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AN EXPLORATION OF VIRTUAL STUDY GROUPS USED TO PREPARE CANDIDATES FOR A PROFESSIONAL CERTIFICATION EXAM

by

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A Dissertation Proposal submitted to the Faculty of the Graduate School,
Marquette University,
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the Degree of Doctor of Philosophy

Milwaukee, Wisconsin
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ABSTRACT
AN EXPLORATION OF VIRTUAL STUDY GROUPS USED TO PREPARE CANDIDATES FOR A PROFESSIONAL CERTIFICATION EXAM

Sharon Kayne Chaplock, B.J., M.S.

Marquette University, 2011

Professional credentials earned through certification programs are becoming an important way to demonstrate competency within a given discipline. With the globalization of business enterprises and associations, these credentials are eagerly sought by people in geographic locations throughout the world. Candidates for these credentials often study together using virtual environments to prepare for a certification exam. Through a qualitative analysis of interviews with persons participating in such virtual groups, this dissertation investigates what influences their choices among web-enabled study groups, what perceptions characterize their conception of a good virtual study group, and what limitations are encountered in a virtual study environment. This dissertation argues that confidence drawn from an environment that builds trust is an essential component of a good virtual study group. Further, it illuminates how important moderators and facilitators of these groups are in building trust, and the role participant salience plays in order for trust to develop. Finally, it sheds light on the challenges professionals have in preparing for a high stakes exam within a public venue.

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TABLE OF CONTENTS

ACKNOWLEDGMENTS……..i

LIST OF TABLES…… v

LIST OF FIGURES……..vi

CHAPTER

I. STUDY GROUPS FOR 21ST CENTURY LEARNERS……..…1

A. Introduction……...……1

1. Rationale for this study……..5

B. Review of the Literature……9

1. Study Groups – Many Ways of Learning Together…….10

a. Face-to-Face Models……10

b. Virtual Study Groups……...13

2. Structuring and Managing Virtual Study Groups……17

3. Virtual Communities of Practice and Virtual Teams……...25

a. Virtual Communities of Practice……..25

b. Virtual Teams……...32

c. Summary……..38

C. Research Method Plan of Inquiry…….…...41

1. Participants……...41

2. Descriptive Data……..45

a. Focus Group Process……46

b. Interview Process – Study Group Participants…….47

c. Interview Process – Study Group Leaders……...49

d. Study Artifacts……49

e. Discussion Postings……..50

3. Data Collection and Analyses……..51

II. VIRTUAL STUDY GROUP MODELS……54

A. Introduction……54

B. Kenobi Guild: Sharing the Love…….55

1. Forming the Kenobi Guild……...55

2. Organizers and Participants…….57

3. Kenobi Study Methods……58

4. Maintenance and Growth……61

C. The Empire Study Group: Structuring a Purposeful Experience…62

1. Forming the Empire Group……..62

2. Organizers and Participants…….64

3. Empire Group Study Methods…….65

4. Maintenance and Growth……71

D. Summary…….72

III. VSGs: AN ANALYSIS OF THE USER EXPERIENCE……..75

A. Searching…….76

1. Urgency……77

a. Right Timing……77

b. Keeping on Track – Motivation……...79

c. Efficient Study Methods……..80

d. Effective Study Methods……..82

e. Learning Preferences……84

2. Cost……..86

B. Lurking……....87

1. Secrecy and Personal Trust……..87

2. Participant Salience…….89

C. Engaging……..91

1. Trust of Information…….92

2. Rules of Engagement……..95

3. Accountability…….98

4. Barriers to Engagement……102

a. Navigation…….102

b. Synchronous Discussions……..103

c. Age……106

5. Benefits of Engagement……108

a. Diversity……108

b. Asynchronous Discussions……109

D. Exiting……..111

E. Comparison of Two Strategies, Different Tactics…….115

IV. SUMMARY AND CONCLUSIONS……..120

A. Summary of Analyses……..120

1. Influences on Student Choices……...122

2. Characteristics of Good VSG Experiences……122

3. Limitations Encountered in VSGs…….123

B. Implications of Findings……124

C. Limitations of the Study……130

D. Suggestions for Further Research…….132

APPENDIX A……133

APPENDIX B……136

BIBLIOGRAPHY……..138

LIST OF TABLES

Table 1. General classification of differences between corporate training and traditional university education……22

Table 2. Benefits, Barriers and CSFs……28

Table 3. Participant Demographics…….....43

Table 4. Summary of Empire Group and Kenobi Guild characteristics……73

LIST OF FIGURES

Figure 1. Convenience sample……45

Figure 2. ATE Certification Table of Organization……56

CHAPTER ONE

Study Groups for 21st Century Learners

Introduction

Three helping one another will do as much as six working singly.

(Spanish Proverb)

The practice of study group formation to pass an exam or be supported throughout a challenging class is long-standing. The ubiquity of such groups among formal and informal learning environments is a given and is even integrated into the popular media represented by the current television comedy series, "Community." The show revolves around a diverse group of community college students who have assembled in a group to study Spanish. Hollywood movies have used the model to structure plots found in "The Dead Poets Society" and "The Paper Chase." Additionally, new models have adapted to virtual environments. New on the scene is OpenStudy™ . Described on its website as a "social learning network where students ask questions, give help and connect with other students studying the same things," (http://openstudy.com/), it was launched as a spin-off from Georgia Tech and Emory University. Funded by the National Science Foundation, the National Institute of Health and the Georgia Research Alliance, it urges viewers to "join the world's largest study group" (http://openstudy.com/). The site's mission is "to make the world one large study group, regardless of school, location, or background" (http://openstudy.com/). These examples demonstrate the evolution of study groups from face-to-face meetings limited to co-located participants to internet based, globally dispersed participants enabled by Web 2.0 technology. One could argue that

the Internet has made all with Internet access virtually co-located through its affordances.

Further, these examples illustrate the tacit knowledge that participation in study groups is a productive way to study and there is strength in numbers when diverse learners come together to build on their prior knowledge. While advice about forming study groups abounds on the Internet as well as in tip sheets prepared for students in middle schools on through institutions of higher learning, scholarly research, however, is thin on their efficacy, particularly for virtual study groups operating online and in the workplace. Reviewing the origins and premises of collaborative learning will be helpful as it approximates the learning processes operating in study groups

Collaborative Learning

The collaborative nature of pedagogies present in study groups can be traced back to the time of Plato and Socrates who engaged in a dialogic process where questions served to evoke answers as well as reflective thinking about the answers (Swan, 2010). Evident in this early practice is the social nature of learning, for it takes at least two to communicate in order to enter into conversation. According to Geertz (1989), “human thought is consummately social: social in its origins, social in its functions, social in its form, social in its applications” (p. 76-77).

The ability to communicate for Pea (1994) *in an educational sense* is described as transformative and generative:

> The initiate in new ways of thinking and knowing in education and learning practices is transformed by the process of communication with the cultural messages of others, but so, too, is the other (whether teacher or peer) in what is learned about the unique voice and understanding of the initiate. Each participant potentially provides creative resources for transforming existing practice, in going beyond the common body of knowledge of the field in their inquiries and the conceptual tools developed to sustain these practices. (p. 288)

This view of learning departs from the Cartesian notion of student as vessel waiting to be filled with information from an outside pedagogue (Brindley, Walti, Blaschke, 2009; Bruffee, 1984; Freire,1968;) and instead frames learning as a negotiated process of meaning-making through conversation. As Bruffee observes, "the place of conversation in learning….is the largest context in which we must see collaborative learning" (1984, p 645).

The history of the term, collaborative learning, appears at different times in the United Kingdom and the United States. In 1964, the British researcher, M.L.J. Abercrombie, published the *Anatomy of Judgment*, based on her research which found that medical students developed their diagnostic ability faster if they worked as a group to assess the patient and arrive at their diagnosis by consensus rather than individually. In the United States, the emergence of peer tutoring in the 1970s brought noticeable improvement to students struggling with the norms present in traditional college classrooms (Bruffee, 2004). Peer tutoring offered an alternative to the direct instruction method practiced in the academy and did not change "what people learned…so much as it changed the social context in which they learned it" (Bruffee, 2004, p. 638). In both these scenarios students learning collaboratively had a contextual space to share their thoughts through conversation with each other. Bruffee (2004) claims that "the view that conversation and thought are causally

related assumes not that thought is an essential attribute of the human mind but that it is instead an artifact created by social interaction" (p. 640). He suggests that learning to think better is contingent upon "learning to converse better and learning to establish and maintain the sorts of social context, the sorts of community life, that foster the sorts of conversation members of the community value" (p. 640). Hence, the medical students and those in peer tutor-led groups are participating in their respective disciplines through purposeful conversations to advance their understanding.

Collaborative learning as a social construct appears as part of several learning theories emerging since the turn of the 20th Century. For example, John Dewey's (1916) seminal work, *School and Society*, makes a case for learning that is situated in real world contexts focused on solving authentic problems. His student-centered view cast learning as a social and physical process of discovery through everyday life, with learning guided by the teacher. Vygotsky (1986) builds on Dewey's theory by conceptualizing a zone of proximal development (ZPD) which he defines as the space between what a learner can do independently and what the learner is able to do with the help of someone more knowledgeable or with a peer group. Learning is a social process, relying on mentors early on to model cultural and communication norms for integration with prior knowledge. Through dialogue with others and self-reflection, the learner progresses and extends their ZPD (Bradshaw, Powell & Terrell, 2002; Kennedy, 2009). This dialogic process is necessarily social since it is dependent upon language, which itself is a social phenomenon (Kennedy, 2009).

According to Laurillard (2009), "socio-cultural learning" is a derivation of Vygotsky's ideas, and

> …prioritizes the value of discussion with peers as an aspect of learning. It recognizes the value of having to articulate an idea, and to negotiate, in the continual iteration of discussion, the terms of the linguistic representation of an argument or idea. Having to express an idea clarifies for learners what they do not fully understand, especially if their interlocutor is prepared to argue and question…The reciprocal dialogic process of question-answer, or thesis-antithesis, or point-counterpoint is the productive part of this type of learning….(p. 9-10)

Other theoretical perspectives associated with cognition as a social activity include cognitive apprenticeship (Brown, Collins & Duguid, 1989) and situated cognition (Lave & Wenger, 1991). A central principle of Lave and Wenger's situated learning theory, a sub-set of social learning theory, is the idea of legitimate peripheral participation (LPP) which describes the process of how novice participants in a community of learners become more fully integrated into the group through involvement in activities on its fringes. Building on this early work, Wenger went on to articulate the idea of communities of practice which he describes as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (http://www.ewenger.com/theory/communities_of_practice_intro.htm, June 2006).

Study groups are underpinned by social learning theory foundations whereby learners collaborate by entering into a conversation to deepen and expand their knowledge in a given domain. The ability to carry on this conversation in a web-based environment as effectively is still in development and is the subject of this study.

Rationale for this study

The potential of virtual study groups became apparent to me late in my doctoral studies when members of my cohort began preparing for their doctoral qualifying exams. Many books on the required reading list were not part of our course readings so the group decided to meet over the summer months to read, discuss and prepare and share notes on these texts. For many, the summer months were ideal for face-to-face meetings, but when courses started up in the Fall and work obligations became more intense, there was less time to meet in person. A few people from the original group continued to meet monthly, but not close to the number attending summer gatherings. It was then that I created a wiki to post the notes from the summer discussions. A Wiki is a Website designed for a group of stakeholders that allows them to contribute and modify content. Permission can be set to allow open access or limit users by invitation only. I invited my cohort to join the Wiki and continue to contribute notes to the existing ones or post reviews for new texts. While one or two people made an occasional posting, the majority of the group did not, and the Wiki remained static. Without new content, the site languished. When I asked them why they weren't using the Wiki, many of their comments foretold the challenges of participating in virtual study groups, such as rules, trust and public identity issues, that will be examined in this research.

A second instance I encountered around the need for study groups arose during the job I have currently as Director of Education at a nonprofit association which has worldwide membership organized to advance the professionalism of its

members. The Society offers a certification exam that practitioners of a discipline associated with clinical trials can take to demonstrate their proficiency. Successful exam takers are able to include credential initials after their name to indicate their standing and are entitled to certain benefits at the annual conference. The exam is difficult and the Society is aware that groups have formed to prepare to sit for the exam. The board of trustees of the Society included among its strategic goals to formally support study group formation and resources that reach all of its members, which includes a global audience. The international scope then requires virtual, electronically-supported tactics to be inclusive of all its members, no matter their location.

This nonprofit organization is not unique. It is on trend with other nonprofits (e.g. Society for Clinical Data Management, American Academy of Emergency Medicine) offering certification opportunities as a way for members to distinguish themselves and to improve the quality of people practicing within various occupations. Certification is not only in the arena of nonprofits. Enterprises such as Cisco Systems and Oracle offer myriad certification opportunities and an abundance of Internet based exam preparation resources. A particular challenge all these examples share however, is how to address the global dispersion of their constituents and potential certificants.

The phenomenon of companies and associations serving a global audience is becoming more prevalent and continues to grow each year. This change has repercussions, however. For example, Barnhart (1997) states:

> The growth of certification programs is also a reaction to the changing employment market. Certifications are portable, since they do not depend on

> one company's definition of a certain job. Certification stands above the resume and the professional reference by being an impartial, third-party endorsement of an individual's professional knowledge and experience. Certification allows individuals to participate in their own professional destiny. (p. 2)

At the same time, the marketplace is becoming more globally competitive and professional credentials earned through certification programs offer a way to distinguish oneself and be more competitive. There is a growing demand for participation in virtual study groups from those with limited access to in-person groups because it is a recognized method for test preparation (Davis, 2001).

With the range of opportunities expanding on the Internet to participate in online hosted study groups, it is important to find out what users consider to be effective and ineffective strategies for supporting their efforts to prepare to sit for a certification exam. This will be beneficial for study group planners, leaders and learners. The guiding questions for this research, therefore, are:

1. *What influences student choices among web-enabled study group options convened to help candidates prepare for a professional certification exam?*
2. *What student perceptions characterize good study group experiences for remotely located participants connected by Web 2.0 technologies?*
3. *What limitations do students in virtual study groups encounter and how do they compensate for them?*

REVIEW OF THE LITERATURE

Introduction

There is a paucity of research published on study groups, and in particular virtual study groups (VSGs). Further, finding scholarly work focused on VSGs composed of globally dispersed adults assembled for the purpose of passing high stakes certification exams is even more rare. Yet, collaborative learning is acknowledged as a powerful strategy for knowledge building. Reah (2010) refers to study group activity as *cohort learning* and goes on to name other methods under its banner including: problem based learning, action learning and evaluation, case studies, role playing and simulations, peer teaching, roundtables and discussion groups, innovative practices, social media and communities of practice. These examples, however, conflate learning context, configuration and tools under the general heading of method. Ferris and Godar (2006) more clearly observe that collaborative learning encompasses a number of distinctive practices for improving e-learning and teaching and includes cooperative learning, collective learning, learning communities, team learning and study groups (p.vii). Thus, the topics selected to inform and guide this literature review are related to research on collaborative learning. In order to select categories most closely associated with study groups formed for adult learners engaged in professional development and life-long learning, they have been narrowed to focus on: traditional face-to-face study groups, Virtual Communities of Practice (VCoP's), and Virtual Teams.

Study Groups – Many Ways of Learning Together

The formation of study groups is an example of the folk wisdom in the axiom, "two heads are better than one." What are the factors underpinning a tacit understanding that this is true and thus, why is studying in groups an effective way of making meaning and constructing knowledge? There are many approaches a study group can take with respect to how members will participate. A brief overview of traditional models will help set a baseline of comparison for differences, similarities and challenges found in virtual study groups later on in the literature review. Looking at the benefits, barriers and successful practices of group study methods will also be useful for understanding the challenges and value of face-to-face and virtual study groups.

Face-to-Face Models

Dictionary.com defines a study group as "an informal gathering of people who convene regularly to exchange ideas and information on a specific subject" Many universities develop study skill web pages encouraging students to take advantage of the inherent power of learning together as a group. Western University's website calls this dynamic *synergism*, based on the premise that "participating in an effective study group will move you beyond your individual academic potential to a place of enhanced competency and self-esteem" (http://westernu.edu/bin/lead/study-groups.pdf).

Best known for the SAT common entrance exam, the College Board's website advances the virtues of small face-to-face study groups, noting that here is where

students “think out loud, share ideas and learn from one another” (http://about.collegeboard.org/). In addition to individual study, they reason that study groups are a venue where you can “reinforce what you’ve learned, deepen your understanding of complex concepts, and maybe make a few new friends.” The cognitive and metacognitive benefits of cooperative learning taking place in study groups cannot be overstated, and include content reinforcement through discussion, reflection and engagement in problem solving (Guitert 2000). Being able to verbalize ideas and engage in debates and collaborative problem solving with others are skills that contribute to the effectiveness of learning in groups (Northcraft, Griffith & Fuller, 2006, p. 132) and is based on engagement with others. Ezrah (2009) suggests another benefit from studying together: “the ability to cover much in a short period of time and the shared effort of producing study materials” (paragraph 2).

The focus of study group activities are grouped by Davis (2004) into three models. The first is the jig-saw approach where each participant becomes a subject matter expert (SME) on concepts within a topic and teaches them to the rest of the group. When all group members share their particular knowledge area, the puzzle pieces come together as they contribute to a larger understanding of the topic as a whole. Teaching a concept requires deep knowledge of the material and results in benefits not only for the learners, but also helps reinforce the knowledge gained by the teacher/SME.

A second model of study group activities involves an eclectic array of activities associated with meetings arranged around discussions. The focus of discussion may be a set of notes to review to check for completeness, accuracy and

understanding among group members. Another discussion activity might analyze an assessment and address items that were problematic for the group. Other opportunities for discussion include reviewing problems or offering feedback to drafts of writing assignments (Davis, p. 155).

The third model focuses on questions provided either by participants, the instructor, or a practice exam. More than simply providing answers to the questions, study group members must give detailed explanations to defend their responses. This stimulates discussion and helps clarify why one answer is better than another. It also allows participants to give voice to their thoughts and engage in debate to defend their positions.

Aside from taking pleasure in the company of others when all members are reasonably compatible and focused on a common goal, there is value in sharing stories and examples to illustrate concepts which makes retention easier (Ezrah, 2009). The sense of group cohesion, which is addressed more in depth in the Virtual Teams section, is important to create a community of learners (Serveau, 2004) who are more motivated to share stories, knowledge and resource materials (Orvis & Lassiter, 2006). This results in a richer collaborative experience for the group and yields benefits to the participants.

Adapting these face-to-face models to virtual study groups depends on the creativity and imagination of the instructor or leader and the commitment and interest of members of the group. By using a variety of approaches for these collaborative learning experiences, there is greater opportunity to accommodate the various learning styles of all participants (Serveau, 2004). The following section explores

virtual models of study groups and how they give member participation salience in the life of the community.

Virtual Study Groups

Carlén (2002, p. 1) defines online learning communities like virtual study groups as "people who share a common interest and learn in a collaborative mode using information and communications technology." Before the Internet, study groups required proximity between members for participation and they met face-to-face. Membership was limited to a small network of people who knew each other, or were co-located – on a college campus or in the workplace, for example. Alternately, they were drawn together by an organizing body such as a college department, Student Learning Center (http://teaching.berkeley.edu/docs/study_groups.pdf) or by the company training department. Twenty-first century learners now have the benefit of meeting online, which is particularly important for adult students with full-time jobs and families. The opportunity to study together online has unique challenges not found with in-person groups. Themes to be explored related to these challenges include: diversity, training, social dynamics and member salience, urgency and collective efficacy.

Diversity

Important components of study groups are diversity among participants (Ferris & Godar, 2006) and recognizing that everyone has a variety of skills and learning styles (Fleming, 2010). With the ability to be more inclusive of participants

at geographically dispersed locations through the use of computer mediated communication (CMC), there is even more opportunity for diversity. Members of a diverse group have strengths to contribute and benefit from, including:

- Organization skills
- Knowledge base
- Question-asking ability
- Note-taking ability
- Personal attributes (age, gender, appearance, ethnicity)
- Cultural perspective
- Personal experience and background
- Points of view
- Verbal and written skills

(http://teaching.berkeley.edu/docs/study_groups.pdf)

Erzah (2010) summarizes that "whether your study group is virtual or face-to-face, you have a chance to acquire knowledge from folks who have different backgrounds, experiences, knowledge and skills without spending another 5 years learning from books" (paragraph 3). Ezrah's claim, however, does not address the very real challenges inherent in virtual study groups composed of culturally diverse participants whose differences can be as basic as expectations associated with teacher and learner roles.

Training

In the case of virtual study groups, Northcraft et al. (2006) claim that diversity should "increase learning, social networks, and group dynamics and leadership skills, but only if study groups are assisted in overcoming" (p. 151) the limitations inherent in the virtual medium. They suggest that training participants in best practices for collaborating online is necessary to optimize the capacity for study group participants

to be successful, and emphasize that this should happen in the environment where the study group will conduct itself. For example, face-to-face groups should be trained in person, while geographically dispersed groups should be trained within their virtual environment. Davis (2001) concurs that training is paramount, offering that participants may never have worked in groups before and need to be coached to develop the skills they will need. While her suggestions are based on face-to-face meetings, they may also hold true for virtual environments, and emphasize listening and helping skills, conflict management, and offering and receiving constructive criticism. Applying these skills in a virtual environment is much more challenging since participants may not have developed trust based on prior face-to-face engagement.

