出國報告（出國類別：參加國際研討會發表論文）

參加國際研討會發表論文報告書
(研討會名稱：International Conference of
Computer Supported Collaborative
Learning)

服務機關：國立政治大學
姓名職稱：洪煌堯（助理教授）
派赴國家：希臘
出國期間：98/06/08-98/06/13
報告日期：100/01/25

目次

摘要

本次出國的主要目的為發表論文於 International Conference of Computer Supported Collaborative Learning 的國際研討會上。本次會議共有 344 篇文章發表。本篇文章被收錄為長篇文章（錄取率為 26%）。全文請見附錄一。除發表論文外，本次研討會對瞭解國際上電腦支援合作學習（Computer Supported Collaborative Learning）的發展趨勢也有所助益。本文被收錄在此一會議的論文集中，以及 ISI Conference Proceedings Citation Index 的資料庫中。參加本會議有助於提昇台灣研究在國際上的能見度。

本文

一、　**目 的**

發表學術論文一篇(見附錄一)。

二、　**過 程**

本次會議共五天，議程如附錄二。本篇論文發表日期為 6/12，第 12 場次。同場次的其他發表人分別為 Sami Paavola & Kai Hakkarainen(題目：From meaning making to joint construction of knowledge practices and artefacts – A trialogical approach to CSCL)，以及 Minna Lakkala, Sami Paavola, Kari Kosonen, Hanni Muukkonen, Merja Bauters, Hannu Markkanen(題目：Main functionalities of the Knowledge Practices Environment affording)。主題皆與知識創新（knowledge creation）有關。除發表論文外，其餘時間則用於聽講，以瞭解學習科學（Learning Sciences）和電腦支援合作學習（Computer Supported Collaborative Learning）在國際上的發展趨勢。

三、　**心得及建議**

參加本國際研討會最重要的收穫是得到許多國際學者對本論文（研究）的回饋。透過學者間的同儕互評，促進研究與知識的進步。另外，Computer Supported Collaborative Learning (CSCL)國際會議係由 International Society of Learning Sciences (ISLS)國際學會所舉辦。ICLS 所出版的期刊 (包括 Journal of the Learning Sciences 和 International Journal of Computer Supported Collaborative Learning)與論文集(Proceedings of International Conference of Learning Sciences 和 Proceedings of International Conference of Computer Supported Collaborative Learning)皆收錄在 ISI 資料庫中所的教育類期刊中。過去幾年間其期刊的期刊影響指數也一直位居教育類前幾名，對國際間的教育發展有極大的影響力。參加此一會議同時也使得本次發表的文章得以被收錄在其論文集中，以提昇本校研究在國際上的影響力。

附錄一（論文發表全文）

Exploring the effectiveness of an idea-centered design to foster a computer-supported knowledge building environment

Huang-Yao Hong, National Chengchi University, Taiwan, hyhong@nccu.edu.tw
Fei-Ching Chen, National Central University, Taiwan, chen.feiching@gmail.com
Hsiu-mei Chang, National Central University, Taiwan, auroraspp@gmail.com
Calvin C. Y. Liao, National Central University, Taiwan, eknllm@gmail.com
Wen-Ching Chan, National Chengchi University, Taiwan, 96152020@nccu.edu.tw

Abstract: This paper compares the effectiveness of two multimedia environments—Blackboard Learning System™ and Knowledge Forum™—in terms of their underlying design approaches to support collaborative learning and knowledge work. The two design approaches are (1) a conventional theme-based approach, i.e., to center group collaboration and meaning interaction around themes, and (2) an idea-centered approach, i.e., to center group collaboration and meaning interaction around sustained idea exchange and improvement. Findings suggest that an idea-centered design approach seems more likely to construct an environment that fosters more dynamic group and meaning interactions, thus enabling more sustained collaborative learning and knowledge building.

Keywords: Knowledge building, Knowledge Forum, Blackboard, idea-centered design, theme-based design, CSCL environment

Introduction

Society is being transformed into an information- or knowledge-based society (Drucker, 1986; ; UNESCO, 2005). The advances and ubiquity of information communication and technology (ICT) provide new forms of connectivity for supporting group work, and transform the traditional notion of learning as individual endeavors into one that also values collective knowledge work (Scardamalia, 2002; Hong & Scardamalia, & Zhang, 2007). In response to this shift in perspective, an emerging line of research on educational technology has been focusing on the design of effective computer-supported collaborative learning (CSCL) environments. The key concept of CSCL is that shared digital environments can be used to foster meaning interactions that produce deeper understanding for the group and its participants; and, as such, the uniqueness of CSCL designs consists in their techniques for supporting effective group collaboration and meaning interaction (Stahl, 2007). Nevertheless, while scholars in general agree the value of CSCL for modern education in a digital age, as an emerging field, there is still much to learn about the nature of CSCL in order to keep designing more effective CSCL environments (Stahl, Koschmann, & Suthers, 2006). As noted by Kreijns, Kirschner and Jochems (2002), "contemporary CSCL environments do not completely fulfill expectations on supporting interactive group learning, shared understanding, social construction of knowledge, and acquisition of competencies" (p.8; see also Kirschner, Strijbos, Kreijns, & Beers, 2004). The question of what constitutes an effective design to support CSCL remains an important challenge in the field.

A conventional design approach to support online collaboration in most CSCL environments has been a theme-based one, i.e., to center group discussion or meaning interaction around themes. A theme can be defined as the subject matter of a conversation or discussion. Oftentimes, themes are pre-determined based on curriculum guideline in order to better structure group interaction. To support theme-based collaboration, many CSCL environments tend to adopt a standardized, threaded discussion design in their discussion boards or forums, with each theme being constructed or represented by means of a thread of continual discussion. For example, as one of the most widely used online learning environments, Blackboard Learning System is designed to support such theme-based collaboration by employing threaded discussion board. Arguably, an important strength of a theme-based design is to help group members focus their discussion and interaction on a specific theme so that deeper understanding of a theme can be achieved. Accordingly, the effectiveness of group collaboration may be measured up by means of the length and quality of thread, e.g., by looking into how and why a discussion thread sustains or dies (Hewitt, 2005). The downside of a theme-based design, however, is that when a theme is being placed at the center of discussion in a thread, the potential meaning interactions or group collaboration between themes (or threads) becomes limited (cf. Suthers, Vatrapu, Medina, Joseph, & Dwyer, 2008). To transform this limitation (while keeping its strength) of a theme-based design, below we propose an alternative idea-centered design approach.

Unlike a theme (which represents a broader area of inquiry), an idea can be thought of as a fundamental unit of information that may be represented by a thought, a cognitive concept, or a proposed solution to a problem, and is formed by the consciousness through the process of ideation (i.e., idea generation). The essential notion of an idea-centered design is to center group discussion or meaning interaction around sustained idea exchange and improvement (Hong & Florence, accepted; Hong, Scardamalia, Messina, & Teo, 2008; Scardamalia, 1999), regardless of whether idea are located in the same thread or not. Doing so is thus able to transform conventionally theme-based threaded discussion into more dynamic meaning interaction. An example of an environment designed as such is Knowledge Forum—a computer-supported knowledge building environment. Knowledge building, as defined by Scardamalia and Bereiter (2003), is a social process focused on the production and continual improvement of ideas of value to a community. In other words, Knowledge Forum as an environment is designed to support group collaboration at a fundamental idea level, rather than at a broader theme level.

To better understand the nature and effectiveness of this idea-centered design approach, the present study compares two digital environments, Knowledge Forum and Blackboard. Our main research question focused on looking into how different design features of each environment might affect how students learn and develop their understanding in the community they belonged.

Method

Context and participants

The present research was conducted in a university course titled "Integrating Instructional Theory and Practice" in Taiwan. The course was offered by the university's Center of Teacher Education as part of its Teacher Education program. It is also the last required course designed to help deepen students' understanding of the relationships between learning theory, teacher expertise, and teaching practice. As their teaching practicum would start right after this course, such understanding became crucial for preparing them to work in authentic teaching context. The university is ranked as one of the best universities in the nation. As such, the students enrolled in the subject university are all academically high-achievers. Based on the test results of the national Basic Competence Test for Senior High School Students (BCTSHSS), in order to enroll in the target university, students' test scores in BCTSHSS need to be ranked above 95 percentile nationwide. However, not all students entered in the subject university are automatically qualified to enter its Teacher Education program. As teaching was a highly respected profession in this country in tradition, there is an additional application and selection mechanism and only limited students with exceptional academic achievements are accepted into the program. Participants in this study were 49 students (25 females and 24 males). Their ages range from 21 to 31 (M=24.02; SD=2.47).

