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# THE ROLE OF THE E-MENTOR IN THE SOCIAL CONSTRUCTION OF KNOWLEDGE IN A CROSS CULTURAL LEARNING ENVIRONMENT

Grace Faustino

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Grace L. Faustino

*Candidate*

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Organizational Learning and Instructional Technology

*Department*

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This thesis is approved, and it is acceptable in quality and form for publication:

*Approved by the Thesis Committee:*

Dr. Charlotte (Lani) Gunawardena , Chairperson

---

Dr. Patricia E. Boverie, Ph. D

---

Dr. Quincy Spurlin, Ph.D

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**THE ROLE OF THE E-MENTOR IN THE SOCIAL  
CONSTRUCTION OF KNOWLEDGE IN A CROSS  
CULTURAL LEARNING ENVIRONMENT**

**BY**

**GRACE L. FAUSTINO**

**BACHELOR OF SCIENCE**

**THESIS**

**Submitted in Partial Fulfillment of the**

**Requirements for the Degree of**

**Master of Arts**

**Organizational Learning and Instructional Technology**

**The University of New Mexico**

**Albuquerque, New Mexico**

**May, 2014**

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May, 2014

## **DEDICATION**

I lovingly dedicate this thesis to my family, who supported me each step of the way. Especially, my three children, Andzoa, Modi and Asiendzo, who have patiently endured many hours of me not being available. To my mom, Teresa Modi who raised me to be the person I am today. For that I will be forever grateful. My friends who have encouraged me through this whole process and my God for always keeping me focused and blessing me in so many different ways.

## ACKNOWLEDGMENTS

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And finally to Andzoa Jamus, Modi Jamus and Asiendzo Jamus, your love is the greatest gift of all.

# **The Role of the E-mentor in the Social Construction of Knowledge in a Cross-Cultural Online Learning Environment**

**by**

**Grace L. Faustino**

B.Sc. Computer Science, New Mexico State University, 1998

M.A. Organizational Learning and Instructional Technology, University of New Mexico,

2014

## **ABSTRACT**

The purpose of this study is to understand the importance of e-mentoring and the role it plays in social construction of knowledge in online learning environments. Very little research that specifically focuses on the role of e-mentoring has been done. Both qualitative and quantitative research has shown that good mentoring programs can lead to greater productivity and satisfaction in the work place. However, most research on mentoring is focused on face to face traditional mentoring. E-mentoring offers the opportunity to mentor individuals in a virtual environment through synchronous and asynchronous computer mediated communication. This study looked at transcripts generated from an online cross-cultural problem solving activity where the participants were mentored by e-mentors both internationally and locally and tried to establish the importance of e-mentor roles in the social construction of knowledge.

**Keywords:** E-mentoring; mentoring; roles; social construction of knowledge; cross-cultural; online learning.

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# **Chapter 1**

## **Introduction**

This study seeks to understand the importance of e-mentoring and the role it plays in enhancing cross-cultural online learning. Through the review of literature this study will first explore the importance of mentoring and mentorship and its contribution to learning and why e-mentorship is important for learning in an online environment how it contributes to social construction of knowledge.

Mentoring often is described as the transfer of knowledge from a more knowledgeable person in a defined field to up-and-coming mentees or mentee to guide the mentee in a career (Allen, 2006; Clutterbuck, 2001). According Single & Single (2005), mentorship is a holistic process because it involves teaching, coaching, and helping to build a high degree of confidence. But what brings out the full magic of mentorship is some degree of affection or warm friendship between the mentor and mentee. This interaction is usually conducted during face-to-face meetings.

Traditionally, mentoring programs have been setup in schools and organizations on a one-to-one basis between mentor and mentee. According to Rowland (2011), mentoring is an important process for all involved. With the increasing use of technology platforms as learning environments, the need has never been greater to find ways of leveraging the traditional face-to-face mentoring process to the online community.

Research also shows that understanding the role of a mentor when mentoring across cultures helps to democratize and diversify higher education by providing enriched support for learning (Crutcher, 2007). Crutcher (2007) maintains that because a there are institutions serve learners from diverse backgrounds, it is especially important to focus on strategies that will make cross-cultural mentoring work.

Mentoring has been shown to have a positive effect on one's career. A study by Gerard Roche (1979) found that of the 63.5% of the 1,250 respondents who had a mentor (defined as "a person who took a personal interest in your career and who guided or sponsored you") were on the average better paid, reached their positions faster, and were more satisfied with their work and careers than their non-mentored counterparts. Therefore, when learning moves to the online environment, it is important to explore how this mentoring relationship can be conducted online in a cross-cultural environment.

E-mentoring on the other hand is defined as the: "Merger of mentoring with electronic communications to develop and sustain mentoring relationships linking a senior individual (mentor) and a lesser skilled or experienced individual (mentee) independent of geography or scheduling conflicts (Rowland, 2011).

Within the current education and learning research, e-mentoring is a developing practice with characteristics that differ from face-to-face mentoring.( Bierema & Merriam, 2002; Perren, 2003; Riskey,2008). The need to understand the role of e-mentoring is increasingly growing especially in a cross-cultural learning environment, where communication and learning are no longer limited by geography. E-mentoring as

an online process has become an important alternative to traditional mentoring. E-mentoring becomes a positive intervention to help bridge some of the cultural barriers using an online setting. (Rowland, 2011).

E-mentoring minimizes the issue of partiality. Hamilton and Scandura (2002) suggest that “e-mentoring can provide options that counteract these effects and improve the situation by allowing protégés access to a larger, more diverse pool of mentors. Furthermore the virtual nature of e-mentoring does not rely on visual cues or proximity for the relationship to succeed” (p. 388). E-mentoring also provides additional benefits through group learning and inter-organizational connections. Facilitating this type of mentoring also can foster relationships that will eliminate the absence of partiality, gender, and ethnicity issues that often result from an informal or formal traditional mentoring program.

This research is essential in advancing our understanding of the role of e-mentors and how they help scaffold the learning process for learners until they are ready to negotiate the process on their own. E-mentoring follows the prescribed process of what a mentor does and facilitates an interactive online learning format where mentees construct knowledge through activities.

Single and Singles (2005) describe e-mentor roles as facilitating, providing a safe and supportive environment, and maintaining a critical mass of participants. Single and Singles found that ensuring that participants have a safe and supportive environment encouraged participation and encouraged participants. According to Kram (1986), e-mentoring facilitates the socialization of new hires into an organization, reduces turnover,

minimizes mid-career adjustments, enhances transfer of knowledge and values, and eases the adjustment of retirement. William & Kim (2011) describes e-mentoring as the process of using electronic means as the primary channel of communication between mentor and mentee, and involves the sharing of knowledge and skills between the parties while the mentor and mentee are in different locations.

Previous research on e-mentorship has not advanced how the role of an e-mentor can support social construction of knowledge in an online environment other than the single study by (Jayatillke, Malinda, Kumarasinha, & Gunawardena, 2012). So there is need to address e-mentoring and the e-mentoring roles that support learning in the social construction of knowledge in an online environment. In addition, there is need to understand how to establish a relationship between the mentor and the mentee to develop and grow the skills, knowledge, confidence and cultural understanding of the mentee to support their success and to further develop the mentor (Rowland, 2011). According to William & Kim (2011), very limited research has been done in highlighting the concept of e-mentoring.

## **CONTEXTUAL FRAMEWORK**

This research project focused on identifying the role of the e-mentor in the social construction of knowledge in an online cross-cultural learning environment during a faculty development experience that was part of the Sri Lankan Ministry of Higher Education's Distance Education Modernization Project. As part of this training program e-mentors in the United States and mentees in Sri Lanka engaged in a computer-mediated

inquiry-based learning activity for three weeks. The mentors were graduate students from the University of New Mexico, and the mentees were faculty from universities and professional organizations in Sri Lanka. The study also looked at the role of culture during this cross-cultural interaction and the impact it may have had on the social construction of knowledge and how it affected the interaction between the e-mentor and the mentees.

### **RESEARCH QUESTION**

The guiding research question is: What is the role of the e-mentor in the social construction of knowledge in an online cross cultural learning environment? This was answered by the following sub-questions :

1. What e-mentor roles emerged during the online interaction with mentees?
2. Which e-mentor roles and facilitation styles supported social construction of knowledge?
3. What were the cultural nuances that were evident between the mentor and the mentees.
4. What were the participant's perception of the e-mentor prior to and after the e-mentoring experience.

The main question that this research is seeking to answer is what roles the e-mentor played in the social construction of knowledge within an online cross-cultural



learning environment. Subsequent questions will look at the type of e-mentor roles and facilitation approaches that resulted in social construction of knowledge perspective of the e-mentor prior to and after the e-mentoring experience. The final sub-research question will look at the cultural nuances that may have affected the social construction of knowledge.

This research project used a qualitative research design employing interaction analysis of computer transcripts. This structured transcript analysis was based on the Interactive Analysis Model (IAM Model) developed by Gunawardena, Lowe, & Anderson (1997) and the roles of the e-mentors defined in (Jayatillke, Malinda, Kumarasinha, & Gunawardena, 2012). The mentees involved are trainers, e-mentors, and mentees of the online tutor mentor workshop. The study analyzes three rounds of computer-mediated interaction transcripts, and incidences of e-mentor activities are used to identify the role played and the impact of the e-mentor role in the social construction of knowledge during Phases 1 through VI. The study also will employ descriptive analysis of pre-evaluation and post-evaluation surveys of the e-mentors by the mentees.

A number of studies that have investigated the roles e-mentors or facilitators play in an online discussion (Anderson et al., 2001; Berge, 1995; Goodyear et al., 2001; Hootstein, 2002; Mason, 1991; Salmon, 2003; Young et al., 2005) conclude that there are four main roles e-mentors take in an online interaction: Pedagogical/instructor role; Social role; Managerial role and Technical role.

Jayatillke, Malinda, Kumarasinha, & Gunawardena (2012) added the collaborative and inspirational role in their study of the roles of the e-mentor in an inquiry based interactive activity.

Although research in the field of e-mentoring currently is limited, research that has been done has looked at how important the process of e-mentoring is to the mentee. Rowland (2011) & Single (2005). Even more limited research has been conducted on how the role of the e-mentor contributes to the process of online knowledge construction across cultures and in guiding the mentee in a career path.

According to Rowland (2011) there is an increase in the transfer of knowledge between mentor and mentee through virtual environments which require technology. This study also shows that there is need for the same mentorship that exists in face-to-face mentoring to be present in an online collaborative setting. This setting does not have to be only within the same culture but can span across cultures. E-mentoring fills that gap. But very limited research has been done to determine the exact role of the e-mentor and the impact of the e-mentor role in the social construction of knowledge in an online cross-cultural collaborative learning environment.

Therefore there is a need for understanding the role of e-mentors in social construction of knowledge in an online cross-cultural learning environment. This study will use a qualitative content analysis method and IAM Model developed by Gunawardena, Lowe, & Anderson (1997), emerging e-mentor roles developed by Jayatillke, Malinda, Kumarasinha, & Gunawardena (2012) and emerging facilitation

approaches to determine if these e-mentor roles supported social construction of knowledge. According to Rowland (2011), through the use of electronic media, e-mentoring can become a vital asset in attaining the goal of helping mentees achieve a goal and gain entry into a mentor's world.

#### **DEFINITION OF TERMS**

1. **Social Construction of Knowledge (SCK):** Is the notion that knowledge is sustained through humans interacting socially. Therefore individuals construct knowledge through these social interactions with each other through the course of life.
2. **Mentor:** Is an individual who is more skilled and experienced in a specific professional field. Usually guides a lesser skilled individual to advance to the same level. Normally this activity is conducted in a face-to-face setting.
3. **E-mentor:** Is an individual who is more skilled and experienced in a specific professional field. Usually guides a lesser skilled individual to advance to the same level. Interaction is conducted through electronic media.
4. **Mentee:** A lesser skilled and inexperienced individual who is guided by a mentor or an e-mentor
5. **Computer Transcripts:** Synchronous and Asynchronous message posts during an online interaction between two or more participants.
6. **Interaction Analysis Model:** Also referred to as the IAM model through out the study.

