Arab World English Journal
INTERNATIONAL PEER REVIEWED JOURNAL ISSN: 2229-9327
مجلة اللغة الانكليزية في العالم العربي

AWEJ Volume.4 Number.2, 2013

Pp.310-326

Knowledge Construction and Gender in online Debates

Ines Khalsi
The higher institute of Studies applied to Humanities
Tunisia

Abstract
This study investigated knowledge construction in two online debates using the Gunawardena et al.'s Interaction Analysis Model (1997). On the one hand, it aimed at assessing the relationship between knowledge construction and participation. On the other hand, it investigated the variation of constructed knowledge by gender. Results revealed that most of the postings were coded phase II in debate A whereas most of the postings were coded phase I in debate B. Few postings were coded phase IV and no posting was coded phase V. Statistical analysis yield that knowledge construction and participation are significantly and positively correlated. Besides, there was no disparity in the variation of constructed knowledge by gender which implies that CMC may have an equalizing effect on men and women's conversational behavior. Findings demonstrated that online debates may be appropriate media for learners to perform higher-order thinking and achieve knowledge construction but limited in fostering the higher mental phases (IV and V). The study confirmed the effectiveness of asynchronous online environment in supporting online learning. Some actions could be done to stimulate participation in order to foster knowledge building such as assigning roles or tasks to online debaters.

Keywords: Knowledge construction; online participation; gender; phases of interaction

Introduction

As the Internet is increasingly growing, online education continues to grow too (Johnson & Aragon, 2003), a phenomenon expected to continue at a significant rate (Allen & Seaman, 2004). Online discussion forums, or Computer Mediated Discussions, are popular with educators who aim at using IT (information technology) to enhance the quality of student learning. At NUS (the national university of Singapore), statistics demonstrate that the online discussion forum is among the most used tools in the Integrated Virtual Learning Environment (O'Grady, 2001). Computer mediated communication can not only promote meta-cognition but also uphold new ways of thinking and processing ideas (Johanyak, 1997, Gil & Quinones 1999). Computer mediated discourse (CMD) also enables students to produce language abilities (Beauvois, 1998) and generate a large range of views (Sommers, 1997). Barker & Kemp (1990) emphasize that electronic discussion purportedly encourages "a sense of group knowledge" and "a communal process of knowledge making" (p.15). It also promotes "critical awareness about how communication, or miscommunication occurs" (DiMatteo, 1991). Asynchronous discussion is one of the main ways to assist student learning in online courses (Joeng, 2003). As an instructional approach, asynchronous online discussions provide for dialogue, critical thinking, self-evaluation and independent learning by learners (Kayler & Weller, 2007).

The increase of online education has spurred a demand for institutions to assess how to expand online programs (Hiltz & Turoff, 2005) and use the environment in a better way (Grabinger & Dunlap, 2002). The implementation of asynchronous discussion groups is based on the notion that social dialogue is important to trigger construction of knowledge. The importance of dialogue is in turn founded on principles of the social constructivist theory. Social constructivists regard individual learning as socially mediated (De Wever, Van Keer, Schellens & Valcke, 2009). The strength of computer conferencing and electronic mail as constructivist learning means and environments lies in their abilities to foster conversation and collaboration. Dyads or groups can work together in order to solve problems, discuss about interpretations, negotiate meaning, or engage in other educational activities including coaching, modeling, and scaffolding of performance (Jonassen et al., 1995). The use of computer-mediated-communication tools can present new ways to promote knowledge construction (Schellens & Valcke, 2006).

Computer-mediated-communication tools can help make the construction of knowledge easier by working as a social medium to support students' learning by discussion and representing students' ideas and understandings in concrete forms (e.g., notes) so that ideas can be more developed via social interactions (e.g., questioning, clarifying) (Van Drie et al., 2005). One example of such tools is the asynchronous discussion forum. The technology which is available in asynchronous online discussions provides a number of ways to foster the construction of collaborative knowledge, while asynchronicity offers learners the opportunity to interact at any time from any place (Scardamalia & Bereiter, 1994). The debate could be described as a constructive learning environment which offers multiple approaches and actual world examples of the topic of discussion, that encourages reflection, and that supports collaborative construction of knowledge via social negotiation (Jonassen, 1994).

While Internet technologies can enable greater synchronous and asynchronous collaboration among distance learners, there is still a lack not only of clarity of what online collaboration is or should be but also of knowledge on how to structure and engage in it (Chan, 1996). An extra challenge to efficient collaboration in online courses is that the intended consequence of collaboration have not been clearly stated by research and/or experienced in

practice (Chan, 1996). Although much praised as a method to effective, deep, and reflective learning online (Hara, Bonk, & Angeli, 2000; Hathorn & Ingram, 2002), collaborative interactions leave many tutors and students insecure at best and unwilling to engage fully at worst. Conflict orientation as debates can facilitate the development of new knowledge structures by suggesting alternative approaches, focusing learners on the task, and receiving new information (Doise & Mugny, 1984).

Collaborative work enhances critical thinking; in support of this some claim that the participants of group work activities can develop their critical skills in a better way via their interactions with other group members than those who work by themselves (Dundes, 2001). Although the significance of CMC, in relation to the social constructivist theory is well documented in research literature (Resnyansky, 2002), the research relationship is often tentative. In fact, Hendricks & Maor (2004) claim that research has not totally supported strong evidence linking CMC to social constructivism, as the most of studies were often anecdotal or descriptions focusing on individual experiences. The fundamental problem with this is the use of small samples of discourse data, and as a result, the studies often neither describe the cognitive processes of the students correctly nor illustrate how knowledge develops and grows across time and across topics (Fitzpatrick & Donnelly, 2010). No wonder, CMC researchers continue to incite further search into the quality of student learning via CMC. Yet, there is a movement towards other kinds of content analysis like speech acts, genre, roles and goals of interlocutors which are starting to show some interesting results (Guevarra Enriquez, 2009).

