behaviors. The *CGC* lends support to the prediction that students who display task (problem and solution oriented functions) and relational (discussion and relational management functions) competence behaviors will be perceived as more competent.

CGC scores predict the level of a group member's competency (excellent, good, adequate, and less than adequate) as well as the impression of competency of the entire group. This is similar to the *Competent Speaker Evaluation Form* (Morreale, et al., 1992) in that students who have not received training in public speaking predicatively will not score as high as those who have had instruction. One can predict that students who perform all of the competencies on the *Competent Speaker Evaluation Form* speak more

competently than those who do not. Overall, the *CGC* is designed to fulfill the purpose for which it was originally intended – as a pedagogical tool for instructors in the small group classroom.

Establishment of Reliability

Before considering the implications of the reliability and validity results outlined in the chapter four, it is important to consider the reliability of each function within the *CGC*. This research focused on measuring characteristics of group problem solving discussions that included nine different competency levels within four distinct functions. Competency levels were manipulated in the study to determine the *CGC*'s ability to accurately measure group competency and produce consistent results. Data analysis indicated that the *CGC* is a reliable assessment tool in this study. This research supports the reliability of each of the categories of competencies within each of the four functions of problem-oriented, solution-oriented, discussion, and relational management. In the next section, a discussion of what was discovered and how this can be applied to the small group classroom is presented.

Problem-Oriented Function

Although good reliability ($\alpha = .80-.90$) was achieved for the entire instrument, the reliability for the problem-oriented functions including the definition and the analysis of the problem was unacceptable at less than $\alpha = .60$ (Frey, et al., 2000). In order to assess different group competency levels, the *yellow* (inadequate competency level) stimulus group interaction purposely spent very little time defining the problem and the analysis of the history leading to the problem. Instead the group discussion quickly progressed to discussion of the solution along with discussion that was not centered on the problem at

hand. Although differences were found between the *blue* and *yellow* group interactions, the instructors viewing the *yellow* interaction could have inaccurately evaluated this element of the discussion. Some of the comments from the participants involved concerns for how rapid the conversation progressed and difficulties in consistently assessing each member. These comments, along with the lack of this function to achieve reliability could point to the level of experience of the participants. Separate analysis of data from the participants with over three years of experience in the classroom revealed increased reliability within this function ($\alpha=.64$). The authors encourage a thorough training on each of the nine individual competencies as well as point to evidence that training raters dramatically improves reliability for coding group member competencies (Beebe, Barge, & McCormick, 1994). These results could lend support to the need for supplying more thorough training in small group assessment using the *CGC* for instructors with limited classroom experience.

Solution-Oriented Function

Reliability of the *CGC* was established for competencies within the solution-oriented function which included the evaluation of criteria, brainstorming of possible solutions, and the evaluation of those ideas. Unlike the problem-oriented reliability score, the solution-oriented reliability was not significantly affected by the level of experience of the participant. As the authors (Beebe & Barge, 1996) state, many times ineffective groups spend the majority of their time and effort on discussion of the solutions with considerable research prescribing effective techniques for arriving at positive outcomes. Due to the scope of research supporting the importance of solution-oriented functions (Coopman, 2001; Gross, et al., 2004; Larson, 2007; Orlitzky &

Hirokawa, 2001) the *CGC* considers these more important when determining overall competency levels. In other words, with three competencies within this function, the scoring from this function impacts the final competency score more than other functions in the *CGC*. Instructors using the *CGC* as an assessment instrument should keep in mind the weighing of this important task when determining the assessment score for the group and individual group members.

Discussion Management Function

Results of the study also support the reliability of the *CGC* in assessing the relational function surrounding discussion management. This function obtained the highest reliability ($\alpha = .77$) for maintaining the task focus and managing the group interaction. Discussion provides evidence of the cognitive and behavioral communication competencies that the *CGC* measures. This function is powerful regardless of whether the problem and solution discussions are effective. For example, a group member may offer inadequate solutions and yet demonstrate effective discussion management skills.

