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The Role of the Constructivist Learning Theory and Collaborative Learning Environment on Wiki Classroom and the Relationship between Them

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Abstract**—**This paper seeks to discover the relationship between both the social constructivist learning theory and the collaborative learning environment. This relationship can be identified through given an example of the learning environment. Due to wiki characteristics, wiki can be used to understand the relationship between constructivist learning theory and collaborative learning environment. However, several evidences will come in this paper to support the idea of why wiki is the suitable method to explore the relationship between social constructivist theory and the collaborative learning and their role in learning. Moreover, learning activities in wiki classroom will be discussed in this paper to find out the result of the learners' interaction in the classroom groups, which will be through two types of communication; synchronous and asynchronous.

Keywords**—**Social constructivist, collaborative, environment, wiki, activities.

I. Introduction

THERE are many psychologists such as Vygotsky, Piaget and John Dewey who have worked to develop Social Constructivist Learning Theory (CLT). This theory seeks to answer the question: how do people know what they know? [3]. This theory focuses on the belief that solving problems helps individuals in thinking, learning, and development. Problem solving helps individuals in taking their own unique experiences and expertise to find a solution and once they do, they all extract unique lessons from it [4]. According to [5, p. 60] "Constructivist learning theory meaning is seen as a cognitive activity that produces mental models that represent perceptions of reality". Generally, CLT aims to identify how to implement learning processes in the classroom, and how knowledge is constructed [6]. On the other hand, to understand the concept of Collaborative Learning Environment (CLE), CLE is a system specially developed to support the participation, collaboration, and cooperation of users sharing a common goal. CLE design should take into account social factors to discover and describe existing relationships among learners, existing organisational structures and incentives for collaborative action [7]. This area addresses the environment of learning and how learners working collaboratively to achieve particular goals under the umbrella of CLT.

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II. The Similarities between CLT and CLE

Both learning theory and learning processes are characterised by an inextricable relationship and are profoundly rooted in culture and learning between individuals [8]. There are several aspects showing the extent of the interdependence between CLT and CLE. The following sections address in details the relationship between CLT and CLE and it can be seen through the key elements such as: the role of the teacher in the classroom, the learners' activities with each other, learning style, and the ways of acquiring information and knowledge. Fig. 1 presents both CLT and CLE as a learning theory and learning environment and the relationship between them.

A. The Role of the Teacher in the Classroom

The role of the teacher in the social constructivist classroom is to help students to build their knowledge and to control the existence of students during the learning process in the classroom. According to [9, p. 173] "constructivist teachers allow student responses to drive lessons, shift instructional strategies, and alter content". The idea of the limited role of the teacher is that this encourages students to engage in collaborative learning. In contrast, the teacher in collaborative learning classroom is a facilitator that provides opportunities for collaborative work and problem solving. According to [1, p. 253] "a teacher as a facilitator, should provide rich environments, experiences, and activities for learning by incorporating opportunities for collaborative work, problem solving, authentic tasks". Finally, the teacher concentrates on students' learning rather than on teacher performance. In wiki classroom, teacher characterises by the same role in both CLT and CLE, teacher plays the controller role with students and as a facilitator to transfer the information to students. The teacher facilitates the learning process in which students are encouraged to be responsible and self-governing [10].

B. Learners' Activities in the Classroom

Activities can be defined as, all of the educational activities that learners practiced in the classroom; these activities can be written activities, readable activities, thinking activities... etc. Both CLT and CLE advocated that, participation in learning activities is valuable work. It enhances students' collaborative skills, provides students with opportunities and helps them understand new knowledge and strategies. It helps them to examine their thinking processes and recognise the need to revise their thinking [11].

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According to [12], collaborative learning activities can engage students' participation, and interaction, working together toward a common academic goal, and increasing the level of satisfaction and feelings of connection and community. These activities can be seen clearly in wiki classroom. For example, in wiki class the learning environment encourages student responsibility for learning and this fits in well with social constructivist approach. Fig. 2 represents the key materials that students practiced in the CLE via using wiki technology.