## Chapter 2

### Literature Review

The scope of this literature review will address research that examines the dominant themes of the research questions. These themes are:

1. Mentoring and its importance
2. E-mentoring and its importance
3. Implication of culture on the cross cultural online interaction
4. The various facilitation strategies employed in the social construction of knowledge

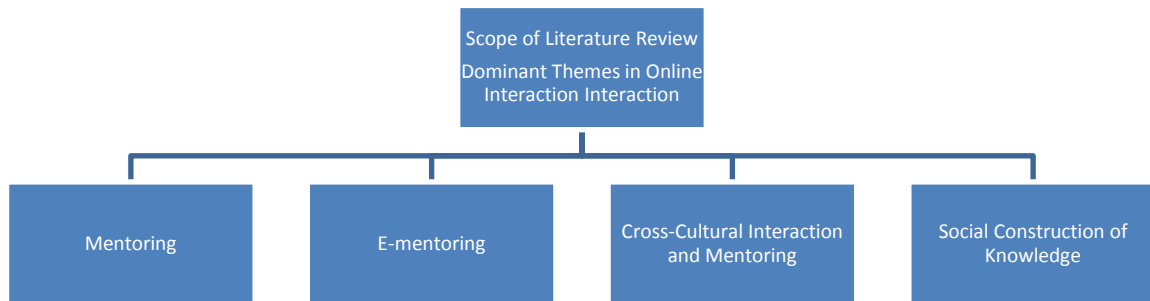


Figure 1: Components of the Major Themes in Online Interaction

## **MENTORING**

“Mentorship represents an individual commitment to seeking out, identifying, and developing in a variety of ways the leaders of the future—people who have the creativity, the intellect, the conceptual skills, and the personal qualities necessary to provide true transformational leadership in the challenging, ever-changing, and fluid environment of contemporary higher education.” (Yang & Metros, 2006)

According to Yang & Metros (2006), mentoring is a concept that is fairly new and rare in informational technology circles. Many institutions and organizations still use technical manuals and certifications.

In a mentoring relationship there is the mentor who is the expert in the profession and the mentee who is the novice and learns from the mentor by observation and structured formal agreements between the two parties. Yang & Metros (2006) outline a set of guiding principles that for mentoring. These principles are: Strive for Mutual Benefit; Agree on Confidentiality; Commit to Honesty; Listen and Learn; Build a working partnership; Lead by example; Be Flexible.

The relationship between a mentor and mentee can be formal or informal based on the role of the mentor. Mentors can be leaders, life coaches, teachers, peers, confidante, self-help mentor and inner mentor. (Yang & Metros, 2006).

Daloz (1999) defined a mentor as being responsible for supporting the development of mentees, a lesser skilled or less experienced individual. This responsibility includes helping the mentees gain the necessary skills and knowledge to function effectively in a particular environment. In the process of mentoring, mentors and mentees learn from

each other and benefit from a worthwhile relationship for both parties. In the online context, the features of the online medium such as text-based, computer-mediated, asynchronous communication, and social presence impact the electronic mentoring (e-mentoring) process. Benefits associated with e-mentoring mirror the benefits associated with mentoring: informational, psychosocial, and instrumental. (Daloz, 1999).

Mentoring has been shown to have a positive effect on one's career. One study by (Roche, 1979) found that of the 63.5 per cent of the 1,250 respondents who had a mentor (defined as “a person who took a personal interest in your career and who guided or sponsored you”) were on the average better paid, reached their positions faster, and were more satisfied with their work and careers than their non-mentor counterparts. Kram (1986) discovered that mentoring facilitate the socialization of new hires into the organization, reduces turnover, minimize mid-career adjustments, enhances transfer of knowledge and values, and facilitates the adjustment of retirement.

### **E-MENTORING**

Studies have shown that e-mentors in an online learning communities provides insight into collaborative problem solving skills that are important to educators and the global workforce (Richmond, Van-BerSchot, Gunawardena, Cardiff, & Barrett, 2008). E-mentoring and online learning communities provide mentee’s with the ability to collaborate, find, evaluate, and implement information and tools to better understand complex, ill-structured problem solving. The process of decision making enables learners to take responsibility for their own (and shared) professional development

(Richmond, Van-BerSchot, Gunawardena, Cardiff, & Barrett, 2008). Single and Singles (2005) describe e-mentor roles as facilitating, providing a safe and supportive environment, and maintaining a critical mass of mentees. According to these researchers, ensuring the mentees have a safe and supportive environment encouraged participation and encouraged mentees. Research also shows that understanding the role of a mentor when mentoring across cultures helps to democratize and diversity higher education by providing enriched support for learning (Crutcher, 2007).

According to Swan, et al. (2008), e-mentoring is the degree to which participants in an online interactive collaborative environment feel connected to each other. Other research by Gunawardena, 1995; Gunawardena & Zittle (1997) moved the definition of social presence from its original focus on the capacities of the media involved to one that focused more on individual perceptions, and so the concept of “social presence” evolved to “the degree to which a person is perceived as ‘real’ in mediated communication” Gunawardena & Zittle (1997, p 8). They identified that social presence in an online environment is an important factor in influencing student learning. This role is characterized by the e-mentor’s immediacy in responding to student mentee queries and being able to monitor and recognize the need for guidance and feedback in the online interaction.

Anderson, Rourke, Garrison, & Archer (2001) conceptualize facilitating discourse as the means by which students are engaged in interacting about and building upon the information provided in the course instructional materials. This role includes sharing meaning, identifying areas of agreement and disagreement between the mentees and

helping them reach a consensus. This is characterized by reviewing and giving feedback to mentee comment, raising questions and moving the discussion forward. The e-mentor has to be able to draw non-participating mentees into the discussion who may be intimidated by stronger personalities in the group.

The e-mentor needs to not only manage the task and move it forward so that end goal is accomplished in time but also manage the mentees and the level of involvement of all mentees. E-mentors also maintain and re-direct the discourse back to the goal if the discussion diverts from the task. Mihram (2004) indicates that successful e-mentoring relationships should have a formal structure. The degree of structure, or mentoring formality, needs to be based on the purpose of the mentoring program, the learning objectives, and what the sponsoring department expects as results (Akin & Hilbun, 2007). Structure also suggests a time period be attached to the mentoring scheme, the duration of which might follow a project length, or an arbitrary number of months. Both synchronous and asynchronous communication tools are recommended for effective e-mentoring dialogue because the richness associated with face-to-face conversation is known to diminish with the use of electronic media (Akin & Hilbun, 2007, Brennan & Lockridge, 2006).

#### **IMPLICATION OF CULTURE ON CROSS-CULTURAL ONLINE INTERACTION**

Literature on the implication of culture was drawn from research done on the implications of culture as it applies to mentors and not e-mentors due to the fact that there is limited research on e-mentoring and cultural implications.(Single & Single 2005, pg.



302). The historical connection between face to face mentoring and e-mentoring shows how the same cultural implications can apply to e-mentors in a Computer Supported Collaborative Learning environment (Gunawardena, et al., 2009). In identifying the Cross-cultural implications on the type of roles assumed by the e-mentors, Barker (2007)states that:

*“ To gain deeper understanding of how cross cultural mentoring in higher education is influenced by the institutional context, it is important to examine mentorship roles, cross-cultural mentoring relationships and intricacies of institutional context”.*

Since this research study is looking at the interaction between e-mentors and mentees from different Universities and Organizations both in the Unites States and Sri Lanka, it is important to look at the factors that affect this cross-cultural interaction. Some of these factors are student development, racial interaction, cultural perceptions and power dynamics Barker (2007), the interplay between agency and structure, differences in students frame of reference to the discourse happening based on the local norms of language and the valuation Basharina (2008). Basharina (2008) concludes that international online collaboration and student participation is shaped by discourses of unequal power relations between developing and developing countries. E-mentoring also across cultures “level the playing field” when it comes to gender difference. (Single & Single, 2005). Other studies found that in cases where mentees spoke the e-mentors’ language as a second language, communication was often an issue (Gunawardena, et al.,

2009). Quite often there were instances of wanting to maintain a positive impression where mentees would compete for recognition (Gunawardena, et al., 2009). In most developing countries, there is often a culture of “saving face”, not wanting to look like a failure in front of an outsider.

Crutcher (2007) maintains that since a few high ranking academes are from diverse backgrounds, it is especially important to focus on strategies that will make cross-cultural mentoring work. While most of the studies seem to focus on the cultural perceptions and power dynamics of cross-cultural e-mentoring and mentoring, Barker (2007) discussed the cultural implications of race in more detail. The relationship between a mentor and mentees from different ethnic background could provide chance for both parties to experience cognitive and psychosocial growth (Barker, 2007). According to the study, there seems to be arguments on both sides when it comes to preference in racial background of the mentor by the mentees. But race played a big role when it came to feelings of isolation and of belonging or being understood by the mentor.

#### **FACILITATION STRATEGIES AND THE IMPACT ON SOCIAL CONSTRUCTION OF KNOWLEDGE**

E-mentors use various facilitation style and strategies that may affect the construction of knowledge and the building of an online learning community. Structured e-mentoring is one approach used to design a framework for e-mentoring programs and is composed of a three phases, planning, program structure and assessment. Single & Single, (2005) and Williams & Kim, (2011) recommend a formal structure where there is

purpose to the mentoring, a learning objective and an expected outcome. One other strategy that Single & Single (2005) discuss is the idea of group e-mentoring which helps mentees benefit from the wisdom and encouragement of others. Mentors need to be familiar with all technological features of the Learning Management System (LMS) Dabner, 2011 and Westerman & Morisse (2006) and acquire skills to for usage of new media for communication. One of the critical strategies to the success of the mentees projects is effective communication between e-mentor and mentees (Williams & Kim, 2011).

Encouraging motivational and educational messages sent to mentees throughout the mentoring period to guide the process are helpful especially at the initial stages of mentoring. (Single & Single, 2005). Posting messages that prompted for more research guided the mentees in looking for more research to supplement what they already have (Gunawardena, et al., 2009).

Supportive language pushes the group into laying out a plan of action to accomplish the task at hand and praise of individual mentees or groups generated an eagerness to accomplish something for recognition (Gunawardena, et al., 2008). Studies also showed that frequent weekly messages helped the mentees stay focused (Single & Single, 2005).

This research study will use what the literature has outlined as the various ways e-mentoring can be an asset to online social construction of knowledge in an online environment. E-mentoring is beneficial to the paradigm of online learning as established by the limited research in the literature and shows the need for more research on this

topic. This study will aim to identify the emerging roles that the e-mentor plays in the online interaction using the major themes in the literature as a guide line.

## Chapter 3

### Methods

This research study examined the role of the e-mentor in the social construction of knowledge in a cross cultural learning environment by analyzing computer transcripts of an international e-mentoring experience between U.S. e-mentors and Sri Lankan mentees who engaged in three types of inquiry-based learning activities. During this e-mentoring experience mentees were asked to solve three problems in Sri Lanka. Two asynchronous discussions were set up in *Moodle* for this activity to discuss the problems presented: street children; traffic and garbage. The participants were tasked with developing a suitable resolution to these three problems.

In the initial rounds, two forums were setup. Forum 1 was dedicated to e-mentoring where mentees got to interact socially with each other and the e-mentor; it was used to discuss and plan how to conduct the problem solving activity online. Forum 2 was designed as a problem solving area where e-mentor and mentees interacted and collaborated to solve an assigned problem after participating in the e-mentoring interaction in Forum 1. Mentees actually discussed the problem, proposed and developed solutions through inquiry-based activities as outlined in the IAM Model.

This study used five rounds of the inquiry-based learning activities. These rounds were rounds 1, 2, 3, 8 and 9. Rounds 1, 2 and 3 had both a forum1 and forum 2, described earlier. Subsequent rounds 8 and 9 had only a forum design where the mentees and e-

mentors got to know each other and engaged in the collaborative problem solving activity in the same space.

The study also analyzed the Pre and Post survey response to one question which focused on the mentee's perception of the e-mentor prior to the e-mentoring experience and after the e-mentoring experience.

## **RESEARCH DESIGN**

The predominant research design was qualitative content analysis employing interaction analysis of the computer transcript. This study was part of a larger study where several researchers collaborated to develop a coding process analyzing the transcripts using the IAM Model and additional categories that emerged. The team of researchers initially used an Excel Sheet and designed a template that aligned with the IAM Model and worked on a template that matched the model to determine whether knowledge was socially constructed. The team of researchers then realized that there were themes that emerged that did not fit the model. These emerging themes were coded as separate columns in the Excel sheet template. The template was categorized into the five categories of the IAM Model and additional categories for emerging themes including a category for general information about the participants and the message post. Each category was a phase of the IAM Model and all the messages or parts of a message that aligned with each phase of the model were coded in this category breaking them into the respective sub-categories.

