Development Of Collaborative Learning Through The Use Of The Moodle Platform

MSc. María Díaz Campillay[1] , Dr. Héctor Fuentes Castillo[2]

ABSTRACT

This paper shows the result of a collaborative experience among all students belonging to the Business Administration course, of the Universidad de Atacama. The experiment tries to measure the use of the Moodle platform to show the students' improvements in communication and teamwork skills. The field analysis is dedicated to observing and recording all the changes made by students in the management of their soft skills. Finally, it is concluded that the contributions of the platform, for the collaborative work of the student, are significant in their learning process and that they are also useful for the teacher.

Keywords: Teaching and Learning Process, Collaborative Learning, Comunication, Moodle Platform.

INTRODUCTION

The continuous advance in the use of technology allows the adoption of new communication, search, learning and teaching tools, transforming the World Wide Web into a popular e-learning system (Anistyasari, Sarno, and Rohmawati 2018)[1], stimulating thus way, the occurrence of [1]a more fluid communication, carefree and with diverse cultural contents. Technology thus defined, becomes a powerful tool designed to facilitate learning and promote knowledge among students and teachers, its great power of reach conquers lives and the most distant homes in the world (Ferreira et al. 2019)[2]. In this new reality and context, universities are expected to prepare students effectively in all areas of communication, as they are the main training areas for students to learn and perfect their communication skills before graduating and entering to the world of work (Jackson, D. & Hancock, P., 2010)[3]. However, the majority of graduates, both national and international, are not uniformly prepared to communicate in the different modes: spoken, written, and visual (Clokie & Fourie, 2016[4]; Moore & Morton, 2017[5]; Thomson, Thomas, and Irvine 2021[6]).

In this new learning model, virtual education emerges, a form of distance learning that uses the Internet as its main tool. The Moodle learning platform corresponds to one of them, Moodle is an acronym for: Modular Object - Oriented Dynamic Learning Environment. It is an open source Course Management System (CMS), also known as a Learning Management System (LMS) and/or Virtual Learning Environment (VLE). It is a very useful tool in the educational field, which allows teachers to manage online courses through the Internet, facilitating their management and development. The foundations are constructivist theories of the social construction of learning. That is, the broad participation of the student is required for self-study (Maldonado N. and Rodríguez A., 2013)[7]. Among the main features of the Moodle learning platform are:

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[1]Chartered Accountant, Universidad de Atacama.
[2]Industrial Civil Engineer Universidad de Atacama.

- Promote the construction of learning (collaboration, activities, interaction, critical thinking, etc.)
- Have a simple, light and efficient browser interface.
- Offer a range of activities for the courses: readings, presentations, forums, glossary publications, wiki, among others.
- Have a complete record of user access, assignments, ratings, and messages.

In other words, the Moodle platform has been designed to create personalized learning environments, contributing to the student's constructivist experience. This pedagogical current proposes that the learning environment must support multiple perspectives or interpretations of reality, construction of knowledge and activities from rich experiences in their context. (Jonassen, 1991)[8].This construction of knowledge is based on the ability to communicate, being communication the guiding thread of the teaching-learning process, and that is why each member must be predisposed to a dialogue, totally open and critical, towards their teachers and classmates.

It is at this point where technological tools play an important role since it is considered that students are linked with total ease, allowing the creation of experiences that contribute to and support the learning of each student. All this allows them to learn better, due to the use of important elements for the construction of their knowledge (Hernández, 2008)[9].