In addition, group members participate at different levels depending on traits, discussion topic, and motivation levels. This discussion management function reliably reflects competencies of group discussion that includes participation by the quieter group member as well as the more extroverted participant. An extroverted group member could naturally manage the conversation and withhold comments as the group brainstorms in order to make sure the quieter member has opportunities to participate. By withholding comments, the extroverted group member's score within the problem and/or solution functions may be lower but their discussion management function is much higher. Using the *CGC*, instructors are given a tool that effectively reminds them to pay attention when

assessing the extroverted group member and the group member who is not willing to communicate in order fairly assess the discussion management techniques along with the other functions within the group problem-solving conversation.

Relational Management Function

The relational competencies include managing conflict and maintaining a positive climate. The two group stimulus interactions purposely included group discussion that reflected conflict (both effectively and ineffectively) in order to assess whether participants' assessments were reliable and consistent. Nonverbal expressions were also manipulated within the stimulus interactions to test the reliability of the *CGC*. The results indicate that the *CGC* is a reliable tool for assessing these important communication variables.

The results indicated that each of the functions and their corresponding competencies that are captured and described within the scale are reliable. This makes sense considering the value of synergy within group work (Larson, 2007) where each group member supports an effort that is larger than the sum of each of their individual efforts. Establishment of scale reliability is essential in order to measure valid constructs. This research confirming the reliability and validity support the process of the *CGC* scale development and measurement.

Research Limitations

As with any study, there are several limitations that should be addressed. Due to the complexity of group discussion with five or more members having conversations simultaneously, assessment can be challenging for the instructor as well as communication researchers who design the measuring tools. This complexity calls for

adequate training in the use of assessment tools within the small group classroom. In addition having an adequate sample size in order to build generalizability to the classroom is also a challenge. These are discussed along with limitations surrounding the design of the *CGC* instrument below.

CGC Training

As stated in earlier chapters, training on the use of the *CGC* is vitally important in order to obtain the most consistent and reliable results. The training program designed for this research program included training material presented at the 2006 NCA Convention (Beebe, et al., 2006). In addition, as part of the training examples of effective and ineffective group interactions were shown to the participants in order to identify competencies within the problem-solving discussion. Yet, a few participants stated within their open-ended survey that the discussion was too quick for them to assess accurately and to evaluate consistently. Time limitations for the training proved to inadequately prepare some participants for the assessment skills needed for evaluating groups with the *CGC*.

This time limitation was especially evident in the pilot study when undergraduate students were participants and received training in assessing group competencies. Although the students had just completed a semester of small group communication coursework, they did not have the assessment skill set to determine the individual group member's competency levels. In addition the participants with less than three years of classroom experience were not able to reliably assess problem-oriented competencies using the *CGC*. Although reliability was established for the three other functions with

participants in the study, this could lend support for the need for a more thorough training in assessing the discussion surrounding the problem.

The *CGC* was created based on the *Competent Speaker Evaluation Form* (Morreale, et al., 1992) which is designed to assess one student at a time. Since the *CGC* assesses five members of a group at one time, the complexity of the group interaction only intensifies the need for training on the *CGC*. Assessing five different students at one time requires experience and skill. Several participants indicated on the survey response that they regularly videotape classroom group interactions. This practice could lend strength to the assessment process. If the group interaction was recorded, then the *CGC* assessment is similar to the *Competent Speaker Evaluation Form*. The instructor could have the option of replaying a videotaped group member's discussion in order to consistently assess each member.

Limitations were also discovered in the pilot study. Participants were instructed to assess only one student within the group interaction and then to assess the impression of group competence using the *CGC*. Although this research design procedure produced fewer assessments, the reliability analysis of the data using Cronbach's Alpha (α) test (Cronbach, 1951) indicated a higher overall instrument reliability alpha of .86. The data from one assessment included one individual's competency as well as the group holistic assessments of competencies including the nine competencies within the four functions (problem-oriented, solution-oriented, discussion management, and relational functions). This reliability analysis of the data was based on a participant's 18 assessments (9 individual and 9 group level), resulting in a slightly higher reliability alpha ($\alpha=.85$; $M=22.09$, $SD=8.25$). This finding could indicate that the *CGC* reliability can be

increased through an instructor's use of videotaped group discussions followed by individual assessments of each group member. Survey responses and comments from open-ended questions lends support that this finding may not be a limitation but instead give inexperienced instructors additional reassurance that their assessments using the *CGC* are consistent and reliable.