The Interaction Analysis Model (IAM) for examining social construction of knowledge in Computer Conferencing depicts the phases of social cognitive processes that learners move through to construct knowledge online. See Figure 2. The difference in this content-analysis approach can be noted in the location of analysis, where the unit of analysis was the entire message posted by a participant. While investigations of the patterns of connection found within CMC messages seek to decontextualize messages from their original context and break them into threads of related messages and units of meaning, the use of the IAM investigates interaction in the original context of the CMC transcript and seeks to understand the process of social construction of knowledge through the flow and pattern of interaction that took place during the conference (Gunawardena, Lowe, & Anderson (1997)).

The IAM Model is broken into five phases of co-constructing knowledge that learners may negotiate during the process of interaction. Gunawardena, Lowe, & Anderson (1997) make a correlation between this model and Vygotsky's concept of a learner's movement from lower to higher mental functions. In this correlation, the model begins with mentees working within lower mental functioning (the sharing and comparing of information) and moving through the phases into higher mental functions, (Gunawardena, Lowe, & Anderson, 1997). It is at Phase III that evidence of socially constructed knowledge appears. Phases IV and V represent the testing of the new constructions, and metacognitive statements of the social process in which the new knowledge was constructed as well as the adoption of the new knowledge into the learner's framework and schema. Each phase in the model is composed of a series of sub

phases that represent types of operations that mentees may move through during that stage. These sub phases act as indicators for coders to infer group social cognitive processing. This is not a prescriptive coding scheme but rather is a proscriptive model to be interpreted and accommodated by a researcher who chooses to use it.

- Phase I: Sharing/Comparing of Information. Stage one operations include:*
- A. A statement of observation or opinion.
  - B. A statement of agreement from one or more other mentees.
  - C. Corroborating examples provided by one or more mentees.
  - D. Asking and answering questions to clarify details of statements.
  - E. Definition, description, or identification of a problem.
- Phase II: The Discovery and Exploration of Dissonance or Inconsistency Among Ideas, Concepts, or Statements. (This is the operation at the group level of what Festinger (1957) calls cognitive dissonance, defined as an inconsistency between a new observation and the learner's existing framework of knowledge and thinking skills.) Operations which occur at this stage include:*
- A. Identifying and stating areas of disagreement.
  - B. Asking and answering questions to clarify the source and extent of disagreement.
  - C. Restating the participant's position and possibly advancing arguments or considerations in its support by references to the participant's experience, literature, formal data collected, or proposal of relevant metaphor or analogy to illustrate point of view.
- Phase III: Negotiation of Meaning/ Co-Construction of Knowledge*
- A. Negotiation or clarification of the meaning of terms.
  - B. Negotiation of the relative weight to be assigned to types of argument.
  - C. Identification of areas of agreement or overlap among conflicting concepts.
  - D. Proposal and negotiation of new statements embodying compromise, co-construction.
  - E. Proposal of integrating or accommodating metaphors or analogies.
- Phase IV: Testing and Modification of Proposed Synthesis or Co-Construction*
- A. Testing the proposed synthesis against "received fact" as shared by the mentees and/or culture.
  - B. Testing against existing cognitive schema.
  - C. Testing against personal experience.
  - D. Testing against formal data collected.
  - E. Testing against contradictory testimony in the literature.
- Phase V: Agreement Statement(s)/Applications of Newly-Constructed Meaning*
- A. Summarization of agreement(s).
  - B. Applications of new knowledge.
  - C. Metacognitive statements by the mentees illustrating their understanding that their knowledge or ways of thinking (cognitive schema) have changed as a result of the conference interaction.

Figure 2: Interactive Analysis Model (Gunawardena, Lowe, & Anderson, 1997)



Additional themes that emerged during this initial consensus coding conducted by the team of researchers were Social Interaction, Cultural Aspects, Project Management, Leadership and the E-mentor Role. This study took the E-mentor role theme that emerged and the related messages identified with the role and analyzed the messages according to the framework identified in Jayatillke, Malinda, Kumarasinha, & Gunawardena (2012).

### **RESEARCH QUESTIONS**

The guiding research question for this study was: What is the role of the e-mentor in the social construction of knowledge in an online cross cultural environment? This involves the following specific sub-questions:

1. What e-mentor roles emerged during the online interaction with mentees?
2. Which E-mentor roles and facilitation styles supported Social Construction of Knowledge?
3. What were the cultural nuances that were evident between the e-mentor and the mentee interactions?
4. What were the participants perception of the e-mentor prior to and after the e-mentoring experience?

## **METHOD TO ANSWER RESEARCH SUB-QUESTION 1 : WHAT E-MENTOR ROLES EMERGED DURING THE ONLINE INTERACTION WITH MENTEES?**

The transcript analysis for the identification of e-mentor roles used structured content analysis and adapted a framework that emerged from the qualitative content analysis designed by Jayatillke, Malinda, Kumarasinha, & Gunawardena (2012) based on the qualitative content analysis approach of Lincoln & Guba (1985) to break down the transcript data that exhibited e-mentor roles into 6 categories. These categories were: Social, Pedagogical, Managerial, Technical, Collaborative and Inspirational. This framework emerged from a team of researchers that analyzed only the case based reasoning interactive sessions in forum rounds 1, 2 and 3. (Jayatillke, Malinda, Kumarasinha, & Gunawardena, 2012).

The identified e-mentor interaction during the coding for social construction of knowledge in the larger study (in a separate excel sheet column) was used to identify the emerging roles of the e-mentor in an online cross-cultural learning environment. The e-mentor related activities identified in the social construction of knowledge coding phase was further broken down using the framework that emerged during coding and analysis of the data set by Jayatilleke, Malinda, Kumarasinha, & Gunawardena (2012) where they saw six e-mentor roles emerge. This study added to the Excel sheet developed in the larger study the six e-mentor roles, and analyzed the messages to determine the role played by the e-mentor in the message posted. See Appendix B [Excel Sheet with e-mentor roles]. The categories added to the Excel sheet were as follows: Social; Pedagogical; Managerial; Technical; Collaborative; Inspirational

## **METHOD TO ANSWER RESEARCH SUB-QUESTION 2: WHICH E-MENTOR ROLES AND FACILITATION STYLES SUPPORTED SOCIAL CONSTRUCTION OF KNOWLEDGE?**

To answer this question, the study used the identified e-mentor roles from research sub-question 1. Please refer to the method for answering research sub-question 1. Secondly, the computer transcripts from all five rounds were analyzed to identify the facilitation approaches used by the e-mentor in the e-mentoring experience. Finally, to find out whether knowledge was constructed socially, the transcript analysis for social construction of knowledge from the larger study was used for rounds 1, 2, 3, 8 and 9 and matched to the emerging e-mentor roles and facilitation styles. The phases that this study focused on were phase III, phase IV and phase V. However, to set the background and show that the e-mentoring experience initially showed evidence of agreement and dissonance, this study also analyzed phases I and II.

To identify the facilitation approach employed by the e-mentors during the interactive experience the study conducted structured content analysis of the computer transcripts for all five rounds. The facilitation approach was categorized into facilitative style, instructional style and blended style. The facilitative style is mostly employed when the team:

- Has a lot of data to work through
- Has completed some initial training
- Has the skills and knowledge to move forward
- Has intimate knowledge of the context

- Needs to focus or clarify their thoughts and when it is necessary for the facilitator listens, probes and paraphrases.

The instructional style was mostly employed when the team:

- Could benefit from professional knowledge, resources or direction
- The team did not possess the knowledge or skills required for action
- Time is of the essence and immediate actions are essential
- Could benefit from personal thoughts, experiences and motivation

The coding for categorizing the blended facilitation strategy looked at the e-mentor messages that had features of both facilitative and instructional styles and messages that asked questions which indicated a switch from one facilitative approach to the other, for example:

- Would you like more information about ?
- Would you like to spend some time looking at?
- Would you like me to describe some options for you?

The analysis for the social construction of knowledge during the e-mentoring experience was based on the Interaction Analysis Model (IAM) developed by (Gunawardena, Lowe, & Anderson, 1997) for analyzing the occurrence of social construction of knowledge during the online interactions between mentors, e-mentors and mentees. To provide evidence of social construction of knowledge this research study

only looked at Phase III, Phase IV and Phase V of the IAM Model because it was seeking to find if there was social construction of knowledge which starts to happen in Phase III.

Once the e-mentor roles, the facilitation approaches and the social construction of knowledge in phase III, IV and V were coded, a relationship was drawn between the e-mentor roles, the facilitation style employed by the e-mentors, the occurrence of social construction of knowledge

**METHOD USED IN ANSWERING RESEARCH SUB-QUESTION 3: WHAT WERE THE CULTURAL NUANCES THAT WERE EVIDENT BETWEEN THE MENTOR AND THE MENTEES.**

As described earlier in the study, the e-mentors that participated in this online learning experience were selected from the United States as well as from Sri-Lanka. The mentees were all from Sri-Lanka. The study looked at the online interaction between the e-mentors and mentees and tried to identify any cultural differences given the different cultural backgrounds of the e-mentors and the mentees.

This portion of the coding looked at the rounds to identify the cultural nuances discussed in chapter 2 such as formal and informal communication, respect and maintaining a positive impression. This was drawn from the identified e-mentor interaction in the excel sheet that exhibited cultural aspects during the coding and analysis of the rounds for Social Construction of Knowledge in the larger study.

**METHOD USED IN ANSWERING RESEARCH SUB-QUESTION 4: WHAT WERE THE PARTICIPANTS PERCEPTION OF THE E-MENTOR PRIOR TO AND AFTER THE E-MENTORING EXPERIENCE.**

The pre and post survey data from round 8 and round 9. In rounds 8 and 9 there was a pre-test and post-test given to the mentees to gain an understanding of the mentees expectations of the e-mentor prior to the online e-mentor interactions and mentee perception of the e-mentor after the e-mentoring experience.

The pre-survey questions were designed to include questions that looked for team expectations and e-mentor expectations. This study looked at the question that was asking the mentees about their expectation of the e-mentor which was: “What are your expectations from the international e-mentor who will participate in this group activity?” The post survey question was designed to elicit responses from the mentees about the e-mentoring experience they had within the respective groups. The post survey question was: “In what ways if any, did the e-mentor support your group problem solving learning activity?”

To get a good sense of the themes that would be used in the analysis, the survey responses were scanned for emerging themes in the responses to the question asking about expectations the mentees had of the e-mentor. The responses scanned were then broken down into categories for each emerging theme. The mentees expectations of the e-mentors were categorized into: Project Management, Social Presence, Diverse Perspective, Feedback, Technical Ability and Knowledge Sharing.

One thing to note in this analysis is that, this study did not compare change in perception of the same group of participants. Different mentees took the pre-survey and not all the mentees that took the pre-survey also took the post surveys. This study is only looking at the perceptions of the group of participants who took the survey and not individual change in perceptions since all of the mentees participated in the interactions. The result from the pre and post survey was used to show if the expectations of the mentees changed in the post-survey from the pre-survey expectations.

## **PARTICIPANTS**

The participants in this online experiences were :

1. Mentees, Sri-Lankan Professionals learning to teach online,
2. Trainers who trained on how to tutor and mentor online,
3. E-mentors who facilitated the online interaction and guided the mentees in the inquiry-based activity in one module,
4. E-mentor at large who supported the e-mentors in the online tutor mentor workshops offered through Moodle and face-to-face sessions.

For the inquiry-based learning activities analyzed within rounds 1, 2, 3, 8 and 9 there was a total of 30 mentees. Each round also included one U.S. e-mentor, one Sri Lankan e-mentor at large or global e-mentor, and trainers. The majority of the learners were female (74%), and Round 03 had only one male learner out of the ten mentees in the group. A detailed description of the participants is in Table 1.

<b>Participant</b>	<b>Role Description</b>
Local E-mentor	These were individuals who were Sri-Lankan nationals who were living both in Sri-Lanka and overseas and helped the international e-mentors in facilitating the interactive experience.
International E-mentor	These were individuals who were from the United States who were assigned to facilitate the interactive experience.
E-mentor At Large	This was an individual who supported the e-mentoring activity in the different rounds.
Moderator	These were mentees who were assigned as group leaders within each interactive group.
Mentees	These were individuals who participated in the e-mentoring experience and the inquiry-based activities to learn how to become online teachers and mentors.



Table 1: Participant Description

## **Chapter 4**

### **Data Analysis**

This chapter discusses the results of the analysis of the data from the online cross-cultural interaction. The analysis of the data addressed and answered the following research questions:

1. What e-mentor roles emerged during the online interaction with mentees?
2. Which E-mentor roles and facilitation styles supported Social Construction of Knowledge?
3. What were the cultural nuances that were evident between the e-mentor and the mentees.
4. What were the participants perceptions of the e-mentor prior to and after the e-mentoring experience.