Early analysis of computer-mediated communication using asynchronous tools tended to concentrate on more quantitative analysis of the data, focusing essentially on word counts and numbers of postings. Yet, this method of analysis gives a first good survey of the interactions which occur online but does not take into consideration the content of what is posted on the discussion boards. The analysis of the content of the discussion boards, thus, moved towards a more semantic labeling of content or propositions (Fitzpatrick & Donnelly, 2010). The assessment of co-construction of knowledge based on quantitative analysis of discussion posting underestimates the complexity of the available issue. Although a quantitative analysis allows the researcher to understand some linguistic online behaviors, it does not allow deep investigation of the language complexity in order to pinpoint the collaborative learning among learners. Thus, linguistic models for a qualitative analysis of online discourses have been elaborated by several researchers such as Interaction Analysis Model by Gunawardena et al. (1997).

Gender Issues in Educational Collaborative Work

Numerous research studies investigating teachers' interactions with students reported that male informants tended to get more attention than females due to their dominancy (Brophy, 1985; Sadker et al., 1991). This may be explained by the fact that men were more likely to participate to special-issues discussions during educational activities than women (Sierpe 2001). Gender can be the main cause of unbalanced interaction during collaborative work activities (Khan, 2006). In order to optimize collaboration benefits, focus should be on the barriers to collaborative work, and actions should be undertaken to find potential solutions to these issues. Khan (2006) states that gender is the main cause of the empowerment problem in collaborative learning. He adds (2006) that educators and researchers must be determined in resolving the empowerment problem of female students to obtain maximum advantages from group work activities. The equality perspective may make women feel more powerful and behave as such.

Few studies revealed that females are more at ease during the interaction with others through computers modes. For instance, Hiltz & Johnson (1990) sustained that females considered CMC more favorably than males. One reason could be that females could express freely their points of view without being interrupted by dominant males in a decision group. Women viewed email to be easier to use and more efficient than men in a case study with an intra-organizational mail system (Allen, 1995). When investigating a face to face problem solving discussion of a gender-mixed group, McGuire et al. (1987) found that males suggested five times as many first suggestions for a solution. When the same group discussed issues in a computer mediated medium, females were the first to give a solution as often as males.

This paper addresses the knowledge construction issue in online debates from a sociolinguistic view and tries to ask these two research questions: Does knowledge construction occur in online debates and how does it occur? Is there a difference in men and women's knowledge construction in online debates?

The Study

The goal of this study was to add evidence to the current literature through exploration of how males and females construct knowledge in a social setting within a primary asynchronous environment. This study is a longitudinal case study because the data source is bounded by time and environment (Creswell, 1998).

Variables of the study

Independent variable

Gender has been a recurrent variable in previous studies on computer mediated communication (Ogan et al., 1997). The informants are classified by gender to test the relationship, if any, between gender and knowledge construction. Informants of the study include 298 men and 146 women participating in the two selected online debates.

Dependent variable

Phases of Interaction were identified using the Gunawardena et al's (1997) Interaction Analysis Model. Phases of interaction by participants were calculated to look into the relationship between the different variables.

Online conversations sampling and informants of the study

Informants of the study are 444 online debaters selected from two online debates; 298 men and 146 women. 326 debaters participating in the online debate: "Technology in Education" retrieved from:
http://www.economist.com/debate/days/view/244, including 86 women and 240 men. 118 debaters participating in the online debate "Internet Democracy" retrieved from:
http://www.economist.com/debate/days/view/662, including 60 women and 58 men. It was opted for online debates as a CMC interaction, because in debates, participants may have different points of view which may facilitate active interaction. The first selected online debate is entitled "Technology in education" and was retrieved from the Website "The economist.com" on 18th March 2011. It was carried over 11 days from the 15th till the 26th October 2010 and comprised 371 comments. The second online debate is entitled "Internet Democracy" and was also retrieved

from the Website "The economist.com" on 13th April 2011. It was carried over 10 days from the 23rd February 2010 till the 4th February 2010 and comprises 128 comments.

Interaction Analysis Model

The informants' online transcripts were analyzed qualitatively using the Gunawardena et al. (1997) interaction analysis model (IAM) based on the five phases of knowledge co-construction that occur during the online debates. As stated Gunawardena et al. (1997), notes ranked in Phase I and Phase II will be considered to "represent the lower mental functions", while notes rated in Phase III, Phase IV, and Phase V will represent the higher mental functions.

Table 1. ***Gunawardena et al.'s (1997) Interaction Analysis Model***

Phase	Operation
1 Sharing/comparing of information	Statement of observation or opinion; statement of agreement between participants
2 Discovery and exploration of dissonance	Identifying areas of disagreement, asking and answering questions to clarify disagreement or inconsistency among participants
3 Negotiation of meaning/co-construction	Negotiating meaning of terms and negotiation of of knowledge the relative weight to be used for various agreement
4 Testing and modification of proposed	Testing the proposed new knowledge against synthesis or co-construction existing cognitive schema, personal experience or other sources
5 Agreement statement(s)/application of	Summarizing agreement and metacognitive newly constructed meaning statements that show new knowledge construction

Procedure

To apply the Interaction Analysis Model, I read each posting in the original sequence and applied a phase or phases from the IAM. It is very possible to code multiple sentences or a paragraph or two with a single phase; this use is consistent with the original application of the IAM (Gunawardena et al., 1997). I calculated the frequencies of the coded phases per posting and also for all the informants' contributions to the entire discussion. Two raters; myself and an English assistant colleague, coded the online transcripts. In order to conduct inter-reliability checks, I adopted the convention based on prior research using this protocol (Beaudrie, 2000) to use the most advanced phase from each posting as the basis for inter-rater checks. Inter-rater differences were addressed following Chi's (1997) recommended process for resolving discrepancies between coders:

1. Based on each author or rater's original coding, record agreements and disagreements of the most advanced coded phase per posting.
Determine which authors used the highest phase for the posting.
3. Examine the segments illustrating the highest phase.
4. Determine if code was appropriate by reviewing the phase and code definitions in addition to the examples provided by Gunawardena et al. (1997).
5. If all the study researchers agree on the highest phase to use for the posting, then the change will be recorded; otherwise the disagreement remains.