Social Dynamics, Member Salience and Urgency

The inherent social value of studying together is frequently mentioned in the literature, however it is particularly challenging in online environments. A contributing factor that underlies group cohesion in online environments arises from the positive social dynamics in place based upon high salience of participants. When social interaction is promoted, Guitert, Daradoumis and Marquès (2000) claim it "increases …. interest and value that (students) give to the subject matter. It also increases positive attitude and social interactions among students" (p. 385). This claim, however, oversimplifies the dynamics of group communication for these effects in virtual groups or a blended array of virtual and co-located participants. For example, in a study conducted by Northcraft et al. (2006), the researchers examined

member salience within study groups that included co-located participants and non-co-located members. Salience refers to how aware others are of the participants and is a measure of their prominence. Their investigation examined prototypical dispersion patterns and the effects these had on member salience. These dispersion patterns were classified in four ways: (1) four face-to-face members (4 Node), (2) four virtual members not co-located (4 Solo), (3) two pairs of face-to-face members who are not co-located (2-2Node), and (4) 3 co-located members with one solo (3Node/1Solo). Member salience was measured by the order in which names of other group members were listed. In this study, co-located study group members were 29% more salient than non-co-located members. Further, the study examined whether high salience would result in greater integration of three pieces of unique information held by each group member. Based on each participant's ability to recall this information, the study found that a group member's salience was a significant predictor of their ability to acquire and recall the information. Whether high salience can be measured by the ability to recall information, however, is questionable. There is much more non-verbal information available to co-located members about each other than to their virtual counterparts that could affect salience. Northcraft et al. (2006) further identify urgency as another factor influencing an individual's ability to gather information from others. They define urgency is defined as a "function of the number of group members not co-located with that individual and the number of solo group members" (p. 150). To keep urgency high, the study recommends having at least one solo member to decrease complacency from members of a node.

Collective Efficacy

An additional factor contributing to the development of effective VSGs is *collective efficacy* as reported in Orvis & Lasiter, 2006. Collective efficacy is the degree to which members are invested in working together to form relationships and increase their knowledge. High collective efficacy predicts successful outcomes for achieving the work of the group (Orvis & Lasiter, 2006). Strong relationships forged during study group experiences are valuable for other reasons, including the formation of social networks that endure well beyond the life of the study group (Northcraft, et al. 2006). This addition to a person's social capital has the potential to increase important contacts for networking benefits in the future.

Structuring and Managing Virtual Study Groups

One strategy often missing from study group advice offered on college websites is how to structure and manage the meetings of study groups. While these websites offer information on forming the group, such as optimal number of members and meetings, choosing participants and sharing leadership roles, there is little on structuring interactions that is emphasized in virtual study group literature. Northcraft et al. (2006) caution that mismanagement of interaction routines can have consequences that compromise the effectiveness of the group which can result in a number of problems including disrupted information exchanges, diminished group cohesion and social networking, and lack of awareness of member skills and knowledge. Their study resulted in suggestions for ameliorating these challenges by offering orientation and training sessions that incorporate the following:

- Develop group processes that raise the salience of each group member, such as identifying participants by location, time zone, and pictures, or likenesses such as avatars to personalize the communication. Also include anonymous graphical displays of engagement to meter the level of participation.
- Help groups appreciate that the payoff of higher group member salience is greater learning.
- Promote awareness that an individual's urgency to contribute is important and develop methods for signaling urgency tailored to the virtual environment being used.

Northcraft et al. (2006)

While these are helpful high-level guidelines that can inform choices for structuring a virtual study group, there is a lack of specificity for implementing them, with the exception of the first item. Therefore we are left to guess at what strategies and tactics to use that could bring about the changes offered at the conceptual level.

In an effort to empirically test the value of operationalizing strategies and tactics in virtual groups, Walther and Bunz (2005) tested the efficacy of following rules as a way to improve trust, liking and performance among participants. A total of 44 students enrolled in senior level elective courses participated in the study from two major universities. Students were assigned to groups composed of participants from each university and were required to complete three group papers together during the course. Asynchronous discussion forums and synchronous chats were the only modes of communication allowed. Incentives for following the rules took the form of using

different grading rubrics for evaluation of each set of groups. One-third of the groups were evaluated solely on the quality of their papers. In a second group, 40% of the grade for group papers was dependent on frequency of communication, with a required minimum number of postings defined in advance. Grades for students in the remaining third of the treatment group were awarded 40% of their paper grade for posting equal amounts of substantive messages and organizing messages. Substantive messages referred to content-related postings, while organizing messages referred to procedural work needed to produce the papers. All groups were regularly advised to adhere to the specified rules, regardless of whether they were grade dependent. This empirical study analyzed student postings and post-surveys to arrive at their conclusions. Walther and Bunz (2005) found that the rules did indeed promote "better affective and material results of virtual team's efforts" (p. 843). Further, the researchers concluded that increased messaging not only improved communication for higher quality task completion but also promoted "the development of trust, social attraction and group performance" (p. 843). The researchers acknowledge that the imposition of rules of any sort may reduce uncertainty in virtual groups and that other rules might be tested to see if they also result in greater trust, liking and performance. Based on this research, Walther and Bunz (2005) offered a set of structuring rules to operationalize virtual groups using computer mediated communication (CMC) tools that address the matter of urgency referred to in the Northcraft et al. (2006) study:

> *Rule 1:*started right away…to avoid running out of time even more severely than in procrastinating face-to-face groups (Groups tend to procrastinate the production phase of their work until half-way through their existence (Gersick, 1988).
> *Rule 2:* Communicate frequently.
> *Rule 3:* Multitask getting organized and doing substantive work

> simultaneously.
> *Rule 4:* Overtly acknowledge that you have read one another's messages.
> *Rule 5:* Be explicit about what you are thinking and doing.
> *Rule 6:* Set deadlines and stick to them.
> (pp 833-835)

From the rules given above, it is clear that structuring engagement is an important component of effective virtual study groups. Serveau (2004) adds that such rules must be compatible with the context and characteristics of the group. For a study group intent on preparing for a certification exam and composed of full-time workers located globally, he found that the structure had to be flexible to accommodate participant goals and circumstances:

> Giving as much control to the student as possible in regards to scheduling time to complete the exercises, and prioritizing which material is most important can help students derive the maximum level of benefits from the study group on their own terms. In this sense, the study group takes on a structure that resembles a constructivist approach. p. 942.

To examine this, Serveau's (2004) case study examined the first cohort of an online Cisco Certified Internetwork Expert (CCIE) study group composed of 37 students, with 32 being dispersed across the United States, and five at European locations. Participants were engineers intent on preparing for the rigorous CCIE certification exam. Historically, fewer than 3% of Cisco-certified professionals achieve this level of certification (p. 940). Serveau used a 5-point customer satisfaction scale to gauge student satisfaction for each module. Overall, satisfaction results averaged 4.5 across all 14 modules and was considered better than average when compared to e-learning course satisfaction averages of 3.8 and 4.0. Serveau, however, does not provide the criteria used in the rating scale for how satisfaction was being measured, so it is not clear what students were satisfied with in the course. Nor does he reference the source

of the e-learning satisfaction averages. In addition to the survey, Seveau looked at activity on the discussion board, reporting that a total of 253 posts were made and a total of 2,438 viewings were recorded. He posits that the discrepancy between posts and viewings is attributable to the fact that postings were not a requirement. However, all students valued the help they could access from highly active subject matter experts (SMEs) who gave timely responses to questions, or supported them in completing difficult lab exercises. Despite his preliminary results, the efficacy of the online study group is encouraging. Of the 37 registered students, 14 actually completed the mandatory course requirements. Of these, nine took the CCIE exam within three months of completing the course and of these, three passed, or 33% of those who sat for the exam. Serveau claims that this compares favorably with the 3% of Cisco certified professionals who achieved the CCIE distinction without benefit of the virtual study group. There are some limitations to the study, and several questions remain. An important consideration is that the study group participants were a self-selected group of highly motivated professionals intent on achieving the CCIE certification. Thus, we would expect the higher percentage of success attaining their CCIE. In addition, we do not know what the overall pass rate is for the exam. Further, reasons for the high attrition rate (38%) should be explored beyond job demands and lack of consequences for dropping out. It would also be useful to know how many students contributed the 253 postings and whether a lack of engagement with each other was a factor in the low retention rate. Stonebraker and Hazeltine (2004) would argue that lack of opportunity for developing a sense of community online is directly related to student engagement and retention, particularly when self-

motivation, and not external incentives such as grades, is the only reason to persevere. Therefore more study is needed on how to increase self-motivation in VSGs.

Stonebraker and Hazeltine (2004) attempt to delineate differences between corporate training referenced in Serveau's study and university education, where much of the research about online learning has been conducted. Their classifications demonstrate inherent differences between corporate and academic learning as shown in Table 1:

Table 1. General classification of differences between traditional corporate training and traditional university education

Corporate →	Criteria	← University
Transfer skills as needed	Learning goals	Intergenerational knowledge
Embedded corporate culture	Foundation	Embedded truth and processes
For profit	Profitability	Generally not for profit
Return on investment	Basis for relevance	Reputation
Specialization	Method	Generalization
Contract specialist instructors	Teachers	Tenure track faculty
Lifetime learning	Time horizon	Time-bounded learning process
Interdisciplinary	Functional interactivity	Functional specialties
Applied	Means	Theoretic
Goal-oriented	Ends	Process-oriented

(Stonebraker & Hazeltine, 2004, p. 212).

Important differences of interest to VSGs in corporate or academic environments are found in criteria for: learning goals, basis for relevance, teachers, time horizon, functional interactivity, means and ends.

In addition to making clear distinctions between corporate and academic learning, Stonebraker and Hazeltine (2004) drew on five corresponding predictor variables found in studies by Rovai (2002) and Beningno and Trentin (2000), Stonebraker and Hazeltine (2004). Their research evaluated whether the perceived level of learning, job relevance, sense of cohesiveness, and opportunities for task and

social interaction were predictors of overall course satisfaction and persistence (p. 216), as well as how these compared to live class formats. Like subjects in the Serveau study, participants were seeking to attain a professional certification by attending courses in a virtual learning environment. Instead of using purely text based tools, however, the exam preparation series offered live, voice-over PowerPoint presentations delivered over the corporate Intranet across six time zones. Participants accessed the live presentations through desktop or laptop computers. Active participation was enabled through a suite of tools allowing users to virtually raise their hand, ask questions, use emoticons for affective feedback, and provide an "away" signal when leaving the virtual environment. The sessions were recorded for those who were unable to attend the live presentation, and participants had the opportunity to email or phone the instructor for follow up. Electronic questionnaires were sent by the company to 338 individuals who had participated in at least one of the exam preparation courses and yielded 145 usable responses. A five-point Likert scale was used to evaluate how the virtual course compared to a live course based on: perceptions of level of learning, sense of cohesion, and social and task interaction of a virtual learning process.

Their results found that social interaction had a high correlation to cohesiveness and cohesiveness was highly correlated with satisfaction. In addition, support from peers and supervisors was an important influence on course completion. Self-reported pass rates for this group overall were 86% and compared favorably with pass rates reported by those attending live classes, which was between 76% and 92%. Stonebraker and Hazeltine (2004) generalized that learning in a virtual environment

was just as efficacious as learning in a face-to-face setting. Even though perceptions of sense of cohesion, social interaction, and task interaction were significantly lower in the virtual environment, perceptions about learning new knowledge were only slightly different.

What this research does not take into account, however, are the method of engagement used - a direct instruction model, and the low degree of interaction peer participants had with each other and the presenter, which was highly symbolic and reactive over the live or recorded webcast. More research is needed with respect to VSGs designed for the purpose of helping professionals pass a high stakes certification exam where learning blends aspects of both corporate and academic characteristics. For example, the time horizon criteria in Table 1 attributes “lifetime learning” to the corporate sector and “time-bounded learning process” to the academic sector. For professionals seeking to pass a certification exam, both characteristics apply. Lifetime learning is tested within a time-bounded process of preparation. This research study aims to help inform the gap between corporate and academic studies and clarify what characterizes a good VSG experience for certification exam candidates and what limitations they encounter.

Virtual Communities of Practice and Virtual Teams

Based on my experience working within the nonprofit sector, there is an increasing number of certification preparation groups forming in response to global demand for qualified workers. And, networked learning groups or virtual communities of practice (VCoP) to accommodate the demand are possible now more

than ever through the affordances of the Internet (Cobb & Steele, 2009). However, more research is needed to better understand issues about participation, development and sustainability of such virtual groups. As an emerging area, research on *virtual teams* and *virtual CoPs*, which are closely associated with distributed knowledge acquisition, are used to examine the growing phenomenon of virtual study groups. The next section explores VCoP, followed by a discussion of Virtual Teams.

Virtual Communities of Practice

Study groups supporting professional development share the characteristics of communities of practice (CoPs) in that members share a common domain, engage in a community focused on that domain, and share the language and activities common to their practice. Many definitions of *Communities of Practice* exist in the literature and reflect the subtle diversity grounded among their respective knowledge domains. For example, in business literature, a definition of community of practice often emphasizes problem solving. Manville and Foote suggest a CoP is: “a group of professionals informally bound to one another through exposure to a common class of problems, common pursuit of solutions and thereby themselves embodying a store of knowledge” (in Kimble, Li and Barlow, 2009, p. 10). Seely, Brown and Solomon Grey elaborate and include an emphasis on the purpose of work common to the CoP: “They are peers in the execution of real work. What holds them together is a common sense of purposes and a real need to know what each other knows” (in Kimble, Li and Barlow, 2009, p. 10). Departing from a task-based definition, Johnson (2001) suggests that CoPs “exist to promote learning via communication among their

members," (p. 48) reflecting a more interdisciplinary and inclusive intention. All are derived from the seminal work of Lave and Wenger (2002) who coined the phrase. Wenger (1998) currently defines CoPs as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 7). This definition especially suits the nature and purpose of study groups aimed at supporting professional development within a discipline, and is highly relevant to the present study.

With the arrival of new communication technologies, communities of practice entered the virtual world. According to Palmer and Speier (1998), "the emergence of virtual organizations is explicitly tied to advances in communication technologies" (p. 1). In the 1990s, a new communications medium, the World Wide Web, arrived on the scene to increase popular participation with the Internet. Since that time, its capacity has grown in bandwidth to support increasingly sophisticated interactive media. Dede (1997) claims that this communications medium is actually a container for "enabling new types of messages (for) broadening the types of instructional messages students and faculty can exchange" (p. 1-2). New affordances present in virtual communications such as listservs, email, wikis, and a growing variety of social media tools have encouraged the formation of communities focused around particular areas of interest. Johnson (2001) describes virtual communities as "groups that use networked technologies to communicate and collaborate" (p. 56). Wenger, White and Smith (2009) call them digital habitats which are managed by technology stewards to support virtual communities of practice (VCoP). Wenger et al. (2009) take an

ecological view of VCoPs, reasoning that members of such a community need a place where their learning is supported by features of the digital space designed to cultivate their togetherness. They emphasize that “a digital habitat is first and foremost an experience of place enabled by technology” (p. 38) and propose a framework for understanding the habitat from the perspective of its tools, platforms, features, and configuration. Alignment of these four features for the purposes of creating a habitat for VCoPs is achieved through involvement of the technology stewards who configure and integrate the technology to support the practices of the community. Wenger et al. (2009) go on to provide an in-depth analysis of each of the four perspectives for forming and sustaining their own VCoPs.

While Wenger et al. (2009) delve deeply into the experience of place in the sense that there is a digital habitat with an environment supported by communication tools, Gannon-Leary and Fontainha (2007) stress the importance of participation in their definition of VCoPs when they say that they are:

> a network of individuals who share a domain of interest about which they communicate online. The practitioners share resources (for example experiences, problems and solutions, tools, methodologies). Such communication results in the knowledge of each participant in the community and contributes to the development of the knowledge within the domain. A virtual learning community may involve the conduct of original research but it is more likely that its main purpose is to increase the knowledge of participants, via formal education or professional development. (p. 1)

This definition comes most closely to serving the purposes of the present inquiry into virtual study group participation. The authors in that study engaged in qualitative research based on case studies and interviews with academic staff in the UK. Their analyses resulted in identifying barriers, benefits, and critical success factors (CSF)

for participating in VCoPs and virtual learning communities. Their findings are summarized in Table 2:

Table 2: Benefits, Barriers and CSFs

Benefits	Barriers	CSFs
• Enhanced learning environment • Synergies created • Capabilities extended to higher level • Knowledge sharing & learning • Gaining insights from each other • Deepening of knowledge, innovation & expertise • Cyclical, fluid knowledge development • Feeling of connection • Ongoing interactions • Assimilation into sociocultural practices • Neo-apprenticeship style of learning • Identity development and formation • Practice-based usage	• Perpetuation vs. change and diversity • Disciplinary differences • Culture of independence • Tacit knowledge • Transactive knowledge • Specialist language • Collegiality, strong physical community • Shifting membership, • Creating and maintaining information flow • No F2F to break the ice • Read-only participants (formerly lurkers) • Hidden identities, adopted personas • Lack of trust – personal and institutional • Selectivity in ICT use • No body language, misinterpretations • Task-based usage	• Good use of Internet standard technologies • Technological provision • ICT skills • Institutional acceptance of ICTs as communication media • Good communications • Trust • Common values • Shared understanding • Prior knowledge of membership • Sense of belonging • Cultural awareness • Sense of purpose • Sensitivity in monitoring, regulating, facilitating • Netiquette • User-friendly language • Time to build up the CoP • Regular interaction • Good coordination to achieve regular but varied communication • Material resources or sponsorship to bolster and build up the community

(Gannon-Leary & Fontainha, September 2007, eLearning Papers No 5.)

Of particular interest to the present study are critical success factors addressing good communications, trust, shared understanding, and good coordination to achieve regular but varied communication. Benefits relevant to this study include knowledge sharing and learning, and gaining insights from each other. These benefits are referred to in earlier references to the literature review about the value of study groups. Barriers of relevance to candidates seeking certification in this study include the

impact the following factors have on VCoPs: their culture of independence, specialist language, shifting membership, read-only participants and hidden identities/adopted personas.

Ardichvili, Page and Wentling (2003) believe that “participation in CoPs, or lack thereof, can be described in terms of reasons for such participation, and of barriers to participation. The same applies to the use of community as a source of knowledge” (p. 66). They examined what the barriers and motivators were to participating in a knowledge-sharing community. Instead of focusing on an academic population as Gannon-Leary, et al. (2007) did, their study focused on a multi-national Fortune 100 corporation with more than 60,000 employees dispersed across 20 countries. They conducted semi-structured interviews with 30 members of the company’s Knowledge Network selected from three groups engaged in either heavy, moderate or light use of the network. Their qualitative analysis identified barriers contributing to the knowledge network that centered around fear that what one posted may not be important, relevant or might mislead colleagues. Further, some new employees felt they had not “earned the right” to make a posting. Additional barriers included fear of criticism or revealing that they do not have the knowledge they think others assume they should already have. Their findings supported the research contributed by Gannon-Leary, et al. (2007) that relates in particular to CSFs in Table 2: trust, cultural awareness, sense of purpose, sensitivity in regulating/facilitating, and netiquette. Ardichvilli et al. (2003) conclude that engendering trust in a virtual knowledge network was key to participating; trust not only of members, but in institution-based trust. The latter is based on processes and structure that “ensures(s)

trustworthy behavior of individual members, and protect(s) the members from negative consequences of administrative and procedural mistakes (p. 73).” They concluded that this requires establishing and transmitting rules and expectations for participation in the knowledge network. Among their recommendations for creating an environment that supports knowledge sharing, Ardichvilli et al. (2003) call for establishing “institutional norms promoting institution-based trust” (p. 74). Their recommendations are consistent with Walther and Bunz (2005) that rules need to be in place for development of optimum trust and participation.

As referenced earlier, the notion that two heads are better than one is also important in virtual CoPs. Johnson (2001) explains that “the learning that evolved from these communities is collaborative, in which the collaborative knowledge of the community is greater than any individual knowledge” (p.46). The idea of a synergistic learning environment is a benefit often cited in the literature regarding the efficacy of studying together (Ferris & Godar, 2006; Bitter-Rijpkema, 2002; Johnson & Johnson; Laurillard, 2009; Resta & Laferriere, 2007; Scardamalia & Bereiter). As Smith notes (see Halal, 1998): “Unlike raw materials, knowledge can’t be used up. The more of it you dispense, the more you generate” (p. 160).

Knowledge networking in virtual environments involves collaboration to foster a continuously evolving “emergent intelligence (that) appears in which the virtual community develops a communal memory and wisdom that surpasses the individual contribution of each participant” (Dede, 1997, p. 25). Dede calls this a *community of mind*, where community participants continue to “redefine how to conceptualize the topic” (p. 26) without the constraints of space or time through

synchronous and asynchronous participation (p. 6). Access to participants with varying degrees of expertise is greatly enhanced, and assimilation into the sociocultural life of the community is nurtured, resulting in collaborative engagement. Lave and Wenger (1991) refer to this as legitimate peripheral participation (LPP), which allows novice members to acclimate to the group at the edges until they feel confident moving closer to the center. This is done as their knowledge and trust in the group grows. Gannon-Leary et al. (2007) suggest that this ability to engage in the practice of the community is "important in identity formation of the newcomer" (p. 3). In this environment, participants learn "how to be in practice" (Seely Brown and Duguid, 2002, p. 138).

Dede (1997) notes that while interactive media offer an impressive "range of cognitive, affective and social 'affordances' (enhancements of human capabilities) of great power for distributed learning" (p. 15), there are limitations in the ability to communicate and be expressive due to the lack of face-to-face time. Additional barriers to virtual CoPs are referenced earlier in Table 1 on page 16 from Gannon-Leary, et al. (2007).