#### **RESEARCH SUB-QUESTION ONE**

##### **What e-mentor roles emerged during the online interaction with mentees?**

The analysis of the transcript for e-mentor roles used the framework that Jayatilleke, Malinda, Kumarasinha, & Gunawardena, (2012) developed after analysis of parts of the same data set in a previous study. The framework they proposed had six emerging e-mentor roles. These roles were categorized into: Social; Pedagogical; Managerial; Technical; Collaborative; Inspirational (See Figure 3). Figure 3 shows the roles that emerged to the number of posts in each round that showed evidence of that role.

Jayatilleke, Malinda, Kumarasinha, & Gunawardena (2012) analyzed the rounds 1, 2 3 with a different group of e-mentors and mentees. This study analyzed the same round but

with a different set of e-mentors and mentees. The transcript data for rounds 1,2,3,8 and 9 were coded according to the six categories.

As seen in Fig 3. five e-mentor roles: social, managerial, pedagogical, collaborative and inspirational emerged (except technical role) in all five rounds were analyzed. Of these six roles, the three predominant roles were: Social, Pedagogical and Managerial. These roles were very evident in round 2 group 2 . Of the three roles that were most prominent, the social role was the most prominent in round 2 group2 (See Figure 3). Qualitative examples of these roles can be seen in Table 2. These messages were e-mentor messages that exhibited the e-mentor roles identified during analysis.

For Round 1 and 2, conducting inquiring based learning with an international e-mentor was a new experience. International e-mentors knowing that this was a new experience for the mentees put in more effort to engage with them. It can also be evidence that due to this new experience, the e-mentor inspired the mentees resulting the emergence of the inspirational role (See Figure 3).

Also for most of the e-mentors, interacting online to engage in a pedagogical activity across cultures was a new experience. Of interest is round 2 which dealt with the traffic problem, the international e-mentor had experience of solving this problem in the United States so was able to be more engaged in facilitating the learning activity and offering diverse perspective.

The data analysis for the emerging e-mentor roles indicated the strongest emergence in the Social, Pedagogical, Managerial, collaborative and inspirational role for the e-mentor for rounds 1 and 2 of the transcript analysis.

The emergence of most of the e-mentor roles in round 2 group2 could be attributed to the instructional design of the activity. This round was set up as a role playing activity where each mentee had to play a role play in solving the traffic problem. Secondly, the e-mentor had

prior knowledge of the instructional design activity that had to do with the traffic problem. This could have motivated the e-mentor to engage more with the mentees therefore resulting in most of the roles emerging during round 2, group 2 interactions.

The technical role emerged only in one round of the five rounds analyzed. In reviewing the transcript, it was evident that this particular round had a lot of technical issues with participants not being able to log into the Moodle platform. Therefore in addition to the technical support they had available to them locally, the e-mentor had to engage in giving technical advice. It is remarkable that in all the rounds analyzed, only one round showed technical issues which needed the engagement of the e-mentor.

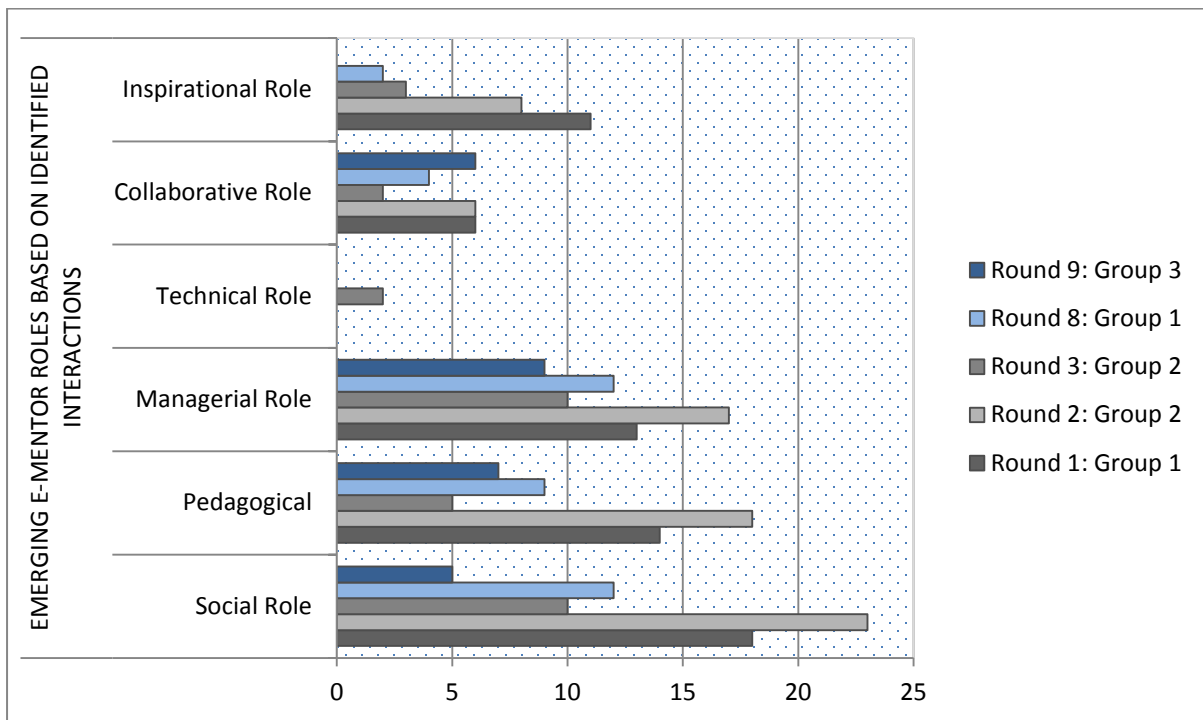


Figure 3: Emerging E-mentor Roles from Rounds 1,2,3,8 and 9

Across all the rounds there is evidence of the Social, Pedagogical, managerial and collaborative e-mentor roles emerging. The emergence of the e-mentor roles can be attributed to that fact that the e-mentors were not from Sri-Lanka where the mentees were from. So there was a tendency to socialize and get to know the mentees and likewise the mentees

wanting to get to know the e-mentor. Table 2 shows the qualitative descriptions for the 6 e-mentor roles that emerged during the online cross-cultural interactions with the mentees. The messages show the instances where e-mentor messages showed the emergence of a specific role.

The analysis of the transcripts of rounds 1, 2, 3, 8 and 9 verified the e-mentor roles that emerged from the transcript analysis done by Jayatilleke, Malinda, Kumarasinha, & Gunawardena (2012). Since the study only analyzed five of the same rounds but a different set of mentees, it is possible that the alignment can be predicted. We can conclude that e-mentoring across cultures will include these six roles and maybe more roles will emerge based the problem being solved and the cultural diversity. It also important to mention that, the study did not look at gender as a factor that would impact the online interaction.

In all the five rounds analyzed, it can also be shown that the highest occurring roles are social and managerial. The high occurrence of each e-mentor role can be attributed to the level of interactions the e-mentor had with the mentees in the online activity. An engaged e-mentor will have more roles e-merging than a less engaged e-mentor.

Round	Social	Pedagogical	Managerial	Technical	Collaborative	Inspirational
1	"It's so nice to see your message. Do your group members share your statement of your group's objective and goal? Does anyone have anything to add or revise?" Round 1, Post 2	"(1) Focus on what you are doing to solve the problem, not on the answer itself. ..."  Round 1, Post 7	"...The group has come up with tasks; assignments need to be made; have due dates been assigned? What kind of activity will you lead? What do you want the participants to be able to do after the activity is concluded?..". Round 1, Post 7			"...I really like the problem-solving resource you provided. I think it will be very helpful for the group. I especially like this statement: ..."Round 1, Post 7
2	"Great contributions, Buddhika - it's easy to complain about a problem, but offering solutions is what really helps bring about progress..." Round2, Post 16	"... One possibility is that we could organize an online city council meeting to give everyone a chance to make their contribution. Does anyone in the group have any thoughts about this? .."Round 2, Post 16	"...It occurs to me that perhaps we could use some kind of structure to organize our online activity. ..." Round 2, Post 16	"...This one refuses to upload, so here is the link:..."Round2, Post 22	"...In the U.S. when a city has a traffic problem, concerned parties might make their views known to the city council, which is a group of elected officials responsible for running the city and which holds regular meetings where the citizens are invited. ..." Round 2, Post 16	"This is a great start, [Mentee]! What do others think of the idea?" Round 2, Post 40
3	"I meant to say to use the Conducting the interactive learning activity site for your planning and the Wiki site for the write sections. " Round 3, Post 32	"...I want to commend Champika on the appreciation section. It is often called "Best Practices". In the Appreciative Inquiry model one takes for those appreciations or best practices and creates a vision or goal statement. In fact your group is being asked to "try to apply what you have learned to resolve it..."Round 3, Post 45	"...Time is short now so I all see that is needed is the conclusion and what your recommendations are to resolve the street children issue based on what you have learned. Good luck.." Round 3, Post 45	"...Sorry about the Wiki editing problems..." Round 3, Post 45	"...The plan of the study and topic selection Topics _____ Name of writer _____ 1. Introduction _____ 2. Objectives of the study _____ 3. Methodology- secondary data, interviews,project reports,general information and cases. _____ 4. Reasons for the problem _____ 5. solutions already presented _____ 6. Appreciation _____ 7. Pull all the topics together _____ 8. Does the final editing. _____ You don't actually need to sign up just declare your choice of topic and share ideas. Hope that helps "	

Table 2: Qualitative Description of Transcript Rounds and Roles

Round	Social	Pedagogical	Managerial	Technical	Collaborative	Inspirational
8	<p>“Thank you for your kind words, great to hear about the Wiki! I'm going to it after reading the discussion messages.” “ Round 8, Post 5</p>	<p>“The problems and solutions are great. It sounds like the group has met and together compiled the issues really well. Somethings to think about: How will the solutions be implemented? What resources are needed to accomplish the solutions? Who will take the lead?” “ Round 8, Post 4</p>	<p>“Has anyone decided to be moderator?” “ Round 8, Post 17</p>		<p>“I totally agree with you. But change of attitude should come from the top management to the lower level. Since these organizations are highly politicized, it's very difficult to change their mind set. What do you think about it? Do we need to adapt different approach for them” Round 8, Post 21</p>	
9	<p>“ Greetings from Maryland, USA!</p> <p>I am happy and excited to be part of this Tutor Mentor workshop and be the international mentor for Group 3.</p> <p>Currently, I work as an Instructional Designer for the Bloomberg School of Public” Round 9, Post 1</p>	<p>“.. Hello, again to the members of group 9-3.</p> <p>... Ideally, the group members could start to brainstorm ideas, after reviewing this case, on the best approach to a possible solution, utilizing the expertise and experiences of its members.” Round 9, Post 2</p> <p>“</p>	<p>“...I look forward to providing any assistance and guidance you need...” Round 9, Post 2</p>		<p>“ Here is another link that may be helpful for the section under Solutions/Recommendations</p> <p>“ Round 9, Post 58</p>	

## RESEARCH SUB-QUESTION TWO

### WHICH E-MENTOR ROLES AND FACILITATION STYLES SUPPORTED SOCIAL CONSTRUCTION OF KNOWLEDGE?

This section of the analysis was divided into three subsections. The first sub-section analyzed the different facilitation approaches. Three approaches emerged from the data. Facilitative, Instructional and Blended styles. The second sub-section analyzed the social construction of knowledge. The third sub-section looked at the correlation between the facilitation styles, the emerging e-mentor roles that was analyzed in research question one and the social construction of knowledge in the IAM Model, phases III, IV and V that showed knowledge construction. This section also describes two examples that show evidence of sequence of messages during the interaction between the e-mentor and the mentees that led to social construction of knowledge.

#### Facilitation Approaches

Figure 4 shows the distribution of instances of facilitative, Instructional and Blended styles used by the e-mentor.

