Using the Cognitive Apprenticeship Model with a Chat Tool to Enhance Online Collaborative Learning[1]

La Inclusión del Modelo de Aprendizaje Cognitivo para el Desarrollo del Aprendizaje Colaborativo en Línea a través del Chat

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Abstract

In Colombia, many institutions are in the firm quest of virtual learning environments to improve instruction, and making the most of online tools is clearly linked to offering quality learning. Thus, the purpose of this action research was to identify how the Cognitive Apprenticeship Model enhances online collaborative learning by using a chat tool. To describe the effectiveness of this model, five of its teaching methods were implemented in an eight-week period over one semester. Twelve beginning online English students enrolled in Colombia's national vocational and technical training center participated in the study. Data was collected from surveys, chat transcripts, interviews and checklists, and analyzed through content analysis. Results reveal that modeling, coaching, scaffolding, exploration, and reflection may be implemented in a chatroom, developing a sense of collaboration. Learners also moved from guided instruction (modeling) to more independent learning (articulation), assuming the roles of experts. In conclusion, the six teaching methods of the Cognitive Apprenticeship Method enhance online collaborative learning not only because students work together to reach a common goal, but also because they can support each other's learning through synchronous interactions when using a chatroom for this purpose.

Keywords: Chat, Cognitive Apprenticeship Model, Modeling, Articulation, Online Collaborative Learning, Scaffolding.

Resumen

En Colombia, muchas instituciones están en la firme búsqueda de entornos virtuales para mejorar la instrucción; es así como aprovechar al máximo las herramientas en línea se relaciona con ofrecer aprendizaje de calidad. Así, el propósito de esta investigación acción fue identificar cómo el modelo de aprendizaje cognitivo mejora el aprendizaje colaborativo en línea usando una herramienta de chat. Para describir la efectividad de este modelo, cinco de sus métodos de enseñanza se implementaron en un período de ocho semanas a lo largo de un semestre. Doce estudiantes de inglés en línea pertenecientes a un programa de formación técnica vocacional en Colombia formaron parte de este estudio. Los datos se recopilaron a través de encuestas, transcripciones de chat, entrevistas y listas de verificación. Los resultados revelaron que modelado, coaching, escalonamiento, exploración y reflexión pueden aplicarse en un chat para desarrollar un sentido de colaboración. Los estudiantes también pasaron de la instrucción guiada (modelado) al aprendizaje más independiente (articulación) asumiendo el papel de expertos. En conclusión, los seis métodos de enseñanza del método cognitivo de aprendizaje promueven el aprendizaje colaborativo en línea no solo porque los estudiantes trabajan conjuntamente para alcanzar una meta sino porque a través de la interacción sincrónica en línea se apoyan en el aprendizaje mientras usan el chat como herramienta educativa.

Palabras clave: chat, aprendizaje colaborativo en línea, articulación, modelo de aprendizaje cognitivo, aprendizaje auto-dirigido, escalonamiento.

Resumo

Na Colômbia, muitas instituições estão na firme procura de entornos virtuais para melhorar a instrução; é dessa forma como o máximo aproveitamento das ferramentas em linha está claramente associado com o oferecimento de aprendizagem de qualidade. Portanto, o propósito desta pesquisa ação foi identificar como o modelo de aprendizagem cognitiva melhora a aprendizagem colaborativa em linha mediante o uso uma ferramenta de chat. Para descrever a efetividade deste modelo, cinco dos seus métodos de ensino foram implementados em um período de oito semanas no transcurso de um semestre. Doze estudantes de inglês em linha pertencentes a um programa de formação técnica vocacional na Colômbia fizeram parte deste estudo. Os dados se recopilaram através de enquetes, transcrições de chat, entrevistas e listas de verificação. Os resultados revelaram que modelado, coaching, escalonamento, exploração e reflexão podem aplicar-se em um chat para desenvolver um sentido de colaboração. Os estudantes também passaram da instrução guiada (modelado) à aprendizagem mais independente (articulação) assumindo o papel de expertos. Em conclusão, os seis métodos de ensino do método cognitivo de aprendizagem promovem a aprendizagem colaborativa em linha não somente porque os estudantes trabalham conjuntamente para alcançar uma meta, mas porque através da interação sincrônica em linha se apoiam na aprendizagem enquanto usam o chat como ferramenta educativa.