Research design

An essential purpose of this study was to investigate how different design approaches in these two environments, Knowledge Forum (KF) and Blackboard (BB), might affect how students learn and develop their understanding under the same coursework. Knowledge building concept and pedagogy that underlies the design of Knowledge Forum was introduced in class to help students better understand how the activities are designed and what kind of experience of idea improvement they will encounter throughout the whole semester. Except for the difference in the adoption and use of online discussion environments, throughout the whole semester, the teaching conditions and learning activities were purposefully maintained to be as similar as possible (e.g., regular whole-class lecture, group learning activities, individual reading assignments, and invited guest talks, etc.). Therefore, a between-subject design was employed, with about half of participants assigned to the KF group (N=24) and the other half to the BB group (N=25). The KF group was required to use only Knowledge Forum for all online group discussion while the BB group was required to use only Blackboard for their online group discussion.

One thing to note is that Blackboard learning system has been used in the participating university for many years so students were fairly familiar with the interface design and usage of its discussion board. Figure 1 shows two snapshots of the Blackboard learning environment excerpted from the present study. As noted above, threads represent an essential design feature to support group collaboration and meaning interaction in the Blackboard learning environment. As such, much of group interaction mainly occurs within a thread (or a theme[1]), rather than between threads (or themes).

In contrast, it is the very first time that Knowledge Forum was introduced to the students in this course so students were not familiar with its design and use for group collaboration. Therefore, in the beginning of the semester, a tutorial lesson was held in a computer lab. Students were demonstrated the basic design features of

Knowledge Forum in order to perform necessary functions, for example, how to create a note or a view (i.e., a multimedia space for group discussion and collaboration) or how to build-on (or reply) to an existing note. Then, they were encouraged to try out themselves. Figure 2 shows a snapshot of a Knowledge Forum view excerpted from the present study in a "basic" text-based mode[2]. It should also be noted, however, that, unlike Blackboard, in which group collaboration can be limited within in a given theme or thread. The idea-centered design of Knowledge Forum allows multiple ways of dynamic group interaction and collaboration, including build-on, reference, annotation, rise-above, co-author, and publication. First, building-on or referencing (i.e., to quote other members' text) is similar to replying notes in a Blackboard discussion board. However, in addition to these tow design features, group discourse and collaboration in Knowledge Forum can also be supported by means of "annotation", which allows users to give short comments within an existing note; "rise-above", which allows users to gather ideas that have already been presented and synthesize or transform these previous ideas into new understandings; "co-author", which means shared authorship of a note; and "publication", which allows users to collaboratively select a note (of high quality) for published status.

Figure 1. Two snapshots of the Blackboard learning environment excerpted from the present study
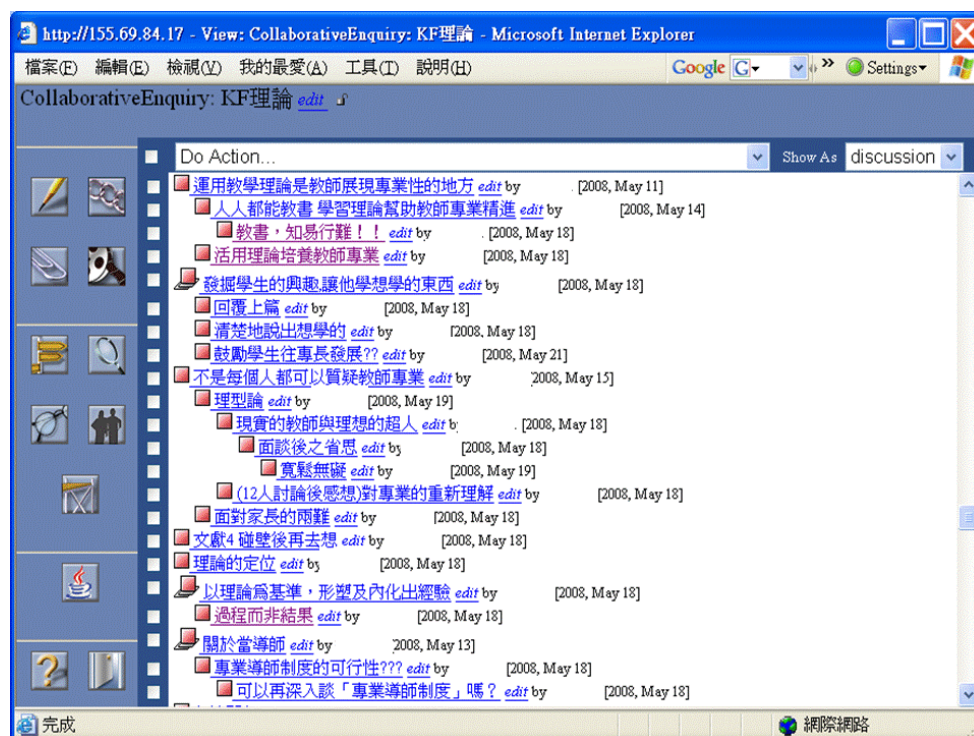

Figure 2. A snapshot of a Knowledge Forum view excerpted from the present study

Instructional design

As an essential instructional goal in this course was to help students gain better understanding of the nature and roles of learning theory and teacher expertise in relation to teaching practice, within each group (KF or BB), students were further divided into two sub-groups: the theory group and the expertise group. As a result, there were four sub-groups being formed in this study: KF-theory, KF-expertise, BB-theory, and BB-expertise. To ensure both "theory" and "expertise" topics were covered for student learning, the two sub-groups within each main group were encouraged to independently pursue the general topic of inquiry (either learning theory or teacher expertise) and then to reciprocally share what they learned with the other sub-group of students (see, e.g., Palincsar & Brown, 1984). The purpose of doing so was to provide a general structure for collaborative knowledge work within each main group, and to ensure not to introduce undesired confounding variables between the two main groups, as the main focus of this study was to compare between the KF and BB environments, in terms of how their different designs scaffold or support group collaboration. Therefore, for the most part of the semester, each of the four sub-groups worked quite independently of one another to advance their group understanding of the overall topic of inquiry.

Data source and analysis

This research employed a mixed approach for data collection and analysis. The rationale is that "the quantitative data and results provide a general picture of the research problem; more analysis, specifically through qualitative data collection, is needed to refine, extend, or explain the general picture" (Creswell, 2005, p.515). Data mainly came from student notes recorded in a Knowledge Forum database (for the KF group) and in a Blackboard database (for the BB group). There were two general types of notes collected. In addition to notes generated from weekly collaborative learning and knowledge-building activities, each participant was also asked to keep a portfolio note. This portfolio note basically served as a high-level thinking scaffold, through which participants were invited to reflect on major changes in their thinking that contributes to their deeper understanding the topic inquired. Another purpose of employing portfolio notes is to make students' own thinking visible for self-assessment (Lee, Chan, & van Aalst, 2006). Further, from a research perspective, these portfolio notes also represent an important data source for evaluating whether there is any important change in student thinking during and after taking this course while using two different online discussion platforms. In terms of procedure, students were required to first re-read all their notes contributed during the semester and then to identify events or activities (e.g., whole-class lecture, reading assignments, guest talks, or online group discussion) that had influence on their conceptual understanding of the topic inquired (e.g., their understanding of the role of teacher expertise in teaching practice).

Regarding data analysis, first, for the quantitative data, a descriptive analysis and a social network analysis were applied to explore participants' online note-contributing behaviors and patterns of social dynamics. Then, an in-depth content analysis was followed to look specifically into participants' portfolio notes, in order to further explore whether and how participants actually deepen their understanding of the topic inquired. Specifically, this content analysis used key concepts identified from students' notes as the unit of analysis. An open-coding procedure based on grounded theory (Strauss & Corbin, 1990, chapter 5) was adopted, with one researcher independently coding all student notes. Resulted from this coding process are nine major themes, which were then further categorized, based on two pre-determined dimensions of change: source and quality. Table 1 shows the nine themes. The occurrences of each theme were then computed for descriptive analysis (Chi, 1997) in order to compare between the KF and BB groups. One thing to note is that the second, third, and fourth major sources of change in Table 1 also represent the primary learning activities originally designed for this course, which are responsible for secondary learning activities (i.e., the first major source of change—peer discussion).