Chi (1997) describes two types of rater discrepancies. The first happens when raters have firm ideas on which code should be used for a particular data segment. The second type of discrepancies happens when raters use different codes but are not sure of which code should be used. In this case, the passages are going to be re-examined collectively and then we will decide on which code to apply.

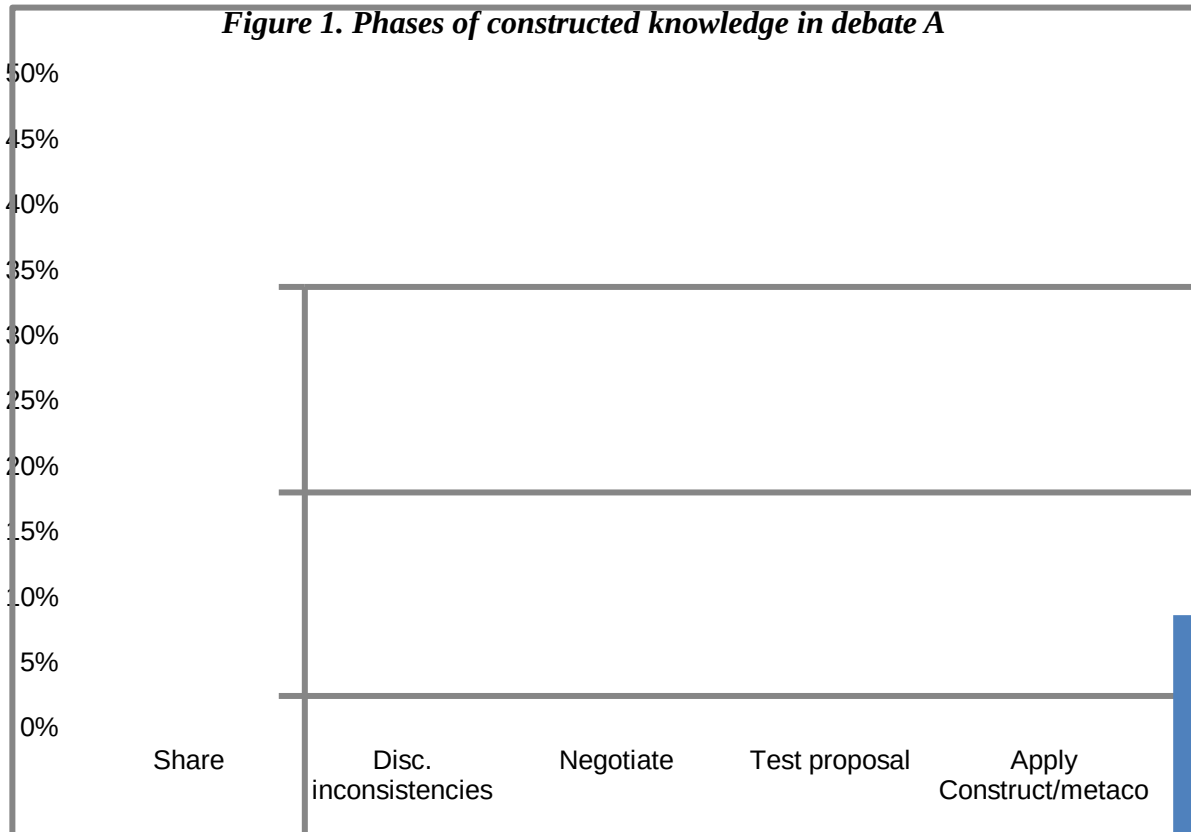
Postings were coded using the five phases of Gunawardena et al (1997). For statistical correlation, Phase I was coded 1, phase II was coded 2, phase III was coded 3, phase IV was coded 4 and phase V was coded 5. The absence of phase was coded 0.

A second researcher reviewed the coding of the total postings in debate A and B. The inter-rater was selected based on her field of specialization; "applied linguistics" and her familiarity with discourse analysis. The inter-rating training consisted of an independent review of the Interaction Analysis model. The inter-rater was able to provide reliability for 100 % of the data. Her task was to review the coding made by the investigator. It was easy to reach 100 % agreement because disagreement in coding posts concerned only 3 postings in Debate B. Total agreement was achieved after discussing discrepancies.

The statistical data analysis was based on descriptive and analytical statistics. Descriptive statistics were used to calculate percentages in order to cross-tabulate selected variables of the study which are Gender, Phases of Interaction, Posting frequency and Posting length. Correlation analysis was used to describe the relationship between Phases of Interaction, Posting length and Posting frequency. Data were computed using the statistical Package for the Social Sciences (SPSS) 17.

Figure 1

Results Analysis



As shown in figure 1, in Debate A, informants went through the four phases of Interaction Analysis Model; the first and the second phase which are considered to "represent the lower mental functions" (Gunawardena et al., 1997), the third and the fourth phase which are considered to illustrate the higher mental functions whereas, in debate B, they only went through the three phases of Interaction Analysis Model; the first, the second and the third phase. These results corroborate Fujiike's (2004) results showing that participants used only the three first phases of interaction (Gunawardena et al., 1997). They also support Schellens & Valcke's (2005) study that yield that phase IV (testing tentative constructions) and phase V (statement/application of newly-constructed knowledge) are almost non-existent. Study results disagree with Harris (2009) and Gunawardena et al.'s (1997) results showing that the data included all five phases of the Interaction Analysis Model. These findings are in line with the conclusions of Fahy et al. (2001) who sustain the ''lack of discriminating capability of instruments''. They claim that "some previously used analytic approaches and tools have been acknowledged by their developers as failing to discriminate adequately among the types of statements appearing in transcripts" (Schellens & Valcke, 2005 p.972) .