Palavras clave: chat, aprendizagem colaborativa em linha, articulação, modelo de aprendizagem cognitiva, aprendizagem autodirigida, escalonamento.

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Introduction

Technology is changing the way students are educated. There are more opportunities of interaction. Currently, virtual worlds offer engaging and stimulating spaces where students can meet online for regular classes. Institutions willing to incorporate technology in educational settings face the challenge of integrating tools that improve learning environments regardless of student type or location. In addition, technology allows users to overcome constraints such as cost, time, or location to carry out tasks that might otherwise be difficult in the "real world."

In Colombia, many institutions are working towards offering suitable environments for online instruction. For instance, to respond to its main goals of strengthening human capital in the country, contributing to the development of professionals in different areas of knowledge, and offering more job opportunities, the national vocational and technical training center incorporated the Blackboard Collaborate platform to offer online courses, including foreign language courses. Nevertheless, in the diagnostic survey conducted at the outset of this study revealed a gap between what students learn, and how they practice and receive feedback using the virtual tools in the platform.

The diagnosis showed some problems in terms of the way in which online learning occurred. First, social interaction manifested in peer collaboration in most of the cases was reduced. Students carried out asynchronous interaction with their peers by posting answers to tasks or asking questions via technical forums. Second, students expressed feelings of isolation and demotivation due to the lack of immediate feedback, spontaneous language use, or timely support, and due to the lack of peer-to-peer learning. Teachers essentially used the components of the platform to administer schedules, grades, and provide technical support. Students mainly used online tools such as forums, wikis and/or blogs. Third, the questions students asked were not always answered, which made feedback less effective. The result is that these English language students were aware of some grammatical rules and vocabulary in English, but lacked synchronous interaction to use what they had learned. Students even mentioned these situations as reasons for dropping out of online courses.

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The researchers in this study examined how the Cognitive Apprenticeship Model (Collins, Brown, & Newman, 1989), which advocates for student learning through collaboration by observing, imitating, and modeling, enhances online collaborative learning with a chat tool in a group of young adult English students. Enhancing collaboration with this tool offers opportunities for meaningful and

synchronous interaction, which may result in students having more chances to deepen their learning experience, test out new ideas, and receive critical and constructive feedback (Picciano, 2002). Therefore, this research allowed the researchers to identifying how the Cognitive Apprenticeship Model enhances online collaboration by using a chat tool, to describe the effectiveness of cognitive apprenticeship in creating a sense of collaboration using a chat tool, and to recognize students and instructors' roles throughout cognitive apprenticeship performed online

Literature Review

Learning in the digital age emphasizes interaction in virtual environments. Brindley, Walti, and Blaschke (2009) affirm that individual knowledge occurs through interaction, meaning the way in which people express thoughts, discuss, and challenge the ideas of others. People collaborate to create knowledge and co-construct knowledge and meaning. In fact, as the worldwide web evolves, it continuously offers new opportunities for collaboration, online interaction, and therefore learning (Richardson, 2006). Enhancing online collaborative learning with a chat tool considers four main constructs, namely online collaborative learning, online interaction, chat, and the Cognitive Apprenticeship Model.

Online Collaborative Learning

Collaboration in learning environments is viewed as "people sharing ideas and working together (occasionally sharing resources) in a loose environment" (Siemens, et al., 2002, p. 23). Online learning implies a sense of collaboration among users since they "share, transmit knowledge or work towards common goals" (Brindley, et al., 2009, p. 4). Online learning is also participatory, authentic, immediate, and engaging (Antenos-Conforti, 2009). These features are relevant because learning is a socially situated activity, and the building of social relationships is vital for cognitive development.

Some researchers have studied the perceptions of collaboration in online learning. So and Brush (2008) studied the advantages of online learning in a blended course. The authors asked participants to take a blended course and record their perceptions about collaboration. Results demonstrated that students who perceived high collaboration were more satisfied with the course and the social presence of the instructor and classmates.

Analysis of online learning environments has also led some researchers (Chiong & Jovanovic, 2012) to analyze why some students

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decide not to participate or to reduce their participation level when working in groups. The strategy consisted in analyzing students' reactions towards group work through the development of collaborative tasks. Results showed that there are several challenges to fostering online collaborative learning, mainly in terms of time constraints and/or reluctance to work in groups.