Sample Size

A limitation of this research study lies within its small sample size and its weak generalizability to a larger population. From the outset of this research project, an established goal was to increase the sample size in order to build the strength of the findings. The results from the pilot study indicated that the convenience sample of undergraduate communication students did not have the adequate assessment skill-set to establish predictive validity and reliability of this instrument within the classroom setting. The subsequent change in focus to recruiting communication instructors, graduate, and post-graduate communication students as participants reduced the sample size. By expanding the recruitment efforts to the local community college and another University in the vicinity, the sample increased as much as time would allow. Future expansion of this sample to a larger population through using the attendees at a communication convention, may lend itself to establishment of even stronger reliability and increased generalizability.

CGC Instrument

The authors have spent many years piloting and refining the *CGC* instrument in order to build a valid, reliable, and easy to use tool. Several participants in this study indicated that they simply wanted room on the instrument to write comments. One

participant within the open-response on the survey stated that she had to write really tiny notes and was frustrated she did not have room to write specific comments to the student regarding areas for improvement. Another instructor stated that she enlarged the form on a duplicator prior to assessing a group. Then the instructor writes comments on the form followed by shrinking the form back down before giving it back to the student.

Designing a standard form that gives adequate space for assessing nine individual and group competencies with room for scoring is quite a daunting task. Pleasing all instructors is just not possible. The *CGC* format is indeed a good starting point with instructors able to adapt the form for their personal preference.

Implications and Future Directions

The results of this study provide useful information for instructors and communication researchers alike. With validity and reliability established for the *CGC* within the small group classroom, future research should examine other potential contexts for its use. This instrument has the potential to benefit many different audiences, especially the overall communication discipline, by providing a reliable and valid tool to assess the complexities of group communication problem solving discussions.

Institutions of higher education may benefit from using this instrument to generate assessment data within their group communication courses to determine the overall effectiveness of their small group communication classes (Beebe & Barge, 1994).

Solving problems is only one aspect of group work that is taught within the classroom. With validity and reliability established for this instrument, future development of tools to examine other aspects of group communication discussions could be explored. By using functional theory as a foundation and the *CGC* instrument as a

gauge from which to structure other group discussion assessments, instruments could be designed to assess group presentation skills, group cohesiveness, group climate, group leadership, just to name a few. In order to increase the construct validity of newly developed group discussion instruments, the *CGC* could serve as an instrument for comparison in other empirical investigations.

An additional area of future research involves expanding this instrument's use into other contexts (e.g., organizations). The authors pointed to the lack of empirically tested group assessment instruments within the organizational context as they began their instrument development process (Beebe & Barge, 1994). The organizational communication instruments that were surveyed indicated a general lack of consistency in measurement approaches and considerable variation in the number of items of the measures, type of scale, and the dimensions assessed (Beebe & Barge, 1994). Measuring group outcomes and behaviors within many organizational contexts would benefit from the theoretical approach and design of the *CGC* and adapting the measure to their specific organizational needs.

In summary, this research provides a unique contribution to the group communication scholarship by investigating the context where an assessment instrument is needed and used along with the content of the assessment tool. Therefore the development of highly reliable measurement procedures is critical in order to have confidence in the conclusions drawn from this research.

Thesis Conclusion

Hurricane Ike devastated the United States Southern coastline, leaving behind damage estimates exceeding all other storms but Katrina, which hit the coast only fourteen months prior to Ike. After successfully preventing the endangerment of employee's lives and loss of critical information stored within their computer hardware, the engineering firm owners changed focus. They assembled a problem-solving group meeting in order to discuss how their firm could position themselves to provide critical help to those who lost so much in the wake of Hurricane Ike. This real world event is but one example of why instruction and training on problem solving skills are of paramount importance especially when people's lives depend on the outcomes.

One place where these vital communication training and instruction of cognitive, affective, and behavioral skills begins is within the classroom context. The small group communication instructors' task is to prepare students for the communication challenges that group problem-solving presents (Albert, 2002). The author's point to the ultimate test of the validity and reliability of the *CGC* is demonstrated in its use and application (Beebe, et al., 1994). The *CGC*'s purpose is to provide a tool for the instructor to help meet and assess these challenges.

