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## Developing Online Tutors and Mentors in Sri Lanka through a Community Building Model: Predictors of Satisfaction

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**Abstract**— This paper discusses the results of a tutor mentor development program that utilized a community building model to train online tutors and mentors in higher education institutions and professional organizations in Sri Lanka. Based on WisCom; an instructional design model for developing online wisdom communities, this tutor mentor development program which utilized a blended format of face-to-face and online activities in MOODLE, attempted to build a learning community between trainees, both academics and professionals who represented diverse disciplines and organizations. A regression model examined predictors of learner satisfaction, using four independent variables: Community Building, Interaction, Course Design, and Learner Support. Interaction emerged as a strong predictor of Learner Satisfaction explaining 50.2% of the variance in Learner Satisfaction. This finding shows the importance of designing interactive learning activities to support learning online, and contradicts the general belief that Sri Lankan participants would be less likely to interact online because they come from a traditional

education system that encourages passivity and reception of ideas from a more learned teacher. Qualitative analysis showed evidence of several types of learning online as a result of collaborative group interaction, as well as issues that contributed to non-participation. Factors that motivated participants to stay engaged in learning could be classified into three categories: (1) general enjoyment, interest and motivation; (2) collaborative learning and community building; and (3) knowledge building. These results suggest that the online learning design based on WisCom led to learner satisfaction and supported interaction and collaborative learning in the Sri Lankan socio-cultural context.

**Index Terms**— Online learning communities, collaborative learning, e-mentoring, inquiry-based learning, Sri Lanka, National Distance Education Systems, faculty development.

## I. INTRODUCTION

The Government of Sri Lanka through a loan obtained from the Asian Development Bank funded a six-year Distance Education Modernization Project (DEMP) implemented by the Ministry of Higher Education, Sri Lanka, to develop a National Online Distance Education Service (NODES) with the aim of providing higher education and professional development opportunities to a large number of students who qualify for university entrance each year but have no opportunity to enter the conventional universities in Sri Lanka. This project attempted to significantly improve the underdeveloped human capital of the country, and was expected to increase the quality of the human resource base and thereby contribute to poverty alleviation and boost economic growth (Abeyawardena, 2007- [1]). In order to achieve this target, access to tertiary and higher education had to be increased by allowing more post-secondary learners to gain the benefits of quality education through technology-enhanced study programmes. Therefore, the project had three sub-projects: The Open University of Sri Lanka Capacity-Enhancement Project (OUSL-CE); the Distance Education Partnership Programme (DEPP) and the technical infrastructure for NODES. One objective of DEPP was to train academics and professionals in the country on Open and Distance Learning (ODL) methods with an emphasis on online learning. To realize this objective, DEPP envisaged using new information and communications technologies (ICT) to transform teaching and learning processes through ICT. One type of training that was provided to institutions offering courses on NODES was online tutor mentor development, in order to build the capacity of teachers (both university academics and professionals) who would be responsible for tutoring, and mentoring the online students in courses offered through NODES. This paper focuses on this online tutor and mentor development program.

The purpose of this paper is to (a) discuss the innovative online tutor mentor development model based on a community building framework that was adapted to train novice online tutors in Sri Lanka who would be transitioning to a new way of learning and teaching, and to (b) report research results on the efficacy of this tutor mentor development model and its application in the Sri Lankan socio-cultural context.

Since this tutor mentor development model was a unique approach in the Sri Lankan socio-cultural context, we were interested in researching factors that predicted learner satisfaction, and contributed to learning and engagement in learning. The research questions address the following:

1. What factors predict learner satisfaction when online tutor mentor development is conducted using a community building model?
2. What evidence exists that participants learned as a result of collaborative group interaction?
3. What factors motivated participants to stay engaged in the learning experience?

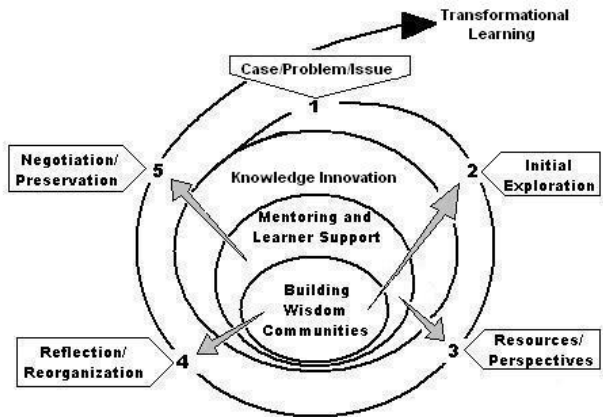
The authors of this paper were actively involved as designers, developers, trainers, evaluators and in some cases participants in the tutor mentor development programme during the project period from 2007-2010. This paper presents the findings of the empirical research with respect to the first two rounds of tutor mentor development.