Another example of students' collaboration with peers in online environments is a study of social networks by Kim, Park and Baek (2011). They explored how microblogging using Twitter provided a venue for communicating in the target language with other people, even outside classrooms. Researchers concluded that tweets promoted foreign language output and helped learners maintain social interaction with others.

These cases highlight collaboration from different perspectives and its power to challenge, support, and/or motivate students. Additionally, the examples illustrate the importance of social learning theories. It is evident that learners improve practices and are more enthusiastic about learning when they have the opportunity to learn from and with others. The challenge lies in providing the same environments in online settings.

Interaction in Online Collaborative Learning

Interaction has long been identified as a key element to successful online learning programs (Beldarrain, 2006). There is significant evidence to suggest that meaningful interaction with peers and the instructor is integral to the development of learning environments. Espitia and Cruz (2013) studied peer feedback and online interaction among university students. They promoted collaboration in the course through peer feedback, using a forum tool. After analyzing students' engagement, researchers concluded that students established a social bond with others and achieved a sense of social and academic responsibility. Further, they argue that cognition and apprehension are direct consequences of social interactions. Such interactions involve different participants in the educational setting, namely teacher (or tutor), students, and media, in other words, anyone and anything supporting the learning experience.

Rourke, Anderson, Garrison and Archer (2001) describe how learning happens around different interaction factors. First, the social presence is represented by interaction with peers. Mayes et al. (2011) suggest using different types of grouping. Second, the cognitive presence is represented by the interaction with the content. Schweizer, Whipp, & Hayslett (2002) argue that one of the best methodologies to

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interact with content in online learning is via project-based learning since students engage in real-life situations. Third, the teaching presence is represented by interacting with instructors. Shackelford and Maxwell (2012) affirm that providing clear expectations, participating in discussions, providing feedback, modelling, and using various modes of communication are types of learner-instructor interaction.

Chat Tool

Dudeney (2007) defines chat as "synchronous communication between two or more people, using the keyboard as a means of communication." (p. 130). One of the aspects that makes chat a natural space for communication and interaction is that it simulates normal conversations. Research has been conducted on how to apply a chat tool in educational settings. Skinner and Austin, and Koike (as cited in Warschauer & Meskill, 2000) argue that students want social learning experiences that connect them with their peers through the Web. Skinner and Austin developed a study whose procedure included a prewriting activity using synchronous chat to communicate. Koike's study offered a blended learning course in which students had the chance to practice what they had learned in an international chat interchange with native speakers. Findings indicated that chats helped students to interact as well as reduce negative feelings. Both studies demonstrate how twenty-first century students are now demanding online instruction that supports participation and interaction instead of lectures or one-way communications (West & West, 2008).

Cognitive Apprenticeship Model

The Cognitive Apprenticeship Model (CAM) was proposed by Collins, Brown, and Newman (1989); however, it has been modified by other researchers. CAM combines cognitive and metacognitive skills and processes (Dennen & Burner, 2008) for students to observe, enact, and practice with help from the teacher and other students. CAM also offers a collaborative environment in which students learn in a group setting and support classmates' learning. Teachers act as guides providing meaningful opportunities for learning. The CAM includes six teaching methods that promote collaboration among teacher and students: modeling, coaching, scaffolding, articulation, reflection, and exploration. Dennen and Burner (2008) describe the six methods in this way: *modeling* as describing the thinking process, *coaching* and *scaffolding* mean assisting and supporting student cognitive activities

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as needed, *reflecting* implies self-analysis and assessment, *articulation* consists of verbalizing the results of reflection, and exploration is the formation and testing of one's own hypotheses.

The present study considers all six methods as learners develop a more conscious view of what is learned, build background knowledge, link new and prior knowledge, and evaluate the learning process (Brandes & Boskic, 2008). Students can implement self-reflection by analyzing their accomplishment of goals when chatting. At this point, self-reflection is the result of collaborative practices where students have had the chance to discuss, analyze, and exchange information with others.