Another way to look at VCoPs is demonstrated by Dubé, Bourhis and Jacob (2006), who identified structural characteristics of VCoPs operating within organizations. They reason that successfully managing VCoPs is dependent on understanding these characteristics. In assembling the structuring characteristics, they created a typology of VCoPs under the broad categories of demographics, organizational context, membership characteristics and technological environment. Within each category are sub-classifications that create a finer grained breakdown of

properties. In a sense, their classifications represent a matrix of VCoPs types, demonstrating that VCoPs are not as Dubé et al. (2006) observe, “one-dimensional constructs, with undistinguishing features and undifferentiated identities” (p. 71). In reality, each VCoP has a distinct personality, underpinned by its structuring characteristics, the combination of which contributes inherent strengths as well unique challenges (p. 88). These structuring characteristics have direct relevance to this study which investigates the characteristics and limitations of a highly specific population within a targeted industry – nonprofit executives –who are studying in virtual environments for a certification exam. The next section on virtual teams provides another lens with which to examine groups engaging online.

Virtual Teams

Unlike the scarcity of research related to virtual study groups, scholarly work on virtual teams is well established and much of it comes from business and information technology disciplines. In distinguishing between groups and teams, Katzenbach and Smith (1993) state that groups refer simply to an assembly of people, whereas teams are composed of people accountable to each other and assembled for a common purpose and approach to achieving goals. What makes a team “virtual,” is its dependence on an electronically supported environment for purposeful information exchange (Geisler, 2002, p. 2). Building on this foundation, other definitions elaborate on the outcomes and the temporal, geographic, and organizational characteristics of virtual teams:

> Virtual teams …work across distance, time and organizational boundaries.
> (Langevin, 2004, p. 3)

> Virtual teams are groups of people working on interdependent tasks, geographically distributed, conduct their core work mainly through an electronic medium and share responsibility for team outcomes.
> (Horwitz, Bravington, Silvis, 2006, p. 473)

> A group of people working closely together though geographically separated and may reside in different time zones; cross-functional workgroups brought together to tackle a project for a finite period of time through a combination of technologies.
> (Henry and Hartzler (1998) in Horwitz, Bravington, Silvis, p. 473)

> A micro-level form of work organization in which a group of geographically dispersed workers is brought together to accomplish a specific organizational task using Information and Communication Technologies. Workers can come from the same or different organizations depending on the nature of the task.
> (Kimble, Li, Barlow, 2000, p. 3)

> A virtual team is an evolutionary form of a network organization enabled by advances in information and communication technology.
> (Miles and Snow, 1986)

> Virtual teams are the peopleware of the 21st century.
> Lipnack and Stamps (1997)

The common thread through most of the definitions is that the outcomes of virtual teams are project- or product-oriented, and that when their mission is accomplished, the team is usually disbanded. In virtual communities of practice, however, the work typically is ongoing to support knowledge building and sharing.

These definitions also imply interdisciplinary or cross-boundary connections that together bring in individuals with diverse expertise. As referenced earlier, subject matter experts (SMEs) contribute to a diversified array of knowledge and experience, across a range of knowledge domains. For this reason, members of virtual teams can assume leadership roles at various points in the life of the group depending on the

need (Geisler, 2002). Lipnack and Stamps' (1997) reference to virtual teams as "peopleware" speaks to the capacity of virtual teams to "manage knowledge" (Geisler, 2002), a key function for study groups.

In order to explore the nature of virtual teams in educational applications, it will be useful to investigate key concepts identified by Horwitz, et al. (2006) that include: team formation, team alignment, cross-cultural communication, team and leadership dynamics, social cohesion, team performance member roles, and control (p. 475). Their quantitative study was designed to identify contributing factors to virtual team effectiveness. They studied survey responses from 115 participants in the technology industry spanning 16 countries. Their convenience sample consisted of contact databases and newsgroups found on the Internet. Four sections of the survey attempted to gather data about participant demographics, management and performance measures, team dynamics, and cross-cultural issues. When asked what would be most helpful to a virtual team starting up, the most frequently cited response was clarifying objectives, roles and responsibilities (35%), followed by having a meeting face-to-face (19%). The biggest problems of working in virtual teams, as cited by respondents, were poor communication quality (20%) and time zones/differences (20%). A follow up question to identifying the biggest problems sought to elicit what actions were taken to overcome the problems. The top two strategies given were: improving communication technically and increasing communication frequency, followed by clarifying goals, responsibilities and priorities. When asked to select the single most important factor contributing to team effectiveness, responses again related to communication quality and, clear goals and

objectives. Other factors, mentioned in descending order, included team work, trust and commitment. All these factors seek to mitigate the low-touch, ambiguous virtual environment and compensate for lack of face time.

In other research, Nohria and Eccles (1992), predicted that "We will probably need an entirely new sociology of organizations" (pp. 304-305) in reference to the dynamics inherent in virtual team formation and functionality. Issues of trust, leadership, group cohesion and identity were thought to be key contributors to the success or demise of a virtual team. In addition, Horwitz, et al. (2006), elaborated:

> …..cross-cultural differences, member conflict, role ambiguity and complex decision-making issues including interpretive problems related to decisions. If people are to interact success-fully in these teams, it is important that factors associated with their effectiveness are identified and evaluated.
> (p. 474-475)

Although virtual teams have the capacity to be more flexible and responsive than face-to-face teams because they can work around the global clock and include a diverse array of experts, they must also resolve issues associated with timely and clear communication that is specific to virtual environments (Walther & Bunz 2005; Kimble, Li, Barlow, 2000). To address these constraints, Horwitz, et al. (2006) suggest the following organizational skills:

- Determining the best technology to facilitate communication;
- Careful team member selection (especially for virtual teams where members may work in different countries; cross-culturally and in different time-zones);
- Ability to build trust and productivity among team members (even when there is lack of supervision); and
- The capacity to resolve conflicts within the team and between it and its management.
  (p. 475)

The interplay of these points is illustrated by a hypothetical example of conflict issues, as noted by O'Neill and Nilson (2009). When software adoption is recommended by a virtual team member and others on the team object because they either have varying levels of technological proficiency, or do not appreciate the value added, a potential for conflict may arise. They maintain that trust among virtual team members is linked with using richer communication tools, such as teleconferences and videoconferences, over simply online text based tools. In addition, Horwtiz, et al. (2006) argue that without the benefit of richer forms of communication, decision making may take longer and consensus building is delayed.

The importance of trust and identity is frequently cited as essential for the optimal functioning of virtual teams (Ardichvili, Page & Wentling, 2003; Geisler, 2002; Horwitz, et al.; Huang, Jestice & Kahai, 2009; Kimble, Li & Barlow, 2000; Lipnack & Stamps, 1997; Walther & Bunz, 2005). Identity, or the ability to represent oneself and establish a social presence online, is difficult to build in virtual teams where members have no "face time." The New Yorker cartoon stating "On the Internet, no one knows you're a dog" illustrates the point. Personality traits and social roles, which are part of identity formation, are ambiguous (Geisler, 2002) and only emerge over time through extended interaction – often a commodity that builds in situ during the ongoing work of the team. As O'Neill and Nilson (2009) observe, developing swift trust based on "professional reputations and the integrity of team members" may be a useful tactic when there is a lack of opportunity for face-to-face identity building. Because a lack of trust is associated with diminished capacity for knowledge creation and sharing (Ardichvili, Page & Wentling, 2006), it is especially

important for virtual learning communities to understand its importance and find ways to build it. Applying swift trust strategies to VCoPs, such as hosting participant profiles that include credentials and endorsements, would seem to be one way of encouraging trust and thus developing an increased capacity for knowledge creation.

Orivis and Lassiter (2006) offer a comprehensive list of strategies leaders can use to support CMC and most fully integrates suggestions found in this literature review:

- Focus on learner-learner interaction as early as possible
- Emphasize the importance of learner-learner interactions in promoting individual learning
- Allow students some time in "getting to know you" activities
- Focus on the development and maintenance of swift trust
- Frame feedback in a way that helps students believe they can accomplish the tasks
- Identify learners who are not interacting and help them feel as though they are a part of the group
- Plan learning materials to emphasize a collective identity instead of an individual identity among learners
- Monitor and encourage full and complete information exchange and minimize biased discussions
- Encourage communication that confirms information receipts as well as provides information about local contextual constraints on other learners
- Routinize the use of e-mail, computer bulletin boards, chat rooms, and video and audio conferencing to monitor and record learner action and progress.

(Orvis & Lassiter, 2006, p. 170-171)

These suggestions seek to promote sustainability and effectiveness in the low-touch arena of virtual groups. From the research examined above, a major difference between virtual teams and virtual learning communities is their levels of permanence and permeability. With regard to permanence, Palmer and Speier (1998) note that "virtual entities be it organizations or teams within or across organizations, enable

organizational and/or individual core competencies to be brought together when needed and disbanded when no longer required" (p. 27). This applies to study groups as well because they are goal oriented and will dissolve when their learning mission is complete. Permeability, however, is very different between virtual teams and virtual study groups. Virtual team members are generally invited to participate and assume specific roles. Virtual study groups, however, are usually based on voluntary participation with less control over selection of members. And virtual communities of practice are somewhere in between, where members can be invited or simply join, depending on membership requirements. VCoPs also allow a graduated induction, from legitimate peripheral participation to full contributor.

This look at the literature highlights important distinctions and commonalities among face-to-face study groups, VCoPs and virtual teams and helps to inform an understanding of the dynamics operating in virtual study groups.

SUMMARY

There is a paucity of research that addresses what makes a well designed, highly functioning virtual study group. Informal advice abounds on university websites offering tips for forming in-person study groups, however, no one is addressing how to form Web- supported study groups. The phenomenon is so new and emerging that little data is available to reference. It may be that on college campuses, students are co-located, and therefore there is no urgency to forming study groups online and no interest by the academic community in finding out how to convene them. In the workplace, however, this is not the case. By virtue of their

professional development goals, people have different study agendas and may not easily find like-minded individuals to study with as a group. Studying for a specialized certification is one such example. There may be no one in the person's workplace pursuing a specialized certification; so an online study group of remotely located people offers a potential venue. In fact, there is evidence (Serveau, 2004) that study groups are forming online to support candidates for certification exams, unguided by research. The demand exists based on requests I personally have fielded from my workplace. There is little research available examining the dynamics of studying together virtually for high stakes tests except tangentially in the literature on virtual teams, virtual communities of practice and computer supported collaborative learning (CSCL). Research is needed to inform effective VSG practices, as people invest money and time into achieving satisfactory outcomes from high stakes tests to confirm their competence in a given field.

Studies of virtual collaboration thus far (Northcraft et al. 2006; Walther and Bunz, 2005) are largely confined to an academic environment, with subjects enrolled in online courses. The applicability of these studies for adult learners in a corporate environment has limited transferability to virtual study group participants preparing for a professional certification exam. Further, researchers (Stonebraker and Hazeltine, 2004) recognize that there are important differences between corporate training and university education. And even when studies are conducted in a corporate environment, subjects are participating in VSG *related* environments, such as knowledge networks studied by Ardichvili, Page and Wentling (2006). A knowledge

network has different goals and properties than a VSG and, therefore, their study has limited usefulness for the purpose of informing VSGs.

Although the current literature on virtual communities of practice, virtual teams and computer supported collaborative learning reveal a growing understanding of successful virtual facilitation practices and student engagement in academic environments, more research is needed to study effective practices for engaging adult learners in corporate settings who wish to prepare “virtually” for a professional certification. With more Web 2.0 tools becoming available, and an increasing demand for certification preparation prior to sitting for a high stakes exam, further research can advance best practices for VSGs and improve the quality of options available to exam candidates. This study will examine how two VSGs in a specific setting are meeting the perceived needs of stakeholders preparing to sit for an exam. It also aims to discover the limitations of these VSGs and make recommendations that will contribute to a good study group experience for those participating virtually.

Research Method

Plan of Inquiry

A description of the research methods is included in this section outlining the data collection and analysis plan. In broad terms, my inquiry uses qualitative research that takes a single case study (Stake, 2005) approach to analyze a purposive sample that includes subjects from a face-to-face study group who also participated in collaborative study options available on the Internet. This inquiry adopts an intrinsic design (Stake, 2005) because I am interested in the particularities associated with each VSG model represented and how these inform the research questions in this study. Data were collected and triangulated through a focus group session designed to arrive at themes from responses to prepared questions, followed by semi-structured interviews with individuals to arrive at rich, thick descriptions of each subject's perceptions. Finally, I examined artifacts including curriculum materials and available discussion postings from the actual virtual study groups joined by each participant to observe the interactivity present in the phenomenon of virtual study groups (Denzin & Lincoln, 2005).

Participants

In this study, I used a convenience sample that collected qualitative data from six members of a face-to-face study group convened at my place of work to prepare candidates to take the Travel Executive certification exam. A successful score on the exam results in a travel executive credential known as the Certified Travel Executive

(CTE). The CTE is an important accomplishment because it demonstrates that the holder has achieved a high degree of knowledge, skill and ability in the profession. It can often translate into monetary rewards or promotions and provides an advantage during hiring decisions. My workplace is an association management company (AMC), which is organized much like a law firm in that it assigns professional teams to service each of over 25 clients. Each client has a person in the role of a travel executive. The nature of the workplace is such that there is little interaction among the clients served. Each participant met the education and experience requirements in order to qualify to sit for the exam:

1. Employment by a qualifying nonprofit organization (trade association, professional society, individual membership organization, philanthropic organization) or association management company within the last five years.
2. Three years of experience as a CTE at a qualifying organization and a bachelor's degree or higher OR five years of experience working at the staff level at a qualifying organization and a bachelor's degree or higher.
3. Commitment to upholding the ATE Standards of Conduct and have no felony convictions related to the practice of travel management.
4. Completion of 100 hours of broad-based qualifying professional development within the last five years. Candidates must complete 100 hours of broad-based travel management related professional development activities within the five years preceding the application.

To prepare for the exam, my informants chose from an array of four study groups that included two virtual and two face-to-face options. Virtual study groups included the Kenobi Guild, a listserv, and the Empire Group, a highly structured study group. The face-to-face options included the workplace Lunch & Learn group, and the ATE sponsored Concentration Course, offered over a weekend at ATE’s headquarter city.

The following table summarizes characteristics for each participating travel executive in this study:

Table 3. Participant Demographics

Subject	Age	Ethnicity	Education	Years at AMC	VSG Participation	Face-to- Face Participation
Yvonne	25-35	White	B.A. Mass Communication	8	Kenobi	Lunch & Learn; Concentration Course
Mary	45-55	White	B.S. Hotel & Restaurant Management	11	Kenobi & Empire	Lunch & Learn; Concentration Course
Monica	45-55	White	B.A. Liberal Arts	8	Kenobi & Empire	Lunch & Learn
Tess	55-65	White	B.A. Elementary Education	11	Kenobi	Lunch & Learn; Concentration Course
Cleo	25-35	White	B.A. Political Science	5	Kenobi	Lunch & Learn; Concentration Course
Nancy	45-55	White	B.A. Journalism	5	Kenobi & Empire	Lunch & Learn

The informants in this study all participated in the workplace, face-to-face Lunch and Learn, and formed a cohort of learners for this case study. They all participated in the Kenobi Guild's Listserv. Further, the youngest and oldest of these relied solely on the Kenobi Guild as their VSG of choice. Only subjects in the middle aged group (45-55 years old) participated in both the Empire Group and Kenobi Guild. There appears to be no relationship between number of years employed by the AMC and their choice of study group options. No men were part of the group, which reflects the industry's predominance of females in these positions.

A purposive convenience sample of six was selected from my workplace because these subjects were readily available to me and met the following criteria:

they satisfied rigorous qualifications to take this high stakes professional certification exam; they studied virtually and in-person to prepare to sit for the exam; they passed the exam and demonstrated that they had experience and some level of expertise in successfully studying for it and could provide insights about what worked for them and what did not. As an example, one subject was recently selected to serve on the CTE exam's item-writing committee. This prestigious group selects only a handful of professionals in the field to participate. My subjects represented a diversity of views about studying with Web 2.0 tools. While all subjects are local and under the umbrella of one organization, they represent a variety of domestic and international clients and have a wide range of travel responsibilities and experience. This point is important because my research aims to include a diversity of viewpoints on the topic, and thus is seeking both a sampling of diverse people and ideas (Trochim, 2006).

I disclose that I drew my subjects from a study group I co-led along with another colleague during lunch-and-learn meetings held 12 weeks prior to the exam and so have a relationship with participants that has potential for bias in interpreting data. To address potential bias, I included two outside colleagues who specialize in e-learning to collectively rate and confirm my placement of interviews within themed categories. My relationship with informants is in the context of having a very limited professional acquaintance with each of the subjects. Each travel executive represents one of over 20 clients in the AMC. The nature of the workplace is such that there is little interaction among the clients served. To encourage more collaboration, the company organized Communities of Practice within the past two years to stimulate more knowledge sharing and networking.

Figure 1 illustrates how I arrived at my convenience sample. Initially there were nine participants in the Workplace face-to-face, lunch-and-learn group. Of these, six met the criteria mentioned earlier to participate in the study. Of these six, three joined the Empire Group and all six participated in the Kenobi Guild for further study.

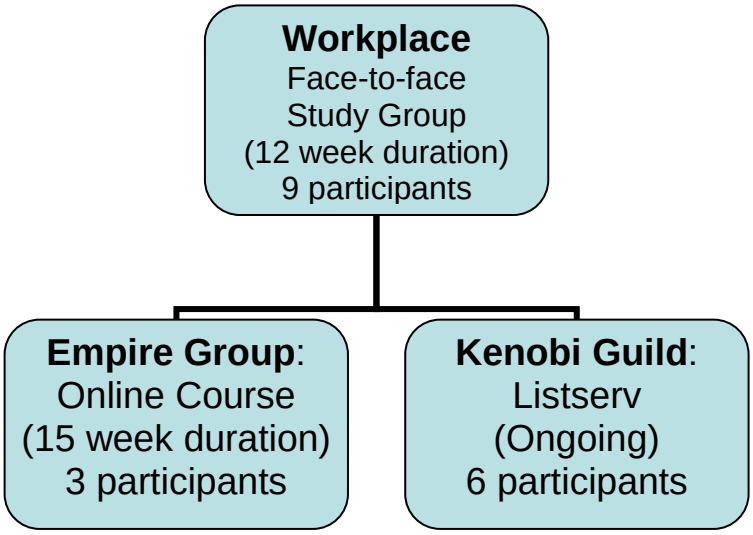

Figure 1. Convenience Sample

The subjects were seeking the Certified Travel Executive (CTE) credential which is offered by a non-profit association having international membership. The exam is offered twice each year. Locations, names of leaders, candidates, groups, companies and certification have all been changed to maintain the confidentiality of the research participants.

Descriptive Data

Qualitative methods permit the collection of data about the virtual strategies study group participants used to prepare to sit for the exam. Data were collected from

three sources: one focus group, six hour-long interviews, and study artifacts. The Focus Group and interviews were audio recorded and saved as MP3 files on a password protected computer and were then transcribed by a transcription service. The names of all subjects were changed to protect their identity and maintain confidentiality. Methods used to collect these data are described in more detail below.

Focus Group Process

The purpose of the focus group was to bring the subjects together to reflect on their experiences with studying for the CTE exam using Web 2.0 enabled technologies. Results of this discussion resulted in emerging themes that informed questions to explore in more depth during one-on-one interviews. Six focus group subjects were selected from a larger group of nine that regularly met face-to-face in the workplace to study for the CTE exam because they satisfied the criteria mentioned above in the participant section**.** The focus group convened for approximately 90 minutes to answer the following questions:

1. What web-enabled study group opportunities did you use to prepare for the certification exam?
2. Why did you study this way? (i.e. assembling several opportunities)
3. How did each venue you used meet your needs for exam preparation?
4. What were each venue's limitations? Advantages?
5. If you could choose only one method to study in preparation for the exam, what would it be and why?

For each question, I went around the table and gave each person the opportunity to answer. They were advised of their options to either:

1. answer the question when their turn comes up
2. pass and not answer the question
3. answer it or elaborate at a later point during the focus group
4. email me later if they think of something to add to their answer

Interview Process – Study Group Participants

A major part of this qualitative study relies on data collected from one-on-one interviews with six of the study group participants following the focus group meeting. Issues and themes arising from the focus group discussion informed questions for these interviews. This method was chosen because according to Miller and Glassner (2004), it "provide(s) access to the meanings people attribute to their experiences and social worlds" (p. 126). Salmons (2010) observes that the in-depth interview is based on the dynamics of how the interviewer, the interviewee, the research purpose and questions, and the research environment interrelate. As I am interested in learning more about the experience of study group participants in their particular virtual contexts, interviews with them following the focus group allowed me to capture their stories for later meaning-making during the analysis process. Semi-structured interviews allowed each subject to fully express their experiences in their own voice. Specifically, it was important to have subjects identify their needs and priorities with respect to studying virtually and to identify how their preferences changed over time while engaging with Web 2.0 tools. Preferences are highly personalized data, and

semi-structured interviews allowed for prompting and probing to elicit data that not only provided answers to the questions but reasons for the answers (Gray, 2004). The conversational style of semi-structured interviews provided opportunities for subjects to elaborate on their responses and allowed the researcher to rephrase questions when required. This was important not only to tease out a rich description of their experiences with web-enabled study groups, but to allow for robust and diverse points of view to emerge.

This study adopts a constructivist epistemology "that we interpret experiences and construct reality based on our perceptions of the world" (Salmons, 2010, p. 58). What has meaning for one person may be irrelevant to another's experience of the same phenomenon.

The focus of the interviews directly relates to my three research questions:

1. What influences student choices among web-enabled study group options convened to help candidates prepare for a professional certification exam?

2. What student perceptions characterize good study group experiences for remotely located participants connected by Web 2.0 technologies?

3. What limitations do students in virtual study groups encounter and how do they compensate for them?

The specific questions used are found in Appendix A

Interview data is important to capture for an interpretive study that often takes an inductive reasoning approach to reach conclusions. Because "subjects construct and interpret their own meanings in different ways, even in relation to the same

phenomenon," this framework should help to surface "patterns, relationships and associations in the data" (Salmons, 2010, p. 43).