## II. RELATED WORK

As Stuckey & Barab, 2007 – [19] have observed, during the last decade we have seen more and more educators attempting to build community in various online contexts based on the fundamental belief that a community-based design will benefit groups of individuals coming together to develop relationships and construct notions of meaningful practice. Roberts & Lund, 2007 – [18] have shown the benefits to be derived from online learning communities. Analyzing online collaborative learning using quantitative multimodal discourse analysis, Bower & Hedberg, 2010 – [4] found that student-centered designs resulted in over six times more student discourse as compared to teacher-centered designs and created a learning environment where students took greater ownership over the tasks and contributed more to the content-based discussion. However, we are only at the early stages of understanding the dynamics that characterize and drive these online learning communities, for which a foundation was provided by socio-constructivist theory (Vygotsky, 1978 – [20]), situated cognition (Lave & Wenger, 1991 – [15]), and a theory of learning based on the concept of communities of practice (Wenger, 1998 – [21]). Responding to the need to develop designs to foster learning in online communities, Garrison, Anderson & Archer, 2000 – [9] developed the Community of Inquiry model by defining three kinds of presence in a learning environment: social, cognitive, and teaching which has been used to both design and evaluate online collaborative learning. Another response to the need to develop designs to foster learning in online learning communities was WisCom (Wisdom Communities) developed by Gunawardena, Ortegado-Layne, Carabajal, Frechette, Lindemann, & Jennings 2006b – [12] to build online wisdom communities. Based on socio-constructivist and socio-cultural learning philosophies (Vygotsky, 1978) and distance education principles, the WisCom model aims to facilitate transformational learning by fostering the development of a wisdom community, knowledge innovation, mentoring and learner support in an online learning environment, based on a “Cycle of Inquiry” module design, as recommended by Bransford, Vye, Bateman, Brophy & Roselli, 2004 – [5]. Extending beyond current instructional design practice, WisCom provides both a new model for teaching that builds upon the inherent capacity of networked communication to support the growth and intellectual development of communities of practice (Lave, 1991 – [14], Wenger, 1998 – [21], and a new model of learning where learners engage in the process of scholarly inquiry that supports individual and collective learning. Since mentoring is an important component of the WisCom model, we use the definition of mentoring developed by Daloz, 1999 – [7]. A mentor is responsible for supporting the development of a protégé. This includes helping the protégé gain the necessary skills and knowledge to function effectively in a

particular environment. Protégés are lesser skilled or less experienced individuals. In the process of mentoring, mentors and protégés learn from one another and benefit from a worthwhile relationship for both parties.

Based on WisCom Model (see Figure 1), we designed the online tutor mentor workshop to focus on community building, knowledge innovation, mentoring, and learner support.

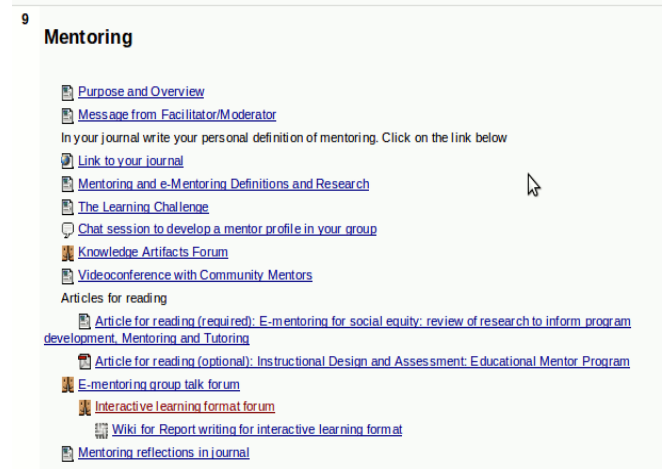


**Figure 1: Dimensions of the Wiscom Model including Cycle of Inquiry Module Design (Gunawardena *et al.* 2006b, [12])**

The learning modules in MOODLE were designed using the cycle of inquiry, starting with a purpose statement and goals, followed by a message from the moderators providing an advanced organizer, leading to a learning challenge for the module which directs learners to resources for learning that need to be searched and reviewed before participation in collaborative learning activities to work toward the Module's learning outcomes. The home page of the interface of the online tutor mentor programme is shown in Figure 2.

**Figure 2: Home Page of the interface of the Online Tutor Mentor programme – Round 1**

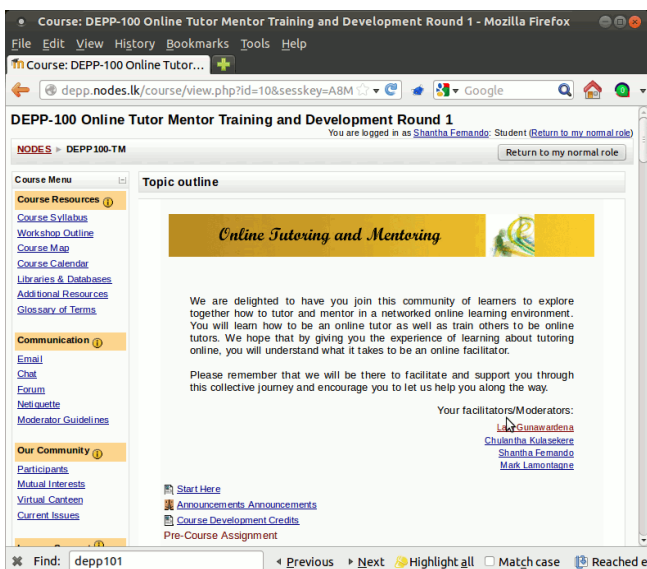
The pedagogical features of the Mentoring module of the online tutor mentor programme are illustrated in Figure 3.