In recent years, there has been some research on the application of the CAM to computer use. Liu (2005) conducted a quantitative study which demonstrated that the CAM improves pre-service teachers' performance and attitudes to instructional planning more effectively than a traditional training course. Liu (2005) applied three technologies in her study: multimedia, performance support systems, and Web-based conferencing.

Kear and Donelan (2016) carried out a study to assess online collaborative work. The research addressed the importance of online group work for developing teamwork skills and learning with others. The aims of the research were to investigate the challenge of implementing an online group project, to gain perspectives of students and tutors, and to design group projects which are engaging to students and fairly assessed. Findings revealed that tutors agreed that the majority of students enjoyed the group work and tasks were authentic. Tutors faced challenges when assessing collaboration. Additionally more technical students wanted to incorporate other tools such as Twitter feeds. This research demonstrates how different tools enhance collaboration and promote opportunities for authentic learning when controlled by tutors.

To conclude, online collaboration, online interaction, and cognitive apprenticeship aim to provide students with an authentic experience in which they assume particular roles and responsibilities in the learning process while they teach and learn from each other via chat tool.

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Methodology

Research Design

This research adopted an action research approach. The qualitative paradigm permits researchers to identify different viewpoints (Russell

& Kelly, 2002). Figure 1 summarizes the action research process developed in this study.
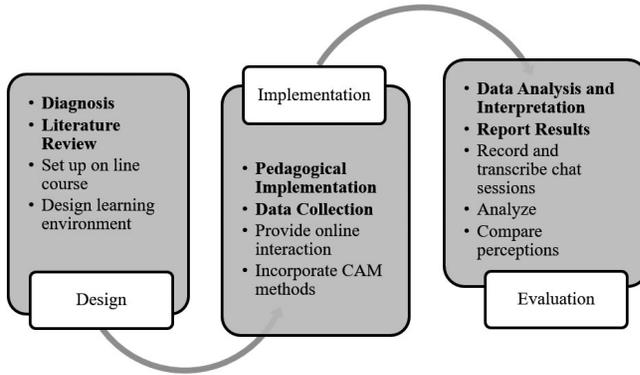

Figure 1. Action research process

In the Implementation stage, the CAM teaching methods were used in eight lessons (See Appendix). The implementation followed the sequence of CAM teaching methods, integrated into several instructional tasks. Additionally, students and the instructor collaborated through different groupings, and support was provided during the synchronous communication using chat. The instructor grouped learners using the grouping tool in Blackboard Collaborate, bearing in mind that collaboration implies common goals and group work.

The pedagogical implementation included five phases with a certain number of hours and specific roles for both teachers and students. In terms of the CAM methods, modeling, coaching and scaffolding were carried out in two sessions each, and articulation and reflection in one session each. Students' roles moved from models, coaches, experts, and peers to independent learners. These models imply that students, from guided to independent practice, supported peers by demonstrating, giving feedback, exemplifying, looking back, and reflecting, as well as solving problems and making decisions about their learning. In addition, there were opportunities for both asynchronous (discussion topics and comments) and synchronous communication (chat rooms for discussion, immediate feedback, and language skills practice).

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The pedagogical implementation included four main components. First, activities related to coaching involved students guiding peers. Second, learning outcomes related to the common goal and expressed what students were expected to do according to the institution's defined

levels of competence. Outcomes were functional; i.e., students used language and structures to communicate in social situations, adhering to the CAM requirement of contextualizing concepts. Third, collaboration was understood as the type of interaction and support received, if any. Lastly, materials refer to all the resources used to accomplish the task. Materials depended on the students' level of expertise and objective of the teaching method.

Context and Participants

This study took place at a regional center of Colombia's national vocational and technical training service. This service offers programs to over 250,000 graduates every year nationwide via 33 regional centers. The mission and vision include three principles. First, free access; instruction is free for students and they choose their learning via face-to-face or online vocational programs. The second principle is employability; there are agreements with numerous companies around the country where students can do their practicum. Third, teaching for work; instructors focus on teaching for future jobs. The centers work with school-wide curricula that include materials, course objectives, and midterm and final assessment. The online course in which this research was conducted was also designed in-house by the institution.

Twelve beginning English students, 18 to 30 years old, participated in the study. All participants had six years of previous English instruction in secondary school. Participants were placed in A1 level of proficiency according to the CEFR. All of them reported having already taken at least one online course on Blackboard.