Interview Process – Study Group Leaders

Leaders of both the Kenobi Guild and Empire Group were interviewed prior to the interviews with VSG participants. Three semi-structured interviews with each leader were conducted to understand the background, intentions and organization of each study group from its primary source originator. The leader of the Kenobi Guild, Abby Stone, preferred to answer interview questions and follow-up questions in writing via email and thus no transcription was required. The Empire Group leader, Karen Grant, was interviewed by telephone and a transcription service transcribed our three conversations. I forwarded the transcribed interviews to Karen to ensure these accurately reflected her intent. The specific questions used for the initial interview with both Abby and Karen are found in Appendix B.

Study Artifacts

Two major virtual study resources were used by members of the group: the Empire Group's sequenced online course of study, and the Kenobi Guild's Listserv. I had access to all of the Empire Group's online materials including the syllabus, required reading lists, schedule of topic domains, assignments, discussion prompt questions and assessments through my company's Intranet. Associates at my workplace posted these because they were part of the Empire Group's online curriculum at the time of our face-to-face study group.

The Kenobi Guild is a sub-group of a website that serves as a resource for Travel Executive professionals. This free Internet-based listserv for young professionals is dedicated to supporting CTE exam candidates. Participants consist of drop-ins who are seeking just-in-time support and can join occasionally scheduled chat sessions. The venue is open to anyone interested in taking the CTE exam and is hosted on a popular web service. There is no formal sign-up process and no cost to participate. Most of the help is offered asynchronously through online postings, but there are scheduled Q & A "Cram chats" where the Kenobi's and those who recently achieved CTE status interact online using an instant messaging tool to clarify issues related to understanding content and discuss strategies for test taking. The Kenobi Guild's listserv includes an online "cabinet" where resources are stored and are accessible to members of the group. Anyone can join and have free access to the resources in the cabinet which include book lists and pertinent articles for each domain tested, assessments with answer keys, and practice exams. The materials used by the Empire group and the Kenobi Guild are similar but differ in their accessibility. While Empire Group materials are associated with the cost of enrolling in the course, the Kenobi Guild offers their materials for free. These artifacts were primarily used for my own reference in gaining contextual information to promote a greater understanding of the study environments in each VSG.

Discussion Postings

Since the Empire study group's discussion activities are primarily focused on asynchronous communication through a learning management system (LMS) and I

was not a participant, I did not have the ability to observe the group in action other than to view their postings which had been archived and then referenced in a brief course demonstration by the group's facilitator.

The Kenobi Guild's listserv provided threaded discussion activity I could observe from a robust archive of postings made asynchronously since the listerv's inception four years ago, along with archived synchronous chats. These postings and chats included pictures and screen names of participants; therefore I was able to recognize participants from my workplace.

These archived discussion postings from both the Empire and Kenobi groups informed the level of engagement, understanding and collaboration subjects had while participating in the study groups and provided evidence concerning the degree the tool was useful.

Data Collection and Analysis

Focus group recordings were transcribed by a professional transcription service and then analyzed by me for themes that were explored in more depth during recorded one-on-one interviews. Following their interview, each participant had the opportunity to review a transcribed copy of their responses to assure the veracity of the transcription by checking for any errors or misrepresentations. The data was coded into categories according to dominant themes that emerged from analysis of the interviews and then compared to themes identified in the literature review. To assure reliable categorization of newly emergent themes, I conducted a Q-sort (Anderson and Gerbing, 1991) with two colleagues specializing in e-learning. This iterative

process permitted items to be reliably and dependably categorized through inter-rater agreement. Any discrepancies in categorization were discussed and then resolved through consensus of the group.

Grounded theory was used (Glaser & Strauss, 1967) as a strategy to analyze the data in order to arrive at a theory based on these data sources. New themes that emerged during this analysis informed the development of theory. Based on the literature review, I also found themes addressing collaborative learning, virtual teams and virtual communities of practice with parallels to my data sources. Sub-categories also referenced included: *communication* (Bradshaw, Powel & Terrell, 2002; Bruffee, 1984; Johnson, 2001; Palmer & Speier, 1998; Pea, 1994) *trust* (Ardichvili, Page & Wentling, 2003; Geisler, 2002; Horwitz, Bravington & Silvis, 2006; Huang, Jestice & Kahai, 2009; Kimble, Li & Barlow, 2000; Lipnack & Stamps, 1997; O'Neill & Nilson, 2009; *group cohesion* (Orvis & Lassiter, 2006; Seely Brown, Collins & Duguid, 1989; Stonebraker & Hazeltine, 2004) *establishment of rules* (Walther & Bunz, 2005), *urgency* (Northcraft, Griffith & Fuller, 2006), *knowledge management* (Ardichvili, Page & Wentling, 2003; Gannon-Leary & Fontainha, 2007), and *participant salience* (Northcraft, Griffith & Fuller, 2006). Other themes that emerged helped to further inform conclusions and advanced a theoretical framework about virtual study group preferences, limitations and good practices.

One case study composed of a cohort of individuals was analyzed and presented according to the virtual methods that were used to prepare for a certification exam. Descriptive data for each of the virtual methods of study includes,

but is not limited to, comparisons and contrasts of artifacts, facilitation practices, engagement tools and web contexts.

This study seeks to identify what virtual study strategies candidates for a professional credential consider to be effective as they prepare to sit for a certification exam. It is anticipated that it will also contribute to an emerging and new sociology of "life on screen" (Turkle, 2995) for virtual study group participants, as this form of virtual collaboration continues to expand with new affordances provided by web-enabled tools.

In the next chapter, two virtual study groups (VSGs) will be examined to provide a thorough description of virtual environments used by this study's informants.

CHAPTER TWO

Virtual Study Group Models

Introduction

This qualitative research study takes a single case study (Stake, 2005) approach to analyze a purposive sample that includes subjects in a face-to-face study group who also participated in collaborative study options available on the Internet. I used a convenience sample of six members located at my workplace preparing to sit for the CTE certification exam.

This chapter describes the two virtual study group (VSG) options that the six informants in this research study used to prepare for the CTE exam. I gave them the pseudonyms: Kenobi Guild and Empire Group. Descriptions of these VSGs rely heavily on interviews I conducted with the founders of each group which included Abby Stone of the Kenobi Guild and Karen Grant of the Empire Group. The first section of each study group description grounds the reader with the intent and purpose of each VSG and its organizers, its relationship to the certifying body, how it is structured and how it operates. Chapter 3 provides an analysis of my informants' VSG experiences, bringing in themes from the literature as well as discussing data from emergent themes found in this qualitative study to help inform the research questions. This chapter also provides a description of the participants in the research study.

Kenobi Guild: Sharing the Love

Forming the Kenobi Guild

The Association for Travel Executives (ATE) is a nonprofit organization that serves the professional interests of its Travel Executive membership. ATE also provides an opportunity to earn a certification credential considered to be a mark of excellence for those working in the industry, whether they are members or not of ATE. ATE's website includes a number of focused listservs, one of which serves Young Travel Professionals (YTP). YTP's listserv in turn hosts and manages the certification study site known as the Kenobi Guild, a listserv dedicated to supporting Certified Travel Executive (CTE) exam candidates preparing to sit for the CTE exam. It was founded in 2009 after the current YTP manager, Abby Stone, successfully took the exam and wanted to help others do the same. As one of my informants, Abby explained during an interview: "I started YTP with a few friends and set up the group as a 'virtual study room' when I passed the exam, thinking I could help the next class of candidates." She coined the group the Kenobi Guild because it implies the stages of apprenticeship toward mastery. Abby elaborated: "Everything we do at YTP has a bit of silliness and a lot of personality to it; we just thought it would be fun to name the groups like that. There is a history of fun group names, and the YTP board of directors is called 'the Adventure Capitalists,'" playing off the group's travel focus.

Commenting on the relationship of her group to the parent organization, Abby explained that the Kenobi Guild "collaborate(s) with ATE, in all respects, as YTP as a whole is essentially an unofficial outpost of ATE members. Specifically with the

Kenobi Guild, we collaborate in terms of sharing study materials with the ATE online community (they also have an 'official' group for CTE candidates in their online community)… We're listed in the official ATE study guide as a resource." Abby is a liaison from the Kenobi Guild to the Study Group Team that offers ATE's Concentration Course, the official ATE in-person venue designed to help people study for the exam. The relationships among the groups can be visualized in the following diagram:

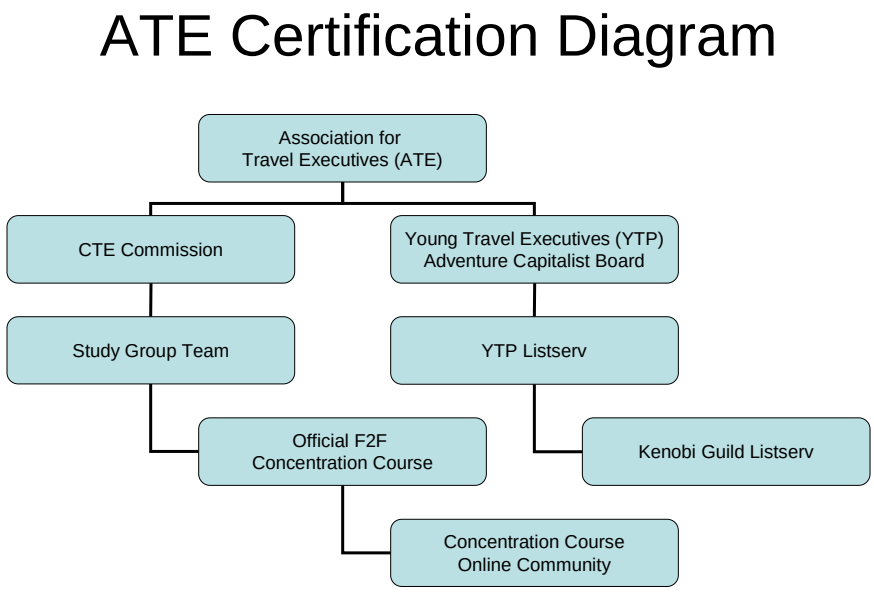

Figure 2. ATE Certification Table of Organization

The Association for Travel Executives (ATE) has a Certification Commission (CTE) that oversees the certification process which includes item writing for the exam, establishing qualifying criteria to sit for the exam, and refereeing any disputes. Under the Commission is the Study Group Team that oversees the development of study preparation materials and resources for exam candidates, including the in-

person Concentration Course. This course is delivered two times a year at ATE's headquarters. Graduates of the Concentration Course become members of the Online Community supported by ATE as follow up and support for exam takers.

Young Travel Executives (YTE) is officially recognized by ATE as one of its sub-groups aimed at a younger demographic. It is web-based and governed by YTE's Adventure Capitalist Board and offers Young Travel Executives a venue to find and announce jobs, arrange flash mobs and social events at conferences and local venues, share news, and prepare for the CTE exam. Their CTE exam preparation listserv is known as the Kenobi Guild.

Organizers and Participants

Abby and friends are based in a large city on the east coast where a high percentage of travel executives associated with various enterprises are headquartered. The group gained regional popularity among local, early participants who also met face-to-face. As the site gained wider participation over time and extended to people beyond the immediate physical location of its founders, more remotely located people joined. ATE is also headquartered there and conducts its own in-person, weekend Concentration Course twice per year, ten weeks before each exam is scheduled in January and July. Abby notes that "Every class that attends the Concentration Course finds out about the Kenobi Guild in its study guide, and people who can't find a face-to-face group to study with (or wants to supplement) is (sic) welcome to start a virtual meeting simply by posting their intent or need in the Kenobi Guild's discussion forum."

When asked what people seemed to need from the Kenobi Guild that they weren't getting from the ATE Concentration Course or anywhere else, she explained that "it's fun and easy to meet like-minded people without having to jump through official hoops. The main ATE site hypothetically has similar functionality but is Sharepoint-based so it's much harder to navigate. And the people are not there. In YTP's Kenobi Guild, you ask a question in a forum, it will get responses within a few hours." The technological challenges people were having with the ATE site was mentioned by Abby as a shortcoming several times: "Part of the reason we set up the group in the first place was to help people who were having trouble logging in to the official site (ATE Concentration Course) to get to study materials over there." The Kenobi Guild was developed as an alternative where people are asked but not required to create a profile and log in to participate in order to see the activity on the site.

Kenobi Study Methods

Additional gaps the Kenobi Guild is designed to fill according to Abby are "basically stress relief, finding other people studying at the same time, finding study groups (face-to-face or online), access to CTE's who have taken the exam and can provide advice, access to ATE's Study Group Team (and through that the ATE Certification Commission), shared study materials, and also sources for lending required books." It is worth noting that several of these intents share a bias for co-located participants.

Consequently, the Kenobi Guild is a place where people can meet and study together virtually, offering support and resources for study buddies, test-taking tips and archived reference materials. Participants consist of drop-ins who are seeking just-in-time support and can join weekly scheduled chat sessions. The venue is open to anyone interested in taking the CTE exam and is hosted on a popular web service. Most of the help is offered asynchronously through online postings, but there are scheduled Q & A sessions where the Kenobi's and those who recently achieved CTE status interact online using an instant messaging tool to clarify issues related to understanding content, and discuss strategies for test taking. The Kenobi Guild's listserv collects and stores resources in an online "cabinet" where materials are accessible to members of the group. Resources in the cabinet are primarily contributed to by participants, and include book lists and pertinent articles for each domain tested, assessments with answer keys, practice exams, and study tips. These are not vetted for accuracy, and sometimes contain proprietary materials from for-pay study groups. When such resources are posted, it becomes an intellectual property issue for the hosts who then must remove it.[1]

In addition to providing resources for studying, the Kenobi Guild founders say it is also a support group, loosely organized to meet the needs of any given cohort of current CTE candidates at any given time. Abby explained that "it's completely about the members, so people help or give feedback or suggest ideas all the time. When I first set it up, and periodically, I'll just ask the group what they need and if they have feedback or new ideas." The source of participants often comes from the ATE-

[1] The listserv moderators are primarily responsible for keeping copyrighted materials off the site unless permission to use them has been obtained from the source.

sponsored Concentration Course. Others hear about it through word of mouth or have been in YTP for a while but are just preparing to take the CTE so they join when they start studying. An announcement is made on the YTP Listserv signaling the start up of the Kenobi Guild for the next exam cycle. The meetings are entirely participant led. The Kenobi Guild members decide amongst themselves how often they want to meet virtually and what time. Given the timing of the Concentration course ten weeks out from the exam, they usually chose to meet weekly. According to Abby: "Some will do a conference call at a mutually agreed upon time and date (so they use the Kenobi Guild mostly to meet each other online initially then they meet by telephone outside of the site), others will do a virtual chat which has been hosted inside the group at times, or on a chat site like TodaysMeet.com in other instances."

Participants are expected to "just chat" or "bring thorny practice questions" to these weekly virtual meetings. CTE expert responders may also come from the same pool of people who teach the Concentration Course, however, Abby states that "the best experts are actually those who have just taken the exam – the content is not in and of itself very difficult, but it's the sheer volume of knowledge that is overwhelming." As a result, recent CTE's help by talking about their experience taking the exam and offering study tips, insights to answering a troubling question, or strategies for teasing out what the question is really asking. The "Drop-in chats," Abby observes, "are much less formal (than the Concentration Course venue), especially since many people are in face-to-face or other more formal study groups. No knowledge domains are assigned at these virtual gatherings because people may not be studying them at the same time." Knowledge domains are topics within a

discipline that are tested on certification exams and are often used to create a study sequence. Within the travel industry, these would include, for example, meeting management, destination selection, legal issues, marketing, and accounting. In the Kenobi Guild, knowledge domains aren't scheduled because anyone who shows up at the appointed time may ask questions ranging from fine points about a knowledge domain to why the answer to a practice question was correct, to how best to mentally and physically prepare to take the exam. Days before the scheduled exam, "cram chats" are hosted so that anyone with last minute questions can be helped.

Maintenance and Growth

Abby acknowledges that the challenges of using this venue to support exam takers are similar to those of any online community: "Someone needs to nurture it and be motherly (in this case that is me!). Someone needs to pay attention to welcoming every new 'class' of candidates, pointing out what resources there are, explaining what they can do there, occasionally responding to discussions or asking particular individuals to respond if necessary. People will get discouraged very quickly if it appears that no-one is paying attention."

Abby believes that if people get what they need from the site, they will "share the love" and bring others in. She notes that the site has 1,000 participants and continues to grow. Her philosophy of paying it forward more specifically includes new CTEs 'sharing their love" by helping the next wave of exam candidates prepare for and pass the exam. The social aspect of the Kenobi Guild offers added value according to Abby. This virtual space provides people with a venue for getting to

know one another and forming friendships as a result of studying for and passing the exam together. She speculates that such virtual connections made online carry over to in-person events like professional conferences and conventions: “When you arrive at that conference, even it it’s your first time, all of a sudden you have buddies to hang out with and the experience (not just the social experience, but the learning experience) is altogether completely different.”

The Empire Study Group: Structuring a Purposeful Experience

Forming the Empire Group

Like the Kenobi Guild, the purpose of the Empire Study Group is to help candidates pass the CTE exam. In contrast to the Kenobi Guild, the Empire Study Group offers a more structured approach. Instead of “sharing the love” with at-will postings and just-in-time support, the Empire Group has a definite curriculum with fundamental expectations and a sequence of weekly activities addressing the various knowledge domains tested by the exam. It is not affiliated with ATE, but is sponsored by the New York State Association of Travel Executives and adopted the Empire State’s name for the group. The two founding organizers, Karen Grant and Stella Greenleaf, are located there and have been actively leading the Empire Group for 14 years. They are partners in a consulting business that provides leadership and mentoring solutions for destination organizations.

Karen earned her CTE in 1991 and prepared for it by joining New York State’s study program which she describes as much like a classroom approach where

people who passed the exam would teach the curriculum, with a different presenter addressing a domain at each meeting:

> There was a problem with the CTE study group, in my view, in that it was fragmented, and each time a new person would come in to teach a class, you would hear the war story of when they took the exam, and how they prepared, and I didn't think it was particularly helpful. And the fragmentation of having a different personality, and they always had to get to know us and do all this other stuff – a parade of presenters is not good for the students.

After achieving her CTE credential, Karen looked for a distance education delivery system that was affordable so that she could help others prepare for the exam. After five years of searching, a business acquaintance recommended the learning management system they currently use. Her business partner, Stella, was also very enthused about the learning management system's tools for teaching and learning, and joined Karen to develop and launch the curriculum using it over the next year. Their first class had seven students who, she notes, are now leaders in the New York travel industry today. Each cohort now is capped at 25.

Unlike the Kenobi Guild, students pay a registration fee to participate in the Empire Study Group and buy recommended resources. Karen explained:

> The only way to make money in an online class is to have large numbers, and we had very small numbers (in the beginning), and sometimes we still do. But we've stuck with it and we've been consistent, and we've continued to be the mainstay. And we start much earlier. Our curriculum starts actually about 15 weeks before the actual exam. Most other study groups start maybe eight weeks before. Maybe ten weeks. So we start much earlier than everybody else. That's because there's just that amount of reading to do.

The ATE Concentration Course, for example, always starts ten weeks before the exam and six weeks into the Empire Group's class. She observes that:

> The sad part of it is that we know that we're going to get a whole influx of students after the ATE Concentration Course. They're already so far behind that it's really hard to manage that. And we have to figure out an alternative. Marketing is the issue. Most people don't know about our course, and they learn about it during the Concentration Course. And so we try to catch people.

Their ability to market this group through the ATE organization is impacted by not having official ATE status. Unlike the Kenobis who are listed as resources in ATE's Concentration Course materials as well as hosted on their website, the Empire Group is learned about through word-of-mouth among attendees or at the ATE annual conference. While this has been somewhat effective, the founders feel that their reach could be much greater with official recognition from ATE. They speculate that one reason for the lack of recognition by the organization is that the Empire Group is viewed as competition for ATE's Concentration Course. This is perplexing to them because the Concentration Course is offered face-to-face over a weekend while the Empire program is fifteen weeks online with telephone conference calls following practice exams.

Organizers/Participants

Karen is a former teacher and has her master's degree in education with a concentration in individualized instruction. She is currently a consultant in the field and is primarily responsible for developing the curriculum for the study group which is heavily influenced by her education background:

> I was writing behavioral objectives from very early on in my career, and I designed classes like that. I do try very hard to integrate multiple ways of reaching students based on their learning style, and I use both of those categories – the entrepreneurial, systematic and collaborative as one category, and look at what are we doing in the class and those areas. And

then I use the audio, visual, kinesthetic in a huge way too.

Karen also posts all assignments, answers most of the questions, checks the online postings and develops three practice exams that are held at intervals throughout the duration of the study group.

Karen's business partner, Stella, is responsible for the Empire Group's administrative and marketing activities. This includes registration, checking in to make sure people are participating, and running the mentoring program. Stella also follows up with people who did not pass the exam the first time and works with them to keep up their confidence. Karen comments on this process:

> Stella takes that part on in a huge way. What she ended up doing was creating basically an alternate study path for people who had seen the exam before and needed some assistance….She does a lot of personal coaching to help people get their head on right. Stella's a figure skater and she teaches figure skating and she was a competitive figure skater so she has this background of, you know, how to get your head in the game that is really I think very valuable and very relevant to this experience…And I think the personal attention is huge for people, particularly for coming for the second time around because the likelyhood of psyching themselves out is very high and so we do address that a lot.

Students in the Empire Study Group come from all over the United States and occasionally internationally. According to Karen, "our program is significantly different, (from ATE's Concentration Course) and it does appeal to people who travel a lot, who simply cannot be in the (physical) space and be available weekly."