**Figure 3: Screen shot of the pedagogical features of the Mentoring module of the Online Tutor Mentor programme**

Learning about online tutoring and mentoring within this framework became a social process, which involved the sharing and comparing of information and experiences to construct new meaning. One of the features of this approach was collaborative work in collegial small and large groups to enable participants to reflect on their practice. Eib & Miller, 2006 – [8], citing the 2005 work of Amundsen, Abrami, McAlpine, Weston, Krbavac, Mundy, & Wilson [2] describe this approach as the “process” approach to faculty development which emphasizes the important role of colleagues in professional development to support reflection on, and development of, knowledge and skills required for effective teaching.

The community building approach to tutor mentor development we adopted, used a blended format of face-to-face (F2F) training and online interaction through MOODLE. MOODLE is an open source Learning Management System (LMS) that would also be used for delivery of courses the participants were designing. The workshop was designed as a 7 week online course on MOODLE, which began with two initial days of F2F training, followed by three weeks of online activities, which were then followed by another two days of F2F training, followed by another three weeks of online activities, to conclude with one day of F2F training. The online activities were designed to provide opportunities for application of learning and included forum formats such as self-reflection, critical analysis of readings, discussion of questions and inquiry-based learning activities. The workshop was designed to give tutor mentors practical experience in (1)



learning about tutoring and mentoring online, by being an online student, (2) learning about community building and interactive teaching methods and techniques, by collaborating with colleagues on designing and conducting these activities.

### III. METHODOLOGY

#### Research Design

The mixed method study design included both quantitative and qualitative approaches. In order to answer research question 1, we developed a regression model including four independent variables in the online education process: Community Building, Interaction, Learner Support, and Course Design to predict the dependent variable Learner Satisfaction. The data collection instrument for the quantitative study was adapted from Gunawardena & Duphorne, 2000 – [13], and Gunawardena, LaPointe, & VanBerschoot, 2006a – [11].

Research question 2 was analyzed by conducting a content analysis of the transcripts of an inquiry-based collaborative online group activity in the e-mentoring forum where three participant groups (problem solving, role-play and case-based reasoning) interacted with an international e-mentor who was present only online, to solve a social problem in Sri Lanka assigned to the group (See Figure 4 for how these inquiry-based learning activities were set up in MOODLE).

Discussion	Started by	Group	Replies	Unread
Your planning process for the first week	John A. K. Perera	Group1 -1	47	0
Group 2 - Traffic Congestion in Colombo	John A. K. Perera	Group1 -2	82	0
Assigning responsibilities - street children	John A. K. Perera	Group1 -3	46	0

**Figure 4: Screen shot of three inquiry-based collaborative learning activities**

Data for research question 3 came from the open ended question in the final survey that asked: Which aspects of the workshop did you most enjoy and why? Content analysis was adopted as the data analysis method for research question 3.

#### Participants

The workshop we designed included faculty/tutors from a variety of higher education institutions and professional organizations in Sri Lanka, which provided a rich blend of experiences for collaborative work. All the participants were familiar with basic computer applications and except for very few, had not studied online, or participated in asynchronous online discussions. Many were new to the concept of Learning

Management Systems (LMS). Before the training program started, a one day orientation on the MOODLE LMS was provided to all participants.

Other than the participants, the training program also included the facilitators/trainers who conducted the face-to-face training and facilitated the online activities, and international and national e-mentors who facilitated learning in the e-mentoring module. The concept of distributed e-mentoring was used, with volunteer graduate students in the United States (who are well versed in interactive online learning formats) serving as e-mentors to Sri Lankan participants who had to conduct an inquiry-based learning activity. In addition, one Sri Lankan e-mentor was assigned as a global e-mentor to oversee all the groups in the mentoring module.

### IV. RESULTS

This section presents the findings of both quantitative and qualitative data. There were sixty three participants in the two offerings of the workshop, Round 1 had 30 participants, and Round 2 had 33 participants. Fifty-three participants out of this sixty-three completed the final questionnaire and this data were used for the analysis of research question 1 and 3. Transcripts of forum posts on the inquiry-based learning activity were analysed for research question 2.

#### Research Question 1

Research question 1 asked: What factors predict learner satisfaction when online tutor mentor development is conducted using a community building model? A regression analysis was used to predict the dependent variable Learner Satisfaction (S) with four independent variables: Community Building=B, Course Design=C, Interaction=I, and Learner Support=L. Reliability analysis for each of the scales using Cronbach's Alpha are: Community Building=.88, Course Design=.73, Interaction=.80, Learner Support=.90, and Learner Satisfaction=.84. See Tables 3 and 4 for the questionnaire items in these scales.

Table 1 presents the results of the Pearson correlation coefficient matrix showing the relationship between the four independent variables (B, C, I, and L), and the relationship between each of these independent variables and the dependent variable Learner Satisfaction (S). The analysis reveals that Learner Satisfaction is positively correlated with each of the independent variables, and correlation coefficients are significant at  $\alpha = 0.01$  level. The correlation coefficients among independent variables show that the independent variables are correlated with each other and significant at  $\alpha = 0.01$  level. According to these correlations, Interaction (I) is the independent variable most strongly related to Learner Satisfaction (S) scores. The other variables: B, C and L are also significantly correlated to S. Among correlation coefficients, Interaction does not show multicollinearity, i.e. its correlation coefficient with satisfaction (dependent variable) is greater than the correlation with any other independent variable.