A major problem was that large portions of the transcript were coded into a very few interaction categories (Gunawardena et al., 1997; Zhu, 1996), with the result that the transcript's communicative richness may not have been fully revealed.'' (Fahy et al., 2001). Schellens &

Valcke (2005) explain the scarcity of messages in phase IV (testing and adjusting new hypothesis) and phase V (statement/application of newly constructed knowledge) by the fact that students were never asked to test a hypothesis or to come to clear conclusions about newly built knowledge. In this study, informants tended to expose their ideas and give arguments to defend their position but hardly did they ask questions to prompt each other into deeper thinking. This conversational behavior could be due to their willingness to avoid confrontation with other participants caused by a feeling of lack of confidence. The paper results corroborate Lee's (2012) reviews of previous research revealing that studies addressing the meaningful status of phase III stated that higher phases of knowledge construction are difficult to achieve.

Figure 2

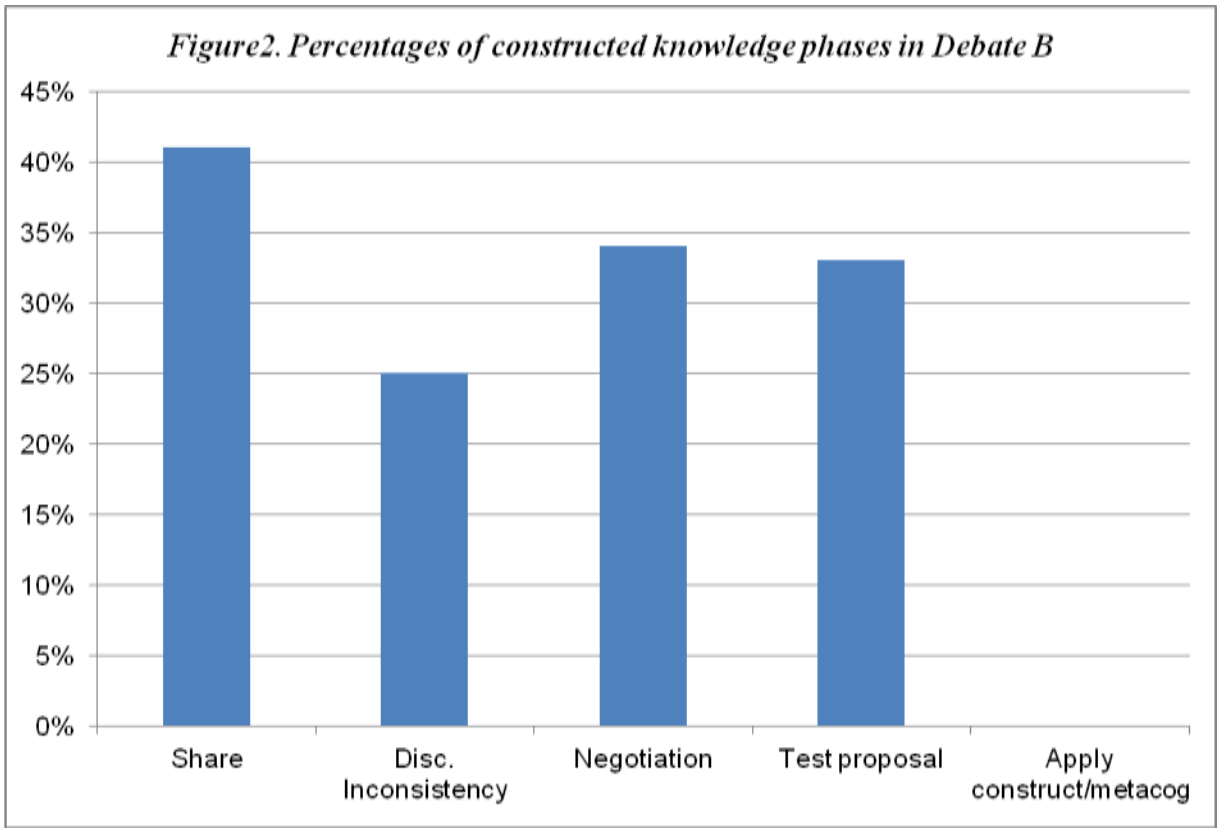


Figure 2 reveals that in debate B, most of the informants used the Phase I. This corroborates findings by Gunawardena et al. (1997), Moore & Marra (2005) and Schellens & Valcke (2005) who perceived high percentages of communication in phase I. Quek (2010) explains the large percentage of phase I by the fact that co-construction of knowledge may not always be an observable phenomenon in the online learning environment. Anderson & kanuka (1998) explains the high number of posting coded phase I by one hypothesis which is informants were limited in their interaction ability due to the limitations of a text-only environment and a limited social presence (Short, Williams, & Christie, 1976) with no opportunity to perform body language or graphic illustration. They added another alternate hypothesis explaining the absence of higher mental phases holding that it is much easier to ignore online messages that are incompatible with individuals' existing knowledge than it is in a face-to-face environment (Anderson & kanuka, 1998).

However in Debate A, most of the participants used Phase II. These results are in line with Thanasingam & Soong's (2007) findings revealing that most of the postings are clarification comments. There were more critical comments, (Phase II level) comments, than observations and opinions (Phase I level) suggesting "that the online forum has been effective in engaging students to critically reviewing their peers' feedback on the presenter" (Thanasingam & Soong's, 2007, p. 1005). The significant percentage of phase III implied that participants were constructing new knowledge arousing from their proper or another person's disagreement.

The study results corroborate Thanasingam & Soong's (2007) findings that Phase III level posting, implies that forum characteristics enabled many participants to achieve greater understanding of the knowledge constructed. "Through exercising higher mental functions such as negotiating or clarifying, they have tried to process and construct more accurate feedback" (Thanasingam & Soong's, 2007, p. 1005). In debate A and B few postings were non codeable. This result approves Quek's (2010) finding that shows that 33 % of the postings were irrelevant. Quek (2010) claims that this could result from the participants' uncertainty of CMC possibilities for online interaction, lack of understanding of who they were communicating with, and lack of help for one another. Also, they are likely to be afraid of criticism, or they were not sure of their own ideas, or they were too dependent on their more able peers to guide the conversation.