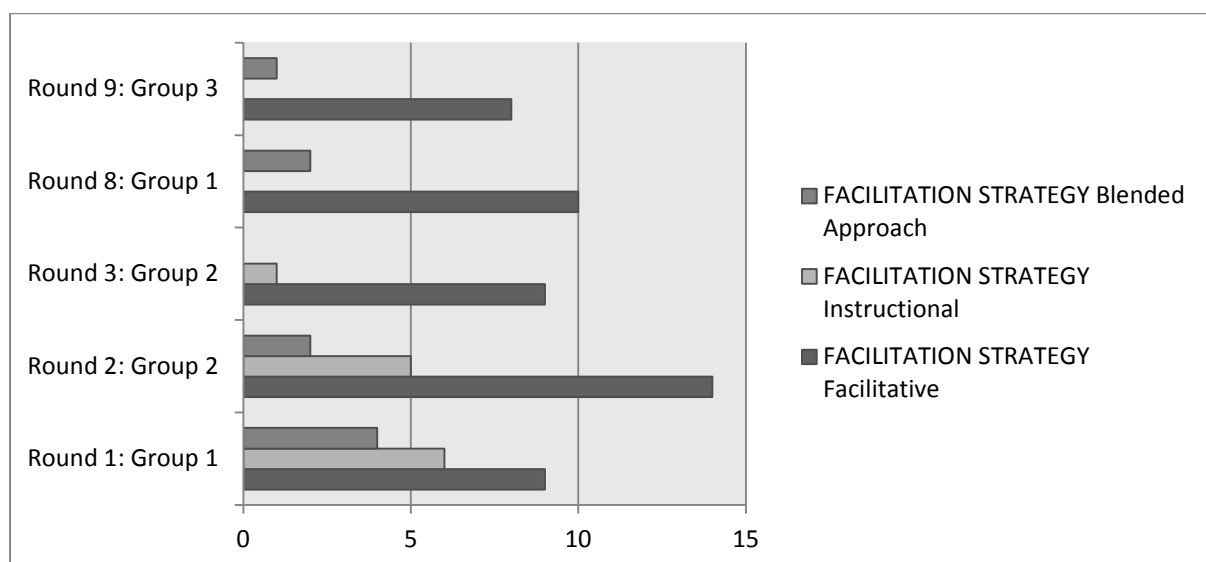


Figure 4: Facilitative Approaches



### ***Facilitative Style***

A facilitative approach was one where the e-mentor guided the mentees through the problem solving activity by letting the mentees come up with ideas on their own and allowing them to come up with a process to solve the given problem. This style was mainly used by the international e-mentors that were from the United States. For example,

*“Hi [Mentee], It sounds like a virtual Municipal Council meeting might be a way to include all the role players in collaborating on a solution. What do others in our group think about this idea? The short term solutions you listed as representative of the RDA are well reasoned and practical. They also serve to illustrate the background to this difficult problem. Are there any other short term solutions the group can think of?*

*International E-mentor” [Round 2, Group 2]*

In the facilitative style, the international e-mentor asked probing questions that helped the mentees come up with a solution as a group. This was evident in round 2 and round 8 that had international e-mentors assigned. These two rounds had the most incidences of facilitative style as the approach they used. See Figure 4.

### ***Instructional Style***

The second form of facilitation style observed in the analysis was the instructional style. The e-mentor gave direct instructions as how to approach the problem and in some cases was able to provide resources and suggestions from personal knowledge. This approach was mainly used by the local e-mentors who were assisting the international e-mentors and some e-mentors who were natives of Sri-lanka but were living overseas. Rounds 1, 2 and 3 had local e-mentors who used an instructional style when mentoring the mentees as shown below.

*“Hi everyone, I am your e-mentor at-large, Good Day! I am watching with great interest as to how you all are handling this 'activity'. If you have a problem with the term 'activity' try replacing it with 'exercise', then you may get a better idea about the*

*task. I am attaching herewith a resource on Problem Solving Activity which I downloaded from the Internet. I hope it will be useful. Good Luck!” [Round 1, Group 1]*

This direct approach to instruction where the e-mentor tells the mentees exactly how to approach and solve the problem instead of guiding the group by offering suggestions and letting the group construct their own knowledge is a communication style used by Sri-Lankans. The direct authoritative style of teaching is evident in the message referenced in the round 1, group1 message.

### ***Blended Style***

A blended style was seen when e-mentors used both facilitative and instructional styles in the same round and the same message. This style was mainly used by international e-mentors when it looked like the groups could not figure out a solution by themselves. This style was more evident especially when e-mentors needed to show mentees how to create concept maps or come up with an outline for the activity the group was working on. For example,

*“Hi [Mentee], ..., It's so nice to see your message.  
Do your group members share your statement of your group's objective and goal?  
Does anyone have anything to add or revise? [Facilitative]  
The next step might be to ensure the group has the right people, with the right skills  
and the proper tools, in the right quantity at the right time undertaking the right tasks.  
[Instructional]  
How do you like that statement? Are there enough "rights" in it? [Facilitative]  
[International E-mentor]” [Round 1, Group1]*

During the transcript analysis, it was evident that the facilitative style emerged as the preferred method by the e-mentors as shown in Figure 4. Even during rounds 1, 2 and 3 that had the instructional style emerging as the e-mentor preferred facilitation approach the facilitative style was evident. This can be attributed to the fact that these Round had both an international and a local e-mentor engaging the students in the activities. See Figure 3. The blended style was more prominently used in round 1,2, 8 and 9.

## Section Two: Social Construction of Knowledge

The analysis of the Social construction of knowledge was based on the IAM Model. (See Table 1). The Model has five phases:

- Phase I: Sharing/Comparing of Information,*
- Phase II: The Discovery and Exploration of Dissonance or Inconsistency Among Ideas ,*
- Phase III: Negotiation of Meaning/ Co-Construction of Knowledge*
- Phase IV: Testing and Modification of Proposed Synthesis or Co-Construction*
- Phase V: Agreement Statement(s)/Applications of Newly-Constructed Meaning*

The analysis for the social construction of knowledge looked at the e-mentor and mentee interactions that occurred between Phase III to Phase V of the IAM Model. (See Table 1). This study is only focused on these three phases of the IAM Model where knowledge was constucted. To gain a better understanding of the transition through the phases, see Figure 5 below showing the first two phases in round 1,2,3,8 and 9. Figure 5 is illustrating the frequency of message posts between e-mentor to mentee, mentee to mentee and mentee to e-mentor that fell within the categories of Phase I and II of the IAM Model.

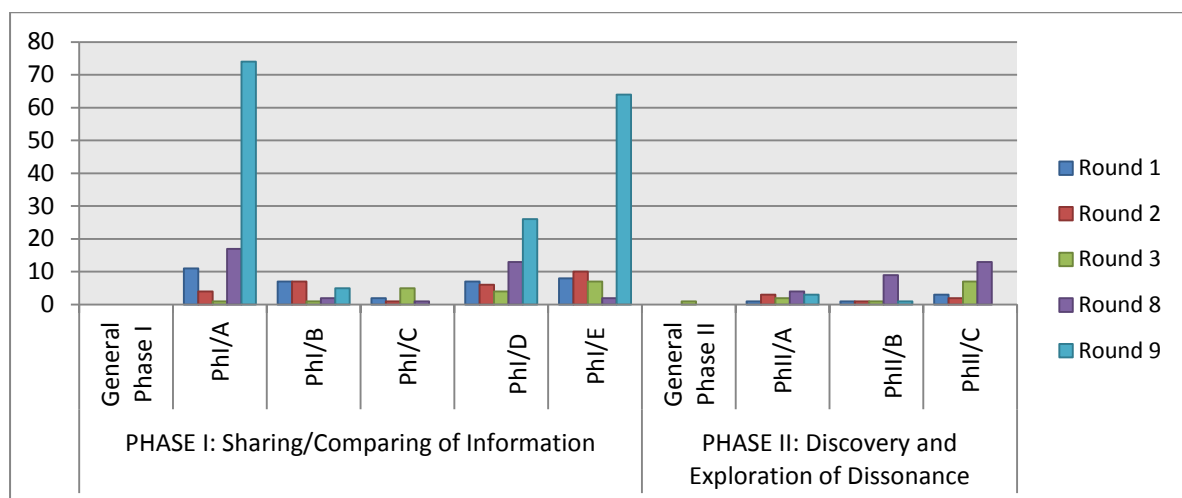


Figure 5: Social Construction of Knowledge, Phase I and II

In Phase I of the IAM Model, the sharing and comparing of information between the e-mentor and mentees, was evident in all 5 rounds of the transcript analysis. This phase is characterized by participants making statements of observations and opinion, making statements of agreement, corroborating examples given, asking and answering questions for clarity and defining, describing and identifying problems. The rounds that showed the most instances of sharing and comparing of knowledge were rounds 1, 8 and 9.

During the analysis of the transcripts it is clear that the interaction between the e-mentor and the mentees progressed through each category of phase I as evidenced in round 1, group 1. It was noted that during this phase, the messages would alternate between the different categories of Phase I as each mentee tries to share and compare what they know to what other participants are saying.

***Phase I/A, Statement of Observation or Opinion:***

Table 3: Sequence of Messages Illustrating Phase I of IAM Model

Phase 1: Sharing/Comparing of Information	Message Sequence
Phase I/A: Observation	<p><i>[E-mentor]</i>  <i>"Hi everyone,</i>  <i>I am your e-mentor at-large, Good Day!</i>  <i>I am watching with great interest as to how you all are handling this 'activity'. If you have a problem with the term 'activity' try replacing it with 'exercise', then you may get a better idea about the task.</i>  <i>I am attaching herewith a resource on Problem Solving Activity which I downloaded from the Internet. I hope it will be useful." Good Luck!"</i>  <i>[Round 1, Group 1]</i></p>
Phase I/B: Agreement	<p><i>"Hi, [E-Mentor],</i>  <i>I really like the problem-solving resource you provided. I think it will be very helpful for the group. I especially like this statement:</i>  <i>(1) Focus on what you are doing to solve the problem, not on the answer itself.</i>  <i>The group has come up with tasks; assignments need to be made; have due dates been assigned?</i></p>
Phase I/C: Corroborating	<p><i>"Hi Everyone,</i>  <i>I am glad that Deb has mentioned about Concept Mapping. This is a tool that I too like a lot. It helps the discussions on problem solving. Concept Maps help visualise the relationships between different components/issues related to a topic. It gives a graphical representation of what you have in mind. Also, It is an excellent means for communicating (brainstorming) about a topic and provides a basis for grouping and prioritising. I am sure you all will enjoy using it as a general management tool even after this exercise.</i>  <i>Good luck!" Round1, Group 1, Post 13</i></p>
Phase I/D: Asking questions and Clarifying	<p><i>"...I do agree with the activities which Ranjan talking about but i would like to add one more thing. Don't you think that we have to consider and identify the resources we have to solve this problem? This is just and idea" Round 9, Group 3, Post 13</i></p>

Phase I/E: Definition and Identification of Problem.

*“Hi Everyone, ..It seems that we are on a sound footing regarding our problem with [E-mentors] guiding the group and [Moderator]moving ahead. Regarding the method to be used I think concept map method would be easy for us. As we have our [Moderator] who is an expert in cocept mapping this would be easier. Anyway what are your ideas about that?  
Now I think we have to divide the activities to different sections. For example:  
1. How garbage disposal is done now  
2. Understanding the roles and functions of different workers/sections  
3. Identifying where the actual situation is created  
4. Identifying the reasons for this  
5. Suggesting ways and means to solve the problem  
These are only a few ideas from me which you can modify and develop. then different activities can assigned to group members.”  
[Mentee] Round1, Group1, Post 14*

Phase II of the IAM Model, focuses on the discovery and exploration of dissonance (disagreements) and this phase is characterized by identifying and stating areas of disagreement, asking questions that can clarify sources of disagreement and repositioning original statements.

Compared to phase I, very few occurrences of phase II were evident. This could be attributed to cultural norms where open disagreement with peers and figures of authority is considered disrespectful. As a result there is a tendency toward reaching an agreement and consensus instead of disagreeing. During the transcript analysis and as shown in Figure 5, round 8 showed more evidence of dissonance as compared to the rest of the rounds. This could be due to the fact this round had some technical difficulties with the collaborative space where they were problem solving and putting together the document. Due to this technical issues, the group collaborated on their assigned problem in the e-mentoring space. Therefore all messages that showed the disagreement and frustrations expressed during the problem solving activity became part of the e-mentoring experience. This sheds light on an interesting finding. Even though the e-mentoring experience showed very little dissonance in all the rounds, it could be that most of the dissonance was occurring in the wiki where the groups were collaborating and problem solving which was not part of this study.

But there is still evidence of discovery and exploration of dissonance, for example in round 3 and 8 where participants were analyzing points of disagreement and compromising to arrive at a common solution. The following messages characterize phase II by illustrating a sequence showing how participants arrive at point of compromise. This sequence was taken from round 8, group. See Table 4.

As highlighted in Table 4, the participants were able to clarify the misunderstanding of not knowing who the moderator was by asking questions to clarify and finally reach an agreement.