**Table 1: Pearson correlation coefficient matrix**

Correlation Coefficients					
	B	C	I	L	S
B	1	.488	.677	.628	.620
C		1	.660	.618	.541
I			1	.612	.709
L				1	.563
S					1

\*Correlation is significant at the  $\alpha$  0.01 level (2-tailed).

The results of the standard multiple regression analysis using SPSS are presented in Table 2, and show that 54% ( $R^2 = 0.544$ ), of Learner Satisfaction is collectively explained by the four independent variables: Interaction (I), Community Building (B), Course Design (C) and Learner Support (L). The ANOVA analysis shows that  $R^2$  is significant ( $F_{4, 49} = 14.317, p = .001$ ). Therefore, the prediction is also significant.

**Table 2: Standard Multiple Regression Analysis**

Variables Entered	Variables Removed	Method	R	$R^2$	Adjusted $R^2$	Std. Error of the Estimate
I B C L	-	Enter	0.738	0.544	0.506	0.268166

a All requested variables entered.

b Dependent Variable: S.

c Predictors: (Constant), I, B, C, and L.

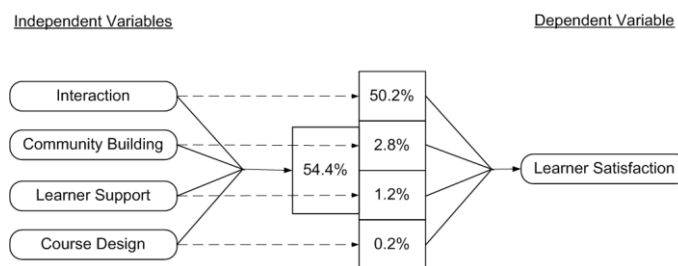
**Figure 5: Hierarchical Regression Analysis: Variance Explained by each Independent Variable**

Figure 5 shows the amount of variance explained by each independent variable in a hierarchical regression analysis. Interaction is a strong predictor of Learner Satisfaction explaining 50.2% of the variance in Learner Satisfaction. This is followed by Community Building explaining 2.8% of the variance, Learner Support explaining 1.2% of the variance and

Course Design explaining 0.2% of the variance. Table 3 shows the questionnaire items that made up the Interaction and Learner Satisfaction scales.

**Table 3: Questionnaire Items in the Interaction and Learner Satisfaction Scales**

Interaction (Cronbach's alpha =.80)	Learner Satisfaction (Cronbach's alpha =.84)
1. The diversity of topics discussed prompted me to participate in the online discussions	1. As a result of my experience in this course, I would like to participate in another online course
2. Online comments by other participants helped me learn	2. This online course was a valuable learning experience
3. I learned to value other points of view	3. I would recommend this learning opportunity to others
4. Talking to my colleagues who were taking this course with me, helped me learn	4. The online course met my expectations

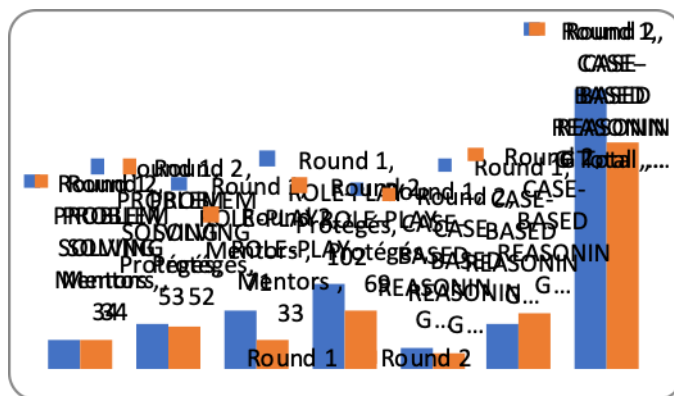
**Table 4: Questionnaire Items in the Community Building, Course Design and Learner Support Scales**

<b>Community Building Scale</b> (Cronbach's Alpha=.88)	1. I feel I can relate to the facilitators as persons.
	2. I did not feel lonely in this online environment.
	3. I felt I was part of an online learning community in this course.
	4. I felt a sense of togetherness with other learners in this course.
<b>Course Design Scale</b> (Cronbach's Alpha=.73)	1. Learning outcome of the training workshop was achieved.
	2. The learning activities improved my comprehension of the course content.
	3. Sufficient examples were given to illustrate concepts or issues discussed.
	4. The course syllabus gave an accurate picture of the course.
	5. Information was presented in a clear and interesting manner.
	6. Learning experiences were presented in a well-structured format.
	7. Each module provided clear instructions for all assignments.
	8. The assignments stimulated my thinking.
	9. I used the readings and resources provided, in my Forum posts.
<b>Learner Support Scale</b> (Cronbach's Alpha=.90)	1. The training facilitators answered the questions and concerns raised by participants
	2. The training facilitators provided ample opportunity for participants to ask questions.
	3. The training facilitators provided appropriate feedback.
	4. The Checklist of assignments e-mailed to us helped me to keep track of my progress in completing online assignments.
	5. I knew whom to contact for technical assistance.
	6. The training facilitators provided ample opportunity for participants to ask questions in the discussion forums and Help Wanted/Help Given Forum.
	7. The facilitators encouraged me to participate in the online course.
	8. The facilitators responded promptly to my questions.
	9. The facilitators were easily accessible.