Informants displayed new knowledge and confirmed the acquisition of new knowledge (Cawthon & Harris, 2008). In addition, the interaction achieved by the act of disagreeing, negotiating meaning, testing and few times, modifying meaning, and applying new knowledge (Gunawardena et al., 1997) illustrated by the presence mainly of phases II through III and few times phase IV provides evidence for social construction of knowledge. This finding corroborates the position that online conversation promotes sharing information and building new knowledge (McConnell, 1999).

Table 2. *Spearman's Rho correlation between Posting Frequency, Posting Length and Phases of Interaction in Debate A*

	Phases of Interaction	Posting Length
Posting Frequency	0.12* .02	0.36** .00
Posting Length	0.13* .01	*

Table 3. Spearman's Rho correlation between Posting Frequency, Posting Length and Phases of Interaction in Debate B

	Phases of Interaction	Posting Length
Posting Frequency	0.14 .11	0.007 .93
Posting Length	0.08 .37	*

Correlation between Phases of Interaction and Posting length and frequency was revealed to be significant and positive implying that writing longer and more frequent postings tend to foster higher order thinking. It means that the higher the participation level is the higher knowledge construction is. These findings support Kale's ones (2005) showing that the low number of knowledge areas was clear in the postings, which can be a possible explanation for low level of participation and may be the reason behind the low level of knowledge construction too.

Kale (2005) mentions that one reason may be the meaningful active knowledge construction that requires connecting and mentioning more than one type of knowledge. He sustains that: "Without sufficient participation in the forums, it is hard to expect collaboration that leads to meaningful information exchange and knowledge building" (2005, p. 1). High mental phases are achieved by informants through frequent postings. One possible reason is that participants, in groups where messages are frequent and long, have access to a wider range of opinions or viewpoints when compared to participants exchanging short and few messages. This provides greater opportunities for participants to identify the differences between the contributions, to consider all the opinions, and to negotiate the various meanings of ideas or comments raised. These activities would help to promote the achievement of high levels of knowledge construction.

Figure 3. *Knowledge construction by Gender in Debate A*

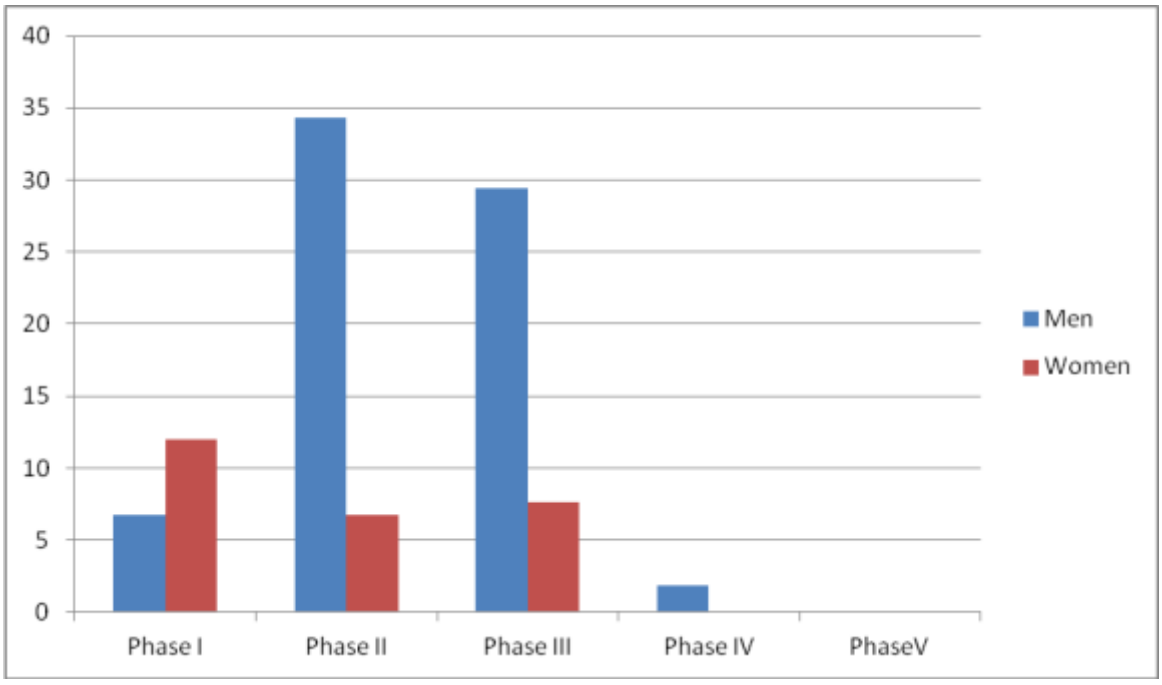
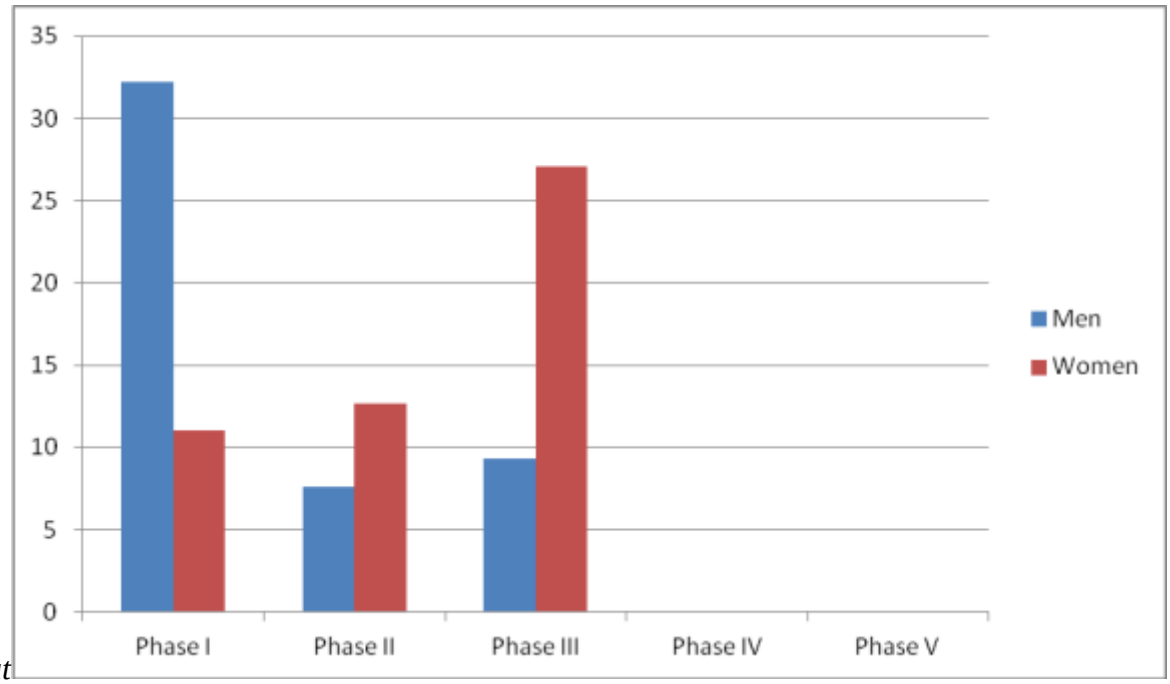