Empire Group Study Methods

The Empire Study Group functions as a highly structured online course. It starts fifteen weeks before the CTE exam, which is offered twice annually. Upon

registration for the course, participants are directed to the course website to complete an online orientation before the official launch of the course. People are asked to take 15 to 30 minutes to get comfortable with the online layout by logging in and creating a few postings, opening files and generally learning how to navigate in the virtual learning environment. No instruction is provided other than directions found on the site itself. The course launch is held via a teleconference call with members of the full cohort. During this first teleconference, Karen goes over all the required resources, the importance of setting aside study time, and other organizational tips gleaned from 14 years of experience about how to study successfully in the online environment.

Besides orienting participants to the materials and schedule of assignments, the primary purpose of this initial teleconference call is to accomplish team building. Karen acknowledges, however, that this has been met with challenges lately:

> I have to say we're losing some steam around it (team building) because we get so many students that come in late to our class and they're listening to a recording of that initial call. So we lose that team space where people are meeting each other and connecting in ever so slight a way.

In this first call, Karen leads the group through introductions. Each participant is asked to speak twice. The first time they share a very brief background about their organization and how long they have been there. They are asked to claim a specialty area from the CTE domains. And finally they identify what they like to do to procrastinate from studying. Karen explains that the reason she solicits this information is "If they're not showing up online, we know what they are doing. And so we have a little fun with it and people do connect with each other in the sharing of that quite often." For example, if people share that they like to tango and they are

missing from a teleconference, the group assumes they are dancing instead, and teases them about this at future meetings.

The second time participants speak during this introductory teleconference is when they identify both their learning style and their thinking style based upon an assessment they received prior to the telephone call. In this assessment, learning styles are categorized as entrepreneurial, collaborative, and systematic and thinking styles are identified as audio, visual and kinesthetic. Karen's description of entrepreneurials is that they take the materials and "do their own thing" and are unlikely to participate in any group interaction: "They take the reading lists. They go—they do the reading. They take the exams that we offer. They do come on to telephone conference calls after they've taken their exam, and usually they don't perform very well, and so that's troubling, and so they do come onto the conference calls." She admits that no one performs well on the exams because she includes many difficult questions to provoke "teaching moments."

Systematic learners respond best to structure and routine and receiving information in "bite size pieces." Karen accommodates them in the following way:

> They work their plan. So anything that I can give them so that they understand exactly what they need to do, then that works. So in the assignments that we send out, I send out weekly, I not only give the reading, but I have a place for them to check it off when they've finished it, and I tell them how many pages are with each reading so that they can plan their time for the actual reading part. I think that's a really important part of this systematic style because they need to figure out, okay, how much do they need to get done this week and where are they going to put it in their schedule.

She suggested the scheduled teleconference (T-cons) for these learners gives them a firmer point of accountability because they have completed their reading and will be prepared to talk about issues and concerns they have with the topic.

Collaborative learners, according to Karen, are group oriented and learn best through group activities and discussions: “Where collaborative learners really flourish is when they can hear people talking about the concepts and participate in that process, so there’s a testing of their own knowledge. They need affirmations from the people.” From her experience, these are the people who spend more of their time participating in online discussions and T-cons.

Karen elaborated on the importance of knowing a person’s learning and thinking style: “The program itself was designed to meet the needs across the board of entrepreneurial learners, collaborative learners and systematic learners.” For example,

> The entrepreneurial learners can just take the reading list and just do what they want to do…They’re going to take the reading assignment and the Quick Keys and go away. The collaborators are going to go do all of that, and they’re going to get online, and they’re going to talk with their peers. And the systemic learners, they love it because I break down the reading, and they know that they can figure out a routine and just move through the curriculum in a very systematic way. Some of those are combinations. The key for the online is the collaborative learner, who really likes the group learning. So if I have a lot of collaborators, I know I’m going to have a lot of group participation. If I have a lot of entrepreneurs, I’m not going to have a lot of participation online. They just don’t do it.

The purpose of knowing their learning styles is to understand their strengths and use the tools to play to these. Once students have identified their styles on the call, Karen provides an overview of what they can expect in the course based on their style:

> I kind of give them a heads-up about what’s in it for them based on

> their style, and where they will find the most comfort, and also a bit of a cautionary tale for the entrepreneurs, because I know that I'm not going to see much of them; which hurts the whole class, because the whole class really needs that viewpoint in the knowledge of the people that are entrepreneurials, and they usually kind of disappear. They show up for the phone calls and they show up for the exams, but they don't show up weekly.

Thinking styles are also addressed in the study course. Visual learners needs are met through the readings. The electronic learning environment itself is very low-tech with no graphics. As Karen notes, "it's a glorified email, email-slash-bulletin board." Audio learners needs are addressed through seven teleconferences throughout the course which include: the course launch; three debriefing T-cons given after practice exams; a presentation by an accountant who walks through issues of finance and reading financial statements; and two wrap-up T-cons, one addressing test-taking strategies and the other addressing specific questions students bring. There is also an opportunity for students to talk every Monday at an appointed time that is unstructured and around issues they bring to the discussion.

Kinesthetic learners, Karen believes, are especially served by the online environment:

> When students are participating online and they are typing their responses, it's going through their whole bodies. And so it taps into the kinesthetic response…kinesthetic learners often take more time to think through their answers... And so the opportunity to think through your answer before you push the send button gives the kinesthetics as much time as they need to develop their thought process and develop their answers and post them.

Karen believes that because the information is going through their fingertips, this will sever them well during the exam because "it has to go through their fingertips when they're taking the exam as well. And so it's a good process from that perspective."

The aforementioned resources represent a significant investment. A Basic CTE Book Set can run as high as $450, or up to $525 for a complete set which includes Key Concepts Flash Cards. Karen reviews the schedule of assignments which follow the same format each week for the duration of the 15 week study program. Readings are listed by week, along with the total number of pages, the estimated time necessary to read them (approximately 5-6 hours), and any additional optional resources. In addition to reading materials, students access e-lectures which are narrated PowerPoint programs available on the website. After participants complete the required readings for the week, they complete a self-assessment for the domain of the week. Answers are posted in a folder on the website. Participants are asked to respond to one scenario question formatted as a story problem with a multiple choice answer. They post their answer to the discussion area with a justification for why they chose that answer and why the other distractors were incorrect. They are also asked to post their own discussion question and ask three peers for an answer. This question should address a real world problem within the domain of study that week to ascertain how others would address it in the real world. Karen elaborates:

> Those questions are intended to get our students in connection with people who are doing – they're doing real-life stuff, and they're intended to get a reality check about the cutting edge stuff that we're teaching. What are people really doing?

There are also 10 to 15 questions called "Quick Key Questions," that are actually reading comprehension questions students use as a self-assessment after they complete their reading each week.

Maintenance and Growth

Unlike the Kenobi Guild, the Empire website is not designed to have returning students come back on a drop-in basis to help others. There are, however, opportunities for successful candidates to give back through Empire's mentorship program. Qualified mentors are people who have earned their CTE within the last three years and have a desire to support someone else achieve certification. Mentors are provided with a job description and can be a person that an exam candidate knows in their office or through their own network affiliations. They receive no remuneration for mentoring. Karen commented that "If they know of somebody they want to be their mentor, they can just give us that name then we'll send the information to them, to that individual. But if they don't know anybody, then we'll set them up." If they are not co-located and are unable to meet face-to-face, their mentor stays in touch to provide support through weekly phone calls. A mentor is expected to make contact, talk through the assignments as the candidate needs, and to approach the material from the candidate's perspective. If the candidate is not interested in a mentor, they are not required to have one.

The Empire Group leaders do not abandon candidates who do not pass the exam the first time around. Both Karen and Stella have follow-up phone calls after all participants are notified of their exam results. Anyone who did not pass is offered help by them. According to Karen:

> Stella and I make a commitment that no matter what happens, we will be with them until they pass the exam. Sometimes that takes multiple tries and multiple years. If somebody does not pass our program, we follow up with them, get them back into the class, or at least make sure they plan to finish.

In the end, however, it is up to the candidate to put forth the effort. Karen and Stella do not believe in “force-feeding” people and are there to offer strategies for success. The students must apply the strategies and do the work.

At the end of the course, when people have taken the exam, the Empire Group leaders hold a reunion at the ATE annual conference for all of their students who are there to graduate and walk across the stage. This provides a time to meet face-to-face and Karen observes that “It’s really great fun to finally meet people.”

Summary

The focus on good pedagogy that underpins the Empire Group experience is in contrast to the Kenobi Guild where social systems rather than organized and structured content and teaching/learning methods are paramount. This is a reflection of the organizers’ predispositions and backgrounds. Abby’s Kenobi Guild is informed by her focus as a consultant on social media, and Karen’s group is informed by her background as an educator. Karen’s remark about online chatting is enlightening:

> The very first time we started the class, we had online a place for students just to go and chat, like a chat room. And it was used a lot, actually. And then we eliminated it because – and I don’t know if it was a good idea or not – but we eliminated it because we decided to make the site purely work, purely related to the class, and not chat stuff. And frankly, that might have been a bad idea, because the chat is what builds community. So it doesn’t quite get there.

This statement recognizes that building social interaction into the virtual format is desirable and somehow not fully developed in the Empire Group. A table

comparing and contrasting both groups is useful here to summarize the similarities and differences of each group (See Table 4).

Table 4. Summary of Empire Group and Kenobi Guild Characteristics.

Categories	**Kenobi Guild**	**Empire Group**
Purpose	• Fun place to meet like-minded people preparing for the CTE exam	• Provide focused learning experiences to help prepare for the CTE exam
Organization	• Affiliated with ATE • Intensifies around exam time • At will, no sign-up • Free • Run by volunteers • Informally moderated • Just-in-time support • Socially driven by needs of participants	• Not ATE affiliated • Offered two times per year • Requires sign-up • Registration Fee • Run by paid leaders • Formally moderated by leaders • Structured deadlines • Domain driven by leaders
Interactivity	• No required reading • Public discussion forum • Spontaneous chats initiated by participants • Cram chats a few days before exam • Direct networking	• Required reading • Members only discussion forum • T-cons scheduled by leaders • Practice exams and follow-up discussion every 6 weeks. • Indirect networking
Technology Tools	• Listserv • T-cons	• LMS • T-cons
Resources	• Archive of free study materials • Experts drawn from recent CTEs who volunteer at will	• Distributes as part of course materials • Experts brought in and scheduled by leaders

Duration	• Loosely initiated around exam time	• Scheduled 15 weeks before exam

The dynamics of both groups for participants is entirely different, which will be made more explicit in the next chapter that analyzes participant experiences within both venues. In Chapter 3 I will explore how the assumptions underlying the Kenobi Guild and the Empire Course are enacted in actual practice by people who used it to prepare for the exam. Their experiences will help inform the research questions being investigated in this study.

CHAPTER THREE

VSGs: An Analysis of the User Experience

This chapter is divided into four sections that taken together, create a conceptual framework used to describe user experiences in virtual study groups (VSGs) examined in this study. Major concepts include themes from the literature as well as themes that emerged during data collection and analysis. While considering the themes and analyzing the data, I grouped themes under sequential descriptors using my own nomenclature to suggest the imbricated nature of the process, entitling them: searching, lurking, engaging and exiting. *Searching* pertains to the process and criteria exam candidates use to find an appropriate virtual study group that will help them prepare for the certification exam. *Lurking* refers to being present in the VSG environment anonymously and without contributing. This would include observing but not taking part in activities such as posting to discussion forums, completing assignments, answering questions, or contributing resources. Lurking is a covert activity where the agent avoids publicly disclosing their identity. *Engaging* on the other hand is the act of participating in the aforementioned activities and allowing others to perceive your identity. Finally, *Exiting* occurs when participation in the virtual study group either ceases or is transformed in some way. The transformation could be continuing to meet as colleagues but in another venue, or taking on a different role, such as a mentor for future exam candidates.

Each of these concepts is a stage in the participant's virtual study group experience and will be used to present and analyze findings gleaned from informants to answer the research questions central to this study: *What influences student choices*

among Web-enabled VSGs convened to prepare for a professional certification exam? What perceptions characterize good VSG experiences for remotely located participants? What limitations do students encounter in VSGs and how do they compensate for them?

Searching

There are a number of factors to consider when deciding upon a course of action to prepare for the certification exam. Searching for the right mix of study options is approached in different ways by different candidates, however, considerations common to searching for most of the informants in this study are informed by both urgency (Northcraft, Griffith and Fuller, 2006) and cost. Urgency is a factor of time influencing an individual's ability to gather information from others. In addition, it is a readiness for focused attention along with the ability to provide a timely response. Topics within this general category of urgency that emerged in this study included right timing, motivation, efficiency, effectiveness and learning preferences. Each of these themes will be examined next for how they contributed to the search and selection process of study methods the informants actually used to prepare to sit for the exam.

Urgency

Right Timing

Being at a place in your career and personal life that is conducive to studying was cited by several informants as critical to embarking on the preparation process. Yvonne, whose virtual participation included only the Kenobi Guild, observed:

> Realize that (you) have to invest a lot of time in this. That's a big part of it. If someone doesn't have time carved out that's critical. And at every point in your life, either you have time or you don't. But if you're at a point where you don't have time, it's not going to – you can't study for this exam.

She also noted the importance of an environment conducive to studying:

> You know, study environments, I mean it's just all of everything that goes into the time too. For me it was after the kids went to bed. I studied from eight to ten every night and then on the weekends during nap time, basically, but I had that time available and a place to study.

Working professionals with family responsibilities need to be keenly aware that they need to find the time and space to study. Acknowledging that studying as a working professional is different than studying while a full-time student, Cleo, whose only VSG participation was in the Kenobi Guild, stated:

> In college, you would have your entire weekend, or you would have entire days on end to be able to study or to procrastinate and do it at the last minute, where with this exam, you have a limited number of hours. I couldn't take off of work in order to study for the exam. I guess I could have if I wanted to, but you just have to have better time management when you've got a full time job I think.

Having a limited number of free hours is an important consideration when choosing a way to prepare for the exam. Not only is it important to have the time while

accommodating your work and life schedules, but the duration of this schedule is an important consideration as well. Nancy notes that going beyond 12 weeks would be "Too long of a commitment for people. And then they wouldn't have jumped in. They wouldn't have done it." In addition to having enough time is knowing how far in advance to begin. Monica expressed this concern in a comment about participating in the Empire Group too far in advance of the actual exam date: "There are people who don't plan to take the test till like next – not this May, next May or next December and I thought 'Okay, that's a really long time. You're not going to be able to focus…it's not connecting, that's too long.'"

The challenges inherent in juggling family and work obligations in addition to efforts to engage in professional development activities do not happen in isolation. Tess brought in the issue of personal commitment as she sums up the importance of finding the right time to study as she reflected on her participation in the Concentration Course and the Kenobi Guild. She acknowledged that other stakeholders within social and work networks are an important part of that equation:

> Make sure it's the right time for the individual making that kind of commitment for studying and preparing for the CTE. Not only is it for you personally, but also to make sure you've got the support that you might need in your personal and professional life to be able to carve out the amount of time and energy that it takes to sit for the CTE. And I know life happens and things come up, but then again you just need that much more support and understanding as you're going through that whole process…That's the only thing – no matter what kind of approach you take it's web-based or in person or Concentration Course or whatever, that's a requirement as well. I would definitely encourage people to make sure it's the right time.

When studying for a high stakes exam such as the CTE certification exam, family, friends and associates interacting with the exam candidate need to be factored in and considered. While not a theme addressed in the literature, it remains an essential factor for certification exam preparation that emerged in the interviews as part of the search for exam preparation tools and strategies.

Keeping on track – Motivation

Keeping on track is part of holding oneself accountable for staying the course for study preparation. There is a great deal of personal sacrifice associated with putting in the time and effort to prepare for a certification exam as noted in the previous section. Continuing to stay motivated can be challenging within virtual groups where there is no face-to-face contact.

Procrastinating, according to Mary's experience, can have unhappy consequences if one is not motivated and committed. She reflected on her first – and failed - attempt to pass the CTE exam: "I wasn't as disciplined as I thought I was going to be. I let a lot of other things get in the way and didn't make that a priority." Mary's comment refers to letting things competing for her attention deflect her from studying, thus contributing to procrastination. The dynamic between right timing and procrastination leads to the topic of motivation operating under the urgency theme. Having a system of study preparation that enables and encourages buy-in is challenging to design but something the informants looked for: "Going through all the materials looking back in hindsight had I followed along with everything I was

supposed to do (for the Empire Group) I think I could have been successful the first time I took the test" (Mary).

Searching for study methods that build in motivation was important to participants in this case study. Mary explains the importance of having a "high touch" environment, that is, a proactive and responsive environment, to help her fulfill assignments on time:

> I didn't feel that I could…on my own be disciplined enough to read the books cover-to-cover like some people here did. So the Empire Group was the only one that really had a good structured program. They gave you all the most important reference materials. And then they contacted you weekly and gave you assignments that were just – it was a real loose assignment but it still kept you on track…And they sent you a notice…So that I liked about it and it was helpful.

It is noteworthy that the only study group mentioned with respect to providing motivational help is the Empire Group. Informants mentioned that the push technology that leaders used, where the study group initiates contact and asks for a response, was appreciated, considered motivating, and contributed to being accountable for getting the work done. This is in agreement with Stonebraker and Hazeltine's (2004) findings that support from peers and supervisors had a positive effect on the rate of course completion. In this study, emailed reminders from study group leaders were influential in keeping participants engaged and motivated to complete assignments.

Efficient Study Methods

As stressed in the preceding section, it was important for busy professionals to be able to manage their time. To do this, they often sought out what they

considered to be the most efficient methods of studying available to them in order to juggle all their responsibilities and to make the most of the time they did have for studying. They frequently expressed a keen awareness that the time they invested needed to be well spent and yield an acceptable return on their investment. Phrases like “wasting time” and “seeing a return” characterize their feelings about making choices about study methods. Tess explained that “I sought as many different opportunities to learn from a variety of sources as I could and manage my own personal life as well as my job.” The desire to make the most of their study time had them searching for study methods that spanned the range of tested exam domains in the most efficient manner. Cleo describes one method she used: “There was no way I was going to be able to capture all of that information just by reading the books. So a lot of the documents that are online were synopses or they synthesized information that you actually needed into more manageable bits.” Tess elaborated on this point when she said “I didn’t want to overwhelm myself with too much information, but I also felt that I knew I needed to get as many resources as I could.” And finally, Mary advised “find appropriate study tools or a syllabus, so you’re not studying everything. You’re studying the things that you need to study.” This comment recognizes that the study group acts as a screen to filter out only the most salient information rather than everything contained within the study domain, thus contributing to efficiency.

Building in efficient methods for study is an important criteria that busy professionals at the level of exam candidacy used in their search for a study method. Online access, with resources available anytime, anywhere is an expectation. Mary explains:

> To be able to save time, not have to go anywhere when you have a busy schedule anyway is – and you can access it from anywhere. That I think, was the other good part about it (Empire Group). You didn't have to be at your computer at work to do it. So just the portability of access.

Studying at what are considered peak performance times is another associated quality of efficiency. Monica describes her best study times are unconventional and the online environment accommodates this:

> But I do very well between ten and two and I know that sounds odd ten p.m. to two a.m. and I just know that. I know that from all of my schooling from a very young time. It's when I'm most centered. No one is bothering me. And I'm very willing to give up sleep to do that. I'm not very willing to give up time with my family or my friends or events when they came and I want to go. So online always will let me do that and I can always find that answer at two in the morning and not bother anyone with it.

A study preparation method that saves time, and is accessible 24 hours a day from anywhere is the preferred combination expressed by this study's informants. These professionals are seeking efficiency in order to manage their busy lives which often include travel away from home. This is congruent with recommendations offered by Serveau (2004) that emphasized the importance for students to exercise control of their time for completing assignments, as well as having a mechanism in place that prioritizes study materials according to importance.

Effective Study Methods

Efficient methods of study presume that they are effective. If they were not effective, they would be considered a waste of time. The effectiveness of any method mentioned is dependent, of course, on the doing. Nancy offered a capsulized list of effective methods for studying that included: "start early enough, keep up with the

readings, do the homework and participate in the conversations with other students online." Based on these criteria, a study group would need to be available early enough to allow a reasonable study time before the exam was administered. It would provide motivational help, including use of "push technology" to encourage the fulfillment of assignments on time. And it would provide a forum where students are able to communicate with each other online. Bradshaw, Powell and Terrell (2002) address these requirements in their observation that the best learning conditions occur when a learner's motivation and self-regulation are in balance with their ability to "take control of their learning" (p. 6). This was clearly echoed by informants in my study.

Taking practice exams were frequently mentioned as an effective method to use to prepare to sit for the exam and these were eagerly sought. Once these exams were taken, Cleo explained how they were used to encourage effective learning: "We (the face-to-face *lunch and learn* workplace group) went through all of the questions and talked about why certain ones were right and why certain ones were wrong. So that really helped to hear that from a bigger group of people." Her comment suggests the need for tools and techniques to support practice exam discussions focused on arriving at correct answers including debates about why something is correct or not the best answer. Bradshaw, et al. (2002) confirm the Q & A strategy as an effective practice in their study findings with regard to a professional qualification program for teachers. They acknowledge that adult learners prefer question and answer sessions with experts and the opportunity to receive direct feedback from experts.

Learning Preferences

Learning preference is the final criteria I grouped within the theme of urgency. Searching for a study environment that supports how you learn best was often mentioned by informants in this study. They had a good sense of their learning preferences and selected methods of study online and face-to-face that catered to their strengths based on what they knew worked in the past for them. For example, Cleo described her audio and kinesthetic learning preferences as being consistent with her post-secondary education practices:

> I will say when I was in college and studying I rarely did all the required reading. In my senior year I didn't even buy the books for my classes. I found that if I go to my lectures, I listened and I took notes so I was hearing it and then writing it down and getting it on paper and then going back and re-reading it I learned the best that way. I retained the most amount of information that way. With the CTE exam…I had to really read the information and then synthesize it myself. So yeah, I don't know why it works (hearing and taking notes) for me but it does.