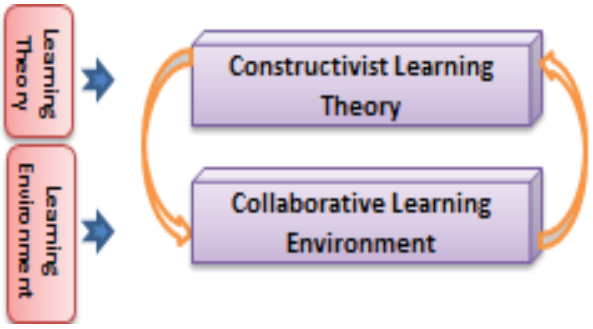


Fig. 1 The interdependence between the CLT and CLE

C. Learning Style in the CLT and CLE

To find out the relationship between CLT and CLE in the term of learning style we need to define the concept of learning style. As [2], learning styles refer to the variations in the ability to accumulate as well as assimilate information. Basically, learning style is the method that best allows us to acquire and use knowledge in a specific manner. In CLT and CLE classroom both students and teacher makes up the general picture of the learning process. Usually, students are divided into groups each group contains of 6 to 8 students. In this way, learners are working together in order to achieve a particular goal which is building knowledge through learning activities and discussions. Reference [13] states that, in social constructivism, knowledge is developed through cognitive activity which happens through the discussion of experiences with other individuals or in groups. Fig. 2 illustrates the learning style design in wiki classroom and how groups working as a team with group leader. The following section addresses this design in details.