## Research Question 2:

Research question 2 asked: What evidence exists that participants learned as a result of collaborative group interaction? This question was analyzed by conducting content analysis of the transcript of an interactive, collaborative online group activity in the e-mentoring forum where six participant groups in both rounds interacted with an international e-mentor to solve a social problem in Sri Lanka assigned to each group. Three inquiry-based learning designs were used. Group 1 was assigned an open-ended problem solving format to find a solution to cleaning up garbage in the city of Colombo; Group 2 was assigned a role play to solve the traffic problem in the City of Colombo; and Group 3 was assigned a case-based reasoning format to find a solution to street children in the City of Colombo. The groups were given three weeks to engage in the collaborative learning activity in a discussion forum set up for the activity; first week for planning how to conduct this activity online by the group members (see Figure 3) and the following two weeks for finding information and writing a report outlining the solution they came up within the group. The groups were encouraged to use a wiki for their report writing.

During a period of three weeks, Group 1 generated a total of 87 messages, Group 2 generated 173 messages and Group 3 generated 79 messages in Round 1, whereas in the Round 2, Group 1 generated a total of 86 messages, Group 2 generated 102 messages and Group 3 generated 86 messages related to this assignment (Figure 6). These frequencies show the active involvement of each group in the group task.



**Figure 6: Number of posts by Groups in Round 1 and Round 2**

Analysis of the transcripts revealed that learning had taken place among protégés in many forms. One type of learning occurred when participants examined the resources posted by e-mentors and interpreted them. For instance:

*“As pointed out by [e-mentor’s name] our next task I suppose is to select or **Retrieve** a case from these and either **Reuse** or **Revise** as mentioned by [global e-mentor’s name]” – (Protégé, Round 1, Group 3, Talk, Post 38).*

These resources enhanced the knowledge level of the participants and brought different perspectives into the discussion.

Another type of learning that was observed was the sharing of perspectives especially between international e-mentors and the Sri Lankan participants. For example, a participant tells an international e-mentor

*“Your comments helped me immensely to prepare my solutions as a traffic police coordinator. By the way, are you a police officer?” (Protégé, Round 2, Group 2, Interactive, Post 14).*

Evidence of collaborative learning was observed through the comments made by peers and e-mentors about group process as indicated in the following quote.

*“Thanks for your comments .... When we are in a group, we are a team. We have to work together as one. These are all your ideas. The credit should go to the group” (Protégé, Round 1, Group 2, Interactive, Post 44).*

The following quotes indicate how participants built on each other’s posts, agreed or disagreed or challenged each other to think further. One participant said to another.

*“Do you think that ‘Forced to beg’ and ‘Being used for illegal purpose’ are primary reasons for street children being on streets? They are being used for these purposes as they are on street. I feel these two are secondary reasons. I would like to see other ideas too” (Protégé, Round 2, Group 3 Interactive Post 4).*

The other participant replied:

*“You may be right. They are used because they are already on the streets. We do not have evidence that they are brought from somewhere to be used in organized begging or for illegal activities. Hope Prof Silva may throw some light on it” (Protégé, Round 2, Group 3 Interactive, Post 11).*

It was apparent that knowledge was constructed by building on each other’s ideas as the forum progressed. However, explicit references to original resources or contributors were not made very often. This is an area for future growth as participants may not have been accustomed to the formats of quoting others in online dialogues.

Changes of perspectives as a result of the group learning experience were evident in some instances as noted below:

*So thank you ... for inspiring us! I think all of us will see them differently when we meet them next time. As a result of this learning issue let us get together and try to help them not only online but in a real situation (Protégé, Round 1, Group 3, Talk, Post 43).*

Generally, the majority of participants indicated their satisfaction with the collaborative online group learning experience, including international e-mentors.

*Quotation 1 by a protégé*

*... this has been a great learning experience (Protégé, Round 1, Group 2, Interactive, Post 90).*

*Quotation 2 by a protégé*

*Thanks ...for making this assignment a truly learning experience (Protégé, Round 1, Group 3, Post 60).*

*Quotation 3 by an e-mentor*

*"I hope you all have a better understanding of negotiating a problem-based learning environment using distance education technologies. I learned much about problem-based reasoning and homelessness in your country. I hope someday to come to Sri Lanka. Until then maybe I'll get a chance to work online with you again soon. 😊"* (e-mentor, Round 1 Group 3, Post 76).

*Quotation 4 by an e-mentor*

*"... I've enjoyed being a part of this journey with each of you and exploring this exciting new approach to education " (e-mentor, Round 2, Group 1, Interactive, Post 40).*

All e-mentors seemed to be highly satisfied with the outcome of these collaborative inquiry-based learning activities; one e-mentor was particular impressed and requested the participants not to consider the report as an assignment but to forward the report to the 'real' government officials as recommendations.

*"You've all done a terrific job and I think you've come up with some truly workable solutions to help the traffic situation in Colombo. You should take your thoughts to the real government officials, commuters, and business people and see what happens. It's been a pleasure working with each of you!"* (e-mentor, Round 2, Group 2, Interactive, Post 32).