Table 4: Sequence of Messages Illustrating Phase II of IAM Model

Phase II: Discovery and Exploration of Dissonance	Message Sequence
Phase II/A: Identifying and Stating Areas of Disagreement	<p><i>[Mentee]</i>  <i>“Ohhh, its not. I wrote down the main points but i’m not the moderator.All group members decided you are the moderator no.” [Round 8, Group 1]</i></p>
Phase II/B: Asking and answering questions to identify source and extend of disagreement.	<p><i>“Hi, [E-Mentor],</i>  <i>I totally agree with you. But change of attitude should come from the top management to the lower level. Since these organizations are highly politicized, it’s very difficult to change their mind set. What do you think about it? Do we need to adapt different approach for them .....”</i>  <i>Round 8, Group1 Post</i></p>
Phase II/C: Repositioning argument for original position and providing rationale	<p><i>““Sure , Management is really responsible but there are also Union Problems hence they are reluctant to be too strict with their staff. They do not want to get into too many problems and cause strikes etc. That is why I thought of tying a new approach .” Round8, Group 1, Post 22</i></p>



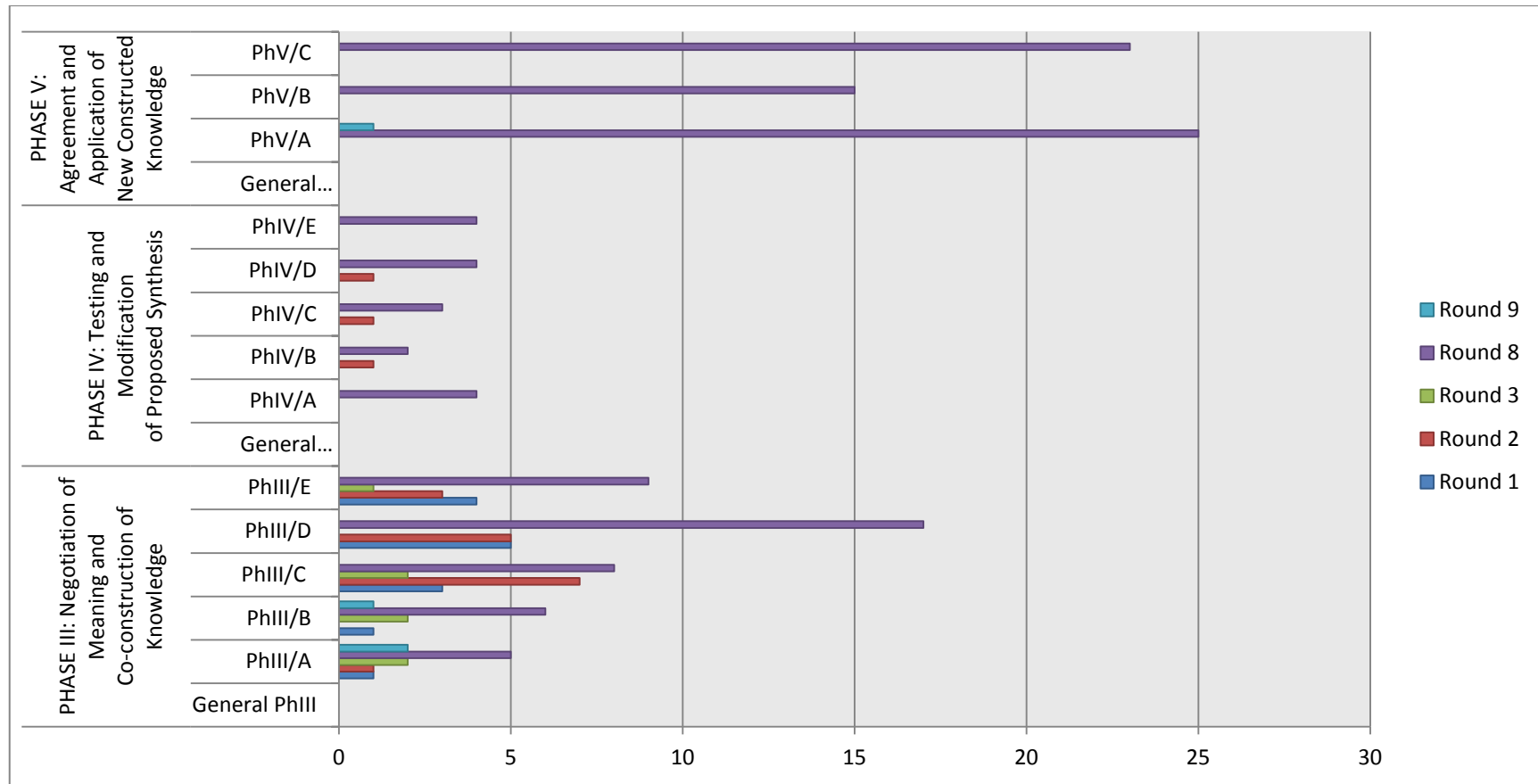


Figure 6: Social Construction of Knowledge Phases III, IV and V

### **Section Three: Sequence of interactions of E-mentor roles and facilitation styles that led to Social Construction of Knowledge**

Below are examples of conversation sequences with e-mentor roles that led to social construction of knowledge as evidenced in round 2, group 2 interactions. This section will illustrate the sequence of messages during each phase that was illustrating the collaborative and pedagogical e-mentor roles during phase III of the IAM Model as shown in figure 6. Table

#### ***E-mentor Initiated Message: Facilitative Style and a Collaborative role***

In this sequence of interactions the e-mentor acted as both a facilitator and collaborator by giving the mentee suggestions on how to frame the theme for solving the problem of street children. This falls within phase II of Discovery and Exploration of Dissonance. Here the mentee is restating the mentees position and framing it in a positive way.

*“...I would suggest that the problem whatever you all choose is reframed into a positive theme.*

*For example, the children who beg on the streets and do not go to school or have a home could be a theme of security for street children or moving from the street to security for street children.*

*In the appreciative model you begin with the end in mind and look for the positive resource. The birth certificate story is a good example of a positive feature...”*

### ***Mentee 1 Response to E-mentor***

Here the mentee is taking the suggestion and negotiating and clarifying the meaning of terms. The mentee is also restating his position based on new observation and supported by references and formal data. The mentee is in the discovery and exploration phase where they are they trying to reconcile his existing framework of thinking with new information that they are collecting about the problem.

*“..In the research, what I felt was to collect several individual cases, there are success stories as well as bad stories. Apart from that there are several programmes implimented by the government and NGOs that also can be consider as cases and there could be success or failures.*

*Further, what we have found was that thyere are no collaborative efforts, I mean even among the government departments, to address the issue. As a consequence it appears that there is no collective plan to address this issue. We still have time to research in this area...”*

### ***Mentee 2 Response to Group***

Here again we still see the mentee engaging in the discovery and exploration phase. The mentee is conducting research and obtaining articles that will help them understand the assigned problem.

*“[Mentee 3] and I visited the Education department on the 25th. The person who's in charge of implementing the government programmes were not in office. However, we found 2 relevant articles there which I would summarize,*

*Source: Lankadeepa (22 May, 2006 and 29 May, 2006)*

*\*A number of 60 street children (years 5-14) have been identified in Kandy to be provided education and boarding facilities in the Watapuluwa Darmashoka Vidyalaya (school).*

*\*During this period food, clothing and every other need would be provided by the authorities. Apart from these a monthly allowance of Rs.1000 would be provided.*

*\*Food and nutritional programmes for parents plus educational programmes for them too are included in the programme.*

*\* The Kandy Police, the Women's department, the Probations Department are some of the other organizations that are working with the Education Department in Kandy in this programme.*

*[Mentee 2], if i did miss something please be free to add them to the programme. Thaks”*

### ***Mentee 3 Response to Group***

In this message we see the mentee highlighting phase III of the negotiation of meaning and co-construction of knowledge while responding to teammates additional resource and information.

*“...As I found there is a reduction in the number of street children in the city of Kandy. According to reseaches number of street children was 50 in 2005 and 39 in 2007. I think it says sucess factors of projects, rules and regulations or whatever. What do you think?...”*

### ***Mentee 4 Response to Mentee 3’s Message***

The post below show a co-construction from all the information gathered by the team. The sequences of messages illustrated a typical message initiated by the e-mentor in a facilitative way, offering suggestions on how to approach the problem, and the mentees taking that suggestions and co-constructing knowledge though researching, asking questions and coming up with a way to frame the problem presented to them in the activity.

### ***E-mentor Initiated Message:Facilitative Style and a Pedagogical Role***

*“It sounds like a virtual Municipal Council meeting might be a way to include all the role players in collaborating on a solution. What do others in our group think about this idea?”*

*The short term solutions you listed as representative of the RDA are well reasoned and practical. They also serve to illustrate the background to this difficult problem. Are there any other short term solutions the group can think of?  
E-mentor” [Round2, Group2, Post12]*

### ***Mentee 1 Response***

In this post the mentee highlights several categories of Phase III/C of the IAM Model. In this message fragment, he is identifying areas of agreement with the e-mentors message above.

*“I think what you are highlighting is very important. Similar to the city councils in U.S. we have urban councils. For colombo we have Colombo Municipal Council (CMC), which also a role to play by one of our group member. Therefore I think we should organize a CMC meeting to discuss the traffic problem. Since I'm from the Road Development Authority (RDA) I can also participate in that meeting...” [Round 2, Group2, Post 23]*

In the same message we can see that the mentee has moved to phase III/ part D where he is making a proposal and negotiating a new statement based on the what the observation made by the e-mentor.

*“Since [Mentee] also asked me about the short term solutions that I can give to solve the traffic problem I will state few here.  
1. Rapid development of existing optional roads so that private vehicles can move along them smoothly. (Since Colombo has a good network of non public transportation roads)  
2. Removal of street sellers from either sides of the roads so that pedestrians can use the pavements...”*

### ***E-mentor responses***

In this message the e-mentor is offering new information that the group can add to their document highlighting phase III/ part E.

*“Thank you for taking the initiative on developing guidelines for carrying out the role play. Your suggestions are very helpful and well reasoned. I've suggested a couple more*

*additions to your group's guidelines (see previous reply), as well. [Round8, Group2, Post35]*

After which the e-mentor goes back to asking and clarifying questions or areas that are not clear to the mentees. This is clear evidence that the interactions do not progress sequentially through the categories in the phases. This message illustrates phase III/ part B. So the e-mentor goes from offering a solution phase III/ part E to to making sure the mentees understood the task by asking them questions and clarifying phase III/ part B. All in the same message.

*“Do you or others have an idea about how to incorporate the problem of corruption in the traffic police into your role play activity? What about the issue of pedestrians, drivers, and safety? Both of these seem to be important facets of the overall problem”[Round8, Group2, Post35]*