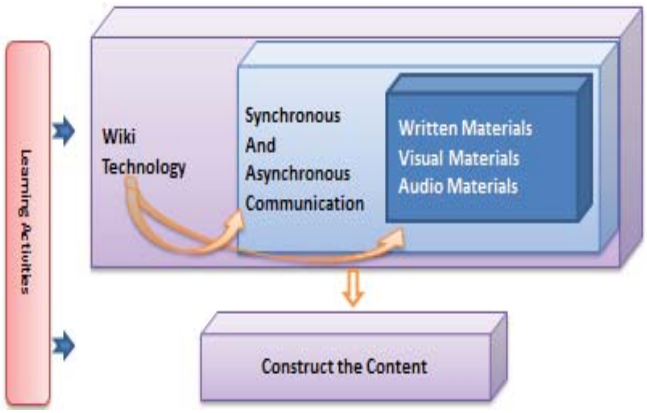


Fig. 2 Collaborative Learning Activities in Wiki Pages

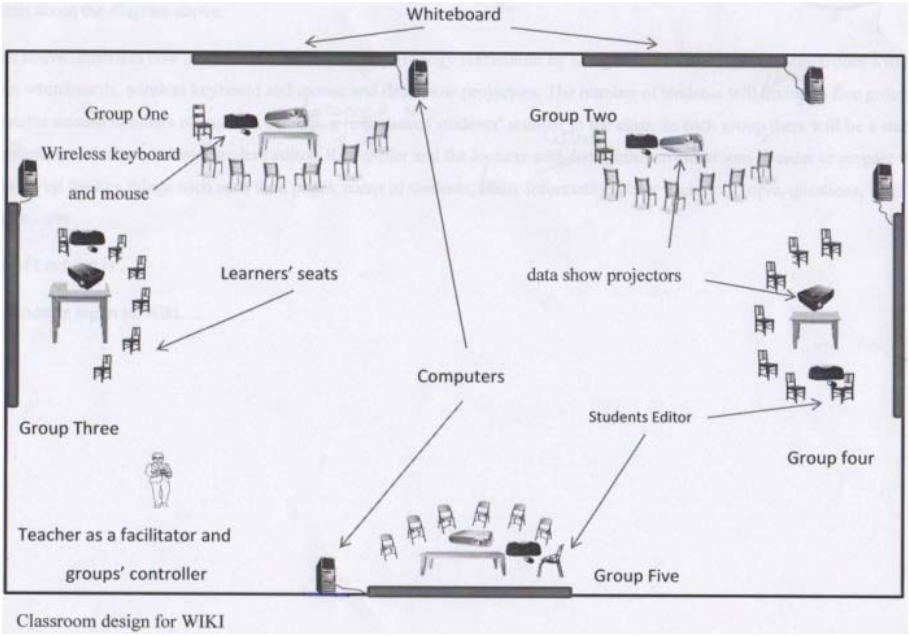


Fig. 3 Design of a wiki classroom

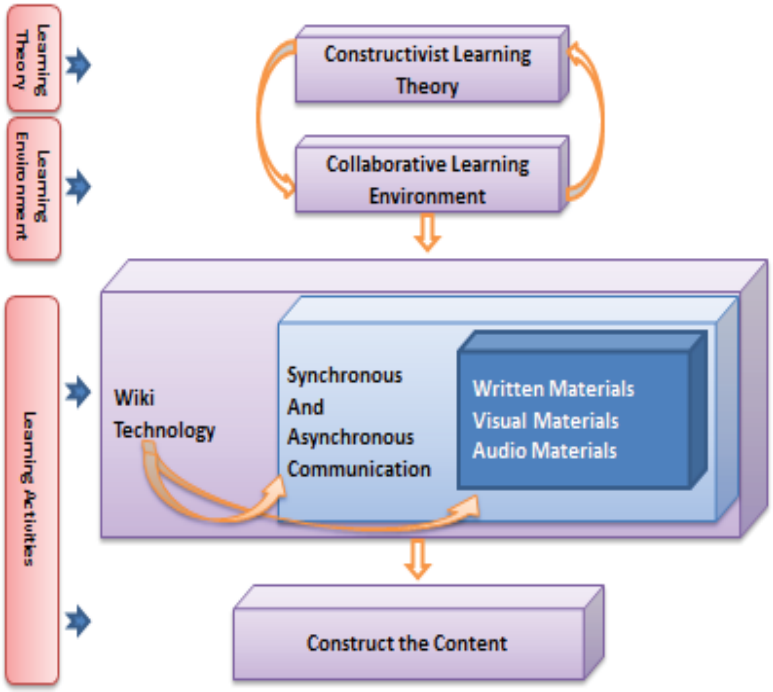


Fig. 4 The Relationship between the CLT and CLP in Wiki Class

III. Employing the CLT and CLE in the Wiki Learning Environment

Wiki technology is one of the web 2.0 applications that allow users to work in groups. The group member in wiki class seeks to share their contributions with the others via two types of communication: synchronous and asynchronous systems. Predominantly, students are divided into groups with a leader chosen for each group. The full number of students in classroom is designed in groups to facilitate the task of the teacher in controlling the group members and to help them to solve any problem they may face. In addition, the teacher plays an important role in a CLE in providing the information for how groups should work collaboratively, and in facilitating the possibility of sharing information on the subject relating to the lesson through the use of wiki. Students work individually and collaboratively during the learning process [14]. Each group has its leader who is responsible for the other members of the group. The success of one student in the group encourages other students to be successful [15].

IV. The Relationship between CLT and CLE in Wiki Classroom

In order to describe the interrelationship among CLT and CLE Fig. 4 illustrates that, CLT has been chosen in the present paper to be the learning theory. CLT is a suitable theory of learning for both teacher and learners, due to the characteristics of this theory being consistent with the role of the teacher in teaching and students in learning. As mentioned in the course of this paper, students dealing with wiki technology in groups benefit from each other. This theory states that learning is an active process of creating meaning from different experiences [16]. Thus, the teacher facilitates the transfer of the information to the students. Furthermore, a teacher plays the role of facilitator more than a teacher's role. According to [17], people learn best by trying to make sense of something on their own, with the teacher as a guide to help them along the way [18, p. 28]. The word facilitator is more appropriate than teacher in social constructivist context [19] where the learner is actively constructing knowledge, rather than passively taking in information [20, p. 79]. Furthermore, learners interact with each other in a collaborative environment. It can be seen more clearly through Fig. 4.

The nature of learning is collaborative work, which means that all group members work in one team in order to contribute their comments, ideas and opinions about a particular topic. In the present paper the aim of learners is to collect the information with regard to create the content of the biology curriculum. Students asked to collect the information about one topic every week then they asked to add this information through wiki pages. As mentioned above, this information maybe a written material, visual material or readable material. In this case, teacher can help students through provide students with the suitable sources related to the topic identified. Moreover, he/she allows the learners to benefits from each other during their existence in the groups. When Students asked to participate in group activities group work enhances student understanding. Reference [21, p.2] states that

> "Students learn from each other and benefit from activities that require them to articulate and test their knowledge. Group work provides an opportunity for students to clarify and refine their understanding of concepts through discussion and rehearsal with peers".

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V. Summary

Through the previous review of the characteristics of CLT, CLE and wiki learning environment it can be said that. CLT, CLE and wiki learning environment have the similar characteristics in the term of the role of the teacher as a facilitator and controller of the classroom. Also, in the terms of the learning style and the aim of the learning process, the learning here aims to build the knowledge and understanding the new learning skills. Finally, in the term of the nature of the interaction among students in the classroom, both CLT, CLE and wiki classroom advocated that a student learning in groups and each one represents responsible in his/her group.

This paper seeks to discover the relationship between two terms in the educational field; social constructivist learning theory and the collaborative learning environment. In addition, this paper attempts to find out the interdependence between these two terms on one hand and wiki classroom as a learning environment on the other hand. Moreover, several examples provide in the course of this paper to support the idea of the existence of the interrelationship between CLT, CLE and the use of wiki technology in the classroom. The type of communication among students via wiki technology has been mentioned in this paper in order to clarify how the interaction between learners how to be. Learners' activities in the classroom are the general picture of the learning style and this interaction represents the learning environment under the CLT umbrella.

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