PROBLEM

The network society is characterized by the hyperconnection of its inhabitants, where everything is interconnected: people with people, people with machines and machines with machines. Under such conditions, activation of self-perception is substantially enriched; the personal environment becomes part of a superconnected world, where the self-perception of the individual changes radically (Levin & Tsybulsky, 2017)[10], all of which generates a natural connection between computers and education, undeniably highlighting the significant role played by Information and Communication Technologies in enhancing opportunities for collaborative learning, given their provision of a multitude of resources for collaboration (Lucero, 2003)[11]. In this new social scheme, the teaching objectives continue to be to provide quality education, and for this they must use all the resources at their disposal, both human and technological, efficiently and effectively. In this new social scheme, the teaching objectives continue to be to provide quality education, and to do so, he/she must efficiently and effectively use all the resources at his/her disposal, both human and technological. It is also known that students value the use of technology for learning, as long as it is applied in playful and entertaining environments. The Universidad de Atacama has institutionalized the use of the Moodle platform, this challenge makes it necessary to demonstrate the degree of influence, positive or negative, of this application on the teaching-learning process. Teachers must become the designer of the virtual classroom in which they will develop the subject, face-to-face university teaching supported by technology (blended learning) involves a new learning scenario and in this new context, the teacher must take a more active role in the process, developing roles such as content manager and community manager (Padilla et al., 2015)[12]. The literature typifies three educational models of reference, the first one is based on the transmission of knowledge, the second on the active learning of the student, and the third one, the constructivist type, is based on the creation of an environment where the student can produce new knowledge (Baumgartner, 2005)[13]. The educational model of the UDA is a competency-based model, this model intersects with Baumgarther's constructivist model, in which the active role of the student is highlighted. The introduction of technology in learning can be realized in different ways according to different pedagogical approaches, moving along a continuum from more transmissive models to more interactionist and constructivist models (Sansone and Cesareni 2019)[14].

In this new regulatory framework for teaching and learning, different doubts arise, and with them, the main research question; How efficient is the Moodle Platform in the development of transversal skills for the construction of knowledge? Although it is true, university environments have the necessary architecture to build new models of communication and learning, but nevertheless, students lack the soft skills capable of composing effective communication. The foregoing becomes even more acute when communication develops intrapersonally, frequently, all people need recognition, affection and self-realization (Maslow, 1934)[15]. It is at this point, where intrapersonal communication drives to take measures capable of satisfying those needs, requiring interaction with others as the main axis. (Deveci and Nunn 2018)[16].

Student-centered models should allow the freedom to make the most of the support offered, plan their progress in university learning, and regulate their own pace of work (Duart and Sangra 2000)[17]. This process can be enriched with collaborative activities, aimed at developing personal and group skills in the individual, since students value the use of technology for their learning, as long as it is applied in playful and entertaining environments. Under this vision, the Moodle virtual platform is considered an instrument for the development of students' transversal skills (López et al. 2010)[18]. Furthermore, it is necessary to point out that: "no educational platform will produce innovation if there is no substantial change in the interpretation of the role of the student and the teacher" (Correa et al., 2015)[19].

EXPERIENCE

The research was experimental, descriptive and of cross-sectional design, with a total sampling type, the selected population was the third-year students enrolled in the subject of Administration, of the Faculty of Engineering, at the Universidad de Atacama. The variable to be analyzed was the behavior of the students concerning collaborative learning support activities. The tools used to measure this behavior were the Colles and Attls surveys, both predefined by the Moodle platform and which were used at the beginning and the end of the course, as diagnostic and evaluation tools, respectively. In this way, it is possible to quantify the impact of the collaborative activities, such as a forum, glossary, and wiki, on the subject, and to know if the activities carried out provoke positive or negative changes in the students. The Colles survey, designed to monitor the ability to exploit the interactive nature of the Internet and to integrate students into an environment of dynamic educational practices, consists of 24 questions, which measure the following aspects.

Relevance: How important is online education for students' professional practice?
Reflection: Does online education stimulate reflective critical thinking in students?
Interactivity: How much do students engage in online educational dialogue;
Teacher support: How do teachers train their students to participate in online education?
Peer support: Is the support provided by other students responsive and encouraging?

Interpretation, students and teachers; do they have a correct appreciation of each other through online communication?
The range of responses can be: Almost Always, Often, Sometimes, Rarely, and Seldom, which are rated on a numerical scale, from 5 to 1 respectively.