Data Collection Instruments

Data was collected on three different occasions. First, before the pedagogical implementation, a survey was applied as a diagnosis to identify students' perceptions about the methodology in online courses. The survey consisted of five questions about online experiences. Results of this diagnosis were validated when referring to the reasons given by students who dropped English courses and whose main reason was lack of interaction and immediate feedback in online English courses. Second, during the pedagogical intervention, chats were transcribed and a self-assessment checklist was given. These tools allowed for the description of synchronous interaction and collaboration in online settings and the identification of students' reflections and perceptions on their own learning while collaborating with each other. Third, after

implementation, students were interviewed to analyze their perceptions about the effectiveness of the CAM. In this way, it was possible to validate the way in which the CAM enhanced online collaborative learning in chat rooms.

Data Analysis and Interpretation

Analysis involved the framework proposed by Ritchie and Spencer (1994) in which gathered data is shifted, charted, and sorted in accordance with key issues and themes. This process involved five steps; namely familiarization, identification of themes, indexing, charting, and mapping, and interpretation. In this specific study, the researchers analyzed and interpreted how the incorporation of CAM enhances collaboration by understanding the types of synchronous communication and interaction using a chat tool.

Results

Results before Implementation

Before the pedagogical intervention, a survey was applied to gather students´ perceptions about the online sessions and in that way diagnose the problem situation. Analysis revealed four main findings. First, activities in these courses consisted mainly of forums and surveys. Second, students focused on asynchronous rather than synchronous tools. Some participants did not know that Blackboard offered live sessions. Third, interaction with classmates was reduced in online English courses. Students felt isolated and spent more time doing individual written activities rather than collaborating with others. Fourth, students' expectations were not being fulfilled. They wanted to use more Blackboard tools. They also wanted to receive feedback in a timely manner, and receive explanations directly.

Despite the fact that Blackboard Collaborate has many tools, students were only using forums and surveys. Students wanted to perform real-time sessions in which they could work with their peers by receiving feedback and performing tasks. In this case, keeping in mind the nature of the program in which online sessions were scheduled, real-time sessions were expected to happen during the meetings with the tutor. Due to the results of this diagnosis, researchers focused on the chat tool to promote online collaboration.

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Results during Implementation

Chat transcript results. The researchers transcribed the chats and identified the type of collaboration in the chatroom. The themes that emerged from each CAM method used in chat included 1) modeling, included asking questions, clarifying, providing feedback, correcting errors, and exemplifying; 2) coaching and scaffolding, including solving problems, providing feedback, motivating, guiding, organizing ideas, and setting pace; 3) articulation and reflection, for example evaluating strategies, reflecting on learning, setting objectives, and providing feedback.

Students' checklist results. Palloff and Pratt (2005) and Popovici (2012) promote the integration of learner-centered assessment tools such as checklists and peer assessment. In this case, the checklist was divided into four sections. Students' perceptions about the use of chat were analyzed considering access to the chat, students and teachers' performance, and feedback. Table 1 reports the percentage of satisfaction.

Table 1. Percentage of Satisfaction

Checklist Statement	Percentage
Access to the Chat Tool	
Easy access to chat tool	83,3
Chat for Educational Purposes	91,7
Instructor's Performance	
Sessions Appropriate Length	66,7
Instructor's Guidance	75,0
Instructor's performance	75,0
Group Organization	83,3
Instructor Appropriate Explanation of Strategy	75,0
Students' Performance	
Student's Active Role	75,0
Students' improvement in their performance	75,0
Opportunities to ask questions to instructor	83,3
Immediate feedback from instructor	75,0
Feedback	
Opportunities to guide a classmate during the session	83,3
Opportunities to give hints and clues to classmates	75,0
Appropriate feedback from classmates	66,7

The first section shows that students know how to enroll in the chat room, and that they used it for educational purposes. The second and third sections demonstrate the instructor's ability to manage the time in the session and to offer guidance. In section four, students reported having an active role during the sessions by giving feedback.