In contrast, Monica knew that learning by listening was not as effective for her as methods emphasizing visual representation: "I'm a slow (audio) processor – I don't feel I'm very productive on phone calls with people. Because by the time you explain this, I'm still like, 'Huh. Okay, how would that work?' And how would I have a response? And then I just shut down." She professes a strong visual learning preference, citing as an example her tendency to create mind maps that outline concepts. She also used technology to make her mind maps electronically available on her smartphone. Referring to Google searches, she observes: "I needed to be able

to type key phrases and know what I was looking for. Thank goodness for Google. Obviously someone else thinks like me and puts it out there, so thank you."

Tess, who participated in the Kenobi Guild, reinforced the need to use methods that were within her comfort zone because she was confident it would work for her. According to the Empire leadership's criteria, she would be classified as having a systematic learning style, preferring direct instruction methods over collaboration. Further, she felt studying for a high stakes exam was not the time to stray from what brought her success in the past:

> I'm more of a traditional learner. Definitely one who still goes back to the book, goes back to the highlighter, goes back to the note taking, the traditional. That's the way I was taught and I still fall back on that tendency…So I would use them (Web-based sites) as a resource, but I just didn't feel like I could risk it enough to rely only on a web-based program. It's just I didn't feel that this was the time that I could explore that option.

One barrier to trying something new was the learning curve required to become proficient in using a new technology associated with VSGs. Yvonne, with a learning style similar to Tess's, concurs with Tess when she says that "…maybe the Kenobi Guild would have been more useful to me had I known how to use it or used something like that in my previous life, but I wasn't familiar with it." Informants overall were searching for study methods that came closest to what was familiar to them, had brought them successful outcomes in the past, and did not take up valuable time to learn how to use.

Cost

Aside from influences of urgency describe above, searching for a study preparation method is also influenced by what it may cost. When searching for a study group, two out of the six informants said they were influenced by the cost, not the majority. This could be because all of them had their company pay for their study preparation expenses and exam costs. Nancy, however, acknowledged that if her company had not reimbursed her for joining the Empire Group, she would have "worked the Kenobi Guild better. Not better, but I would have worked harder at getting it to work for me." Most everyone felt as Monica did:

> If I were ever to have had to pay for it, because it was important enough I would have, I definitely would have. It wouldn't have been a deterrent in terms of I would pick the one I knew I would do best at. But it may have delayed how long I could do it, knowing I had to pay for it.

The influence of cost appears to be less important when searching for a study preparation method because employers tend to reimburse exam candidates for the expense. In the event that a candidate would have to pay their own way, four would choose a method that best serves their needs, while two would make an effort to take advantage of free or less expensive Web tools.

To summarize, what influenced subjects in their search of a VSG was timing, efficiency, perceived effectiveness, motivational tools and strategies, and compatibility with learning styles. Of lesser importance to informants was cost because employers frequently covered expenses associated with certification preparation.

Lurking

One surprising finding in this study is the frequency of VSG participants engaged in the practice of lurking. This behavior on Web site discussion forums is a way to take advantage of information shared there without being identified. Further, the lurker makes few or no contributions to the site. Estimates have lurkers comprising as many as 90% of visitors to online discussion groups (Nonnecke and Preece, 2000). Lack of trust represents the primary reason Ridings, Gefen and Arinze (2006) give for lurking behavior. Further, lack of trust contributes to a diminished ability to create and share knowledge among virtual teams (Ardichvili, Page and Wentling, 2006). Because sharing knowledge is a critical function of study groups, it is important to understand the reasons people lack trust on VSGs and resort to lurking instead of finding ways to collaborate. Understanding the barriers to trust will help VSG's address these constraints and encourage full participation.

Two themes from the literature review that will be explored in this section on lurking related to lack of trust are secrecy and participant salience (Northcraft, Griffith and Fuller, 2006). Participant salience is a measure of another's prominence and the degree of presence one has among others. This theme sheds light on the practice of lurking and how it runs counter to the spirit underpinning the collaborative advantage inherent in study groups.

Secrecy and Personal Trust

A cloak of secrecy about preparing for and taking the exam seems to enshroud candidates preparing to sit for the CTE exam. Going under cover essentially creates

low participant salience for them and avoids letting others in on the fact that you are seeking the CTE credential. Yvonne explains that avoidance of being detected influenced her choice of exam preparation methods. She preferred to read the books independently and then lurk on the Kenobi Guild's listserv when she needed answers to questions. She notes that she did this because "I was also in hiding. Nobody knew that I was taking the test. So I needed to go the more secretive route." The humiliation from failure to pass the exam in front of peers was implied. Monica however, was more direct, reflecting on how early on she revealed to her co-workers that she would be taking the certification exam, only to regret it later:

> Oh, great, I'm going to have to walk in and say I didn't pass. And that was the only time that I felt like I didn't want everybody to know either but kind of like that, you know, people who don't tell anybody that they're pregnant for the first trimester if anything happens. That was the only time where I felt like, wow, I just put my professional credibility right through the ringer.

Maintaining a cloak of secrecy even appears to be sanctioned from top management, thus encouraging low participant salience. Monica describes the reaction of her company's president when she confided that she would be sitting for the exam: "I will never say anything. You can tell whoever you want but, you know, I will never say anything." This complicit remark, meant to show support, serves to underscore the covert nature of the process and contributes to perpetuating a culture of secrecy. Such sentiments tend to spill over into the work place and then influence the candidate's ability to fully participate in online discussions and other collaborative study environments for fear of being discovered in public VSG venues.

Participant Salience

Remaining anonymous by lurking in the online environment is part of the culture of secrecy for some exam candidates and influences the degree to which they disclose their identity, regulate their salience among others, and thus the degree they are able to participate in the VSG. Yvonne had the greatest need to preserve her anonymity while lurking on the Kenobi Guild's listserv. Her issue was not ease of use but that people she potentially could interact with were unknown to her: "I mean it was very accessible. The instructions were clear on how to access it but I didn't know who I was interacting with. And that was the biggest challenge. So on the principle of it, it didn't quite meet my expectations." Further, she expressed concern about having her own personal identity revealed:

> I wasn't comfortable with having my name out there as somebody who was engaging, which is funny because as I said one of the biggest challenges I had was that people's names weren't out there. I didn't necessarily like having everybody know what I was trying to find. The more I could do it as an observer versus active participant, I was happier with that.

Not only did it limit her participation for procuring knowledge, it also influenced her ability to respond to questions from others and give back. Yvonne elaborated that "there were a few times where I felt that I could have jumped in with a response but I held back because I didn't want my name up there." She explained that her reluctance to answer questions was personal as well as professional:

> I didn't necessarily want to answer questions because if I was wrong, I also felt then that there was – my reputation was on the line, too. If I did put my name out there, then I was at risk for being [blamed for being] incorrect.

Being accountable for the accuracy of what she put out to others was a professional burden she was not willing to take. Rather than seeing participation as a way to have others collaboratively create knowledge together, Yvonne saw it as a personal risk and did not want to be a source of incorrect information which could damage her reputation as a competent professional. This is consistent with research results Ardichvili, Page and Wentling (2006) report concerning participants of a Fortune 500 company's Knowledge Network. They found that barriers for contributing to the knowledge network centered on participants' fear that what they posted may not be important, relevant or may even be misleading which could effect their reputational standing in the network.

Other barriers identified by Ardichvili et al. (2003) relevant to my study included fear of providing proof that they did not have the knowledge others assumed they should already have, which was Yvonne's concern about preserving her professional reputation. While the theme of trust and how to engender it in virtual environments gets much attention in the literature (Ardichvili, Page & Wentling, 2003; Geisler, 2002;Horwitz, Bravington & Silvis, 2006; Huang, Jestice & Kahai, 2009; Kimble, Li & Barlow, 2000; Lipnack & Stamps, 1997; O'Neill & Nilson, 2009), the sub-text of maintaining professional secrecy and privacy that ultimately undercuts trust and thwarts collaborative learning is an emerging theme not encountered in the extant literature.

Issues of privacy are especially at odds with building salience and engendering trust in order to fully participate in a public forum like the Kenobi Guild's study group. In contrast, the Empire Group members are known to each other.

An initial teleconference at the first Empire meeting convened is designed to acquaint participants with each other and provide introductions. Despite this, two out of three informants participating in the Empire VSG expressed the need to keep a low-key presence Looking at how engagement is effected by issues of salience, trust and other factors is the subject of the next section.

Engaging

From the preceding discussion on lurking, it becomes evident that engagement for this group is highly influenced by a group member's salience, and that developing salience is highly dependent on trusting other participants which is contingent on the ability to identify other participants in the VSG. In this section, the emerging theme of trust with respect to believing in the veracity of information posted to a VSG is introduced. In addition, other pertinent themes from the literature influencing group engagement are explored, including the necessity for rules, encouraging accountability, and the benefits and barriers to promoting engagement online. These themes seem to fit best within the engagement descriptor given that they underpin best practices for promoting interaction among participants. To this point, Walther and Bunz (2006) acknowledge the importance of rules to foster "trust, social attraction and performance" (p. 13). Further, virtual engagement is driven by sharing knowledge within a community, as discussed in research conducted by Gannon-Leary and Fontainha (2007) who stress the importance of engagement practices in vibrant virtual communities of practice.

Trust of Information

Providing a recognizable name associated with a posting that responds to a request for information can be loosely likened to the practice of attributing information through citations in research papers in order to provide evidence of a reliable source. Thus, the trustworthiness of an answer or information provided by anonymous posters is problematic because no source is credited. Cleo commented that the Kenobi Guild's listserv postings were not helpful to her because "I didn't know where they were coming from. And I just didn't find it too organized." Similarly, Yvonne was often skeptical of the answers and explanations she received to her questions on the Kenobi Guild's listserv because she knew nothing about the source. This gave her a low trust level for that group overall. She explains ways she tried to compensate:

> Well, I think there were one or two times I remember seeing somebody post an answer and I actually went then and tried to find more information about that individual, like where did they work or looking them up. So I guess from a compensation perspective, I did try to do that in a couple of cases. But while it was good to hear what people were saying, I found myself, I guess, more or less, really just trusting my intuition on whether or not I agreed with them, which wasn't always right.

There is a catch-22 associated with Yvonne's unwillingness to disclose her identity yet requiring full disclosure from others. If most people feel as she does and are unwilling to provide their names because they fear that they are risking their professional reputations, then the knowledge they may legitimately have to contribute may be taken as less than trustworthy if provided anonymously or from unknown sources. This works against the purpose of participating in a VSG which is to deepen

a participant's knowledge and understanding through a network of diverse learners. Further, it foils Orvis and Lasiter's (2006) suggestion to use "swift trust" which relies on providing the professional credentials of participants as a way to promote trustworthiness.

In loosely moderated discussion groups like the Kenobi Guild listserv, building swift trust is problematic because there is no requirement to use your real name, and there is no one assigned – as there is in the Empire Group - to vet questions and verify answers, only the wisdom of the group that is participating. Yvonne's ideas on what she would like from VSG participants beyond a way to fact check are in direct contradiction to what she is willing to provide about herself because she "did not want her name out there" and is evident in the following statement about what would make Kenobi Guild participants more reliable sources of information for her:

> If it was more immediate, the profile of the individual. Their full name, not just some screen name, but their full name and then maybe a brief bio or something and possibly even a picture, quite honestly…Because again, the information is usually there but you have to go back through all of the steps to try to look at that person's profile to see, well, do I really believe them or not?

Swift trust could begin to be developed through providing bios of participants. Northcraft et. al's (2006) study suggested raising the salience of participants by providing their time zone, location, pictures or likenesses, or avatars. Yvonne's unwillingness to disclose anything about herself is counterproductive to strategies designed to increase participant salience, which in turn could help create the trustworthy knowledge she seeks. When participants have low salience and low trust,

looking for ways to verify information is the next best thing. Cleo suggested the need for such a verification resource on the Kenobi site:

> I think some sort of verification that the information you're getting there is correct. And, I think, especially with the exam we are taking where it's so subjective to the person who's answering the question, I think that, again, having some – I don't know if it's either a live person or there's something that they can have up there that would be able to fact check what is actually being put up, would make it much, much better.

What seemed to give these informants the most confidence in the veracity of the information they received was how closely it was allied with the certifying organization. Mary's remark speaks to this: "I think the challenge with taking tests like this is that the more information you have that's outside of the recommended resources, the more danger there is for you to form an opinion that's not the opinion of the test writer." For example, Cleo also attended CTE's face-to-face Concentration Course and then networked with course attendees via email and through CTE's online tools. She observes that:

> I would recommend if you do attend the Concentration Course, connecting online with people that you have been studying with and trading resources. That's a good way of verifying some of the information you have that you find online…I can't stress enough that the stuff that I did get from ATE I knew was going to be accurate information where some of the other things I didn't.

But when participants have no face time together such as afforded by the in-person Concentration Course, or there is no provision for getting to know others who are engaging in a study site such as the Kenobi Guild's, then there is no opportunity to build an online identity. Geisler, (2002) acknowledges that identity develops from working together over time. Further, Ardichvilli, Page and Wentling (2003)

concluded that engendering trust on a virtual knowledge network, like a virtual study group, was key to participation. They added that trust was not only of members, but of institutions, such as the Kenobi Guild or the Empire Group in this study. Institution-based trust is structural and includes processes and procedures that support rules and expectations for participating in a collaborative knowledge network (Ardichvilli et al. 2003). Walther and Bunz (2005) also agreed that for optimum trust and participation to develop, rules need to be in place. The next section addresses how participants in this study perceived the need for the efficacy of such rules.

Rules of Engagement

Three requirements that all participants in this study expressed a need for in order to fully engage in preparing for the CTE exam was structure, a schedule, and ways to ensure accountability. All three requirements can be grouped under the general heading of rules of engagement. Walther and Bunz (2005) point out that rules reduce uncertainty in virtual groups and improve group performance as well as the development of trust. The Empire Group's structured approach was much preferred by informants to the at-will, drop-in format of the Kenobi Guild's listserv with its lack of rules, the limited engagement afforded by its listserv, and its lack of group cohesion when participants lurked or maintained hidden identities (Gannon-Leary and Fontainha, 2007).

Nancy explained that preparing for a certification exam has particular challenges, not the least of which was the scope of information tested: "After reading all of the information ATE provided (about the certification exam) and I saw the 186

different skills I was going to be tested on and ten different domains and I looked at the wide range of texts that I was required to read in addition to outside reading, I felt that I really, knowing the way I study best, needed a very structured methodology and the Empire Group provided that." Yvonne concurred with this need for structure based on the volume of information tested:

> The outline from the Empire Group was critical because there is so much – if you just went with what ATE puts on their website as far as this is what you need to know, you have no idea. There is so much material that you could use, you need somebody to tell you how to narrow it down, somehow. Without the Empire Group's guidance on that I would have been really lost.

Not only was it important to have an organized, structured approach to studying, but Cleo notes that it made her feel more prepared for the exam having followed a logical sequence to digesting the information. Mary acknowledged the value of the Empire Group leadership's experience with providing a study strategy:

> People that designed the plan knew what they were doing. Otherwise you wouldn't be paying so much money for it. And then everything is easier. Then you can take everything in small bites, rather than having to write up all of it at one time.

Monica described the specific value for her when she said:

> The Empire Group was very useful. And I don't think I would have passed without it. Because it gave me my deadlines. They've done this before. That structure, and having that consistency really is what kept me on track, or I would have been a last minute person. And even with it, I was somewhat last minute.

These comments support the idea expressed in Rule 6 that Northcraft et al. (2006) suggest for high performing virtual groups: set deadlines and stick to them. For every informant in this study, structure was a common, valued requirement.

Attending to monitoring, regulating, and facilitating participation, identified in the Gannon-Leary and Fontainha (2007) study, helps to ensure the structure, schedule and accountability that all informants said they needed. Specifically, the structure centered around regulating activities through not only deadlines but by sequencing topics to be addressed, which the Empire Group provided. Monica talks about this desired combination:

> So the Empire group again, was very good for me in terms of setting me on a path, having deadlines, not reading it cover to cover. Really saying, "we're focusing on this topic, here's the chapters in all the different books that match that topic." Thank you. Because I couldn't even, I mean I could have, but it would have taken so much more time to even find those chapters to try to do it on my own.

The importance of a schedule was emphasized by all informants because it provided them with time management through pacing and deadlines, and gave them confidence that at the end of the study group sessions, they would be fully prepared. Important pacing tools included calendars, assignment due dates, reading lists with due dates, and teleconference appointments. The organized approach the Empire Group took to presenting the materials provided predictability and set expectations. The shared understanding and a sense of purpose engendered by these practices are also critical success factors identified in Gannon-Leary and Fontainha's (2007) research findings. Cleo appreciated all the structure in place from her study group experience and said it made her more accountable. The setting of shared expectations and how this contributes to accountability as part of the engagement process will be addressed in the next section.

Accountability

All members of the research group had participated in a face to face study group in addition to either or both of the virtual opportunities presented by the Kenobi Guild and the Empire Group. Members felt that accountability arising from people being invested in having a sense of obligation to one another to engage fully and be prepared to collaborate, was higher in person than in a virtual study group. Cleo's comment synthesized the group's thoughts:

> I think that face to face and even if you're not prepared whatsoever, there is, I feel, a little more accountability meeting face-to-face even if it's just one time. When I was going to the Concentration Course I was really nervous that I hadn't done any of the reading. But if I was doing something virtually I would not have felt that kind of pressure to – kind of that peer pressure to have been a little bit more prepared.

Meeting face-to-face increases the sense of accountability one has toward the group. In contrast, meeting virtually with low participant salience decreases feelings of accountability as described by Nancy:

> Well, there is a certain amount of—I'm not sure what the right word is, but you're invisible in a certain sense even in the online study group. And if you don't speak, or you don't contribute a certain week or whatever, there's no mention of it, there's not retribution or whatever, you just don't. And it doesn't matter. Or at least it didn't matter in the group (Empire) that I was in, because there were so many of us that there was plenty. But I wouldn't have dreamt of not showing up at the in-person study group and not contribute, or not be totally as prepared as I could possibly be. Does that make sense? That would be more embarrassing.

Promoting accountability was not found in the literature review but was an emerging theme in this research study. It was an important factor for all informants who

provided nuanced interpretations of what it meant to them. For example, Cleo points out that:

> I just want to add that I think accountability isn't just – I want everyone to know I did the work. I want to be able to contribute so other people can learn too. It kind of goes both ways. And on mine, I think, it's easier to not say anything than it is when you're in an in person meeting. So I think, that might need to be a component of an online virtual study course.

Accountability here includes the responsibility for giving information as well as obtaining it. This is the essence of collaboration, which is the ability to share in knowledge creation as well as benefit from the co-creation process. Nancy used a book club metaphor to describe the benefits she received from a collaborative environment facilitated by occasional teleconference calls:

> Sometimes, when I was going through it I thought about book clubs, when you read a book on your own you enjoy the book. But if you belong to a book club and you get together and you sit down with other people that have read the book and you discuss the book you discover themes and insights and whatnot that you might not have seen on your own. And the discussion among the different people gives you a deeper understanding and appreciation for what you've read. So that's what the Empire Group did for me.

Beyond book club-like discussions of assigned readings held during teleconferences, there were other discussions facilitated in asynchronous online forums that the Empire Group used. Nancy described their value:

> Well, for the Empire Group, there were questions every week, assignments every week and part of that was making up your own question. And the group, although, you're not required to do it but you were encouraged and told that if you did participate in it you would get the most out of it. So it's the same kind of thing as a question would be posed by the instructor or by a student that was assigned that week. And then there would be (online) dialogue among the students back and forth. And that

> was insightful because we were coached over and over again that it's the way you think about something that's important. And so you could see how people were rationalizing, reasoning their approaches. And then as a group we would come to a consensus about what the correct way was or we hoped would be the correct way.

This collaborative activity was mentioned at least once by each informant as an effective way that participants deepened their understanding through the VSG, not only through online discussions but through sharing resources such as articles they found valuable or mind maps they created. Cleo lamented that she would have gotten more out of a wiki that people in the "lunch and learn" group used as a document sharing tool "if other people had been adding to it or participating. I think, that could potentially be a really good tool." These comments suggest that engaging in the VSG was facilitated by the active participation of others. This synergistic learning experience from collaboration is often mentioned in the literature as a benefit of studying together (Bitter-Rijpkema, 2002; Ferris & Godar, 2006; Johnson & Johnson, Laurillard, 2009; Resta and Laferrier, 2007; Scardamalia and Bereiter) and as professional development from engaging in a VCoP (Wenger, White & Smith, 2009).

Having a facilitator present was something many informants valued from the Empire Group. Important benefits mentioned included having someone set the context for the group. Mary explains:

> They told us how to study. They told us how to read the questions. They practiced – they told us exactly what to do and gave us structure – the Kenobi Guild didn't do that. If they did, it was again through that community. This is what I did, what you could do, but there was nothing formal. With the Empire Group, it was definitely formal.

Facilitators who could be counted on to moderate and lead discussions drove accountability on the part of participants who needed to be prepared by having completed the readings and assignments in order to fully engage in discussions. It appears that facilitators, however, also need to be aware that from the outset, participants must have opportunities to make themselves known to each other. Monica addresses this point when commenting about the Empire Group's kick-off meeting:

> It [teleconference calls) was supposed to be like – it wasn't even once a month. It was more like once every three weeks. It was – I have a certain schedule to do it, which was also not enough time to really feel like we knew each other and they had a kick-off meeting which I was focusing on. It was on the calendar. Bells and whistles were going to go off. I was so excited. I got home early to be on this call and it just was like walking through what they had already sent us and we didn't really get to know each other or anything. It was just like "oh." I mean, we heard a lot about the two people, Karen and Stella, who was running it, and their points but it was like okay, so who else was on the phone with us? I don't know.