Figure 3 shows that more women used phase I that men in Debate A. However more men used phase II, III and IV. Whereas Figure 4 shows that in Debate B, more men used phase I and more women used phase II and phase III. These findings on knowledge construction by Gender did not reveal any bias in women and men's constructed knowledge in online debates.

Figure 4. *Knowledge construction by Sex in*



Debat

Discussion and Implications

The data yield the efficiency of asynchronous online environment in carrying social construction of knowledge. Informants in this study managed to construct knowledge together and change their own existing knowledge. The study results showed that debates format seemed to be an appropriate medium to achieve knowledge construction. Consequently, online debates may be a suitable platform for online learning. Course designers should conceive online learning interface through adopting the debate structure. A motion is announced by the moderator then learners are invited to vote for or against the motion and develop their points of views. The study findings added evidence to the online learning field which is expanding very rapidly. It confirmed the effectiveness of asynchronous online media in supporting online education. It is worth noting that some individuals used more phases of Intercation than other implying that participants have different intentions in the online debate. When learners have different goals in a shared online conversation, they may misunderstand each other and fail to achieve authentic collaboration and knowledge construction. In consequence, it is essential to set common objectives before enacting the conversation.

Indeed, social knowledge building and change were performed as participants shared different ideas, agreed and disagreed on these ideas, negotiated their views and formed together a new knowledge. Actually, the study also supports the importance of collaboration in constructing new knowledge. Collaborative learning is primordial in achieving and catalysing knowledge construction. These data may aid online educators in elaborating appropriate online programs. Results imply that learners worldwide can collaborate together, share their own knowledge and build a new one, thus, achieving authentic social change and knowledge building. The social change that has occurred within learners could be expanded to their whole communities resulting

in an international communities' ex-changing. It is the new era of cross-cultural collaboration and learning. Therefore, online learning appears to be a potent tool for cross-cultural learning.

Results showed that the two constructs of Participation and knowledge construction are closely intertwined. An increasing participation seems to result in an increasing knowledge building. Consequently fostering informants' participation should foster social knowledge formation. In the educational online context, which is a quite formal context, the online discussion can be narrowly supervised. When learners' participation is fading, teachers or moderators could ask further questions to push informants into deeper thinking and explanations. It is possible that some participants may be reluctant from involving in the online conversation due to several factors. One of these factors is the participant's lack of familiarity with CMC.

The unskilled learner tends to be less self-confident and avoid confrontation with other informants leading to a limited participation and sometimes to a total withdrawal from the interaction. Accordingly, training sessions could be offered to students lacking familiarity with CMC in general and asynchronous online environments in particular. These training sessions should enable them to acquire online skills such as being able to uphold a significant asynchronous communication and using the appropriate computational and linguistic tools in order to fulfill learning collaboration, social change and knowledge construction. Debates could also be assigned to students as an examination. Learners would be assessed according to their postings length, frequency and content. In fact, the testing effect may generate a facilitative anxiety among participants which may push them to participate more and engage significantly and seriously in the online conversation. Nonetheless, testing may also engender debilitative anxiety which may block the student and prevent him/her from involving into the discussion.

When investigating knowledge construction by gender, the research study did not reveal any disparity in women and men's knowledge construction through the two online debates. Earlier studies investigating women and men's face-to-face interaction, revealed most of the time men's domination in participation, problem-solving, solution-finding, etc. Then, focus was on females and males' interaction online to find out if this disparity is replicated in CMC. Many studies revealed that CMC had an equalizing effect on women and men's participation. This could be explained by the fact that female participants may feel more at ease when interacting with males' participants through the computer medium. For instance, Hiltz & Johnson (1990) found that females viewed CMC more favorably than males. These findings are in line with McGuire et al.'s (1987) results that in a face to face problem solving discussion of a gender-mixed group, males gave five times as many first suggestions for a solution. When the same group discussed problems in a computer mediated medium, females were the first to suggest a solution as often as males.

Limitations of the study

One of the main limitations of this kind of research study is the subjectivity of coding. The classification of messages is open to individual interpretation. Using Interaction Analysis Model is mainly based on personal opinion and own knowledge. Posting content could be understood differently by coders resulting in different phases coding. Online debates may be inconvenient for informants who have poor written interaction skills or participants who could be involved in a conversation where the language used is not their mother tongue.

In online discussions; the construction of knowledge may not be an observable phenomenon. For example, participants may have been cogitating on topics discussed in the online forum, generating knowledge construction that was not shared with other informants.