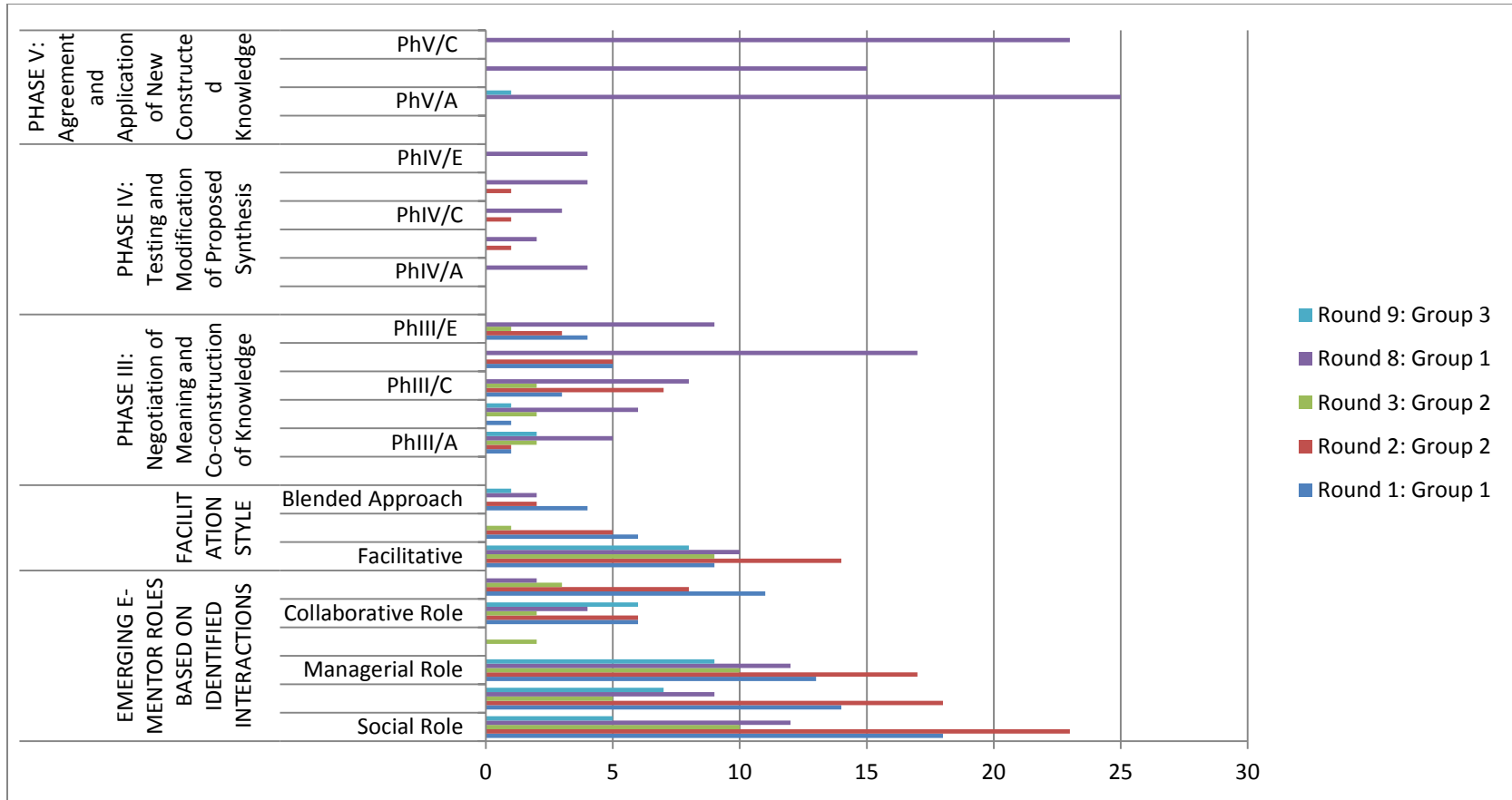


Figure 7: Relationship Between the E-mentor Roles, Facilitation Style and the Phases III, IV and V of Social Construction of Knowledge

Based on the transcript analysis of all five rounds, there emerged a correlation between the facilitation style, the e-mentor roles and the three phases of the IAM Model. This study outlines the relationship between the e-mentor roles, facilitation styles and Social Construction of Knowledge as referenced in Figure 7. Figure 7 illustrates the frequency of message posts and the relationship between the facilitation strategies and e-mentor roles that supported social construction of knowledge

***Round 1: E-mentor roles and facilitation styles that supported social construction of knowledge***

The roles where the e-mentor exhibited social, pedagogical, managerial, collaborative and inspirational roles showed both facilitative and instructional styles with facilitative being more prominent than instructional. The social construction of knowledge was evident in phase III where e-mentors and mentees were mostly negotiating and co-constructing knowledge. The interaction did not proceed beyond phase III for this round. This could be attributed to there not being enough postings for the rest of the phases to manifest themselves.

***Round 2: E-mentor roles and facilitation styles that supported social construction of knowledge***

In this round, subsequently, the social, pedagogical, managerial and collaborative were more prominent and also aligns with the facilitative style. Social construction of knowledge was evident in phase III and less prominent in phase IV. Based on the transcript analysis, the e-mentor and mentee interactions revolved around negotiation or meaning and co-constructing knowledge. Towards the later posts, the participant interactions showed some instances of phase IV where the mentees and e-mentors tested and modified a proposed synthesis. Refer to the sequence of messages during the social construction of knowledge in phases III, IV and V that illustrated this.



### ***Round 3: E-mentor roles and facilitation styles that supported social construction of knowledge***

Round 3 showed an emergence of all six e-mentor roles. Like, rounds 1 and 2 the social, pedagogical, managerial, collaborative and inspirational roles emerged in addition to the technical role which was not evident in round 1 and 2. From Figure 7, it is evident that the facilitative role was the preferred method the e-mentor used to guide the online interaction. Figure 7 clearly shows that most of interactions for this round attributed to social construction of knowledge happened during phase III and did not move beyond this phase. The participants engaged in negotiation of meaning and co-construction of knowledge but did not proceed to the testing and modification of proposed synthesis and agreement and application of newly constructed knowledge. This is could be attributed to the facilitation of the e-mentor and the seamless transition of the participants for the e-mentoring module to the interactive module which was not analyzed in this study.

### ***Round 8: E-mentor roles and facilitation styles that supported social construction of knowledge***

In the transcript analysis, round 8 showed a prominent relationship between the e-mentor roles, the facilitation approach and the social construction of knowledge during phases III, IV and V. As seen in previous rounds, the e-mentor roles that were most evident were the social, pedagogical, managerial, collaborative and inspirational with a strong tendency towards a facilitative style. This round was the only round that showed a transition from phase III of the IAM Model to phases IV and Phase V. Round 8 was also one of the transcripts that had the most message posts and interactions between the e-mentor and the mentees. This could be attributed to the completion of the phases in the IAM Model. It can be concluded that if more messages occur in an interaction, then the chances of participants reaching a point where they can socially construct knowledge is high.

***Round 9: E-mentor roles and facilitation styles that supported social construction of knowledge***

In round 9, evidence of social construction of knowledge that aligned with the e-mentor roles of social, pedagogical, managerial, collaborative and inspirational can be clearly seen in phase III of the IAM model. See Figure 7. In this round, the participants engaged mostly in negotiation of meaning and co-construction of knowledge. Given the limited number of posts in this round, we can conclude that, the participants did not engage enough to transition through phase II, IV and V but enough to see and emergence of e-mentor roles.



### RESEARCH SUB-QUESTION THREE

#### WHAT WERE THE CULTURAL NUANCES THAT WERE EVIDENT BETWEEN THE MENTOR AND THE MENTEES.

The analysis for the cultural nuances used content analysis to identify the instances where cultural nuances in written communication was evident. This was based on the emerging themes observed from the interaction between the e-mentors, mainly the International E-mentors and the mentees during the online group interaction. Some of the themes that emerged and were observed were written communication contrasts between the two cultures. In an article about *Communicating Across Cultures*, Ting-Toomey (1999) states that “our culture shapes the way we see and perceive things”. This study observed the following cultural nuances in the online interaction:

#### Writing Style and Tone

At some point in the interaction some of the mentee’s communication showed messages that were written in all caps when referring to each other or the moderators. In most cultures writing in all caps symbolizes an emphasis and the importance of what is being communicated. Meanwhile in the western culture, writing in all caps or addressing someone in all caps indicated gave the perception that the writer is yelling. An example of an interaction that showed this communication style is shown below:

Addressing the Moderator:

“HI! RUKSHANA!

Even yesterday you didnt get me a project role.why is that.you had give to others.yesterday u said that you put my roll,but even now i dont know it.pls tell me it.”

Addressing the E-Mentor:

“ HI CAROL!

i am shyamika,

Thanks for your great guidance to us.even now,we have visited some government departments,& Authority .we gatherd more information about street children in kandy city & discussed.now we are already to write.”

The chosen words of respect that the mentees used to when referring to the e-mentors.

Addressing someone in authority:

“Hello Malini ma'am and Palitha sir,  
Hope you are satisfied with the work going on. Please inform me if there's any  
alterations etc. to be made. Thanks  
Rukshaan.”

## **Values**

Looked at the directness, efficiency and action oriented vs politeness. Valuing relationship became apparent during the online interaction. From the pre and post evaluation surveys, it was clear, the social interactions prior to the group activity was the highlight of the mentee's interaction. It made them feel at ease to communicate with the e-mentor and each once they got to know them a little better. As discussed earlier in the literature review, all through the message posts in the rounds, there are evidence of hesitancy in openly disagreeing with peers and figures of authority as symbolized by the e-mentor. Figure 5 illustrated phase I of the IAM Model where we a high degree of agreement in the interactions than compared to phase II of the IAM Model that focuses on the level of disagreement in the interaction.

During, the transcript analysis, there was evidence of blended style of facilitation strategy where the e-mentor's especially the international e-mentors would alternate between a direct instructional style where they told the mentees what to do and a facilitative style where why guided the mentees to construct knowledge among themselves. Sri-Lankan culture leans towards a more direct instructional approach where learners are often given a roadmap and told how to solve problems instead of an approach where learners are guided through the process of scaffolding.

## **RESEARCH SUB-QUESTION FOUR**

### **WHAT WERE THE PARTICIPANTS PERCEPTIONS OF THE E-MENTOR PRIOR TO AND AFTER THE E-MENTORING EXPERIENCE.**

#### **Pre-Assessment of Perception of E-mentors**

The Pre-survey had six questions in all. Four of the questions were open ended questions and 2 were age and gender related questions. There was one question related to mentees perception of e-mentor prior to the activity. Content analysis of the responses of the mentees as it related to the question about the e-mentor is reported below in Table1.

Only 2 rounds of the total 5 rounds analyzed in this study had a pre and post assessment administered to the mentees. There were 17 respondents from rounds 8 and 16 respondents from round 9 for the pre-survey. This study analyzed the pre-survey perceptions pertaining to the question stated below.

#### **E-mentor Perception Pre Survey Question**

- What are your expectations from the international e-mentor who will participate in this group activity?

#### **Pre-Survey Responses**

The responses to rounds 8 and 9 were categorized according to emerging themes in the mentee's responses to the perception of the e-mentor in the pre-survey. The themes that emerged during the coding of the responses were: 1. Project Management, 2. Social Presence, 3. Mentorship, 4. Diverse Perspective, 5. Feedback, 6. Technical Skills, 7. Knowledge Sharing, 8. Encourage Diversity. See Table 2 below.

## *Emerging Perceptions of the E-mentor*

Table 5: Themes that Emerged related to mentee expectations of the e-mentor

<b>Response Themes</b>	<b>Examples from Round 8</b>	<b>Examples from Round 9</b>
Project Management	I expect the e-mentor will guide us where we need to be headed and also they could suggest what type of actions they take in their countries since they may have more advanced solutions that we do or that we can think of so it would be nice if they could suggest more things at the end of the discussion.	Keep the group focused on the activity and inform the group if it is straying from the task. Give critical comments on the discussions going on. Offer advice on available resources if so needed.
Social Presence	The e-mentor should be easily contactable. I would need to know how and when the contact is possible and how soon I will get my help.	I expect the international e-mentor to facilitate all the members in my group to complete the assignment successfully.
Mentorship	She can mentor for us therefore it is very good.	I think it will be a good experience for us. As we are new to E-mentoring, we can gain knowledge on how to practice mentoring. As they are mentoring us I hope we can effectively involve in collection of facts and produce a good report.
Different Perspectives shared by e-mentor.	Selecting an international e-mentor we offer our problem to someone who does not know our social and cultural background. So that he will look at on our problem in open mind. Therefore without thinking about any barrier he will help us to solve the problem. Sometimes we can learn how the same problem is address in different social and cultural environment. Other than this we expect all the guidance expects from a mentor in general.	Get international knowledge to solve the problems. To compare the local solutions with international
Feedback	Give a good feedback for whatever we are doing here. Since we are fresher's for the online platform we do make mistakes and mislead. As the e mentor you can guide us.	An unbiased feedback on the solutions we have discussed. Guidance where necessary Feedback on our performance as a group"
Tech Skills	As we are totally new to the online problem solving activities and using wikis in a proper way, I expect to get help from the international e-mentor on how to deal with the issues I face as she's more proficient in Moodle than I am.	
Knowledge Sharing	As an international e mentor you can share the knowledge pool.	To get more knowledge related to the field of problem Can share our local ideas with international solutions. To get more suggestions from them To facilitate the learning process in the group activity.
Encourage Diversity	Select candidates or learners having different backgrounds such as from different countries, institutions etc.	

## **E-mentor Expectation Prior to the Mentoring Experience**

The pre-survey e-mentor expectation responses in both rounds 8 and 9 indicated the role the mentees expected the e-mentor to play in the online interaction. Project management was a key expectation of the e-mentors. The mentees expected the e-mentor to be able to guide them during the activity, keep the group focused, offer suggestions to the group. In the social presence category, the mentees expected the e-mentor to be easily reachable and be available throughout the discussions. The responses also suggest the mentees expected the e-mentor to bring a different perspective to the problem they were solving, give regular and unbiased feedback to the groups and encourage diversity among the interacting groups.

## **E-mentor Perceptions after the Mentoring Experience**

In the post survey of the mentoring experience, there was one question that addressed the mentees perception of e-mentor in relation to the level of support given to the group during the group problem solving experience. There were 12 respondents from round 8 and 4 respondents from round 9 for the post survey. It should be noted that not all the same respondents that took the pre-survey took the post survey. This study focused on the content analysis of the responses to the question about the e-mentor perceptions after the online cross-cultural interaction.