This observation addresses the need to give time to the important work of developing participant salience that Northcraft et al. (2006) refer to in the literature. With literally no time given to participant introductions on the first teleconference, and the lack of visual cues available from teleconferences and discussion forums, there is little opportunity for participants to raise their salience among the group, develop relationships in the virtual environment and develop a sense of accountability towards each other.

In the next section, barriers and benefits associated with communication tools used by informants in the two VSGs will be examined with particular emphasis on the collaborative value these contributed to learning and engagement.

Barriers to Engagement

Navigation

A large part of being able to engage with a virtual study group is the system in place that enables access to information and supports collaborative activity to co-create knowledge with other participants. The primary complaint most participants in this study had was with difficulty navigating around the VSG tool. Informants did not have the time or patience to spend much time learning how to use the tool. Nancy described her experience:

> Some of the barriers for me were my lack of technical expertise. And feeling pressured to get the studying done and not feeling like I had the luxury to thoroughly understand the technology behind it.

Time constraints kept many from using the tool effectively. Cleo relays how such time constraints impacted her use of the Kenobi Guild's listserv:

> I remember my first couple of experiences using the Kenobi Guild and finding it difficult to use but to be honest, I think, I spent two minutes looking at it. And my attention span for online discussion forums or materials that are posted, if I can't figure out by just looking at it, I'm not going to click around. I have other ways of getting the information…Any system I'm going to invest in, I'm going to put my study time into it I need to be able to understand it as soon as I log in. It needs to be very apparent and with Kenobi it wasn't. It was a barrier, definitely.

Others had similar problems. Yvonne mentioned navigation on the Kenobi Guild site as an issue:

> I had some challenges trying to figure out how to navigate that site. I remember having problems just making the accounts and logging in and finding out what the difference is because it's not just the Kenobi Guild on their (ATE) site. They have multiple options and finding out which one do I really belong

> in. I think Kenobi is also kind of a odd name, I get it, but it's just kind of – it's not intuitive.

By far, the most challenging usability issues were associated with the Kenobi Guild Listserv. Usability refers to the user friendliness of a software tool. In contrast, the Empire Group participants had fewer issues with the software. Mary was the only participant that shared her challenges with the Empire tool: "Well, the shortcoming of the Empire collaboration tools were that they – I couldn't get them to work and I just needed someone to really walk me through how to work with it." Northcraft et al. (2006) emphasize that training participants to work with the collaborative online tool is a necessary activity to ensure that everyone can participate and make the most of the resources available. While the Kenobi Guild had no training available or guidelines about how to use its listserv, the Empire Group did have a required self-guided program for participants to complete before its first virtual meeting. The problems encountered in both groups suggest that more training should be provided to support future participants.

Synchronous Discussions

Live chats as opposed to asynchronous discussion board chats were more challenging, according to the CTE candidates. These were hosted by the Kenobi's listserv tool and were much like instant messaging. Immediate responses were greatly appreciated when participants were seeking answers to general questions or practice exam questions. Several CTE candidates expressed how helpful it was to ask a question via the Kenobi Listserv and receive answers from several respondents a

short while later at any time of day. This mode of communication, however, proved very challenging when topics were being actively discussed during live sessions. Monica observed:

> Because live chats get so overwhelming. Having something where people can go back and read a thread later on, even if you heard it the first time and you can't quite remember….And what I was spending a lot of time doing on those chats was literally copying and pasting to a Word document, just to try to keep those subjects that I could find. …And I mean a chat room is a chat room. It's in writing but it's really bad spelling because you're trying to do it so quickly. And many others in our group had said they were answering or asking questions and like five different answers were already hitting. And then they felt like, well never mind, I won't even start again.

The cacophony of online synchronous chats was an emerging theme regarding the limitations of such events. Mary described her experience with the Kenobi Guild's live chat this way:

> Usually with those communities if you miss a beat and those messages are scrolling down and you're not on there five hours a day, you miss out on that community activity and your reply or your input is 24 messages down the line. So it's hard to stay connected in an online community that's somewhat active. Kenobi Guild has a huge online community and online following, but you post one thing and you don't even know where your post went because five hours later there are 50 posts and you're way down the board. And they're talking about—and I think that's the other comment I made about the instant messaging and the chat. You lose whatever question you asked because it's down at the bottom of the list and it's already scrolled way passed. And if you're not techno savvy, like some of the people in that group were, you don't know how to follow through those things, and I didn't.

The consequences of not being in synch with postings was problematic for study participants based on the logistical challenges of posting to a chat room in real time. If the room is very active, following and participating at the same time can be almost impossible, depending upon your skill at composing messages. This emerging theme

of everyone asking and answering questions at once was not addressed in the literature review. But it is an important consideration, given how it affects the level of participation in VSGs. Urgency (Northcraft et al. 2006) taken to this extreme has unintended consequences for shutting people down as Monica articulated above. Further, it demonstrates how Rule 4 (Overtly acknowledge that you have read one another's messages) offered by Walther and Bunz (2005) designed to structure virtual groups for greater urgency is problematic.

A similar phenomenon was described by Monica during telephone conferences held by the Empire Group to support weekly discussions:

> When we had our online, like our conference call for the Empire Group, I felt again like I just sat there and it was almost a waste of time for me, that I felt like they heard me click in, they took my roll. They didn't seem to care if they never heard from me again. A few times if I attempted to talk, you never know who's talking next because you can't see, it's a conference call. And then usually the topic probably changes and then I'm not going to say "Oh, let's go back." I think those could have been better put and able to be used. But it worked for me. I could sit and listen. At the same time, I almost would have preferred to have some visual with that. If we could have had one of those web conferences. Not Skype or anything where we see everybody's faces. But just you bring whatever you're asking. Because an oral question to me is a whole lot different than a written question. So if I could have been reading it before people were shouting out answers, I could still be like, "Okay, I'm still on this page." Whereas any time people were already answering when I was still going, "Wait, I'm still processing the question." And people could already just answer. So I think they needed to use more web-based than they were at that point.

Monica admits that she prefers to learn visually, therefore the auditory nature of a teleconference call did not work well for her. Matching learning styles with compatible modalities online is a theme briefly addressed by Serveau (2004) in his

study of Cisco Certified Internetwork Expert exam candidate study groups. His advice to give control to students for scheduling and prioritizing study materials could be useful if applied in this instance. Mary emphasized this point in her comments about how beneficial it is to be actively engaged in discussions, rather than be a passive onlooker:

> But the tools are only as good – you have to put into it what you want to get out of it. So if you're not trying, if you're not trying to discuss things, if you're not trying to initiate conversation on those discussion boards, you're not going to get anything out of them if you're not becoming a part of it as well because otherwise it would just be a discussion between a couple people. So to make it work I think you really need to engage so that people help correct any bad information that you have to make it better information.

Communicating frequently addressed in Rule 2 of Walther and Bunz (2005) recommendations for virtual groups is useful to reference here. As the preceding excerpts demonstrate, however, communication tools such as chat rooms and teleconferences have limitations that need to be addressed when engaging virtually. Robust discussions need tools that make it easier for participants to track and provide not only their own contributions, but to engage in the dialogue with others as well. This includes lifting the veil of anonymity and depends on engendering trust among participants and trust in the knowledge they are ultimately trying to generate.

Age

A particular barrier to engagement with the Kenobi Guild's Listserv mentioned by nearly every study informant was its name. Recalling that it is a sub-group of the Young Travel Professionals (YTP) group, many informants took issue with it skewing young as at least four out of six were over 40. Monica explains:

> Well first of all, they say there's no age – there used to be an age limit and I'm over the age limit. So right there, I already felt like I was out of place. I didn't need people to know how old I was trying to learn again. I felt most of them were much closer to college and that they had much better study skills. And so I was just kind of like, "Okay, I'm not going to let you know that I don't have a clue and I'm double your age." So that to me right there just was like, okay, I wouldn't ever come to them for – definitely not for support. Definitely not to be a face.

The sensitivity to age differences was a common concern among those over 40. Tess expressed what it meant to her:

> Well, it's just I'm a different generation and just to be – because they're referring to themselves as the young professionals so it's a generational kind of thing anyway and yet there's definitely a lot that you can learn from resources or information and dialogue that they're having. I just didn't feel that the name itself necessarily encompassed me as an individual. It kind of actually isolated me so I didn't feel like I necessarily fit within their community.

These remarks are contrary to the intent Abby Stone, founder of the Kenobi's, had for the group. Her intent was to provide a venue where "it's fun and easy to meet like-minded people without having to jump through official hoops." It appears, at least for this study's small group of former Kenobi participants, that Abby's intent was not realized nor was it something participants were looking for. In contrast, the primary goal for these participants was to find a resource that would help them prepare for the CTE exam. For example, Yvonne remarked:

> I just wanted the information. I didn't want the community. For me, that's really all I wanted. I could see though if somebody was using the site every day for the whole time they were studying for the exam, yeah, I would think that people would get to quote *know each other fairly well* through that process. And it might create overall friendships, just through that intense experience, but that was not something I was personally looking for. I was going to the Kenobi Guild for the information

> they provided, not for the community.

The sensitivity of the over-forty's to the Kenobi Guild's association with the Young Professional group, and it's name from a popular science fiction movie had negative connotations for them and worked to distance them from the group. While this was not addressed in the literature review, it was an important factor for group members and impacted their ability to feel a sense of inclusion. As a result, it affected their level of engagement with others, which often manifested as a desire to remain anonymous.

Benefits of Engagement

Diversity

Many informants placed a high value on the opportunity to learn from the diverse opinions of other participants within VSGs. All the informants in this study work for an association management company (AMC) and their work experience is very different in some aspects from people who work for independent, stand-alone organizations that are not under the AMC umbrella. Mary commented on the value of having representation from these diverse participants:

> It offered people who had stand-alone experience, so they could talk about it. And very few people work in the perfect organization you're supposed to work in to get the CTE, the right number of members, the right budget amount, right number of employees. So in that way just to be able to watch and to learn and to virtually listen to what other people are answering to some of the questions was helpful.

Similarly, Monica felt that a diverse group offered practical benefits for thinking through exam questions from various points of view:

> Certainly getting those answers (to practice questions). But also getting the diversity of answers. Because there were so many scenario questions, not just factual questions that you couldn't just study a list and be like, "Okay, that's it." That you had to kind of think through all the perspectives of it, which nobody has all those perspectives. And so that gave you that opportunity….And that really helped clarify, when you have to explain to somebody else.

These observations are consistent with themes noted in the literature about the benefits of a study group. Ezrah (2010) claims that the major benefit of participating in either a virtual or face-to-face study group is exposure to a variety of experiences, knowledge and skills brought by diverse participants. Participants in this study reaffirmed this conclusion, saying they valued "seeing how other people perceive things and approach things" (Nancy); "getting more information reading what other people had done rather than posting questions I had" (Mary); and "posting a question and then seeing 10-12 answers come back from that question" (Mary).

Asynchronous Discussions

The Kenobi Listserv and the Empire Group's discussion board were the major tools informants used for communicating with one another. The Kenobi Guild's listserv was most often reported as a window into finding what people found challenging. For example, Yvonne commented that it "was helpful to go and see what questions other people were having and to read through some of the responses." Monica elaborated:

> It's good to know everybody has the same problems you do. Or once in a while you might actually know that and you can mark that off your list, like, "Okay, I don't have to worry about that one, I got it." And then the best thing is when you didn't even have a clue that that problem was out there, and you're like "Okay,

> wait a minute. Wow, something I'm doing isn't correct. Because that's not even on my radar." And then thank goodness you learned it before you saw it on the exam.

This is a good example of problem solving through discussion with peers that Guitert (2002) states is a primary benefit of cooperative learning. The literature describing the value of study groups often refers to this collaborative learning theme as one of the major values from engaging with a study group. But the degree of participation seems to be related to the amount of responses a participant receives. Mary refers to this phenomenon in the following comments about receiving only one answer to her question on the Kenobi listserv:

> If I would have posted more, that would have been the outcome (more answers to questions). And that's – I think that's the other thing that you had asked before about the community, I think that's what it did. People that are on there on a regular basis, if they asked questions and responded to questions you're more likely to be responded to rather than if you're just that one time in you got one little question and you don't really care about anybody else's questions you just want yours answered. It's a little bit more difficult to weave your way in rather than being that person that you see all the time.

Actively contributing earns higher salience for the participant and results in more recognition and more feedback on the listserv, concurring with Northcraft et al. (2006) findings regarding how salience is related to urgency. In concordance with their recommendations, urgency in this example follows along with their recommendation to promote awareness of each participant by means of timely contributions. Those who contribute most, in Mary's experience, receive more direct feedback. Some CTE candidates, however, were fine with their lack of recognition and cultivated it. Tess called herself a *silent participant* because "I would watch the

questions going around, and first think, ‘Do I know the answer?’ and if not, then what were the responses that helped guide the person who was originally asking the questions? So I participated, but I was much more of a silent participant, rather than an active one.” This lurking behavior, while serving the lurker, does not contribute to the robust discussion or work to collaboratively create knowledge within the community of learners. It can, however, be seen as a precursor to becoming more active later, similar to Lave and Wenger’s (1991) idea of legitimate peripheral participation (LLP) in communities of practice (CoP). LLP occurs when new or novice members of the CoP feel safer at the edges of the group but gradually become more active once they gain additional knowledge and have better familiarity with participants in the CoP and how it operates.

Exiting

The literature on virtual teams finds that once a group has accomplished its work, it disbands. In this study, there were two exiting strategies: disengaging from further interaction with the VSG or continuing to interact in the capacity of a certified CTE. Five out of six VSG participants chose the former. Unlike the majority of her cohort, however, Monica became engaged with the next round of VSG exam candidates as a mentor after passing the certification exam. These two paths are examined from the perspective of group cohesion, a theme found in the virtual team literature and referred to by Palmer and Speier (1998) with respect to the impermanence of groups based upon their task or goal orientation. Group cohesion arises from positive social interaction among participants and is closely related to

participant salience, a concept Northcraft et al. (2006) researched with respect to the measure of another's prominence in virtual environments. The following section addresses group cohesion as experienced by VSG participants in this study and the paths they took after passing the CTE exam.

The issue of communicating frequently prevailed even after informants had taken the CTE exam. In both the Kenobi Guild and the Empire Group, they received messages of congratulations in each venue for passing the exam, or of support and encouragement if they were unsuccessful. Monica commented on her concluding experience with the Empire Group:

> So even when we like got our exam results, okay, all the emails went out and so we all got them and it was—so it was constant for two straight days. "I got my results, I passed." "I didn't but congratulations to everybody else." I wanted to say to people, "I'm sorry that you didn't pass," or whatever but I didn't even know anyone to feel like connected enough to almost care, like I did care, but it would be weird because you'd be like I don't know who you are telling me other than we were in this group.

Monica was clearly conflicted about responding to others in her group based on her existing knowledge of them. Her lack of connection to them made during the time informants were actively engaged in using the tools of the VSG to study carried over to the time she exited the VSG after taking the CTE exam. This lack of group cohesion included the instructors and was evident from the following comments:

> So everybody would just like pop in everybody's email address [in response to a blast email] about whether they passed or not and I just never did it.
> I actually sent an email to Karen and Stella separately and I said "You know, I passed, thank you for all your help, you know, it was great." And then like four days later I got an email from them saying "Oh we never heard from you," because I think they just took that huge list and like checked

> off who had responded and I was "Okay, I did pass and I did tell you. I just didn't tell the whole group because nobody knows me in this group and I was getting tired of getting all the emails so I tried to stop one last email from going to everybody," and they still didn't have a clue that I had passed. And I actually sat in the CTE lounge [at the annual conference] and met Stella and told her I was in her group and she still—I mean, she reacted like she should "Oh I'm so glad. How'd you find it?" But no – I mean, she couldn't begin to tell me where-what city I was from, she knew nothing about me.

Monica is the most vocal in relation to the cohesiveness of the group. In earlier statements, she expresses the most disappointment with the lack of opportunities to form some connection to others in the Empire Group, while the other informants made statements relating to how they were not interested in the "community", but just the information to help them pass the exam. In the above passage, it is evident that connecting with the Empire Group leaders mattered to Monica After spending 12 weeks in the online study group and attending several teleconference sessions, in addition to paying a $450 fee, she felt she deserved to at least be recognized. Granted, Monica admits that she was not a vocal participant and did not respond to the initial blast email calling for exam results from the group, but she expected more recognition from leaders Stella and Karen. Monica also felt disconnected from participants in the Kenobi Guild, saying: "So it didn't even occur to me to use them as a support group because to me it was drop in and be faceless. My support really came from my family." This speaks to the lack of connection and group cohesion felt towards members in either of the VSGs in this study.

In spite of this, Monica was the only informant reporting that she is mentoring an exam candidate referred to her by ATE. Recall that both Abby from the Kenobi Guild and Karen from the Empire Group expressed how past participants who

successfully sat for the CTE exam were the best resources for the next generation of VSG participants. Her mentee is located in Texas and Monica is located in the upper Midwest. Monica reported encouraging her mentee to engage in activities that raise her salience as a participant in remote groups:

> I made her get on the Kenobi Guild listserv actually; I told her "just do it. So send an email saying they're going to have a cram session, just do it. So she was like "Okay." I actually made her get on LinkedIn too just because I said, you know, there's a lot of groups that she can join and get to know people but without saying that you're doing it to anybody else out in the world. I wanted her to hear other people are willing to say that they're doing it and that she's not alone; so, I think that helped her because she feels very much an island and she's in Houston.

Interestingly, Monica makes a point of telling her mentee that she can remain anonymous in VSGs – something that runs counter to best practices promoting online engagement (Orvis and Lassiter, 2006). The value placed on secret identity is clearly an attitude in need of addressing.

All informants who participated in the Empire Group were invited to attend a gathering after the induction ceremony during the annual meeting of ATE, and yearly reunions thereafter. Other than this opportunity to reconvene, no informants other than Monica have continued to engage with the Kenobi Guild or Empire Group.

Not surprisingly group cohesion among this highly goal oriented virtual study group, while not strong to begin with, weakened or was transformed when the goal of becoming certified was attained, fulfilling the purpose of the VSG. This is consistent with Palmer and Speier's (1998) observations that once virtual organizations and teams have completed their mission, the groups disband. They concluded that need drives participation and when the need has been satisfied, the group dissolves. In the

case of this study's VSG participants, any further engagement was either terminated upon successfully attaining certification, or transformed by an altruistic desire to help others as a coach or mentor.

It is interesting to note that both the Kenobi Guild and the Empire Group originated because their founders had a desire to provide better certification exam preparation experiences for those who would follow them. Both shared the same motivation to help future exam candidates once they passed the exam.

Comparison of two strategies, different tactics

While the goal of VSG informants in this study is the same, that is, to prepare well enough to pass the CTE exam, the approaches taken are somewhat different and in the end, variable across informants. The Kenobi Guild offered a 24/7 point of free access with no sign-up requirements and no schedule of topics. The Empire Group offered a structured approach to developing knowledge of the topics and required sign-up in advance for a fee. This points to the various opportunities the Kenobi Guild and the Empire group offered each person as they studied and prepared in ways that complemented their own particular circumstances, and will be addressed using the descriptors of searching, lurking, engaging and exiting.

Under the Searching section, it becomes clear that informants, as working adults preparing for a high stakes professional certification exam have a number of criteria in common. These include selecting the right time in their lives to study, staying motivated, finding effective and efficient study methods, and being mindful of any costs associated with a study opportunity. These criteria played a role in

influencing their choices among available Web-enabled study group options. For example, the Kenobi Guild allowed informants the flexibility to drop in at any time and seek help from others, no matter what the time of day. All six informants used the Kenobi Guild, suggesting that this characteristic was universally appealing to all of them. The Empire Group, in contrast, was offered twice per year and required registering in advance, meeting deadlines for readings and assignments, and attending scheduled teleconferences. Having less flexibility, only three of the six informants selected this option. Self-motivation was necessarily higher among those selecting only the Kenobi Guild. These individuals professed to want only the information and not the opportunity to collaborate, and in fact pursued options that enabled them to remain anonymous participants. This is in contrast to Empire Group participants who sought out collaborative studying, with one informant making reference to a book club metaphor that encourages greater understanding by learning from and with others. All informants were looking for effective and efficient ways to prepare. While some preferred the structure found in the Empire Group, others were comfortable with the on-demand option of the Kenobi Guild with no strings attached. An additional factor that was important when selecting a VSG was compatibility with the informant's learning preferences. They tended to select options that addressed their strengths as visual, auditory, independent or collaborative learners, based on prior experience with what worked best in their higher education experience. A lesser influence on VSG choice was cost. All participants agreed that if their employer had not paid for the Empire Group opportunity, they would have paid for it themselves or cobbled together resources that approximated that experience.

The extent of lurking behaviors was an unexpected finding in this study. Only one informant shared with others in the workplace that she was preparing to sit for the CTE exam. Studying for the exam for the others was a covert activity that required them to varying degrees to remain anonymous, especially in the Kenobi Guild's public forum. This self-imposed limitation influenced their full participation in the Kenobi Guild evidenced by not making contributions to the listserv. Lack of trust in the environment also affected their trust in information put out on the Kenobi Guild's listserv. If informants were unfamiliar with the source of information, they were inclined not to trust it. To compensate for this limitation, some actually did background checks by searching on names associated with postings. Overall, maintaining professional secrecy by remaining anonymous ultimately undercuts trust and thwarts collaborative learning in virtual study groups and is a major limitation.