The group leader for each group in Sri Lanka or the U.S. e-mentor initiated the discussion. If the group leader initiated the discussion, s/he proposed the plan with already assigned roles that emerged from a previous face-to-face session with the group members. If the U.S. e-mentor initiated the discussion, then s/he welcomed the group, giving direction to the activity and requesting the members to identify their roles.

*"Do you have an objective and goal for your activity? Have you assigned roles and responsibilities to each of the members of the group? ...What resources are available to help you understand the components of a problem-solving activity?"* (E-mentor, Round 1, Group 1, talk, Post 1).

However, the Sri Lankan protégés were new to conducting inquiry-based learning online. Therefore, a lot of queries posted at the beginning of the activity indicated the need for clear instructions and guidance at the beginning of the activity from the e-mentors. The following quotations from the protégés illustrate this need.

*Quotation 1*

*"Of course, our goal and objective is clear. Way to achieve it, is the task. But I am little bit confused about the 'activity' that we want to do"* (Protégé, Round 1, Group 1, Talk, Post 5).

*Quotation 2*

*"I couldn't post the planning, as I haven't had the clear idea about what sort of planning we have to do for this activity. Hope you will guide us on developing such a plan for the Case based reasoning activity"* (Protégé, Round 1, Group 3, Talk, Post 41).

Regular contributions by all participants including e-mentors is key to success in online learning unlike in teacher-centred face-to-face teaching (see Figure 5). In certain instances, poor participation was a source of concern and continuous steering was done either by e-mentors or group leaders, or one of the participants from time to time. The techniques used by them were varied; some were very diplomatic and inviting and others were very direct in their instructions; and even some used emoticons and other images to motivate their peers.

*Quotation 1*

*Your have done a wonderful job up to now and we'll meet the final hurdle together as a team! Group 3 please please complete the report. Your contributions are highly valued!!!* (Protégé, Round 1, Group 3, Interactive, Post 67).

*Quotation 2*

*I can see a poor participation of our group members. 😞 Dear friends please participate in this forum to make it live. Remember that we have to complete this project. 😊* (Protégé, Round 2, Group 3 Interactive, Post 16).

*Quotation 3 - e-mentor - using an image along with the post*  
*Why are you all silent except for a few? Weekend is over! I think the team needs to use the remaining time effectively. X. and Y have given a great start to your final report. All the other members also need to chip in and make the report really a great one. I know you all are capable of this. I look forward to seeing you all online **in next few hours** as we have to now count by hours, not days. We have less than 72 hours to complete our report. Time is running out!*



*Let us get cracking!* (e-mentor, Round 1, Group 2, Interactive Post 59).

E-mentors used a variety of techniques to engage group members in the collaborative group process. Some e-mentors took the extra effort to send personal e-mail messages to encourage passive members to participate in the problem solving activity.

*"Also, later today - I will email one-to-one all our group members who have yet to participate in this discussion. But for those of you who have been contributing to this discussion - you are doing VERY well! Thank you for your time and efforts" (e-mentor, Round 2, Group 3, Interactive, Post 31).*

Two major reasons for poor participation that emerged from the transcript analysis were "issues related to access" and "workload".

*"I am extremely sorry for not accessing the forum. I am really busy with academic work these days. Being as a year coordinator for level 2 undergraduates who is having course work and attendance viva before their exams, I have to look after everything and make arrangements. I couldn't access the schoolnet site from my home even. Anyhow I will try my level best to participate the forum actively as soon as possible. I am greatly thankful to all of our group members for their support and effort on the forum. Sorry immensely again" (Protégé, Round 1, Group 3, Post 46).*

Some of the protégés defended their team mates and gave excuses on behalf of their peers. Generally the groups wanted to present a positive image of the group to the international e-mentor and showed group solidarity even though some members were not performing.

#### *Quotation 1*

*"... I know for sure although our learners are very committed and interested to participate, most of them have issues in access to online along with their other commitments. As a team, we have to help each other; however, still we have to bring their ideas also to the forefront. This was my understanding and now let us fills the missing links and gaps" (Protégé, Round 1, Group 2, Interactive, Post 64).*

#### *Quotation 2*

*"I think all are busy with their routine work and find it very difficult to find time" (Protégé, Round 1, Group 3, Post 67).*

Another issue that impacted participation was technical problems related to using the MOODLE LMS. We observed that some of the protégés and international e-mentors faced technical issues related to non-familiarity with MOODLE, and sometimes had difficulty posting in the appropriate forum.

#### *Quotation 1*

*"... its alarming to see that our valuable and fruitful panel discussion on traffic problem is no longer there visible in this forum. I hope our technical experts can do something to locate it. Yesterday evening before the deadline I submitted our final group report prepared by X. However, as there is nothing visible anymore, I am re-submitting it now, as an attachment" (Protege, Round 1, Group 2, Post 80).*

#### *Quotation 2*

*"... Moodle would not let me reply to this discussion thread until today..." (e-mentor, Round 1, Group 3, Post 10).*

In this instance, a facilitator intervened and resolved the problem by posting the message on behalf of e-mentor/protégé.