The Attls survey serves to measure the degree to which a student is either a "connected knower", i.e., tends to enjoy learning more, is more collaborative, and is willing to learn from the ideas of others or a "disconnected knower", and therefore tends to take a more critical and argumentative approach to learning. It is important to note that these are only a reflection of attitudes toward learning and not of learning abilities, or intellectual capacities. The Attls-type survey consists of 20 items. It is necessary to point out that the subject of Business Administration corresponds to one of the basic subjects within the engineering careers, the students enrolled in this period were 54 students, 22% women and 78% men, covering the careers of civil mining engineering, civil computer engineering, and civil metallurgy engineering. Finally, it is necessary to state that in the experiment, the following activities took place:

a) Forum, where debates and discussions on the topics of the course are held.
b) Glossary, allows participants to create a dictionary-style list of definitions
c) Wiki, is a tool that enables the collaborative creation of documents. A wiki is a web page in the creation of which the whole class can participate, simply by using the browser, without the need to know HTML language.

RESULTS

Characterization of the group:

Colle's survey.
   a) At the beginning of the Administration course
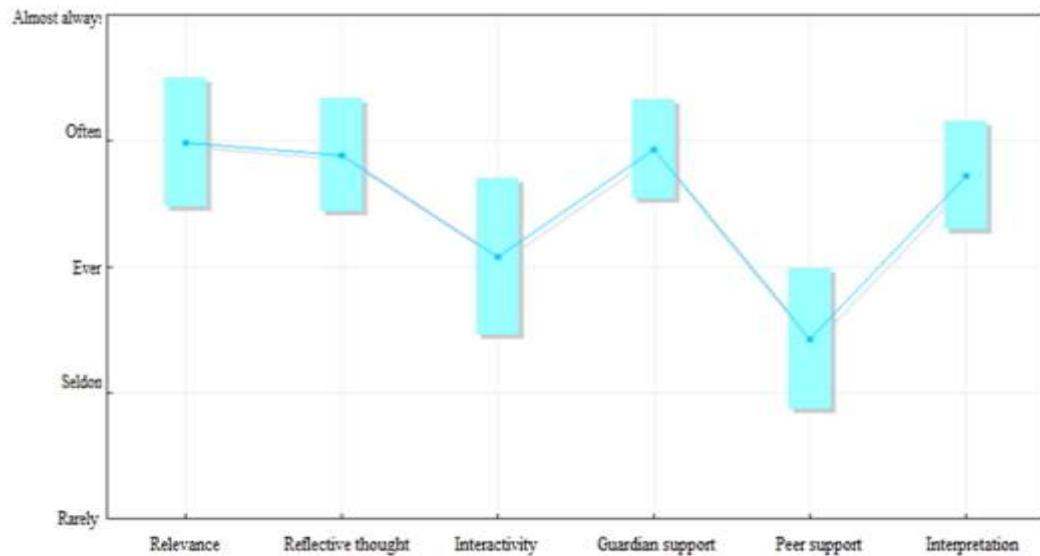
Figure 1. Summary of the survey on constructivist environments

Source: Moodle Platform.

The Figure 1 shows that at the beginning, students evaluate the use of the Moodle platform in the subject, to then determine the level of relevance in their career, expecting to support and interrelate more with their tutor than with their peers, however, the area of interactivity is low, compared to the others, which means that the group has difficulty in interacting with each other, which may infer a lack of communication in the group.
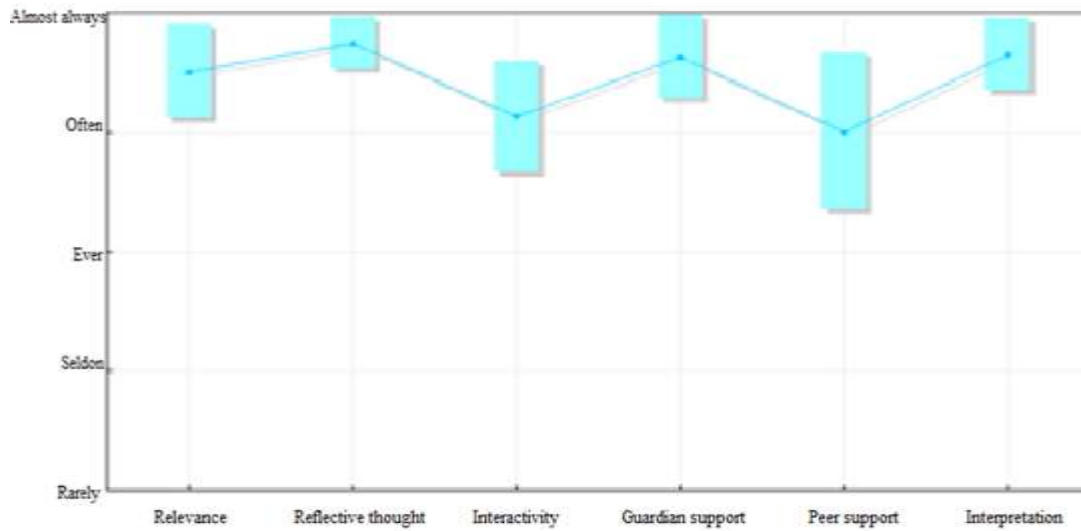
   b) At the end of the Administration course