Table 1. Coding scheme based on two dimensions of change: source and quality

Main category		Theme
Source of change	1.	Peer discussion
	2.	Teacher interview transcripts
	3.	Invited guest speaker, instructor and teaching assistant's influence
	4.	Weekly reading assignment
	5.	Others (e.g. individual personal experience and learning processes)
Quality of change	1.	More sophisticated understanding (of the topic inquired)
	2.	Refined understanding
	3.	Naïve or limited understanding
	4.	No sign of understanding demonstrated

Preliminary Findings

Baseline analyses

This study reports preliminary results from partial analysis based on the comparison between two sub-groups: the KF-theory group and the BB-theory group (henceforth the KF group and the BB group). First, for baseline comparison, it was found that the KF group (N=12) in total posted 348 notes (M=29.0) and that the BB group (N=13) posted 378 notes (M=29.1); there was no significant difference found between the two groups ($F_{(23, 1)}$=.001, p=.973). Moreover, when comparing the total number of words each student produced throughout the whole semester, it was also found there is no significant difference ($F_{(23, 1)}$=2.47, p=.129; M=7231.6 for the KF group and M=6530.1 for the BB group). However, when more specifically looking into how each participant links his or her notes with other participants' notes (i.e., by replying notes in BB vs. by building-on or referencing notes in KF), it was found that there was a marginally significant difference between the two groups ($F_{(23, 1)}$=407, p=.055). In the KF group, there were 263 notes (76% of all notes) that were linked (M=21.9), whereas in the BB group, there were 219 notes (58% of all notes) that were linked (M=16.8). Table 2 summarizes the above results. While the result suggests that there were more note links in the KF environment, this does not really tell us about the group dynamics or social configurations within each sub-group. For example, the pattern of these links can be highly concentrated on a few people in a group, thus indicating a centralized social network structure, or it can be quite the other way around. To resolve this puzzle we further conduct social network analysis (SNA).

Table 2. Online note posting activities between the KF and BB groups

	BB (N=13)		KF (N=12)		F-value	P-value
	M	SD	M	SD		
Number of notes posted	29.10	5.71	29.00	6.84	0.00	0.973
Total Number of words produced	6530	1674	7231	3104	2.47	0.129
Number of notes linked	16.80	0.21	21.90	0.21	4.07	0.055*

* < .10

Social Network Analyses (SNA)

How does idea-centered design support group discourse and collaboration in the KF environment? Table 3 shows how additional design features were exploited by the students in the KF group. As it shows, "annotation" was fairly frequently used by students. A relational analysis further indicates that there was a significant correlation existing between the number of notes linked and that of notes annotated (r =.60, p<.05). This basically suggests that the "annotation" feature has played a supplementary role to support group interactions in the KF environment. As for the "rise-above" feature, while it is less frequently used, as noted above, it played an important role in synthesizing different ideas (regardless where these ideas are located) to form a deeper understanding of an issue or problem. As we manually calculated the total notes being synthesized in each rise-above note, it was found that on average, each rise-above note contains 4.09 notes.

On the other hand, it was found that the remaining two functions, "coauthor" and "publication", were rarely being utilized, which suggests that there is still potential for the participants to develop more sophisticated group interaction and collaboration in the KF environment. Nonetheless, even though all the design features of Knowledge Forum to support collaboration were not fully utilized, based on the results in Table 3, it is still quite obvious that Knowledge Forum served a better environment for facilitating group interactions and collaboration as compared with the Blackboard enabled environment.

Table 3. Additional design features in support of social interactions in Knowledge Forum

	N	Sum	M	SD
Annotations created	12	48	4.00	3.25
Rise-aboves created	12	11	0.92	0.79
Coauthored	12	1	0.08	0.29
Published	12	0	0	0

To find out if this is the case, we further perform a Social Network Analysis (SNA) to compare the two environments. Figure 4 depicts the group configurations in the KF and BB groups. As expected, both the groups

show fairly strong group interactions. But when looking specifically into group dynamics in terms of "betweenness centrality" measure (which basically means an actor's centrality in regulating interaction within a community) and "closeness centrality" measure (which means that the author is close to many others in the network), it was found that the KF group has both a higher "betweenness centrality[3]" value (un-normalized centralization = 23.886; network centralization Index = 1.97%) and a higher "closeness centrality[4]" value (network in-centralization = 35.76%), as compared with the BB group (un-normalized centralization = 23.213, network centralization index = 1.47%; and network in-centralization = 27.41%). Clearly, students in the KF group had more dynamic and close interactions between each other. The next question to ask is whether more dynamic social interactions in the KF group actually produced any quality changes in terms of students' understanding of the topic inquired in this course.
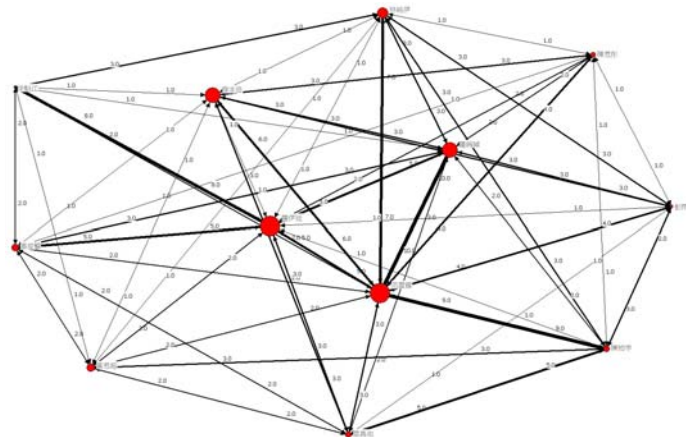
a. Social dynamics within the KF group (N=12)
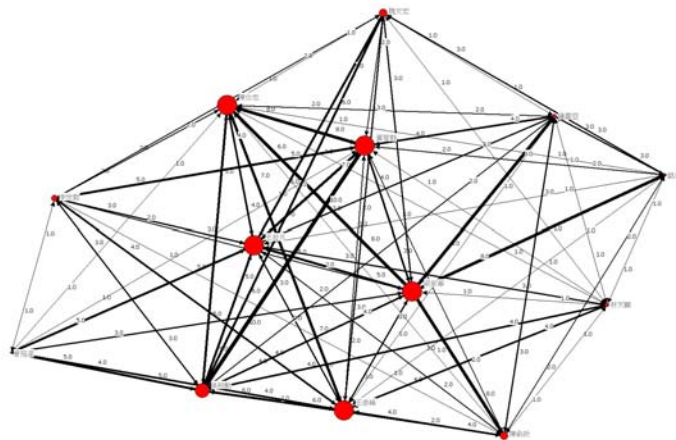
b. Social dynamics within the BB group (N=13)

Figure 4. The social configurations between the KF and BB groups, both illustrating intense group interaction

Analysis on depth of understanding of the topic inquired

To further look into changes in students' knowledge growth, we further analyze students' portfolio notes. As baseline information, we first compare the total number of words generated in each student's portfolio note and it was found that there was no significant difference between the two groups (F=0.056, P=0.484; M=1307.8 and SD=214.2 for the KB group; M=1470.4 and SD=298.7 for the KF group). We then specifically investigated the following two dimensions of change, i.e., source and quality.

In terms of source, as noted above in "Method," there were five main sources of change, including: (1) peer discussion; (2) teacher interview transcripts; (3) invited guest speaker, instructor and teaching assistant's influence; (4) weekly reading assignment; (5) others (e.g., individual personal experience and learning processes).

Table 4 shows the differences between the KF and BB groups in terms of the frequency, percentage, and rank of each source of change. As it shows, as the major source of change, "Peer discourse" accounts a higher percent (42.7%) of changes in the KF group, as compared with 38.6% in the BB group.

Table 4. Major sources of change referred by students between the KF and BB groups

Source	KF Group			BB Group		
	Freq.	%	Rank	Freq.	%	Rank
Peer discussion	29	42.7%	1	22	38.6%	1
Teacher interview transcripts	14	20.6%	2	12	21.1%	2
Invited guest speaker, instructor and teaching assistant's influence	13	19.1%	3	10	17.6%	3
Weekly reading assignment	12	17.7%	4	8	14.0%	4
Others (e.g. personal experience)	0	0.0%	5	5	8.8%	5

Second, in terms of the quality of change, emerged from an open coding procedure were the following four main categories: (1) more sophisticated understanding, (2) refined understanding, (3) naive or limited understanding and (4) no signs of understanding demonstrated. As Table 5 shows, there were more reflective instances (N=56) observed in students' portfolio notes in the KF group that demonstrated deeper change, whereas there were relatively fewer instances (N=41) observed in the BB group (N=41) that demonstrated deeper change.

Table 5. Quality of change in students' depth of understanding (reflective instances as unit of analysis)

Quality of change	KF Group		BB Group	
	Freq.	%	Freq.	%
1. More sophisticated understanding	56	82.4%	41	71.9%
2. Refined understanding	12	17.6%	16	28.1%
3. Naive or limited understanding	0	0%	0	0%
4. No signs of understanding demonstrated	0	0%	0	0%

One may, however, argue that these instances occurred only among a few students who actually attain deeper understanding in the KF group. To find out if this was the case, we reanalyzed the above dataset, by using "person" as unit of analysis. Table 6 shows the results. As it suggests, 10 out of 12 students (83.3%) in the KF group clearly demonstrated more sophisticated understanding of the main topic inquired during this course. In contrast, there were only 38.4% of students (five out of 13) in the BB group who demonstrated deeper conceptual change in terms of their understanding of the same topic inquired.