*"Note: I am [facilitator's name] posting [e-mentor's] forum post as test user again (just copied the stuff here), so that you can start the discussion. I suppose what has happened is that his message got posted to all participants, and therefore specific groups cannot reply to it" (Facilitator, Round 1, Group 3, Post 48).*

Some participants faced infrastructure and other technical related problems during the training period irrespective of the MOODLE orientation training. However, these problems were rectified through the "help desk facility". We felt that it took approximately three weeks for a novice participant to become familiar with the MOODLE LMS, and therefore point out the need for on going technical training when offering online courses for novice participants.

### **Research Question 3:**

Research question 3 examined factors that motivated participants to stay engaged by analyzing responses to the survey question: Which aspects of the workshop did you most enjoy and why? Examples of participant comments related to (1) general enjoyment, interest, motivation, and learning are presented first, followed by (2) comments related to collaborative learning and community building, and (3) knowledge building.

1. General enjoyment, interest, motivation, and learning  
The following quotes illustrate participant responses in this area which range from generating an interest in online learning to learning from other participants,

*"All aspects of the workshop was enjoyable; most importantly those that help to develop and create interest for me on online learning environment".*

*"When all are giving ideas in forum activities, it really motivated me to get involved in the activity and also learn a lot".*

*"We can learn a lot through forums, and it is very much motivating as we get feedback or responses immediately when we post our ideas"*

*"Discussion forums and chat rooms opened up my mind with some other creative ideas".*

*"Practical aspects of online learning motivated me to continue the course."*

## 2. Collaborative learning and community building

Participants enjoyed learning about collaborative learning online by hands-on engagement in an inquiry-based collaborative learning activity, and learned about mentoring techniques by observing the international e-mentor facilitate an inquiry-based learning activity. The following quotes are illustrations.

*"E-mentoring/tutoring showed different ways of mentoring, and showed how to get additional help from international experts".*

*"Collaborative problem solving was a collection of valuable ideas from different communities".*

*"You get personally connected to a number of people and it brings a human touch in online learning".*

*"We feel that this is a part of our lives."*

## 3. Knowledge building

Knowledge building and knowledge construction occurred in various ways as illustrated below. The predominant way in which this occurred was through the sharing of multiple perspectives and learning from each other's point of view. Some mentioned the self reflection that occurred after seeing another point of view. Participants appreciated the opportunity to learn from a variety of interactive learning activities online such as group discussions, chat sessions, wikis, labs, and simulations, and appreciated the fact that online learning gave them the time to reflect before answering or engaging in a discussion. The following quotes illustrate these points.

*"On line forum regarding the traffic issue, role-play and preparation of a report was very convincing about knowledge building and social presence".*

*"In discussion forums help me see others' viewpoints and it was a good opportunity for me to assess myself comparing to the others"*

*"In online sessions, we have time to think and do"*

*"Assignments (both group and individual) with different nature and formats encouraged me to participate in the workshop, develop skills, gain new experience and share my ideas, views and knowledge with others".*

*"I enjoyed forums, because I could interact with others and benefit from their knowledge, because most of them were from different domains and backgrounds".*

*"I enjoyed working with wikis, since I was able to creatively edit my ideas as well as others".*

*"Online practical components showed innovative ways of conducting online practicals and to minimize F2F lab classes."*

*"The online simulator presented was very interesting and it showed how a complex subject could be delivered online".*

## V. DISCUSSION

Both quantitative and qualitative analyses showed that the training of online tutors and mentors utilizing a blended format of face-to-face instruction, and online learning utilizing a community building model was effective in terms of learner satisfaction, collaborative learning, and engagement in learning. The academic and professional participants, many of whom were new to online learning realized through this experience that it is possible to learn online, and that online courses can be effective if well designed with interactive learning activities to engage the learner.

The results of the regression analysis are significant for the Sri Lankan socio-cultural context showing that if participants are satisfied with online interaction, that is their ability to interact and learn from the perspectives of others, they are more likely to be satisfied with the learning experience as a whole. This finding from the regression analysis was also supported by the qualitative analysis of the transcripts and participants' self reported statements of collaborative learning and motivation. In addition to interaction, other factors that contributed to learner satisfaction in the regression analysis were community building, learner support, and course design. These results support the efficacy of a community building model for tutor mentor development, because it shows that when a community is built, it is more likely that interaction will take place, and if learners are mentored and supported to interact, they are more likely to do so and be satisfied with the experience. The findings from the quantitative analysis also show the importance of course design where interactive activities are built in to engage the learner in the process of learning. Therefore, the independent variables tested in this model are all important as elements of online learning. The finding that interaction was a key predictor of learner satisfaction is interesting for this sociocultural context, as it contradicts the generally held belief that Asian learners who come from traditional education systems are more hesitant to interact online and engage in discussions and debates (Biesenbach-Lucas, 2003 – [3]). What this study has shown is the importance of course design based on a community building model. Learners are more likely to interact with the academic/trainer and with other peers if they feel comfortable to do so. So, building the learning community and a level of comfort to interact with others online is key, in addition to having available for the learner different types of mentoring and learner support. This study has pointed out the importance of designing appropriate engaging online interactive learning activities to enhance satisfaction in the learning experience. This finding is supported by more recent research that stresses the appropriate design of interaction to support online students in different cultural contexts (Powell, 2012 [17], Bubb, McDonald, & Crawford, 2012 [6]). Bubb, *et. al.* 2012 show the importance of guidance and scaffolding that is needed to support problem-solving activities online to support the learner's understanding, which was provided in our context by the U.S. e-mentor and group discussion leader.