Another possible explanation is that knowledge construction was achieved after the end of the online conversation. Consequently, it is worth noting that online debates analysis provides only for the observable version of the knowledge construction. Besides, the CMC blind effect makes it possible for informants to modify their gender. Actually, participants may lie about their sex, job or educational level. The main limitation is that it is impossible to check the correctness of these information.

Suggestion for Future research

There are other variables that should be investigated and that may impact participants' achievement of higher knowledge construction such as group size. Further studies could replicate this research study under different conditions (e.g., selecting informants from other nationalities and origins because they may have different online linguistic behavior). Besides the group size, there are still other possible factors that may influence participants' achievement of high knowledge construction levels. Some of these factors may be the duration of the online conversation or the scaffolding techniques used by informants in the discussion. Findings arousing from these investigations would provide further insights into how high level of online debate participants' knowledge construction should be urged. In fact, researchers are using different linguistic instruments to investigate knowledge construction in online discussions. The quality of one conversation based on constructed knowledge can differ from one study to another. Therefore, researchers should elaborate a common model to assess online discussions.

It would be interesting to explore some areas that were not investigated in this study and that may be worthy of further investigation. These areas comprise the influence of CMC familiarity on the use of online debates; the impact of evaluation in the use of online debates; the involvement of a moderator or an instructor in guiding or urging the conversation; the use of hints to trigger discussion and participants' moderation for the content; the assignment of roles to participants. Other areas that may influence informants' interaction should be explored such as the impact of those who read but do not send messages, qualified as "ropers" or "lurkers"; consequence of negative or no responses to the first postings.

Conclusion

Results of the study imply that learners worldwide can collaborate together, share their own knowledge and build a new one, thus, achieving authentic social change and knowledge building. The social change that has occurred within learners could be expanded to their whole communities resulting in an international communities' ex-changing. It is the new era of cross-cultural collaboration and learning. Therefore, online learning appears to be a potent tool for cross-cultural learning.

Findings did not reveal any bias in women and men's knowledge construction through the two online debates. Old theories on men dominance in mixed-sex conversations are no more applicable. Female participants were as able as male participants to achieve advanced levels of knowledge construction online. Consequently, in conceiving educational online programs and interfaces, educators or designers should not consider gender as an issue in CMC and should, may be, focus on other variables such as age, social status, origin, familiarity with CMC, etc.

About the Author:

Mrs Ines Khalsi Zaouchi is an assistant teacher in Tunisia at "the Higher Institute of Studies Applied to Humanities" in the English department. She is in charge of teaching research

methodology and oral presentation skills to 3rd year Business English classes. For her master's degree, she has conducted a research study on gender differences in computer-mediated-communication (CMC) that revealed that Age is the most consistent predictor of CMC participation. Currently, she is working on her doctoral thesis entitled "Analysis of Online Debates: Examining Social Construction of Knowledge in Computer Conferencing".

References

Allen, B. J., (1995). Gender and computer-mediated communication. *Sex roles*, 32(7/8), 557- 563.

Allen, I., & Seaman, J. (2004). *Entering the mainstream: The quality and extent of online education in the United States, 2003 and 2004*.Wellesley, MA: Sloan Consortium

Barker, T. T., & Kemp, F. O. (1990). Network theory: A postmodern pedagogy for the writing classroom. In Carolyn Handa (Ed.), Computers and community (pp. l- 27). Portsmouth, NH: Boynton/Cook.

Beaudrie, B. P. (2000). *Analysis of group problem-solving tasks in a geometry course for teachers using computer mediated conferencing*. Unpublished doctoral thesis, Montana State University, Bozeman

Beauvois, M. H. (1998). Conversations in slow motion: Computer-mediated communication in the foreign language classroom. *Canadian Modern Language Review 54*, 2, 198- 217.

Brophy, J. (1985). Interactions of male and female students with male and female teachers, In L. Wilkinson & C. Marrett (Eds.). *Gender influences in classroom interations*, pp. 115-142, Academic press, Orlando, FL.

Cawthon, S. & Harris, A. (2008). Developing a community of practice: The role of sociology in learning and team development. In Orvis, K. & Lassiter, A. (Eds). *Computer Supported Collaborative Learning: Best Practices and Principles for Instructors*. Hershey, PA: Idea Group Publishing.

Chan, L. K. S. (1996). Combined strategy and attributional training for seventh grade average and poor readers. *Journal of Research in Reading, 19*, 111-127.

Chi, M. T. H. (1997). Quantifying qualitative analyses of verbal data: A practical guide. *The Journal of the Learning Sciences, 6*(3), 271–315.

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five designs.* Thousand Oaks, CA: Sage.

De Wever, B., Schellens, T., Valcke, M., & Van Keer, H. (2006). Content analysis schemes to analyse transcripts of online asynchronous discussion groups: A review. *Computers & Education, 46*, 6–28.

DiMatteo, M.R. (1991). *Psychology of Health Illness and Medical care*. Wadsworth, Brooks Cole.

Doise, W., & Mugny, G. (1984). *A Social Definition of Intelligence*. Toronto: Pergamon Press.

Dundes, L. (2001). Small group debates: Fostering critical thinking in oral presentations with maximal class involvement. *Teaching Sociology*, 29 (2), 237-43.

Fahy, P. J., Crawford, G., & Ally, M. (2001). Patterns of interaction in a computer conference transcript. *International Review of Research in Open and Distance Learning, 2*(1).

Fitzpatrick, N., & Donnelly, R. (2010). Do you see what I mean? Computer-mediated discourse analysis. In Donnelly, R., Harvey, J., & O'Rourke, K. (Eds.) *Critical Design and Effective Tools for E-Learning in Higher Education: Theory into Practice.* Hershey, PA: Information Science Reference.

Fujiike, T. (2004). Collaborative interaction in EFL Web-based debates: How do learners develop socially constructed knowledge? *CALL-EJ online,* 5(2), January 2004.

Gil, A., & Quinones, A. (1999). *Listserv: A tool for instruction in higher education classrooms*. Paper presented at the International Council for Innovations in Higher Education, Puerto Rico.