Table 6. Quality of change in students' depth of understanding (person as unit of analysis)

Quality of change	KF Group (N=12)	BB Group (N=13)
Deeper change	Students #1, #2, #3, #5, #6, #7, #8, #9, #11, and #12 (10 persons)	Students #1,2,10,12,13 (5 persons)
Preliminary change	None	Students #2, #7, #6, #9 (4 persons)
No change claimed	Student #10 (1 person)	Students #4, #5, #8, #11 (4 person)
Uncertain if there was any change	Student #4 (1 person)	None

An essential purpose of this course is to help students gain deeper understanding of the relationships between learning theory, teacher expertise and teaching practice, and it was frequently observed that students tended to view and describe these three concepts or variables as independent of one another in the beginning of the semester. But towards the end of the semester, the majority of them (see Table 6) were able to elaborate the complex and complementary relationships between these concepts. To demonstrate such quality change in students' thinking, below is an example excerpted from a student's portfolio note:

> After our first group discussion...I realize that theories are a starting point to handle a problem in practice because theories are synthesized from so many cases. Rather than considering theories as a what-to-do tool, we should consider them as a way of seeing problems. We as teachers should learn to use theories properly so that we can improve teacher professional development. Therefore, theories and practices are not separable, they complement each other. (student #6, KF group)

Summary and Discussion

The preliminary results of this study point out different performance patterns between students using Knowledge Forum and Blackboard. In summary, there was a marginally significant difference between the two groups in terms of the number of notes linked. The two indices of group dynamics generated from SNA further showed that there is a stronger interaction pattern in the KF group than in the BB group. Moreover, quantified qualitative difference was also found in terms of the source and quality of change in students' knowledge growth. Overall, the KF group capitalized more frequently on peer discussion than the BB group in pursuit of their new understanding. This is of great importance to an effective CSCL environment in that peer discussion plays an essential role in further deepening and transforming what students learned (e.g., via reading in-service teacher interview transcripts and listening to a talk by an experienced teacher in the present case) into more reflective and refined understanding. One important thing to note is that although the class was composed of a hybrid communication with 2-hour-or-so face-to-face gatherings and intensive online forum discussions on a weekly basis, it was the peer interaction that played the key role to foster students' understanding. As assessed in the present study, by categorizing the degree of changes in student thinking, we found that more students in the KF group than in the BB group demonstrated more sophisticated understanding of the main topic inquired towards the end of this course.

But, to be exact, what might be the mechanism that triggers the depth of idea improvement in Knowledge Forum? Building on the findings, it is conjectured that the rise-above function may have played a key role in this. There are two reasons. Firstly, students in KF group used it nine times and synthesized a total of 57 notes to convert their ideas into more comprehensive viewpoints at the last week. Secondly, rise-above notes congealed the meaning of their discussion when such discussion gradually became too diversified (or too messy). These synthesizing notes turned out to be the collective products as well as a token of community growth in knowledge improvement activities. This conjecture however remains to be further explored and examined. In future and ongoing work, we will employ design-based research to continue looking into how this specific rise-above design feature helps students learn and build knowledge.

An important aim of the present study is to probe into the meaning of the difference under which the two groups utilizing Knowledge Forum and Blackboard environment respectively. As such, this study was largely conducted in a naturalistic situation rather than in a highly controlled experiment setting. Therefore, it remains to be further investigated whether an idea-centered design can be truly held responsible for the effectiveness observed in the present study. To this end, additional ethnographic and video-taping data based on orchestrating the entire classroom activity for at least two hour per week for eight weeks have also been collected. These datasets need to be further analyzed to solve the overall puzzle. For example, these video data consist of many small group face-to-face discussions in class for both the KF and BB groups, which were presumably as critical as many design features in Knowledge Forum. In addition, the whole class presentations took place at the end of the semester (which includes 12 sub-groups) can also serve a rich data source and a great opportunity for further analysis. Admittedly, simply counting the frequencies of notes or links online provides only an incomplete picture of the group dynamics in reality. Further data analyses will be conducted to fully answer the research question.

Acknowledgement

Endnotes

(1) In the present paper, the terms "thread" and "theme" are used interchangeably to refer to the theme-based design.
(2) Knowledge Forum can also be run under an "enhanced" graphical mode. But in the present study, we only use "basic" mode, in order to make the two environments more comparable.
(3) For betweenness centrality, it is degree a student lies between other students in the community; the extent to which a node is directly connected only to those other nodes that are not directly connected to each other; an intermediary; liaisons; bridges. Therefore, it's the number of people who a person is connecting indirectly through their direct links.
(4) For closeness centrality, it is the degree a student is near all other students in a community (directly or indirectly). It reflects the ability to access information through the "grapevine" of community members. Thus, closeness is the inverse of the sum of the shortest distances between each student and every other person in the community.

References

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. (2005). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson.

Hewitt, J. (2005). Toward an Understanding of How Threads Die in Asynchronous Computer Conferences. *The Journal of Learning Sciences, 14*(4), 567-589.

Hong, H. Y., Scardamalia, M., Messina, R., & Teo, C. L. (2008). Principle-based design to foster adaptive use of technology for building community knowledge. In *Proceedings of the 8th ICLS 2008, Vol. 1* (pp. 374-381). Utrecht, The Netherlands: International Society of the Learning Sciences, Inc.

Hong, H. Y., Scardamalia, M., & Zhang, J. (2007). *Knowledge Society Network: Toward a dynamic, sustained network for building knowledge*. Paper presented at the annual conference of American Educational Research Association (AERA), Chicago.

Hong, H. Y., & Sullivan, F. R. (accepted). Towards an idea-centered, principle-based design approach to support learning as knowledge creation. *Educational Technology Research & Development*.

Kirschner, P., Strijbos, J. W., Kreijns, K., & Beers, P. J. (2004). Designing electronic collaborative learning environments. *Educational Technology Research and Development, 52*(3), 47-66.

Kreijns, K., Kirschner, P. A., & Jochems, W. (2002). The Sociability of Computer-Supported Collaborative Learning Environments. *Educational Technology & Society, 5*(1), 8-25.

Lee, E. Y. C., Chan, C. K. K., & van Aalst, J. (2006). Students assessing their own knowledge building. *International Journal of Computer-Supported Collaborative Learning, 1*, 277-307.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*(2), 117-175.

Scardamalia, M. (1999). Moving ideas to the center. In L. Harasim (Ed.), *Wisdom & wizardry: Celebrating the pioneers of online education* (pp. 14-15). Vancouver, BC: Telelearning, Inc.

Scardamalia, M. (2002). Collective cognitive responsibility for the advancement of knowledge. In B. Smith (Ed.), *Liberal education in a knowledge society* (pp. 67-98). Chicago: Open Court.

Scardamalia, M., & Bereiter, C. (2003). Knowledge building. In *Encyclopedia of Education* (pp. 1370-1373). New York: Macmillan Reference, USA.

Stahl, G. (2007). *Meaning making in CSCL: Conditions and preconditions for cognitive processes by groups.* Paper presented at the international conference on Computer-Supported Collaborative Learning (CSCL2007), Brunswick, NJ.

Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning. In R. K. Sawyer (Ed.), Cambridge Handbook of the Learning Sciences (pp. 409-427). Cambridge, UK: Cambridge University Press.

Suthers, D. D., Vatrapu, R., Medina, R., Joseph, S., & Dwyer, N. (2008). Beyond threaded discussion: Representational guidance in asynchronous collaborative learning environments. *Computers & Education, 50*(4), 1103-1127.

UNESCO. (2005). *Towards knowledge societies*. New York: UNESCO Publishing.