Qualitative analysis of transcripts of the online learning activities which was part of the mixed-methods research design was key to understanding the type of interaction that led to satisfaction with the online learning experience. Qualitative analysis was able to shed light on the type of learning participants engaged in as a result of collaborative group interaction. Analysis of the inquiry-based learning activities with the e-mentor, demonstrated different levels of learning among protégés via collaborative group activity. They learned the basics of inquiry-based learning (problem-solving, role-play and case-based reasoning) by actually engaging in an inquiry-based learning activity. Some of this learning included analyzing the resources provided by the e-mentors, understanding the process of conducting an inquiry-based learning activity online, how to tutor, mentor and moderate an online discussion by observing the international e-mentors. Participants also shared their personal experiences, exchanged views, contradicted ideas and negotiated meaning through online discussions. Having gone through this learning process, protégés exhibited different stages of learning; some clearly indicated that they had undergone a “transformation” by changing their original perspectives, whereas others acknowledged learning from another point of view. As pointed out by Ojo (2011, [16]) not only “changing perspectives” but also “awareness of others’ viewpoints” is also an indication of transformative learning.

Qualitative content analysis of the open-ended questions in the final survey showed that students were engaged in the learning experience and revealed that the majority of participants valued this collaborative online learning experience. They had the opportunity to build the learning community by interacting with each other, and constructing knowledge by going through one another’s posts. They liked forums where they could interact, share their ideas and see other’s viewpoints. They also thought that they had the opportunity to “think” and “do” in their own pace unlike in face-to-face classrooms. They also felt that they could get immediate feedback from peers and mentors so that they could assess themselves. Therefore, like Bower & Hedberg’s (2010) study on the value of learner-centered designs, we found that an online learning experience designed on a community building model led to different types of learning, as well as learner satisfaction. One cautionary note here is the need to consider whether the novelty of the learning experience had an impact on learner satisfaction. This was the first time that many learners were engaged in an extended online learning experience, many of them were given time off from work to engage in this professional development activity, and the international e-mentors created a sense of excitement and novelty and engaged the learner in the process of learning. Perhaps the main challenges to interaction online in the Sri Lankan context will be access to ICT and fluency in English when courses are conducted in English, which is a second language for many.

Reflecting on the appropriateness of the WisCom instructional design model to build a learning community in the tutor mentor professional development program in the Sri Lankan sociocultural context, we concluded that this model is flexible in accommodating opportunities to design for cultural

inclusivity. WisCom is most suitable for designing learning outcomes that require the exchange of multiple perspectives, problem solving, negotiation of meaning and social construction of knowledge, where there are no right or wrong answers. WisCom allows for a range of instructional strategies: discussion forums, collaborative concept maps, one-on-one and group teleconferencing, collaborative document editing using Wikis, and group presentations are a few strategies common in WisCom courses. The flexibility of the WisCom model also benefits from the option to incorporate cultural values from the student population. Given adequate support and e-mentoring, many of the participants in this study were able to build a cohesive community, learn from multiple perspectives, and engage in the first steps of social construction of knowledge. The efficacy of the model in facilitating collaborative learning in graduate level classes in the United States and Venezuela are demonstrated in recent research (Gunawardena, Layne, & Frechette, 2012 – [10]).

## VI. CONCLUSION AND RECOMMENDATIONS

Our innovative online tutor mentor development model spanning a variety of organizations and predictive research related to its efficacy in terms of learner satisfaction and qualitative analysis of learning and motivation will contribute to understanding the methods and techniques for training online tutor mentors in similar contexts to the Sri Lankan socio-cultural context. The results indicate that the online tutor mentor development model based on the WisCom instructional design model was able to facilitate the negotiation of meaning and construction of knowledge in a collaborative online community, building a community of colleagues who together can reflect on practice. While it was developed for the Sri Lankan sociocultural context to help tutors move to a learner-centered system from the familiar teacher-centered system, it can also provide guidance to organizations considering online tutor mentor development in other similar contexts as well.

According to the regression analysis the highest contributor to learner satisfaction was interactivity (50.2%). Therefore, we can recommend that academic and professional institutions incorporate “interactive learning experiences” when designing e-learning programmes and train online tutors and mentors to provide adequate support via “interactions” when delivering e-learning programmes. Sustainability of any educational programme is dependent on the degree of engagement of its learners with their teachers and peers which leads to learning, and ultimate satisfaction with both peers and teachers.

Although the other three independent variables in the regression analysis (Community Building, Course Design, and Learner Support) were not high predictors of learner satisfaction, they were positively correlated with each other and the dependent variable. Therefore, online course designers should not disregard these three factors when designing an online learning environment or a blended learning environment.

One indicator of the success of the tutor mentor professional development program was its sustainability in the Sri Lankan sociocultural context. In addition to the two rounds analyzed in this study, nine more rounds of this training were conducted in the originally designed format, and subsequently many more versions were conducted as adapted short courses. By August 2007, four rounds of training were completed, and 103 Sri Lankan academics and professionals in 21 institutions were trained to tutor and mentor online using a learner centered, inquiry based, community of practice framework. Thus, these trained personnel would be able to promote, assist, deliver e-learning programmes in the country and would be in a position to train the others on online tutoring and mentoring.

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