Factors related to engaging in virtual study groups informed the research question associated with identifying perceptions that characterize good VSG experiences. As already mentioned, lack of trust affected participation on the Kenobi Guild's listserv. It was less of a factor in the Empire Group because some introductions occurred as part of the first teleconference, although some informants felt it was not enough. Confidence in information received was higher in the Empire Group because known experts were responsible for knowledge building. Participants were also looking for structure, schedules and ways to ensure accountability. These criteria were part of the Empire Group's organization but lacking in the Kenobi Guild. The leaders in the Empire Group helped students engage by facilitating discussions and prompting participation. This helped drive accountability among

participants who knew others depended on them to make contributions to asynchronous discussions and teleconferences. Difficulty navigating both the Empire Group's learning management system and the Kenobi Guild's listserv were barriers to engagement. Participants in both groups felt they had little or no guidance in using the technology. Some disengaged from the Kenobi Guild because it was too time consuming to figure out. Others in the Empire Group simply did not post to discussion boards for lack of understanding the tools. Participation in Empire Group teleconferences was also limited because too many voices were competing for time and the pacing of topics did not meet everyone's needs. This phenomenon was similar to synchronous chats found on the Kenobi Guild's listserv where instant messaging buried information that was constantly generated from many participants. Aside from the challenges associated with interactive text-based and teleconferencing communication tools, informants felt these offered the greatest potential for good virtual study group experiences. The diversity of experiences informing knowledge shared by others, and the opportunity to see answers to questions had great value for informants. Greater engagement by frequent participation was equated with receiving more responses to inquiries.

The exiting section of this study focuses on maintenance of group cohesion which arises from sustained, positive, virtual social interactions. Group cohesion was noticeably lacking among Kenobi Guild participants because participation was characterized by just-in-time support rather than sustained, regular interaction. Once informants passed the CTE exam, there was no need to continue participating. Exiting strategies included congratulatory messages and a promise from some to meet at the

annual conference. In contrast, the Empire Group organized a reunion at the annual conference where participants could meet and sit together during their induction ceremony. Group cohesion, however, appeared to be less than one would expect from participants who had spent 15 weeks in the study program. Lack of recognition by one informant from Empire Group organizers was noted with disappointment. The perception here is that higher salience is valued and is one characteristic of a good study group experience. Noteably, this informant is the only subject so far that has elected to continue by mentoring an exam candidate referred to her by the ATE organization. As noted earlier, group cohesion dissipates once the goal of the group is attained. In the case of this study, all but one informant disengaged from their VSGs.

The next chapter will summarize the findings of this research study and provide insights on implications of the results as well as suggestions for further research.

CHAPTER FOUR

Summary and Conclusions

In this chapter, I summarize my analyses of VSG interviews by first reviewing the method of analysis and then the conclusions I drew from the data.

Summary of Analyses

The purpose of this study was to discover what adult learners in virtual study groups consider to be effective strategies to help them prepare to sit for a professional certification exam. Specifically, the questions guiding my research focused on three areas of inquiry: *What influences student choices among web-enabled study group options convened to help candidates prepare for a professional certification exam? What student perceptions characterize good study group experiences for remotely located participants connected by Web 2.0 technologies? What limitations do students in virtual study groups encounter and how do they attempt to compensate for them?*

The paucity of research available on virtual study groups (VSGs) for adult learners caused me to investigate extant literature related to collaborative learning. In order to align this as closely as possible to VSGs, I further selected topics within the literature related to traditional face-to-face study groups, Virtual Communities of Practice (VCOPs), and virtual teams in corporate settings.

To discover student preferences for virtual study groups, why they perceived these to be good choices, and how they addressed any limitations they found in their choices, I used a convenience sample of six Certified Travel Executives from my

workplace. These informants participated in a face-to-face study group at work, and had also used online study groups to help them prepare to sit for the Certified Travel Executive certification exam. They all successfully passed the exam, with one informant passing on her second try. All participated in a focus group I convened to reflect on their experiences when studying for the CTE exam using Web 2.0 enabled technologies. Results of this discussion resulted in emerging themes that informed questions I explored in more depth during one-on-one interviews that followed. I also interviewed the founders of the two predominant VSGs the informants joined, the Kenobi Guild and the Empire Group. The Kenobi Guild was a listserv and a sub-group of the certification's sponsoring organization, the Association for Travel Executives (ATE). The Empire Group was independent of this organization and convened online twice per year, fifteen weeks before the certification exam was offered. While the Kenobi Guild was a drop-in, free resource that offered an informal forum for questions and comments, the Empire Group required students to enroll in advance for a fee, and followed a formal syllabus that addressed each domain tested by the exam.

In my analysis of the interview data, I discovered the following major themes also addressed in the literature that impacted successful VSGs: participant salience, communication, trust, group cohesion, rules, and urgency. Themes that emerged included a refinement of trust into two specific types: trust of others and trust of information. Additional emergent themes addressed issues informants had associated with intellectual vulnerability and secrecy that impacted their freedom to disclose their identities and how fully they could participate in VSG activities. Using

grounded theory, I then organized all the themes into a sequence that explained the data and originated the following terms as part of my descriptive nomenclature to explain and analyze the data: searching, lurking, engaging and exiting. Searching pertains to finding an appropriate VSG to help prepare for the certification exam; lurking refers to anonymously observing VSG activities but not participating or contributing to them; engaging is the act of fully participating in VSG activities and revealing your identity; and exiting is what happens when participation in the VSG ceases or is transformed in some way.

Influences on student choices

Much data in the Searching category addressed the research question about what influences student choices among Web-enabled study group options convened to help candidates prepare to sit for a professional certification exam. A major finding within the Searching category included the importance of timing and related to that, efficiency, as criteria VSG participants in this study used when selecting a strategy to prepare to sit for the CTE exam. Participation in a VSG needed to be during a window of opportunity when personal and professional obligations allowed the time necessary to commit to exam preparation. Further, to make the best use of this time, exam candidates had to perceive that the strategy offered by the VSG would be efficient and make the most of the available time they had to invest in studying.

Characteristics of good VSG experiences

Student perceptions characterizing good study group experiences for remotely located participants connected by Web 2.0 technologies are related to the Engagement

data in this study. Trust in the veracity of the information they were receiving was one of the primary concerns for informants. To this end, the more closely aligned the group was to the certifying body, the more trust they had that the information found there was correct. Informants perceived that a good VSG structured their study activities and provided a schedule. They also wanted the VSG to ensure that participants were accountable to one another and prepared to collaborate in the give and take of knowledge building. Having a facilitator present was perceived by informants to be of value in supporting accountability and collaboration within the group. Informants placed a high value on being able to access a diverse group of people representing a range of knowledge and experience and points of view through asynchronous discussions. Being able to go back and read through postings was viewed as helpful, and a benefit of collaborative learning.

Limitations encountered in VSGs

Within the Lurking category, secrecy and trust had a major impact on how fully participants were willing and able to engage with and contribute to the VSG. As working professionals within a highly specialized field, they were often reluctant to disclose that they were preparing to take the CTE exam in case they did not pass, or to provide their names on VSG forums and teleconferences for fear that their careers or reputations would be jeopardized if they appeared to have knowledge deficiencies. Further, data from the Engaging category illuminated that a direct relationship existed between trust of others in the VSG, how much a lurker was willing to disclose of their own identity, and how much the information provided by others was trusted by the

lurker. Lack of trust can seriously impact engagement and undermine the benefits of collaboration that robust study groups are designed to provide.

Because participants in public VSGs were unknown to them, informants considered information contributed by them as less reliable. To compensate, informants suggested that profiles of individuals be included somewhere in the VSG. They also wanted people to use their full name and include a picture. Another suggestion was to include someone who would fact check information put up on listserv-type VSGs.

Finally, a significant finding associated with exiting the VSG was that participants found they were limited in developing group cohesion. Without the benefit of meeting face-to-face, participants were limited in establishing high salience for each other even after 15 weeks of online activity. This resulted in two exit strategies. One was to leave the VSG with no intention of future interaction except at face-to-face reunions during the group's annual meeting. The second was to seek to improve on their own experience and agree to "pay it forward" by mentoring or coaching others preparing to sit for the exam at some future time. It is worth noting that the second strategy was the driving force behind the formation of both the Empire Group and the Kenobi Guild.

Implications of Findings

This study was designed to uncover perceptions from participants in virtual study groups regarding what influenced them to select Web-enabled strategies for preparing to sit for a certification exam; what made good study group experiences in this environment; and what limitations were encountered as well as how these were

addressed. The most complicating factors permeating each of these questions were the issues of secrecy and trust. These particularly influenced the tendency of informants to lurk rather than engage fully in a virtual study group designed for collaborative learning. Secrecy in the work environment about preparing and sitting for the certification exam influences the salience VSG participants are willing to cultivate online. Lurking rather than engaging is contrary to the spirit of collaborative learning and circumvents activities such as online postings designed to increase learning from contributions made by a diverse group of participants.

In this study, candidates for a high stakes professional certification exam frequently perceived that the study preparation process itself put them at risk for challenges to their professional competence. This trust of others affected their offline and online behavior in several ways. From the very start, all but one of these candidates went under cover and did not share with their workplace colleagues that they would be studying for the certification exam. In their minds, this allowed them to save face if they were not successful passing the exam. Since they were covertly looking for ways to study online, they did not want to risk exposing their identities for the same reasons and searched for options where they could be independent and anonymous. In addition, they feared exposing their knowledge levels to unknown competitors or colleagues by participating in discussion forums. They rationalized that if they gave wrong answers to posted questions, their professional credibility would be compromised. And if they asked questions that others knew the answers to, their competency could be questioned which would pose a threat to their professional standing among others qualified to sit for the exam.

These concerns were similar to findings of Ardichvili et al. (2006) in their study of engagement within a company sponsored knowledge network. Contributors to the network feared criticism and revealing that they might not have the knowledge others presume they should have. Recommendations for creating an environment conducive to knowledge sharing in the Ardichvili et al. (2006) study had a procedural focus that included establishing rules, setting expectations for participation and the like, which would lead to promoting institution-based trust. I contend, however, that as institutions, company knowledge networks and VSGs have critical differences. Knowledge networks are basically repositories of information contributed by stakeholders. In VSGs, participants acknowledge they have knowledge deficiencies by virtue of joining a VSG, and are more vulnerable to criticism and judgment as they try to engage with others to address their knowledge gaps. Procedural conventions will not adequately address vulnerabilities manifesting as mistrust and covert participation that limits full engagement. Activities should be incorporated in VSGs that go beyond the recommendations of Ardichvili et al. (2006) that aim to build confidence in contributions made as well as in those who share and use the information. Teleconferences where participants are introduced to one another, and providing comprehensive profiles are two examples of confidence building activities suggested in this study. In addition, to counteract fear there needs to be guidance and assurance that will promote confidence instead of fear. This study concurs with Nohria and Eccles (1992) prediction that “a new sociology of organizations” (p. 304-305) needs to inform successful practices for virtual teams. I would argue that VSGs

would benefit from sociological studies investigating human behavior in virtual learning contexts.

Four out of six informants commented that they preferred to study for the certification exam in ways similar to methods used during their years in college. This indicates to me that more research needs to be done on how to support positive human learning behaviors within “digital habitats” (Wenger et al. 2010) as this is an emerging opportunity for today’s adult learners. Current research has identified important attributes for participating successfully in virtual environments and include: participant salience (Northcraft, Griffith and Fuller, 2006), group cohesion (Orvis & Lassiter, 2006; Stonebraker & Hazeltine, 2004; Seely Brown, Collins & Duguid, 1989), urgency (Northcraft, Griffith & Fuller, 2006) and trust (Ardichvili, Page & Wentling, 2003; Geisler, 2002; Horwitz, Bravington & Silvis, 2006; Huang, Jestice & Kahai, 2009; Kimble, Lee & Barlow, 2000; Lipnack & Stamps, 1997; O’Neill & Nilson, 2009). But all these in isolation often do not translate into changing behaviors online. A synergistic examination of these factors could contribute to a new sociology of virtual groups and would take the compartmentalized knowledge generated from current research and place it into a dynamic process that integrates all factors.

The impact of these attitudes on virtual study groups for attaining certification cannot be minimized. In virtual study groups formed for students in a traditional university course, for example, some pre-requisites may be needed to enroll in the course itself, however the expectation is that everyone is new to the content. Further, judging another’s abilities in this context does not come with the potential for consequences to one’s professional standing within a community. Rather, learners

understand that they are taking the course because they need to learn the content. With a professional certification exam, learners are preparing to be assessed about whether they have enough knowledge to meet the basic requirements for certification and thus whether they are competent. This intellectual vulnerability is very different from the assumption that new knowledge is being acquired in a university course.

There are serious consequences to the dynamics and effectiveness of VSGs when trust affects willingness to disclose identity and fully participate. As seen in this study, lack of trust in the VSG's environment encourages lurking and peripheral participation (Lave and Wenger, 1991) rather than full engagement. This in turn results in fewer contributions to discussion forums, less networking and a lowered potential for diverse opinions to inform debates around best answers versus correct answers. Low participant salience is an important contributor to diminished group cohesion.

While the above addressed issues of trust concerning others in the VSG, another emergent theme was trust of information found in VSGs, particularly within loosely moderated public forums like the Kenobi Guild. This was an unanticipated finding and was not addressed in the extant literature. One might assume that because VSGs are convened for the purpose of deeper learning, there would be trust in the reliability and validity of information presented. Informants, however, often mistrusted information contributed on a listserv such as the Kenobi Guild because they could not attribute it to an identifiable source. This is because identities of contributors are often concealed through user IDs and not actual names, thus maintaining anonymity. Yet the majority of VSG participants want to keep their

identities private for the reasons stated earlier. This behavior then contributes to low confidence in the accuracy of information posted, especially to sample test questions, because they are unfamiliar with the source. This cycle of lurking or posting anonymously perpetuates a lack of trust in information provided by the contributing participants. To compensate, three participants searched social media sites for a background check on the person who posted if they were identifiable through their email address or provided a name in their signature. VSG participants who were especially vigilant about concealing their identities understood that their behavior was part of the reliability of information problem, but did not consider changing. Instead they suggested the need for a “Fact Checker” on the site. Additionally, they had more confidence in the accuracy of information presented if there was a close alliance with the certifying organization. But in the case of the Kenobi Guild which had that kind of alliance, the problem persisted because it was largely moderated by participants and consisted of exam candidates and the newly certified who were unknown to them.

Communicating to promote engagement on virtual platforms appears to be in need of improvement from both the facilitators and the participants. This theme was addressed by Orvis and Lassiter’s (2006) suggestions for leaders of groups supported by computer mediated communication tools and included: 1) allowing time for students to get to know each other; 2) developing swift trust; 3) identifying those who are not engaging with the group and encouraging them to participate; 4) using techniques and materials that stress a collective identity with the group. From comments made by Empire Group participants, none of these suggestions were incorporated in ways that impacted their experience. Instead, the leaders of the

Empire Group, rightly or wrongly, made assumptions addressed in chapter 2 about study group participants. Rather, they emphasized their learning styles instead. They organized the Empire Group's curriculum, materials, and meetings based on assumptions that participants were either entrepreneurial, systematic or collaborative, and tried to address a multiplicity of learning preferences with audio, visual and kinesthetic activities. From the data, it appears that Orvis and Lassiter's (2006) suggestions need to be in place first as a foundation, in order to capitalize on the careful design of a curriculum that is mindful of learning styles and preferences in an online environment. Creating a culture that supports transparency in the online environment needs to be kept in mind first.

Limitations of the Study

This study relied upon a small convenience sample of subjects within the same workplace. This, however, provided more experimental control because all participants were from the same company. It would be useful to look at other virtual study groups serving different certification exams. Capturing the experiences of a more diverse sample of VSGs from various professional certification contexts would provide a more comprehensive look at similarities and differences operating across these contexts with the potential for producing different results and recommendations.

Drawing informants from my workplace produced a sample that could have inherent biases. While initially I had distant professional relationships with my subjects from infrequent workplace interactions, I did lead an in-person "lunch-and-learn" study group which resulted in more familiarity with my subjects. A focus group and follow-up interviews with them were conducted after the conclusion of this

“lunch-and-learn.” Interviews by other researchers with no relationship to their informants might yield different perspectives than the interviews I conducted and avoid any chance for biased responses.

Additionally the focus group prior to the interviews may have influenced individuals based upon feedback given at that time. Providing a survey instead of a focus group might get at the same information but minimize any potential influences of group think. However, the focus group was a useful first step in identifying interview questions that contributed to the robustness of follow-up discussions with each informant.

Finally, at the time of my study, there was only one study that related directly to the phenomenon of VSGs convened for professional certification preparation. The paucity of information around such VSGs required that the literature review expand to related research studies that were tangentially applicable. Collaborative learning, virtual teams, and virtual communities of practice are examples of related literature. Additional studies to inform my research of the VSG phenomenon would have been instructive. Several commercial software programs have been released to support VSGs. In fact, one company has trademarked the term “virtual study groups” as their product name and added a trademarked “mobile study group” product as well. Such commercial interest may encourage additional studies and the emergence of additional research literature that could inform further studies more directly. Future studies could expand beyond the present literature domains, such as personal learning environments (PLEs), to further examine the present findings.

Suggestions for further research

The limitations of this study provide a map for future investigation. First, the field would benefit from examining other virtual study groups that had similar frameworks. This case study examined participants who experienced two differently organized VSGs: a loosely moderated listserv and a highly structured and sequenced course of study. Future inquiries could explore VSGs according to their framework, comparing and contrasting the various formats, such as listservs, commercially available programs and the like for best practices. Related to that would be and investigation of whether there is a preferred order of engagement with various types of VSGs for learners and what informs their choices. Second, an emerging theme from this study suggests that further research related to the in-person support system of VSG participants is an important avenue to investigate. A third suggestion is to examine the depth of learning versus the breadth of learning supported by asynchronous discussion posts. While this study affirmed the importance of providing diverse viewpoints, and thus a breadth of information through discussion forums, it would be useful to examine whether the depth of learning gained from asynchronous discussions was adequate for learners.

Given the call for a new sociology of VSGs in this study, sociological theory should be brought to bear on human behavior in virtual environments as it relates to learning. This should include studying agency and building confidence and trust among students as well as instructor facilitators in virtual environments created for collaborative learning, and especially for adults engaged in professional development.

Appendix A

Interview Questions with Informants

Because people are so dispersed and you may not find others to study with close by, did you find that web-based tools were useful for studying for a high stakes test like the CTE exam? For each tool you used, tell me how they met your expectations – why were they useful or why weren't they?

What did they offer that you couldn't get elsewhere?

Were there challenges using the tools?

What percent of your time was spent engaging with web-based tools and why?

In studying for the CTE exam, what influenced you to choose the ways you studied from among all the web-based opportunities?

During our focus group, someone mentioned that they liked the immediacy of getting answers to their questions within hours of posting them. What other web-based features/benefits do you think would make for a good study experience?

If you were designing a virtual web-based study group, what kinds of tools and tasks would you include and why?

What's more important to you and why: Content resources, collaboration tools (blogs, wikis, discussion forums) or Organizational Tools?

What would be the best web-enabled sources of these ***you would use***?

Does a "design your own" study approach work best for you, or do you want a fully functioning experience designed for you with measurable outcomes provided? Why?

Which do you like better and why: the at-will, drop-in feature of the Kenobi Guild or the structure of the Empire groups or some combination of each?

The organizers of the Kenobi Guild's listserv say that their intention for the group is for it to be a support group as well as a source for study partners, tips, materials. How successful do you think they were for you for each of these and why?

They also say people go to the Kenobi site because it's fun and easy to meet like-minded people without jumping through official hoops (Immersion course). Explain whether you found it fun and easy to meet like-minded people and if you were looking for this?

The organizers of the Empire course wanted more student engagement in discussion forums, both online and on t-cons. What do you think they could do to encourage this?

How did the discussion tools and prompts work for you? Did they support collaboration?

Is this a feature you wanted in your online course experience?

One thing mentioned during the focus group that limited participation was the issue of trust. What were your specific concerns? How did that effect your participation? How did you compensate?

There were concerns about risks associated with exposure of your professional identity as an travel exec. What specific concerns did you have about this? How did that limit your participation? What did you do to accommodate for that exposure?

Someone mentioned in the focus group that they were not interested in the "community." The organizers of the Kenobi Guild say that the outcome they hope for is for people to get to know each other, and tell their friends how great the Guild is for building community around this industry (travel execs.) "Friends" was another primary benefit mentioned because the exam preparation process is so stressful. How was community and friendship from the Guild part of your experience?

Guild organizers say that they are focused more on the process of taking the exam and also how the questions are written, as opposed to helping with the actual content. How does that compare to your experience? Was that an appropriate emphasis?

The following were given as gaps that the Guild is designed to fill. Did you use it for this purpose, and why or why not?

- finding study groups
- access to CTE's who can provide advise
- access to ATE's CTE Study Group Team (and through that the ATE commission)
- shared study materials
- sources for lending required books

How did the Empire Group or Kenobi Guild study groups meet your needs?

What would you have liked that wasn't provided?

What were the three most important things you got from that experience?

General demographic questions:

Are you on Facebook? How active are you?

Are you on Linked-In? How active are you?

Do you consider yourself an early adopter of communications technology?

Did you use your cell phone to study? How?

What five tools would you recommend as a starting point for someone preparing to sit for the CTE exam?

What’s the most important thing you’ve learned from the way you studied?

Appendix B

Interview Questions with Leaders of Investigated Study Groups

When did your group get started?

How did it get its name?

What is the purpose of the group?

How did you become involved?

What is your role specifically to support the group?

Do you collaborate with anyone else?

What is your meeting format like? How are you structuring it? How do you arrive at a meeting time & date? How often are you meeting?

Did you have any help with the organization? For example, suggestions from previous study group feedback, or involvement from people participating?

What do people seem to need from your group that they aren't getting anywhere else?

Who joins your group and where do they come from?

What are participants and expert responders expected to do?

Are they assigned roles? Chapters? Exam domains?

How tech savvy do you think participants are?

What kinds of technology are you using? For example, communication and organization tools?

Are the meetings archived? How are they accessed?

How are you supporting student engagement with each other? Is it important in this study group?

What outcomes do you hope for?

What materials are you using? What is their source?

What feedback have you received?

What gaps does this group fill for people preparing to sit for the exam?

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