Figure 2. Summary of the survey on constructivist environments

Source: Moodle Platform.

The figure 2 shows that after having had the experience of working in forums, glossaries, and wiki, the behavior of the students varies since an increase in all the areas measured by the Colle´s survey can be seen, highlighting the increase in peer support.

Attls.

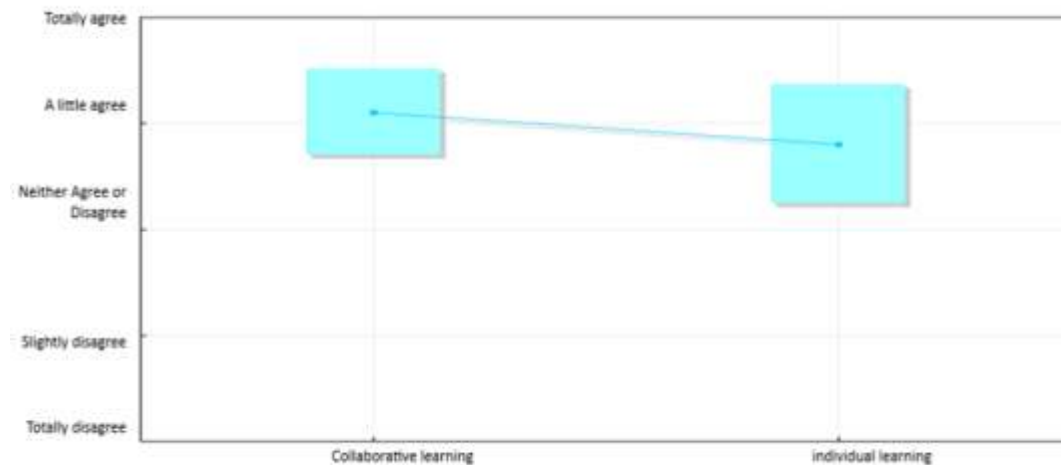a) At the beginning of the Administration course

Figure 3. Summary of attitudes towards thinking and learning

Source: Moodle Platform.

The figure 3 shows that the type of learning in the group leans towards individual learning.
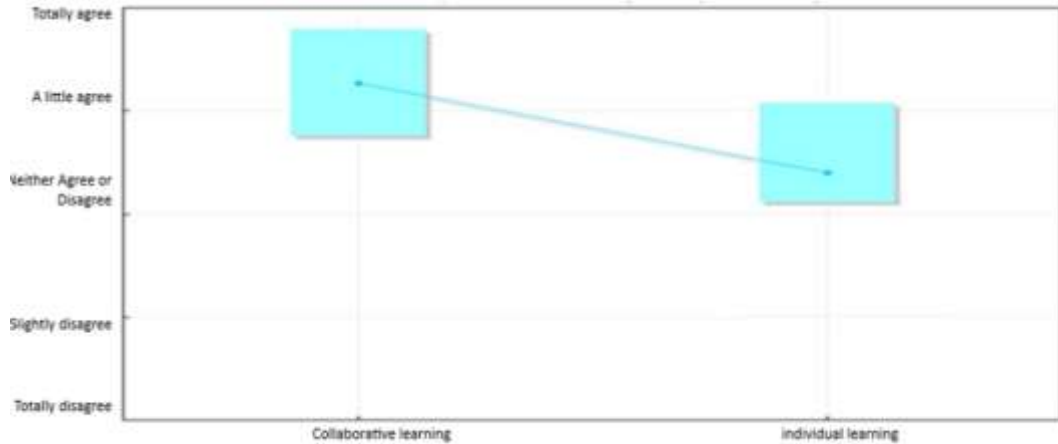
b) At the end of the Administration course

Figure 4. Summary of attitudes towards thinking and learning

Source: Moodle Platform.