CSCL2009

MAIN CONFERENCE PROGRAM

[DRAFT VERSION, MAY 11, 2009]

CSCL2009 PROGRAM CONTRIBUTORS ARE WELCOME TO PROPOSE SUGGESTIONS,

SENDING A MESSAGE TO **CSCL2009_CHAIRS@AEGEAN.GR**

CSCL2009 MAIN CONFERENCE OVERVIEW

WEDNESDAY, 10 June

Time	Event
8.00	*ISLS Membership Com. Meeting*
	Pre-Conference Events
	ISLS Board 2nd Meeting
14.00	Conference Opening
14.45	Keynote: Prof. Goodwin
15.45	*Coffee*
16.15 - 18.15	PS 1: Ethnomethodology & Conversation Analysis
	PS 2: Scripts & Scaffolds
	PS 3: Argumentation & PBL
19.40	*Bus*
20.00	Opening Ceremony Palace of the Grand Master (Rhodes Medieval Town)

THURSDAY, 11 June

Time	Event
9.00	Keynote: Prof. Luckin
10.00 - 11.30	PS 4: Tabletops and Tangibles
	PS 5: Teacher Professional Development and Communities of Practices
	Symp 1: The Assistance Dilemma in CSCL
11.30	*Coffee*
12.00 - 13.30	PS 6: Discussion & Conflict resolution
	PS 7: Research & Evaluation methods
	Interactive Event 1
	Symp 2: Long Tail Learning
13.30	*Lunch*
	CSCL Community open Meeting
15.00	Plenary Symposium: ijCSCL
16.30	Posters Plenary A'
17.30 - 18.15	PS 8 (I): Games & Simulations
	PS 9 (I): Awareness & Visualisation
	Panel 1: Manifesting Embodiment
18.15 - 19.30	*ISLS Conferences Committee Meeting*
	ISLS Publications Committee Meeting
	ISLS Education Committee Meeting

FRIDAY, 12 June

Time	Event
07.30	*ijCSCL Editorial Meeting*
9.00 - 10.30	PS 10: Handhelds & mCSCL
	PS 11: Scripts & Adaptation
	Interactive Event 2
	Symp 3: Affective, cognitive, socio relations dimensions
10.30	*Coffee*
11.00 - 12.30	PS 12: Knowledge Building & VLE
	PS 13: Science Education & PBL
	PS 14: Awareness & Visualisation
	Symp 4: Repertoires of Collaborative Practices
12.30	Keynote: Prof. Dillenbourg
13.30	*Lunch*
	ISLS Community open Meeting
15.00 - 16.30	PS 15: Maths & Science Educ
	PS 16: Case Studies in HE
	PS 17: Data Mining & P. Analysis
	Symp 5: Understanding Practices
16.30	Posters Plenary B'
17.30 - 18.15	PS 18 (I): Shared displays & Workspaces
	PS 19 (I): Social software/wikis
	PS 20 (I): Professional Development
19.15	*Bus* Conference Dinner In Lindos village

SATURDAY, 13 June

Time	Event
07.30	*JLS Editorial Meeting*
9.00 - 10.30	PS 21: Group Awareness & tools
	PS 22: Web 2.0, Wikis & Knowledge building
	Symp 6: Scaffolding Inquiry Learning
10.30	*Coffee*
11.00 - 12.00	PS 23: Shared displays & Real Time
	PS 24: Games & Learning
	Panel 2: Technology Committee in Learning Sciences
12.00	Plenary Panel: 20 years CSCL
13.00 14.00	Conference Closing

Wednesday 10 June

14.00	CONFERENCE OPENING
Rhodes, Patmos & Kos	

14.45	KEYNOTE TALK
Rhodes & Patmos	*Charles Goodwin* Calibrating bodies and cognition through interactive practice in a meaningful environment

15.45	*COFFEE*

16.15-18.15	PAPERS SESSION 1: Ethnomethodology and Conversation Analysis	

Rhodes & Patmos	*Alan Zemel, Murat Perit Cakir, Gerry Stahl*
	   Understanding and analyzing chat in CSCL as reading's work
	Gerry Stahl
	   Collaborative learning through practices of group cognition
	Murat Perit Cakir, Gerry Stahl
	   Interaction analysis of dual-interaction CSCL environments
	Richard Medina, Daniel Suthers, Ravi Vatrapu
	   Inscriptions becoming representations
		
		BSPN
		
		BPN-BSPN

16.15-18.15	PAPERS SESSION 2: Scripts & Scaffolds

Kassos & Astypalaia	*Bert Slof, Gijsbert Erkens, Paul A. Kirschner*
	   Representational scripting effects on group performance
	Pantelis Papadopoulos, Stavros Demetriadis, Ioannis Stamelos
	   Analyzing the role of students' self-organization in a case of scripted collaboration
	Baruch B. Schwarz, Christa S.C. Asterhan, Julia Gil
	   Human guidance of synchronous e-discussions: The effects of different moderation scripts on peer argumentation
	Kalispo Iordanou, Deanna Kuhn
	   Arguing on Computer in scientific and non-scientific domains

16.15-18.15	PAPERS SESSION 3: Argumentation & Problem Based Learning

Karpathos	*John Dowell, Michael Tscholl, Thomas Gladisch, Marzieh Asgari-Targhi*
	   Argumentation scheme and shared online diagramming in case-based collaborative learning
	Robert Jorczak
	   The effects of task characteristics on online discussion
	Angela Carell, Thomas Herrmann
	    Negotiation tools in CSCL scenarios - Do they have a valid use?
	Kui Xie, Fengfeng Ke
	    How does students' motivation relate to peer-moderated online interactions?

- *BPN: Best Paper Nominee ; BSPN: Best Student Paper Nominee*

Thursday 11 June

09.00	KEYNOTE TALK
Rhodes & Patmos	*Rosemary Luckin* Participatory learning in context

10.00-11.30   PAPERS SESSION 4: Tabletops and tangibles

Kassos Astypalaia	*Amanda Harris, Jochen Rick, Victoria Bonnett, Nicola Yuill, Rowanne Fleck, Paul Marshall, Yvonne Rogers*
	    Around the table: Are multiple-touch surfaces better than single-touch for children's collaborative interactions?
	Taciana Pontual Falcão, Sara Price
	    What have you done! The role of 'interference' in tangible environments for supporting collaborative learning
	Chee-Kit Looi, Wenli Chen, Yun Wen
	    Exploring interactional moves in a CSCL environment for Chinese language learning

10.00-11.30   PAPERS SESSION 5 (SPs): Teacher Professional Development & Communities of Practice

Kos	*Jean Simon*
	    Three years of teaching resource sharing by primary school teachers trainees on a CSCW platform
	Isa Jahnke
	    The process of digital formalization in sociotechnical learning communities - Needed or overloaded?
	Huang-Yao Hong, Jianwei Zhang, Chewlee Teo, Marlene Scardamalia
	    Towards design-based knowledge-building practices in teaching
	Lisa Scherff, Josie Prado, Nancy Robb Singer
	    Testing and validating frames for online organizations
	Gerhard Fischer
	    Democratizing design: New challenges and opportunities for computer-supported collaborative learning
	Eric Bruillard, Nicole Clouet, Roué Dominique
	    Forum for preservice teacher development: Lessons learned from five years of research

10.00-11.30   SYMPOSIUM SESSION 1 : The assistance dilemma in CSCL

Rhodes	*Chairs:* Manu Kapur, Nikol Rummel
	Discussant: Pierre Dillenbourg
	Christof Wecker, Ingo Kollar & Frank Fischer
	    Fostering domain-specific knowledge through the fading of scripts
	Michael J. Jacobson, Suneeta A. Pathak, Beaumie Kim, Baohui Zhang
	    Delaying Structure: Productive Failure in Learning the Physics of Electricity using Agent-based models
	Bruce M. McLaren, Nikol Rummel
	    Adapting Assistance to the Student(s): Preliminary Ideas from Individual and Collaborative Computer-Supported Learning Contexts

11.30	*COFFEE*

12.00-13.30   PAPERS SESSION 6: Discussion & Conflict Resolution

Kassos & Astypalaia	*Fengfeng Ke, Kui Xie*
	    Online Discussion Design on Adult Students' Learning Perceptions and Patterns of Online Interactions
	Birgitta Kopp, Katharina Schnurer, Heinz Mandl
	    Collaborative learning in virtual seminars: Analyzing learning processes and learning outcomes
	Ravi Vatrapu, Daniel Suthers
	    Is representational guidance culturally relative?