Instructions, guidance, and feedback were also provided. Participants had the opportunity to work with others towards a common goal. In section four, 83% of the students reported having an active role during the sessions by giving feedback. In spite of time issues with some activities, and appropriate feedback from other students, the participants demonstrated acceptance of the use of chat for learning. It is possible that some time adjustments are needed as well as training for students on offering more appropriate feedback to others. In this line, the role of the instructor in the modeling phase is important in order make sure learners are equipped with effective strategies to make feedback useful.

Results after Implementation

Interview. Participants thought that using chat in online English classes provides more opportunities of peer interaction in real time and via different group organization. Students were able to questions and practice with others in pairs or groups. Opportunities for individual work were also provided. Students reported that they felt happy and motivated to interact with others using English.

> For me, this is the first time using chats in English classes. It is fun!

> Having my instructor during the session makes me feel motivated to attend and make all the questions

> Chat is easier to communicate with instructor and friends and to know that other people are behind the screen too.

Participants also mentioned some advantages and disadvantages of using the chat tool. For the former, students reported that chat allowed them communicate in real time, make connections with the instructor and peers, receive feedback, gain confidence to participate, and to reflect on learning. For the latter, participants mentioned that some students were not involved in all tasks due to time constraints. Some of the comments included:

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> I could test myself and realize how faster I am to answer a question or look for something I do not know

In some tasks, the time we had to work with the classmate was not enough and had to stop in the middle.

Some friends do not have the same performance and we need more time to guide them.

Finally, all participants manifested their desire to continue using a chat tool in the English class. They mentioned time as the only aspect to improve for future sessions.

Some friends take too much time in just one question and we wasted time.

Working with classmates and receiving their suggestions was helpful and made me think in different ways to explain and I learned more

After analyzing the instrument results, two main issues were addressed: online collaboration by incorporating CAM using a chat tool, and the roles of tutors and students in virtual learning environments.

Online collaboration and interaction. Based on the themes that emerged in chat transcripts and interviews, incorporating the CAM with a chat tool provided different opportunities for collaboration and interaction. The CAM teaching methods included games, reflections, interviews, information gap, and problem solving. The CAM also delivered a systematic approach to learning in virtual environments.

Performing a variety of activities improves students' sense of collaboration. The progress of chatting allows us to observe that students started by seeing a model which gave them confidence. Later, they knew they could rely on their peers to practice and receive feedback. At the end, they possessed the criteria to reflect and act upon their learning process. The criteria were assessed when analyzing the themes that emerged in the data analysis and the self-assessment check list. For example, students started by clarifying and/or asking questions, but ended lessons by setting objectives and/or reflecting on their own learning process. Actually, the self-assessment checklist let students state new learning goals.

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Students and instructors' roles in online settings. Chat transcripts and students' self-assessment checklist revealed that learners assumed different roles. Students could be models, coaches, guides, or experts in online learning. They could even self-regulate their learning through reflection. Self-reflection in online environments not only occurs at the reflection teaching method stage, but also when performing scaffolding and articulation, as evidenced in the chat transcripts and

the interview. Students can learn from others and think of their own learning strategies. For example, they can infer best practices and adjust to their own learning process. The interview and chats revealed that students perceived that a chat tool, besides offering a space for social activity, was a suitable place for sharing ideas, discussing, reflecting on learning, asking questions, and receiving feedback on English tasks.

Timely instructor support resulted in students' engagement in activities and was reflected in their active participation and reflection on their own learning, as evidenced in the checklist and interview. The instructor working synchronously with the students helped them ask more questions and not only receive but provide feedback. Student surveys report satisfaction with all the activities. The mediation of computer communication via a chat tool provides a bridge for self-reflective practices supported by synchronous interaction in which teachers act as facilitators.

Conclusions

The six teaching methods of the Cognitive Apprenticeship Model (modeling, coaching, scaffolding, articulation, reflection and exploration) enhance online collaborative learning, not only because students work together to reach a common goal (Laal & Ghodsi, 2012), but also because synchronous interactions can help students support each other's learning. The CAM included students teaching one another, students teaching the teacher, and the teacher teaching the students. Chat was useful for interacting with others while learning as students provided feedback, self-reflected, and asked questions.