**APPENDIX A: *The Competent Group Communicator:*
An Instrument to Assess Small Group Problem-Solving Discussion**

The Competent Group Communicator Assessment Form

Group Communication Competencies	Group Member		Group Member		Group Member		Group Member		Group Member		Overall Group Assessment	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Problem-Oriented Competencies												
1. Defined the problem by identifying the obstacle(s) that prevent the group from achieving its goal, identified what the group wants more of or less of to achieve the goal.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
2. Analyzed the problem the group attempted to solve. Used relevant information or data, discussed the causes, history, symptoms, or significance of the problem.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
Solution-Oriented Competencies												
3. Identified criteria for an appropriate solution to the problem; developed standards for an acceptable solution, identified ideal outcomes of the solution.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
4. Generated solutions or strategies that would solve the problem the group identified.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
5. Evaluated solution(s). Identified positive and/or negative consequences of the proposed solutions; considered the pros and cons of suggested solutions.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
Discussion Management Competencies												
6. Maintained task focus: Helped the group stay on or return to the task, issue, or agenda item the group was discussing.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
7. Managed group interaction: Appropriately initiated and ended discussion, contributed to the discussion, or invited others to contribute to the discussion.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
Relational Competencies												
8. Managed conflict: Appropriately and constructively helped the group to stay focused on issues rather than personalities when conflict occurred.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
9. Maintained climate: Offered positive verbal comments and/or nonverbal expressions to help maintain a positive group climate.	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3	0	1 2 3
Scoring												
Problem-Oriented Competencies (0-6)												
Solution-Oriented Competencies (0-9)												
Discussion Management Competencies (0-6)												
Relational Competencies (0-6)												

APPENDIX B: STIMULUS GROUP DISCUSSION OBJECTIVES

SMALL GROUP PROBLEM SOLVING DISCUSSION

Yellow Group – Overall Adequate Performance of Competency in Group Problem-Solving Discussion

CGC Competency Objectives for the 5 group members who together:

1. Define the problem thoroughly with each group member clearly and appropriately responding at least 1 time.
1. Define the goal and what the group wants more or less of to achieve the goal; with each group member clearly and appropriately responding at least 1 time.
2. Analyzed the problem by discussing history, causes, symptoms, significance of the problem; with each group member clearly and appropriately responding at least 1 time.
3. Identify criteria for an appropriate solution; with each group member clearly and appropriately responding at least 1 time.
3. Develop standards for that solution; with each group member clearly and appropriately responding at least 1 time.
3. Identify ideal outcomes; with each group member clearly and appropriately responding at least 1 time.
4. Generate solutions that would solve the problem; with each group member clearly and appropriately responding at least 1 time.
5. Evaluate the solutions by identifying positive and negative consequences of the proposed solutions; with each group member clearly and appropriately responding at least 1 time.
6. Maintained the task focus with group members keeps on task or helping members return to the task; with each group member clearly and appropriately responding at least 1 time.
7. Managed group discussion with members initiating and ending discussion, contributing in the discussion, inviting others to contribute to the discussion; with each group member clearly and appropriately responding at least 1 time.

8. Managed conflict appropriately and constructively helping the group stay focused on issues instead of personalities; with each group member clearly and appropriately responding at least 1 time.
9. Maintaining of the climate by offering positive verbal comments and nonverbal expressions to help maintain positive climate; with each group member clearly and appropriately responding at least 1 time.

SMALL GROUP PROBLEM SOLVING DISCUSSION

Blue Group - Overall Good Performance of Competency in Group Problem-Solving Discussion

CGC Competency Objectives for the 5 group members who together:

1. Define the problem thoroughly with each group member clearly and appropriately responding at least 2 times.
2. Define the goal and what the group wants more or less of to achieve the goal; with each group member clearly and appropriately responding at least 2 times.
2. Analyzed the problem by discussing history, causes, symptoms, significance of the problem; with each group member clearly and appropriately responding at least 2 times.
3. Identify criteria for an appropriate solution; with each group member clearly and appropriately responding at least 2 times
3. Develop standards for that solution; with each group member clearly and appropriately responding at least 2 times
4. Identify ideal outcomes; with each group member clearly and appropriately responding at least 2 times
4. Generate solutions that would solve the problem; with each group member clearly and appropriately responding at least 2 times
5. Evaluate the solutions by identifying positive and negative consequences of the proposed solutions; with each group member clearly and appropriately responding at least 2 times.
6. Maintained the task focus with group members keeps on task or helping members return to the task; with each group

member clearly and appropriately responding at least 2 times

7. Managed group discussion with members initiating and ending discussion, contributing in the discussion, inviting others to contribute to the discussion; with each group member clearly and appropriately responding at least 2 times.
8. Managed conflict appropriately and constructively helping the group stay focused on issues instead of personalities; with each group member clearly and appropriately responding at least 2 times.
9. Maintaining of the climate by offering positive verbal comments and nonverbal expressions to help maintain positive climate; with each group member clearly and appropriately responding at least 2 times.