Grabinger, S., & Dunlap, J. (2002). Problem-Based learning as an example of active learning and student engagement. *Lecture Notes in Computer Science*, 1457, 375-384.

Guevarra Enriquez, J. (2009). Discontent with content analysis of online transcripts. Association for Learning Technology Journal, 17(2), 101-113.

Gunawardena, C. N., Lowe, C. A., & Anderson, T. (1997). Analysis of a Global Online Debate and the Development of an Interaction Analysis Model for Examining Social construction of knowledge in Computer Conferencing. *Educational Computing Research*, 17, 397-431.

Hara, N., Bonk, C. J., & Angeli, C. (2002). Content analysis of online discussion in an applied educational psychology course. *Instructional Science, 28*, 115-152.

Harris, A. (2009). *Social construction of knowledge in a semiformal, long-term learning environment: A qualitative study.* Unpublished doctoral thesis, Walden University.

Hathorn, L. G. & Ingram, A. L. (2002). Cooperation and collaboration using computer- mediated communication. *Journal of Educational Computing Research, 26*(3), 325- 247.

Hendriks, V., & Maor, D. (2003). Qualitative methods in evaluating the quality of online learning. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2003* (pp. 2586-2593).

Hiltz, S.R., & Johnson, K. (1990). User satisfaction with computer-mediated communication systems. *Management Science*, 36(6), 739-764.

Hiltz, S. R., & Turoff, M. (2005). Education goes digital: the evolution of online learning and the revolution in higher education. *Communications of the ACM, 48(10),* 59-64.

Jeong, A. (2003). Sequential analysis of group interaction and critical thinking in online threaded discussions. *The American Journal of Distance Education*, 17(1), 25-43.

Johanyak, M. F. (1997). Analyzing the Amalgamated Electronic Text: Bringing Cognitive, Social, and Contextual Factors of Individual Language Users. *Computers and Composition* 14 (1), 91–110.

Johnson, S. D., & Aragon, S. R. (2003). An instructional strategy framework for online learning environments. *New Directions for Adult and Continuing Education*, 100, 31- 43.

Jonassen, D.H. (1994).Thinking Technology : toward a constructivist design model. *Educational Technology*, 34-37.

Jonassen, D., Davidson, M., Collins, M., Campbell, J. & Bannan Haag, B. (1995) Constructivism and computer-mediated communication in distance education. *The American Journal of Distance Education*, 9(2), 7-26.

O'Grady, W. (2001). *An Emergentist Approach to Syntax*. Available at : http://www.ling.hawaii.edu/faculty/ogrady/

Kale, U. (2005). Participation and Knowledge Creation in Online Teacher Collaboration. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2005* (pp. 885-891). Chesapeake, VA: AACE.

Kanuka, H., & Anderson, T. (1998). Online social interchange, discord and knowledge construction. *Journal of Distance Education, 13*(1), 57–74.

Kayler, M., & Weller, K. (2007). Pedagogy, Self-Assessment, and Online Discussion Groups. *Educational Technology & Society*, 10(1), 136-147.

Khan, H.U. (2006). Role of Computer Mediated Communication in solving collaborative learning communication problems in higher education: a case study of Dhofar Arabic region of Oman", 5th International Conference on eLiteracy (eLit 2006), Loughborough University, East Midlands, England (UK), 28-30 June. http://www.lboro.ac.uk/library/eLit2006

Lee, L. (2002). Enhancing Learners' Communication Skills through Synchronous Electronic Interaction and Task-Based Instruction. *Foreign Language Annals, 35*, 16-23.

Marra, R.M. & Moore, J. (2005). A Comparative Analysis of Online Discussion Participation Protocols. *Journal of research on technology in education, 38 (2)*, 191-212.

MCCONNELL, D. (1999). Examining a collaborative assessment process in networked lifelong learning. *Journal of Computer Assisted Learning*, *15*, 232–243.

McGuire, T.W., Kiesler, S., & Siegel, J., (1987). Group and computer mediated discussion effects in risk decision making. *Journal of Personality and Social Psychology*, 52, 917-930.

Ogan, C., Robinson, J. C., Ahuja, M., & Herring, S. C. (2006). Gender differences among students in computer science and applied information technology. In W. Aspray & J. McGrath Cohoon (Eds.), *Women and Information Technology: Research on the Reasons for Under-Representation* (pp. 279-300). Cambridge: MIT Press.

Quek, C. L. (2010). Analyzing high school students' participation and interaction in an asynchronous online project-based learning environment. *Australasian Journal of Educational Technology*, 26(3), 327-340.

Resnyansky, L. (2002). Computer-mediated communication in higher education: educators' agency in relation to technology. *The Journal of Educational Enquiry*, 3 (1), 35-59

Sadker, M., Sadker, D., & Klein, S. (1991). The issue of gender in elementary and secondary education". In G. Gant(Ed.), Review of research in education, No. 17, pp. 269-335, American educational research association, Washington, DC.

Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences,* 3(3), 265-283.

Schellens, T. & Valcke, M. (2006). Fostering knowledge construction in university students through asynchronous discussion groups. *Computers & Education*, 46(4), 349-370.

Short, J., Williams, E., & Christie, B. (1976). The *social psychology of telecommunications*. London: John Wiley & Sons.

Sierpe, E. (2001). Gender and participation in computer-mediated LIS education topical discussions: an examination of JESSE, the Library/Information Science Education Forum. *Journal of Education for Library and Information Science*, 42(4), 339-347.

Sommers, E. (1997). *Hearing the Students' Voices: A Daedalus Convert Goes National*. San Francisco, CA: San Francisco State University.

Thanasingam, S. & Soong, S.K.A. (2007). The spring cycle blended curriculum model for teaching paragraph writing. In ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007. Available at: http://www.ascilite.org.au/conferences/singapore07/procs/thanasingam-poster.pdf

Van Drie, J., Van Boxtel, C., Jaspers, J., & Kanselaar, G. (2005). Effects of representational guidance on domain specific reasoning in CSCL. *Computers in Human Behavior*, 21(4), 575–602.