Warschauer and Meskill (2000) and So and Brush (2008) believe social interaction motivates learners. Using the chat for educational purposes offers synchronous communication for learners to receive timely support. In consequence, learners improve participation through collaborative learning. By creating a sense of social presence online, feelings of isolation and demotivation turn into engagement in activities and motivation as expressed by researchers like Espitia and Cruz (2013) and Richardson (2006).

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Online settings involve different types of interaction. All aspects of the discourse serve as triggers for negotiations, and task types influence the kind and amount of negotiation, self-repair, corrective feedback, and negotiation within negotiations as seen in this research. Working in live-sessions like chat demands preparation from instructors. As shown in the pedagogical implementation, learning outcomes must be set

which give the session its purpose and order. Further, activities should be chosen in advance.

The chat, the use of collaborative learning, and the incorporation of cognitive apprenticeship allowed students to be the directors of their own learning process. They were also able to reflect about their learning objectives, self-assess them, set their own goals, and go for them. The teacher, on the other hand, became a visionary agent of the courses where she guided the learning process through the design of appropriate lesson to foster collaborative learning activities and the appropriate support the peers might need.

This research provided many important outcomes that will contribute to the improvement of online teaching at this or other institutions that share similar contextual characteristics. First, the use of the CAM offers collaborative learning opportunities. Each teaching method may be implemented with various tasks. Second, the chat helped students to receive synchronous feedback, guidance, and support. Third, the use of CAM with chat is an opportunity to reflect about the learning process. Some self-assessment tools may be incorporated. Fourth, this study aimed at describing the effectiveness of both collaborative learning and cognitive apprenticeship in terms of creating a sense of social presence online, defined as the ability to portray oneself as a "real" person in the online environment (Palloff & Pratt, 2007). In this sense, chat tool was the tool to create synchronous interaction in online environments.

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Appendix: Pedagogical Implementation

Cognitive Apprenticeship Model: Teaching Methods	Session	Task Content
Modeling Observing the instructor's demonstration of an explicit task, skill or specific strategy used. The instructor acts as the expert and students as the novice.	1 2	<u>Instructional activity:</u> Information gap. Instructor models for students. Students take turns to ask questions. <u>Learning outcomes:</u> - Describe family relationships - Spell names - Talk about one´s family - Give street names and nearby landmarks <u>Collaboration:</u> in pairs, give clues, clarify concepts, ask and give information, answer questions related to task, give the partner suggestions and directions, provide feedback <u>Materials:</u> worksheet visuals
Coaching Learning support aimed at bringing performance closer to expert one. Coaches provide hints and feedback which is possible because of the constant monitoring.	3 4	<u>Instructional activity:</u> Guessing games Students say advantages and disadvantages of various products. Partners have to guess what the product is. They describe products they usually buy. <u>Learning outcomes:</u> - Tell how much a product is - Get information about products - Compare items in a store <u>Collaboration:</u> Group work. Give hints to solve puzzle, provide feedback, guess words, clarify concepts, and confirm information. <u>Materials:</u> worksheets
Scaffolding Peer assistance in reaching required skills. Scaffolding offers reminders and clues.	5 6	<u>Instructional activity:</u> Problem solving Students do some bank transactions. They have to explain why they make banking decisions. <u>Learning outcomes:</u> - Do bank transactions - Explain balance situation - Talk about how to save money <u>Collaboration:</u> Pairs – A low level student and an advanced one. Scaffolds to approach given situations <u>Materials:</u> Worksheet

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Articulation Explaining misunderstandings and decisions made. Students solve problems. They become more experts.	7	Instructional activity: Interviewing Learning outcomes: - Express likes and preferences taking into account the context Collaboration: Pairs – A low level student and an advanced one. Students ask and answer questions about their likes. Materials: N/A
Reflection Learners think about how they approached learning and achieved learning outcomes. They find new ways and points of view to enrich their own learning process. Students also compare different problem solving strategies used.	8	Instructional activity: Reflection Answer questions about CAM tasks and do check list. Write a reflective paper Complete a mind map Learning outcomes: - Reflect about the effect of incorporating CAM - Write a reflective paper expressing if collaboration was enhanced with chat tool. - Read strategies used by classmates to solve a set of given problems and learning tasks Collaboration: Groups. Discussion, assessment, peer review, planning based on strengths and weaknesses during the sessions Materials: Self – assessment checklist, mind map

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