The Figure 4 indicates that at the end of the course, the group has changed since there is an increase in collaborative learning.

Individual characterization

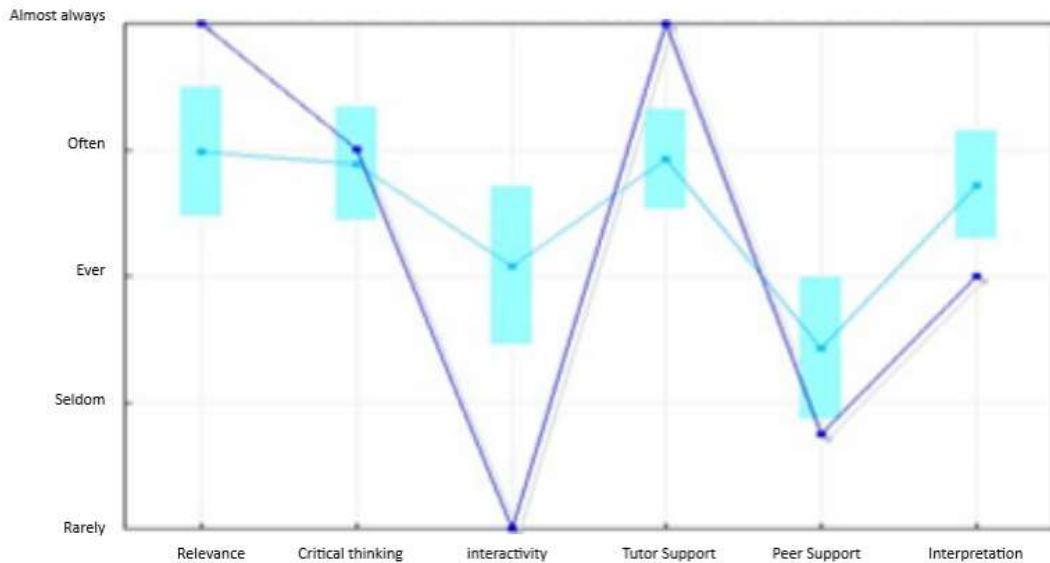a)   At the beginning of the course of Administration

Figure 5. Survey on constructivist environments - Student 1

Source: Moodle Platform.

The figure 5 shows that if a student feels the use of the platform in the subject is very relevant for his career, he relies extremely on his teacher, but rarely with his classmates, i.e., it can be inferred that this student prefers to work with the tutor, and also does not tend to interact with his classmates, and may have communication problems, especially with his peers.
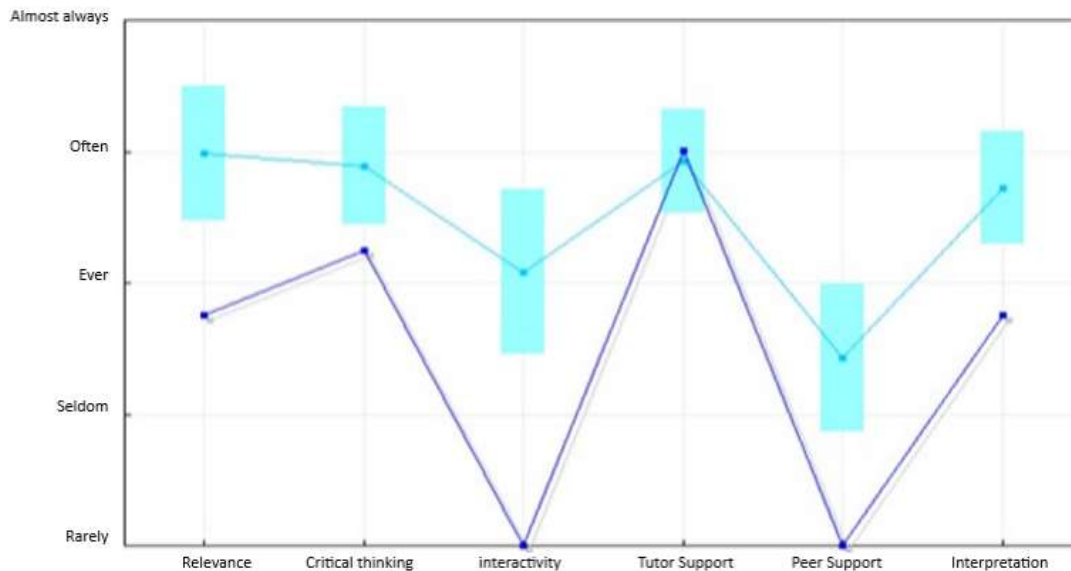
Figure 6. Survey on constructivist environments - Student 2