12.00-13.30	PAPERS SESSION 7 (SPs): Research & Evaluation Methods

Kos	*Peter Reimann, Anindito Aditomo, Kate Thompson*
	  Students engaged in collaborative modeling: A conversation analysis
	Gyeong Mi Heo, Alain Breuleux
	  Roles of initiators and interaction patterns: Exploring an informal online community at the interpersonal plane
	Trena Paulus, Kathy Evans, Olivia Halic, Jessica Lester, Jonathan Taylor, Marsha Spence
	  Knowledge and learning claims in blog conversations: A discourse analysis in social psychology (DASP) perspective
	Alan Zemel, Murat Cakir, Nan Zhou, Gerry Stahl
	  Learning as a practical achievement: An interactional perspective
	Rupert Wegerif, Bruce McLaren, Marian Chamrada, Oliver Scheuer, Nasser Mansour, Jan Mikšátko
	  Recognizing creative thinking in graphical e-discussions using artificial intelligence graph-matching techniques
	Marc-Antoine Nüssli, Patrick Jermann, Mirweis Sangin, Pierre Dillenbourg
	  Collaboration and abstract representations: towards predictive models based on raw speech and eye-tracking data

12.00-13.30	INTERACTIVE EVENT SESSION 1
Kalymnos & Nissyros	*Vanessa Svihla* Methods of triangulation and revealing interaction

12.00-13.30	SYMPOSIUM SESSION 2 : Long Tail Learning: A unique opportunity for CSCL
Rhodes	*Chairs: Allan Collins, Gerhard Fischer* *Contributors: Brigid Barron, Chen-Chung Liu, Roy Pea, Hans Spada*

13.30-15.00	*LUNCH*

14.00-15.00

Leros & Symi	CSCL Community Open Meeting

15.00	PLENARY INVITED SYMPOSIUM (ijCSCL)
Rhodes & Patmos	*Chairs: Friedrich W.Hesse & Gerry Stahl* Productive tensions in CSCL: Should design be driven by theory, research or practice? *Discussant: Roy Pea* *Participants: Claire O´Malley, Nancy Law, Angelique Dimitracopoulou, Ulrich Hoppe*

16.30	POSTER PLENARY SESSION A'
Karpathos & Kos	[I] Online Communities *(studying practices, studying design issues)* [I.1-I.5] [II] Design of Complete environments [II.1-II.15] [III] Design of Specific features: Computer-based Interaction Analysis [III.1-III.9]

17.30	PAPERS SESSION 8 (SPs Interactive): Games and Simulations

Kalymnos & Nissyros	*Ben Chang, Hsue-Yie Wang, Chin-Shueh Chen, Jen-Kai Liang*
	  Distributed Weather Net: Wireless sensor network supported
	Katerina Glezou, Maria Grigoriadou
	   Supporting student engagement in simulation development
	Hui-Chun Hung, Shelley Shwu-Ching Young, Chiu-Pin Lin
	  Constructing the face-to-face collaborative game-based interacted environment to portable devices for English vocabulary acquisition
	Chang-Yen Liao, Zhi-Hong Chen, Tak-Wai Chan
	  Designing the game-based environment to facilitate learners'

17.30   PAPERS SESSION 9 (SPs Interactive): Awareness & Visualisation

Kassos & Astypalaia	*Margarida ROMERO, André Tricot, Mariné*
	  Effects of a context awareness tool on students' cognition of their team-mates learning time in a distance learning project activity
	Iván Manuel Jorrín-Abellán, Robert E. Stake, Alejandra Martínez-Monés
	  The Needlework in evaluating a CSCL system: The Evaluand oriented Responsive Evaluation Model
	Carla van de Sande
	  Grassroots open, online, calculus help forums
	Christa Asterhan, Tammy Eisenmann
	  Online and face-to-face discussions in the classroom: A study on the experiences of 'active' and 'silent' students.

17.30-18.30   PANEL SESSION 1: Manifesting Embodiment: Designers' variations of a theme

Rhodes	*Chair:* *Panelists:* Alissa Antle, Chronis Kynigos, Leilah Lyons, Paul Marshall, Tom Moher, Maria Roussou

Friday 12 June

09.00-10.30	PAPERS SESSION 10: Handhelds & mCSCL
Kassos & Astypalaia	*Leilah Lyons* Designing opportunistic user interfaces to support a collaborative museum exhibit *Jeremy Roschelle, Ken Rafanan, Gucci Estrella, Miguel Nussbaum, Susana Claro* From handheld collaborative tool to effective classroom module: Embedding CSCL in a broader design framework *BPN* *Hanni Muukkonen, Mikko Inkinen, Kari Kosonen, Kai Hakkarainen, Petri Vesikivi, Hanna Lachmann, Klas Karlgren* Research on knowledge practices with the Contextual Activity Sampling System

09.00-10.30	PAPERS SESSION 11 (SPs): Scripts & Adaptation
Kos	*Christof Wecker, Karsten Stegmann , Florian Bernstein , Michael J. Huber, Georg Kalus, Sabine Rathmayer, Ingo Kollar, Frank Fischer* Sustainable Script and Scaffold Development for Collaboration on Varying Web Content: The S-COL Technological Approach *Anastasios Karakostas, Stavros Demetriadis* Adaptation patterns in systems for scripted collaboration *Martina Bientzle Katrin Wodzicki, Andreas Lingnau , Ulrike Cress* Enhancing pair learning of pupils with cognitive disabilities: Structural support with help of floor control *Andreas Lingnau, Martina Bientzle* A technical framework to support implicit structured collaboration *Erin Walker, Nikol Rummel, Kenneth Koedinger* Beyond Explicit Feedback: New Directions in Adaptive Collaborative Learning Support

09.00-10.30	INTERACTIVE EVENT SESSION 2
Kalymnos & Nissyros	*Vanessa Svihla & Rachel Phillips* A tool for 21st century learning and assessment

09.00-10.30	SYMPOSIUM SESSION 3 : Socio-relational, affective and cognitive dimensions of CSCL interactions: integrating theoretical-methodological perspectives
Rhodes	*Chairs: Michael Baker, Jerry Andriessen* *Discussant: Jay Lemke* *J. Andriessen, M. Baker, K. Lund* Socio-cognitive tension-relaxation in argumentative CSCL interactions *P. Sins, K. Karlgren* Identifying and overcoming tension in interdisciplinary teamwork in professional development: Two cases and a tool for support *C. Crook* Affect and its expression within computer ecologies for learning

10.30	*COFFEE*

11.00-12.30	PAPERS SESSION 12: Knowledge Building & Virtual Learning Environments
Kos	*Sami Paavola & Kai Hakkarainen* From meaning making to joint construction of knowledge practices and artefacts – A trialogical approach to CSCL *Minna Lakkala, Sami Paavola, Kari Kosonen, Hanni Muukkonen, Merja Bauters, Hannu Markkanen* Main functionalities of the Knowledge Practices Environment (KPE) affording knowledge creation practices in education *Huang-Yao Hong, Fei-Ching Chen, Hsiu-mei Chang, Calvin C. Y. Liao, Wen-Ching Chan* Exploring the effectiveness of an idea-centered design to foster a computer-supported knowledge building environment

11.00-12.30	PAPERS SESSION 13 (SPs): Science Education & Problem Based Learning

Leros & Symi	*Ning Ding*
	  How group gender influences individual knowledge elaboration in CSCL **BPN**
	Lei Liu, Cindy Hmelo-Silver
	  Collaborative scientific conceptual change: A framework for analyzing science learning
	Suneeta Pathak, Beaumie Kim, Michael Jacobson, Baohui Zhang
	  Failures and successes in collaborative inquiry: Learning the physics of electricity with agent-based models
	Elizabeth Gerard, Erika Tate, Jennifer Chiu, Stephanie Corliss, Marcia C. Linn
	  Collaboration and knowledge integration
	Jeppe Bundsgaard
	  A practice scaffolding interactive platform
	Patrice Moguel, Pierre Tchounikine, André Tricot
	  A model-based coding scheme to analyze students' organization

11.00-12.30	PAPERS SESSION 14 (SPs): Awareness & Visualisation

Kassos & Astypalaia	*Tharrenos Bratitsis & Angelique Dimitracopoulou*
	  Studying the effect of Interaction Analysis indicators on students' selfregulation during asynchronous discussion learning activities
	Emmanuel Giguet, Nadine Lucas
	  Creating discussion threads graphs with Anagora
	Agoritsa Gogoulou, Evangelia Gouli, Christos Tsakostas, Maria Grigoriadou
	  Self-regulation in ACT: A case study in peer-assessment activities
	Astrid Wichmann, Adam Giemza, Matthias Krauß, Ulrich Hoppe
	  Effects of awareness support on moderating multiple parallel e-discussions
	Carmen Zahn Karsten Krauskopf, Friedrich W. Hesse, Roy Pea
	  Participation in knowledge building "revisited": Reflective discussion and information design with advanced digital video technology

11.00-12.30	SYMPOSIUM SESSION 4 : Repertoires of collaborative practice

Rhodes	*Chairs: Brigid Barron, Emma Mercier* ?
	Discussant: Roy Pea
	Sarah Walter
	  Collaboration in Massively Multiplayer Online RolePlaying Games
	Véronique Mertl
	  Don't touch anything, it might break!": Adolescent musicians' accounts of collaboration and access to technologies seminal to their musical practice
	Caitlin Martin, Brigid Barron
	  Learning to collaborate through multimedia composing
	Daniel Steinbock
	  Prototyping practices in Quaker and product designer communities

12.30	KEYNOTE TALK
Rhodes & Patmos	*Pierre Dillenbourg* Exploring neglected planes: social signals and class orchestration