### **E-mentor Perception Post-Survey Questions**

- In what ways if any, did the e-mentor support your group problem solving learning activity?

### **Post-Survey Responses**

The responses to round 8 and 9 were categorized according to emerging themes in the mentee's responses. The themes that emerged during the coding of the responses were: 1.



Offered Suggestions, 2. Guidance, 3. Social Presence, 4. Encouragement and Motivation, 5. Technical Skills, and 6. Group Management. See Table 6 below.

Table 6: Themes that Emerged related to mentee perceptions of the e-mentor

Response Themes	Examples from Round 8	Examples from Round 9
	Group 1	Group 3
Offered Suggestions	The local e-mentor suggested drawing a concept map-which was very useful. He also facilitated discussion	He suggested a concept map for solving the problem. He corrected the draft report and give ways to improve the report.
Guidance	She gave guidelines on how to arrange the report and reminded what else has to be done to complete the report.	He gave an outline to the final report at the outset. Giving input he guided us but towards the end of the forum he was quite silence. May be he busy with
Social Presence	The e-mentor stepped in at the begging of the activity to let us know that she will be "there" for us. “	Commenting on our posting in an objective and frank manner which improved the final outcome.
Encouragement and Motivation	Both our E- Mentors gave us the feeling that support is always at hand. Our e-mentors established a relationship with us (the lesser skilled and experienced ) electronically and were able to develop and grow skills ,knowledge and confidence and cultural understanding, to help us to accomplish our task.( Definition of a Mentor-Single & Muller	Motivating group members and the moderator of the group
Technical Help	We can't add the images to wiki this time our e-mentor support to fulfill our task. He given the instructions how to create a concept map	Posting helpful "tips" on technical aspects. e.g. - Tips on how to track editing changes on a document. The e mentor posted software which we were able to access.
Group management	[E-mentor] started us off by clarifying our objectives. she identified shared objectives and emphasized our relationship. (ref. P.B Single &RM Single). She helped us to put our discussion into perspective and commented on the discussion.	Identifying members who were not contributing and encouraging them to do so E.g.- Dear X, I haven't seen your corrected posting yet, Please lets us have a look of what you have done

## **E-mentor Perception Post Mentoring Experience**

The responses of the mentees in the post survey showed that most of them thought that the e-mentor was able to offer suggestions and guide them through the activities. The mentees also thought that the e-mentor managed the group interaction well and was able to keep the mentees engaged in the activity and discussions and draw those who were not participating as they should be. There were also responses that showed how encouraging and supportive the e-mentor was during the online group interaction.

The pre-survey and the post-survey responses to the e-mentor showed similar themes emerging from the responses of the mentees as outlined in Table 5 and Table 6. The common themes that emerged were encouragement and support, group and project management, social presence during the interaction, technical support and knowledge sharing. This comparison indicates that the mentees' expectations of the e-mentor were met.

## **Chapter 5**

### **Summary, Conclusions, Implications and Recommendations**

#### **SUMMARY**

The overriding purpose of this study was to determine the role of the e-mentor in the social construction of knowledge in an online cross-cultural learning environment. To make that determination, it became necessary to accomplish certain pre-requisite task. Determining what mentorship was and the role it plays in learning and how that same process can be applied in an online setting to help support the process of learning online became very important during the literature review conducted for this study. After understanding the need for mentorship, it became necessary to understand what kind of role e-mentoring could play in social construction of knowledge in an online environment. To determine the e-mentor roles and ultimately answer the overriding research question of how the roles that emerged supported the social construction of knowledge in a cross-cultural online learning environment, this study addressed the following main and sub-questions.

**Main Question:** What is the role of the e-mentor in the Social Construction of Knowledge in an online Cross Cultural learning environment?

**Sub-Questions:**

1. What e-mentor roles emerged during the online interaction with mentees?
2. Which e-mentor roles and facilitation styles supported Social Construction of Knowledge?

3. What were the cultural nuances that were evident between the mentor and mentees.
4. What were the participants expectations and perception of the e-mentor prior to and after the e-mentoring experience.

The research questions were answered by using a qualitative research design analyzing computer transcripts using the IAM model to determine social construction of knowledge (Gunawardena, Lowe, & Anderson, 1997), framework of e-mentor roles (Jayatillke, Malinda, Kumarasinha, & Gunawardena, 2012) and emerging facilitation styles. In addition, the study determined the expectations of the mentees e-mentoring experience prior to, and perceptions after, the e-mentoring experience. This chapter reports the conclusions and recommendations that resulted from this study.

The study was based on an online interactive collaborative problem solving activity that was designed for participants from Sri-Lanka to train them in online tutoring and mentoring. International e-mentors supported by local mentors guided the participants during an inquiry based collaborative learning activity.

## **CONCLUSIONS AND IMPLICATIONS**

Based on all the five e-mentoring rounds analyzed, the major finding was that five e-mentoring roles: social, pedagogical, managerial, collaborative and inspirational were evident during the e-mentoring experience that supported social construction of knowledge. This study also found that these five e-mentor roles were evident during all three phases of knowledge construction (Phases III, Phase IV and Phase V) of the IAM Model. (See Table 1: IAM Model) in round 8 and to a lesser extent in round 2. (Refer to Table 5: Relationship between the E-mentor roles, facilitation style and the Phases III, IV and V). The evidence of

all three phases in round 8 compared to other rounds, maybe due to the fact that this round had more in-depth discussion of the problem by the mentees and an e-mentor that was more experienced in e-mentoring. (Round 8 had 178 posts as opposed to other rounds that ranged between 39 – 79 posts). These findings clearly indicate that the five e-mentor roles that emerged are vital in supporting learning in an online collaborative setting. Therefore when designing online e-mentoring experiences, it is important to incorporate these five roles to support social construction of knowledge. This confirms that e-mentoring is important to learning in an online interactive environment.

Research sub-question 2 not only examined e-mentor roles but also facilitation styles. Three facilitation styles emerged: facilitative, instructional, and the blended style which includes both facilitative and instructional. A relationship could be seen between e-mentor roles and the facilitation styles. The rounds that showed an increased level of social, pedagogical and managerial roles exhibited a more facilitative style of e-mentoring.

The technical role was evident only in one round where there technical issues. It is remarkable that only one round exhibited the need for technical help given the novel experience of online learning for this set of mentees. This may be due to the fact that the entire training program included a face-to-face orientation to technology prior to the e-mentoring experience. While it is not a requirement for the e-mentor to be a technical expert, some understanding of the technical system is necessary to navigate the system and support mentees when they need help. In online learning designs, this role could be played by a separate technical support person.

When analyzing the transcripts related to research sub-question 3, it became apparent that there were differences in the way the international e-mentors and the mentees communicated with each other. The writing style and tone of messages indicated an extremely respectful tone by both mentees and e-mentors throughout the discussions. In

addition, there was a difference in the way mentees communicated with the e-mentor when compared to their communication with other mentees. When the mentees addressed the e-mentor, they showed much more respect than when they addressed other mentees. This is to be expected in the Sri-Lankan cultural context where an instructor or a more knowledgeable person is accorded a great deal of respect.

Another cultural difference that was observed during the process of knowledge construction was that the mentees hardly disagreed with each other (Phase II of the IAM Model), when compared to expressing agreement with each other (Phase I of the IAM Model), as seen in Table X. This may be due to the fact that in Sri-Lankan culture, it is impolite to openly disagree with each other in academic discussions when a person of authority from a different culture (e-mentor) is present. The mentees did engage in knowledge construction (Phase III of the IAM Model) even though they did not openly disagree with each other's ideas. This finding should be investigated further in research studies that examine cultural differences in online interaction.

In responding to research question 4 related to expectations of the international e-mentor, the study found that the respondents expected the e-mentor to have the following skills: 1. Project Management, 2. Social Presence, 3. Mentorship, 4. Diverse Perspective, 5. Feedback, 6. Technical Skills, 7. Knowledge Sharing, 8. Encourage Diversity.

The second part of research sub-question 4 relating to the mentee perception of the international e-mentor, the study found that the respondent thought the e-mentor exhibited: 1. Project Management Skills, 2. Social Presence, 3. Mentorship, 4. Offer Diverse Perspective, 5. Give Feedback, 6. Provide Technical Support and 7. Knowledge Sharing and 8. Encouraging Diversity.

It became evident in the transcript analysis that the pre survey mentees' expectations of the e-mentor and the post survey mentees' perceptions of the e-mentors aligned. This shows

how important understanding the expectations and perceptions of the mentees of the e-mentor is when designing online learning activities.

### **RECOMMENDATIONS FOR FUTURE RESEARCH**

The following recommendations are offered for related research in determining the roles of e-mentors in a social construction of knowledge in an online cross-cultural learning environment.

- A more detailed survey of mentee perceptions of the e-mentor after the e-mentoring experience.
- Study that will look at instructional design activity that shows e-mentor roles in a different cultural setting and also look at gender differences within this cultures.
- Given that this study builds upon a prior study that determined emerging e-mentor roles in an online e-mentoring experiences, by seeking evidence of social construction of knowledge, a study that builds upon this by using transcripts generated in an actual classroom interaction over a longer period will prove valuable in understanding the importance of e-mentoring in online learning.
- Research study that will look how e-mentoring can be further developed to support new and continuing learners within virtual universities? Or to support learners who are studying at a distance for at least some of their academic program? Or to support school and university.
- A study that look at the skills that is needed for e-mentoring and how can they best be developed?
- What format of feedback is appropriate for e-mentors to learn to use?
- How e-mentoring can best fit an institutions current needs: through group mentoring or one-to-one? Or a mixture.

This study showed the importance of transcript analysis as a research method for understanding both social construction of knowledge and e-mentor roles in an online collaborative learning environment.



## Appendix A

### PERMISSION LETTER FOR INTERACTION ANALYSIS MODEL (IAM MODEL)

You have my permission to use it Grace.

Lani

\*\*\*\*\*

Charlotte Nirmalani (Lani) Gunawardena, Ph.D.  
Regents' Professor  
Organizational Learning and Instructional Technology Program  
MSC 05 3020  
1 University of New Mexico  
Albuquerque, NM 87131-0001, USA  
Phone: 505-277-5046  
e-mail: <[lanil@unm.edu](mailto:lanil@unm.edu)>

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**From:** Grace Lynn Faustino <[gfaustin@unm.edu](mailto:gfaustin@unm.edu)>  
**To:** Charlotte Gunawardena <[lanil@unm.edu](mailto:lanil@unm.edu)>  
**Sent:** Friday, March 29, 2013 12:57 PM  
**Subject:** Permission to use the Interactive Analysis Model (IAM) in my Thesis

To: Dr Anderson, Dr. Gunawardena and Dr. Lowe,

Reference: Interactive Analysis Model  
Date: 03-29-2013

I am writing to request permission to use the following material:

Title: Analysis Of A Global Online Debate And The Development Of An Interaction Analysis Model For Examining Social Construction Of Knowledge In Computer Conferencing

Authors: Anderson, Terry  
Gunawardena, Charlotte N.  
Lowe, Constance A.

Thank you for your consideration of this request. A duplicate copy of this form is enclosed for your convenience.

I am attaching the form for your signature. Thank you.

Sincerely,

Grace Faustino

## Appendix B

### SAMPLE CODING TEMPLATE FOR E-MENTOR ROLES

Participant Initials	EMERGING E-MENTOR ROLES BASED ON IDENTIFIED INTERACTIONS					
	Social Role	Pedagogical	Managerial Role	Technical Role	Collaborative Role	Inspirational Role
DL	1		1			
UW						
DL	1	1	1			
UW						
RC						
GP	1	1			1	
DL	1	1	1			1
UW						
TF						
LG	1	1	1			1
CM						
DL	1	1	1		1	
GP	1	1			1	1
LRG						
SA						
DL	1	1	1			
GP	1		1		1	
LRG						
AS						
UW						
GK						
UW						
AS						
UW						
GP	1	1	1		1	1
DL	1	1	1		1	1
UW						
UW						
JV						
LG	1					1

## Appendix C

### SAMPLE TEMPLATE FACILITATION STYLES

GENERAL INFORMATION	COACHING STRATEGY		
Participant Initials	Facilitative	Instructional	Blended Approach
DL	1		
UW			
DL			1
UW			
RC			
GP		1	
DL			1
UW			
TF			
LG	1		
CM			
DL		1	
GP		1	
LRG			
SA			
DL		1	
GP		1	
LRG			
AS			
UW			
GK			
UW			

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