Source: Moodle Platform.

The figure 6 shows a situation very similar to the previous one, the use of the platform in the subject
for his career, is not very relevant for the student, he also relies on the teacher and not on his classmates, i.e., it could be thought that he prefers to work alone, he does not tend to interact with his classmates, so he could have communication problems. In the area of interpretation, it is necessary to highlight that he rarely understands his classmates, and in turn, that the tutor rarely understands him.
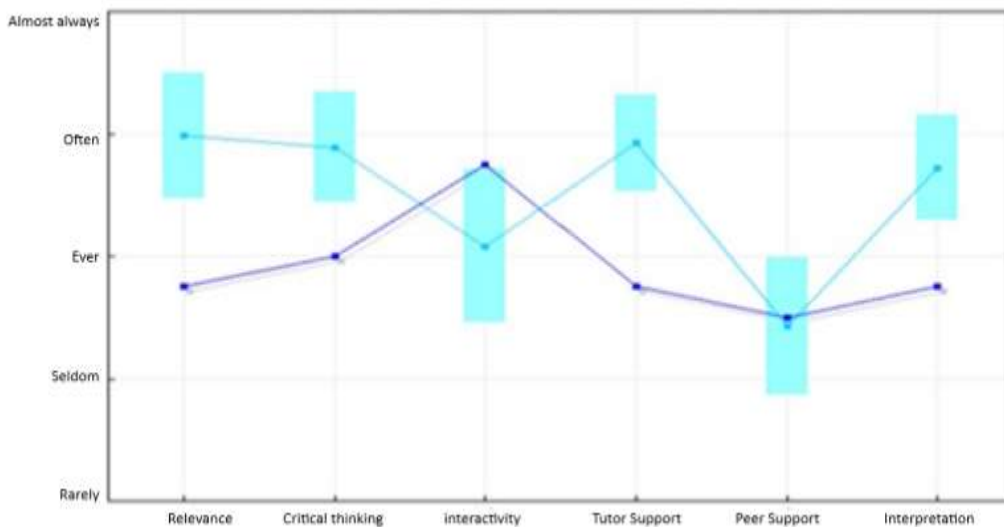

Figure 7. Survey on constructivist environments - Student 3

Source: Moodle Platform.

The figure 7 shows, if a student, who should be given special interest, believes that the use of the platform in the subject is not relevant to his career and is not motivated, neither by his teacher nor by his classmates, the Colle´s survey allows deducing that there could be possible difficulties in his performance.

CONCLUSION

From the field analysis, it can be inferred that the Moodle platform favors the processes of knowledge construction and learning, considering the greater variations obtained in the answers related to Reflective Thinking, Interactivity, Interpretation, and Peer Support. Also inferring significant contributions in improving communication and teamwork among students. Likewise, teachers can take advantage of the platform to compile data from their students, which will help them learn from their teaching, as well as from the learning achieved by the students. To do this, it is necessary to identify the skills that students have and from there, recognize which would be the didactic activities with which to contribute to their motivation and learning, therefore, it is possible to improve the organization of the subject and its management; the organization of didactic materials; stimulate communication through participation and collaboration through the use of appropriate spaces.

Another aspect that should be studied in depth is that since the teacher of each subject is the one who is in front of the students daily, it is interesting to have a tool that provides information on the characteristics of the students, to pay special attention to those who require it, to observe if they acquire the competencies required in their subject and to support them in their curricular progress, all this for the benefit of reducing potential desertions.

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