13.30-15.00	*LUNCH*
14.00-15.00	

Leros & Symi	ISLS Community Open Meeting

15.00-16.30   PAPERS SESSION 15: Mathematics & Science Education

Patmos	Dejana Diziol, Nikol Rummel, Hans Spada
	  Procedural and conceptual knowledge acquisition in mathematics: Where is collaboration helpful?
	Susan Yoon, Lei Liu, Sao-Ee Goh
	  Exploring the process of convergent adaptation in technology-based science curriculum construction
	Vanessa L. Peters, James D. Slotta
	  Co-designing curricula to promote collaborative knowledge construction in secondary school science

15.00-16.30   PAPERS SESSION 16 (SPs): Case studies in Higher Education

Kalymnos & Nissyros	Christopher Jones
	   A context for collaboration: Institutions and the infrastructure for learning
	Heidy Maldonado, Scott Klemmer, Roy Pea
	  When Is collaborating with friends a good idea? Insights from design education
	Manoli Pifarré, Ruth Cobos
	  Working collaboratively in small groups supported by KnowCat System: incidence on self-regulated learning processes
	Antonios Saravanos, Seungoh Paek, Jin Kuwata, Alexandra Saravanos
	  The Effects of corrected errors in asynchronous video based lessons on task efficiency
	Christopher Jones, Ruslan Ramanau
	   Collaboration and the Net generation: The changing characteristics of first year university students
	Jari Laru, Piia Näykki, Sanna Järvelä
	   Does social software fit for all? Examining students' profiles and activities in collaborative learning mediated by social software

15.00-16.30   PAPERS SESSION 17 : Data Mining and Process Analysis

Kassos & Astypalaia	Peter Reimann, Jimmy Frerejean, Kate Thompson
	   Using process mining to identify models of group decision making in chat data
	Gregory Dyke, Kristine Lund, Jean-Jacques Girardot
	  Tatiana: an environment to support the CSCL analysis process *BSBN*
	Anjo Anjewierden, Hannie Gijlers, Bas Kolloffel, Nadira Saab, Robert de Hoog
	  Examining the relation between domain-related communication and collaborative inquiry learning

15.00-16.30   SYMPOSIUM SESSION 5 : A comparative analysis of understanding practices in the VMT environment

Rhodes	*Chairs: Timothy Koschmann, Gerry Stahl, Graham Button*
	
	Discussant: Graham Button
	
	Christian Greiffenhagen, Jacqueline Eke
	  How (not) to Build a Pyramid in the VMT Environment
	Timothy Koschmann, Gerry Stahl, Alan Zemel
	  Understanding Work in the VMT Environment: Formulas, Variables and Explanations
	Anna Sfard, Shai Caspi
	  Using Commognitive Lens to Analyze the Development of Algebraic Discourse in the VMT Environment
	Dan Suthers, Richard Medina, Ravikirian Vatrapu
	  Tracing the Development of Representational Practices

16.30   POSTERS PLENARY SESSION B'

Karpathos & Kos	[IV] **Understanding and studying collaborative processes** [IV.1-IV.10] [V] **Specific features Design** [V.1-V.9] [VI] **Development aspects** [VI.1-VI.5]

17.30-18.15   PAPERS SESSION 18 (SPs Interactive): Shared displays & workspaces

Patmos	*Chen-Chung Liu, Chen-Wei Chung, Shu-Yuan Tao*
	   Making classrooms socio-technical environments for supporting collaborative learning: the role of handhelds and boundary objects
	Wenli Chen, Chee-Kit Looi, Sini Tan
	   Integrating CMC and verbal discussions in students' collaborative learning in F2F classroom
	Ravi Vatrapu, Dan Suthers, Richard Medina
	   Notational effects on use of collaboratively constructed representations during individual essay writing

17.30-18.15   PAPERS SESSION 19 (SPs Interactive): Social Software /wikis

Kassos & Astypalaia	*Michele Notari, Beat Döbeli Honegger*
	   Over-computing CSCL macro scripts?
	Hedieh Najafi, James Slotta
	   Sustaining collaborative knowledge
	Greenhow Christine
	   Social networking and education: Emerging research within CSCL

17.0-18.15   PAPERS SESSION 20 (SPs Interactive): Professional Development

Kalymnos & Nissyros	*Patrick Jermann, Guillaume Zufferey, Bertrand Schneider, Aurélien Lucchi, Simon Lépine, Pierre Dillenbourg*
	   Physical space and division of labor around a tabletop tangible simulation
	Bruno Poellhuber, Catherine Allen, Martine Chomienne
	   CSCL for teachers' professional development
	Tammy Eisenmann, Baruch B. Schwarz, Reuma de Groot
	   Relay race of practice: integrating technological tools into teaching and learning scenarios

Saturday 13 June

09.00-10.30 PAPERS SESSION 21: Group awareness/tools

Kos	*Chris Phielix, Frans J. Prins, Paul A. Kirschner*
	   The design of peer feedback and reflection tools in a CSCL environment
	Jürgen Buder, Daniel Bodemer, Jessica Dehler,Tanja Engelmann
	   SCAN tools for collaborative learning
	Lung-Hsiang Wong, Chee-Kuen Chin, Wenli Chen, Ping Gao
	   VSPOW: An Innovative collaborative writing approach to improve Chinese as L2 pupils' linguistic skills

09.00-10.30 PAPERS SESSION 22 : Web 2.0, Wikis & Knowledge building

Kassos &
Astypalaia
	Hoda Baytiyeh, Jay Pfaffman
	   Why be a Wikipedian *BSBN*
	Joachim Kimmerle, Johannes Moskaliuk, Ulrike Cress
	   Learning and knowledge building with social software
	Ulrike Cress, Joachim Kimmerle
	   Knowledge exchange as a motivational problem – Results of an empirical research program

09.00-10.30 SYMPOSIUM SESSION 6 : Issues in scaffolding collaborative science inquiry learning

Rhodes	*Chairs:* Stamatina Anastopoulou, Claire O'Malley
	
	Jim Slotta, Marcia Linn
	   Designing effective collaborative inquiry with new technology
	Eileen Scanlon, Karen Littleton, Stamatina Anastopoulou, Mike Sharples, Shaaron Ainsworth
	   Personal Inquiry and Groupwork: Issues for computer-supported inquiry learning
	Marcelo Milrad, Roy Pea
	   Mobile science collaboratories to support open inquiry
	Ton de Jong, Wouter R. van Joolingen, Armin Weinberger
	   Learning by Design. An example from the SCY-project

10.30 *COFFEE*

11.00-12.00 PAPERS SESSION 23: Shared Displays & Real Time CSCL

Kassos &
Astypalaia
	Jennifer Yeo, Yew-Jin Lee, Aik-Ling Tan, Seng-Chee Tan, Shawn Lum
	   Analyzing CSCL-mediated science argumentation: How different methods matter
	Andrea Moed, Owen Otto, Joyojeet Pal, Udai Singh Pawar, Matthew Kam, Kentaro Toyama
	   Reducing dominance in multiple-mouse learning activities
	Bernhard Ertl
	   Conceptual and procedural knowledge construction in computer supported collaborative learning

11.00-12.00 PAPERS SESSION 24 : Games & Learning

Kos	*Ulrika Bennerstedt, Jonas Linderoth*
	   The spellbound ones: Illuminating everyday collaborative gaming practices in a MMORPG
	Lai Har Judy Lee, Yam San Chee
	   Generative conversations in game-based learning

11.00-12.00 PANEL SESSION 2: Toward a Technology Committee in the Learning Sciences

Rhodes	*Chairs: James Slotta, Turadg Aleahmad* *Panelists:* Chris Quintana, Jeremy Roschelle, Turadg Aleahmad, Wouter van Joolingen *Discussants:* Nikol Rummel, Chris Hoadley, Eleni Kyza

12.00-13.00 PLENARY PANEL: From Maratea to Rhodes: 20 years CSCL

Rhodes & Patmos	*Chair: Claire O'Malley* *Panelists:* Pierre Dillenbourg, Jeremy Roschelle, Stephanie Teasleay

13.00-14.00 CONFERENCE CLOSING

Rhodes & Patmos	

I. Online Communities *(studying practices, studying design issues)*

I.1 Scratch-Ed: An online community for Scratch Educators
Karen Brennan

I.2 Designing on-line communities to enhance teacher professional development
Cheryl Ann Madeira & James D. Slotta

I.3 Can teachers' discussion lists be a tool for in-service collaborative learning? What reveals a three years analysis?
Olivier Caviale & Éric Bruillard

I.4 Advancing collaborative creativity in the context of Greek teachers' In-service training in environmental education
Maria Daskolia, Niki Lambropoulos, Panagiotis Kampylis