APPENDIX C: PARTICIPANT SURVEY AND IRB FORM

Survey for Training on the CGC

1. I use an instrument to guide my assessment of student competencies involved in a problem-solving group?				
Always	Usually	Sometimes	Rarely	Never
☐	☐	☐	☐	☐
2. I use the Small Group Competency Instrument (CGC) to guide my assessment of student competencies involved in a problem-solving group?				
Always	Usually	Sometimes	Rarely	Never
☐	☐	☐	☐	☐
3. When assessing individual group members I identify specific behaviors that identify problem-oriented characteristics, such as defining and analyzing the problem?				
Always	Usually	Sometimes	Rarely	Never
☐	☐	☐	☐	☐
4. When assessing individual group members I identify specific behaviors that identify solution-oriented characteristics, such as identifying ideal standards and outcomes?				
Always	Usually	Sometimes	Rarely	Never
☐	☐	☐	☐	☐
5. During the group interacting in a problem-solving discussion, I videotape the interaction for assessment at a later time?				
Always	Usually	Sometimes	Rarely	Never
☐	☐	☐	☐	☐
6. How much experience within a classroom have you had assessing group conversational skills?				
Highly Experienced (5 yrs or over)	High (3 to 4 yrs)	Moderate (2 years)	Low (1 year)	Never
☐	☐	☐	☐	☐
7. How comfortable are you after receiving training using the CGC for assessment?				
Very	Good	Neutral	Slightly Uncomfortable	Uncomfortable
☐	☐	☐	☐	☐

Open Ended Questions: (feel free to attach another sheet of paper for further detail)

8. What was the most important challenge you experience when you assess a student participating in a group problem-solving discussion using the CGC?

9. What was the most important challenge you experienced when you holistically assess a group interaction?

CONSENT FORM

The Competent Group Communicator:

An Instrument to Assess Small Group Problem-Solving Discussion

You are invited to participate in a research study surrounding the assessment of small group communication competencies. As a graduate student at Texas State University-San Marcos Communication Studies Department, this research is being conducted to fulfill the requirements of a graduate level thesis. You were selected as a possible participant in this study because you are enrolled in the Graduate College as a student seeking a Master's degree. You will be one of up to 35 subjects chosen to participate in this study. Feel free to contact me at anytime with questions about my thesis project at: Tracy L. Leigh, Centennial 317, 512-656-4244.

If you decide to participate, I will administer one survey to you after you have received training on detecting communication competencies. The survey will take only approximately 30 minutes complete as you watch a DVD/Video of a simulated group interaction. The benefits for participants include obtaining skills and information surrounding an instructional instrument that has the potential to help them document and assess student small group competencies. **We do not anticipate any discomfort, risk or inconvenience as a result of your participation in this survey.**

All information that is obtained in this study will remain confidential and anonymous.

Your decision whether or not to participate will not prejudice your future relations with Texas State University-San Marcos.

If you decide not to participate, you are free to discontinue participation at any time without prejudice.

If you have any questions, please ask myself or Dr. Beebe, Communication Department Chair. If you have any additional questions later, please contact Dr. Marian Houser, (512-245-3137), Texas State University Communication Studies Department. Dr. Houser will be happy to answer them. You will be offered a copy of this consent form for your records. In addition a summary of the results will be included in my Thesis which will be a part of the University Alkek Library system records.

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. Should you choose to discontinue participation in this study, you may withdraw at any time without prejudice after signing this form, **Thank you for your help!**

Primary Investigator: Tracy L. Leigh

Signature of Participant

Date

**THIS PROJECT HAS BEEN REVIEWED BY TEXAS STATE UNIVERSITY'S
INSTITUTIONAL REVIEW BOARD (IRB)
CONTACT: BECKY NORTHCUT
PHONE: 512-245-2102**

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