I.5 WISETales: Sharing personal stories as informal learning experience for women in science and engineering
Zina Sahib & Julita Vassileva

II. Design of Complete environments

II.1 A new framework for smart classroom research: Co-designing curriculum, research and technology
Mike Tissenbaoum & James D. Slotta

II.2 Design of an online global learning community: International Collaboration of grades 7-9 science students
Steven Kertin, Elizabeth Goehring, William Carlsen, James Larsen, Charles Fisher

II.3 Designing environments for collaborative learning: Facilitating the adoption of ICT in small and medium sized enterprises in Costa-Rica
Heilyn Camach & Lone Dirckinck-Holmfeld

II.4 eJournalPlus: development of a collaborative learning system for constructive and critical reading skills
Toshio Mochizuki, Hiroki Oura, Tomomi Sato, Toshihisa Nishimori, Mio Tsubakimoto, Jun Nakahara, Yuhei Yamauchi, Johansson Kjell Henrik, Ken-ichiro Matsumoto, Shin-ichi Watanabe, Takashi Miyatani

II.5. Using Speech Recognition Technology in the Classroom: An Experiment in Computer-Supported Collaborative Learning
Anthony Cocciolo

II.6 Mobltz: A mobile multimedia tool for informal learning
Sarah Lewis, Roy Pea, Joe Rosen

II.7 Collaborative augmented reality in schools
Lyn Pemberton & Marcus Winter

II.8 iSocial: A 3D VLE for youth with autism
James Laffey, Matthew Schmidt, Janine Stichter, Carla Schmidt, Sean Goggins...

II.9 Fostering online collaborative learning using Wikis: A pilot study
Andri Ioannou, Agni Stylianou-Georgiou

II.10 Designing Wikis for collaborative learning and knowledge building in Higher Education
Swapna Kumar

II.11 Designing with learners for game-based collaborative learning: An account of T-Rex group
Beaumie Kim, Alexis Pang, Misong Kim, Jason Lee

II.12 Bridging school and home: Students' engagement with technology-rich activities
Britte Haugan Cheng, Serena Villalba, Daniel Schwartz, Doris Chin, Patrik Lundh, Aasha Joshi

II.13 CoPe_it!: Argumentative collaboration towards learning
Manolis Tzagarakis, George Gkotsis, Markos Hatzitaskos, Nikos Karousos, Nikos Karacapilidis

II.14 The 'Talk Factory' software: scaffolding students' argumentation around an Interactive Whiteboard in primary school science
Marilena Petrou, Lucinda Kerawalla, Eileen Scanlon

II.15 Software Design Principles for Video Research in the Learning Sciences and CSCL: Two Studies Use the Perspectivity Framework & Orion™
Ricki Goldman, Chaoyan Dong, Reneta Lansiquot

III. Design of Specific features - Computer-based Interaction Analysis *(indicators & tools)*

III.1 Automating the analysis of collaborative discourse: Identifying ideas clusters
Nobuko Fujita & Christopher Teplovs

III.2 Determining curricular coverage of students contributions to an online discourse environment through the use of Latent Semantic analysis and term clouds
Christopher Teplovs and Nobuko Fujita

III.3 Proposing 'collaborative filtering' to foster collaboration in ScratchR Community
Georgios Fesakis & Angelique Dimitracopoulou

III.4 Context-aware Activity Notification system: supporting CSCL
James Laffey, Ran-Young Hong, Krista Galyen, Sean Goggins

III.5 Share and explore discussion forum objects on the Calico website
Emmanuel Giguet, Nadine Lucas, Francois-Marie Blondel, Eric Bruillard

III.6 Improving CSCL indicators by sharing multimodal teaching and learning Corpora
Christophe Reffay & Marie-Laure Betbeder

III.7 Alternative ways of monitoring collaborations
Eleni Voyiatzaki & Nikolaos Avouris

III.8 Computer Assisted Evaluation of CSCL Chat Conversations
Traian Rebedea & Stefan Trausan-Matu

III.9 GRASP: The group learning assessment platform
Gahgene Gweon, Rohit Kumar, Carolyn Penstein Rosé

POSTERS PLENARY SESSION B′

IV. Understanding and studying collaborative processes

IV.1 Positioning theory as analytic tool for understanding intersubjective meaning-making
Irena Paulus, Heather Stewart, Anton Reece, Patti Long

IV.2 From outcast to expert: Identities as a conceptual lens for studying learning through design across spaces
Deborah Fields & Yasmin B. Kafai

IV.3 When to Collaborate: Individual and group exploration of a hypertext environment with an inquiry science classroom
Garrett W. Smith, Sarah A. Sullivan, Sadhana Puntambekar

IV.4 Motivation and colloboarative behavior: An exploratory analysis
Iris Howley, Sourish Chaudhuri, Rohit Kumar, Carolyn Penstein Rosé

IV.5 Impact of learning presence on learner interaction and outcome in web-based project learning
Myung hee Kang, Ji yoon Jung, Mi soon Park, Hyo jin Park

IV.6 Organising Mischief: Comparing shared and private displays on a collaborative learning task
Neema Moraveji, Robb Lindgren, Roy Pea

IV.7 Interplay of group dynamics and science talk in a designed based classroom
Anushree Bopardikar, Dana Gnesdilow, Sadhana Puntambekar

IV.8 What is seen on the screen? Exploring collaborative interpretation, representational tools and disciplined perception of medicine
Andreas Gegenfurtner

IV.9 Learning Support through Scaffolding Collaborative Project Work
Matthias Korn & Michael Veith

IV.10 Using Mobile and Classroom Technology to foster and capture learning across formal and informal contexts: A pilot study
Timothy Zimmerman

V.   **Design of Specific features**

V.1   Connecting online learners at a distance: The promise and challenge of using metaphors as reference points
Alyssa Friend Wise, Poornima Padmanabhan, Thomas Duffy

V.2   Explicit references in chat-based CSCL: Do they facilitate global text processing? Evidence from eye movement analysis
Michael Oehl & Hans-Rüdiger Pfister

V.3   Analysing technology-enhanced knowledge practice in an engineering course
Satu Jalonen, Kari Kosonen, Minna Lakkala

V.4   Context and scripts: Supporting interactive work-integrated learning
Mario Aehnelt, Sybille Hambach, Petra Müsebeck, Marleen Musielak, Robert de Hoog, Jose Kooken, Stefanie Lindstaedt

V.5   Supporting collaborative learning across social media applications
Vlad Posea, Ştefan Trăuşan-Matu, Eelco Mossel, Paola Monachesi

V.6   Design distributed scaffolding for modeling a complex system
Ying-Shao Hsu, Hsin-Kai Wu, Fu-Kwun Hwang, Li-Fen Lin

V.7   Scaffolding for computer writing to learning activities in vocational training
Monica Gavota, Mireille Bétrancourt, Daniel Schneider, Urs Richle

V.8   Fostering collaborators' ability to draw inferences from distributed information: a training experiment
Anne Meier & Hans Spada

V.9   Effects of a context awareness tool on students' cognition of their team-mates learning *time* in a distance learning project ability
Margarida Romero, André Tricot, Claudette Mariné

V.10   Scaffolding teacher adaptation by making design intent explicit
Hsien-Ta Lin & Barry Fishman

VI.   **Development aspects (architectures, scripting)**

VI.1   An architecture for intelligent CSCL argumentation systems
Frank Loll, Niels Pinkwart, Oliver Scheuer, Bruce M. McLaren

VI.2   VMT-Basilika: An environment for rapid prototyping of collaborative environments with dynamic support
Rohit Kumar, Sourish Chaudhuri, Iris Howley & Carolyn Penstein Rosé

VI.3   eXtremely Simple Scripting (XSS): A Framework to speed up the development of computer-supported collaboration scripts
Karsten Stegmann, Sara Streng, Max Halbinger, Jonas Koch, Frank Fischer, Heinrich Hußmann

VI.4   Design and enactment of Collaboration Scripts – an integrative approach with graphical notations and learning platforms
Andreas Harrer, Dan Kohen-Vacs, Benedikt Roth, Nils Malzahn, Ulrich Hoppe, Miky Ronen

VI.5   A design rational of an editor for Pedagogical Procedures
Christian Martel, Laurence Vignollet, Christine Ferraris, Emmanuelle Villiot-Leclercq

CONFERENCE HALL I

RHODES

PATMOS

KOS

KARPATHOS

LOBBY

OFFICES

OFFICES

KITCHEN

CONTROL ROOM

KALYMNOS

LEROS

KASSOS

CONFERENCE HALL II

NISSIROS

SIMI

ASTIPALAIA

HALKI

TILOS

KASTELLORIZO