

## ANALYZING ONLINE COLLABORATIVE LEARNERS IN TAMIL USING MOODLE

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**Abstract-**The grand design of Collaborative learning provides online learning platform where students can help each other and can take the form of discussion among the whole class or within smaller groups. When the peers study collaboratively, they balance one another in knowledge when they generally learn better. The collaborative learning strategy involves group discussions. However, when group members meet face to face, they may be influenced by interpersonal relationships and peer pressure, which can cause group members to interact in less desirable ways. The purpose of this study is to investigate whether peers engaged in group discussions for the purpose of collaborative learning interact differently in face-to-face or anonymous conditions. The study examines how peers assess one another, to identify group interaction patterns. The basis of the theory of social construction collaborative learning aims to help learners solve the problems they encounter in learning and to improve their own learning behaviours. One of the long-standing goals of education has been to help learners learn better through appropriate patterns of peer interaction. To experiment this we have utilized Moodle which (Modular Object-Oriented Dynamic Learning Environment) is a free and open source e-learning software platform, also known as a Learning Management System, or Virtual Learning Environment (VLE). As a web-based tool, Moodle offers the potential to deliver courses which include a huge variety of information sources – links to websites, images, and multimedia – which are difficult to deliver in a traditional teaching environment. The chat activity module in moodle allows participants to have a real-time synchronous discussion in a Moodle course. A teacher can organize users into groups within the course or within particular activities. This paper aims in identifying different interaction patterns and the best interaction pattern among the all which is best suitable for learners in a collaborative learning environment so that every individual in the group is benefitted. As a testing platform fifth standard Tamil medium science text book is incorporated in to moodle. In the pre-test stage, students first engage in collaborative learning using moodle, and then they interact with each other in the interactive chat discussion. Based on the peers conversation using chat activity , the system can identify the different interaction patterns like partial knowledge exchange, distributive knowledge exchange, Ability impediment, group development impediment, Centralized knowledge exchange and thus may result in different learning achievements, and this study shows that anonymous group discussions tend to generate better results based on analyzing various interaction patterns.

**Keywords: Collaborative Learning, Moodle, Interaction Patterns.**

## I. INTRODUCTION

'Cooperative learning' is that it is a situation in which two or more people learn or attempt to learn something together[1]. "Collaborative learning" is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. *Moodle* is a course management system for online learning . *Modular Object-Oriented Dynamic Learning Environment*. The design of *Moodle* is based on socio-constructivist pedagogy. The chat activity module in moodle allows participants to have a real-time synchronous discussion in a Moodle course The built-in chat module is a handy teaching tool for groups of students working with or without the teacher to discuss an issue, or answering questions set by the teacher. The chats are saved and can be reviewed by the teacher at any time. The content of fifth standard science text book can be incorporated in to moodle and can be given to students for group learning. This makes the students to effectively learn and understand the concepts easily also enables the students to build and improve inter – personal skills, and positive interdependence.

Collaborative learning activities may be carried out face to face and this peer interaction enables group members to exchange their knowledge and discuss their perspectives, helping to not only unite the team, but also enable group members to collaborate and learn more effectively [2], [3]. However, there are also some disadvantages to face-to-face interaction. When students know one another reasonably well and meet face to face, those with a lower learning achievement may tend to rely on those with a higher learning achievement. This can in turn greatly reduce the effects of collaborative learning .To enable students to say what they truly feel; we proposed an anonymous peer assessment scheme using Moodle. Students are also allowed to participate in to the chat activity of Moodle after learning in Moodle in anonymous mode. Based on the anonymous students conversation using chat activity we identify the different interaction patterns.To carry out this investigation, a system was developed to enable students to brainstorm anonymously. Within this system, peer review proceeds in three phases: 1) Learning using Moodle 2) Chat Activity and 3) Identifying Interaction patterns. By analyzing how peers assess one another, and how they interact differently in face-to-face and anonymous environments, it is possible to identify group interaction patterns. The results can then be evaluated to determine how changes in peer interaction patterns affect overall learning achievement.

The rest of the paper is organized as follows,

II. Existing Work

III. Proposed Work

IV. Implementation

V. Performance Evaluation

VI. Conclusions and Future work

### **II.Existing Work:**

#### **Collaborative Learning and Grouping:**

Collaborative learning can be considered to originate from social constructivism [6]. Social constructivism sees compromise between different subjects as the ultimate criterion to judge knowledge. Collaborative learning requires group work. Researchers suggest various factors and strategies involved in setting a group assignment. For example, it is crucial to ensure an appropriate group size. If the group is too large, then it may be difficult for all members to participate fully in learning activities. A VLE for online chat activity is another approach by

using MOODLE students are able to do discussions, for example, by asking and answering questions, and suggesting arguments for or against the proposed answers . The interaction of student activities conducted through an MOODLE which is an open source learning platform. The model of interaction consists of three parts: issue, position, and argument. First, students raise issues or questions for discussion. Second, students can make position statements about each issue. Finally, they can make arguments for or against each position statement. An argument can either clarify or elaborate on a position statement, helping to make the position statement more complete. With the use of an MOODLE based platform, group discussions become more goal-oriented and focused, enabling participants to reach a consensus more quickly, if, indeed, such a consensus is to be found.

### **III.PROPOSED WORK**

On the basis of the theory of social construction collaborative learning aim to help learners solve the problems they encounter in learning and to improve their own learning behaviours. Our aim is to help learners learn better through appropriate pattern of peer interaction. Ideal peer interactions are those in which learners first present their own ideas and then develop those ideas through discussion with their peers and exercising their own judgment.

#### **Peer Interaction Patterns**

Liu and Tsai used an IBIS-based platform for online discussions and identified the following five peer interaction patterns from the data they collected.

- 1) Centralized knowledge exchange:** One student plays the role of knowledge provider, serving as the major source of answers to questions.
- 2) Distributive knowledge exchange:** There is no single source of knowledge, and group members discuss what they know to reach a consensus.
- 3) Group development impediment:** There are many discussions. However, the discussions tend to focus on group development, and there is often no consensus.
- 4) Ability impediment:** The knowledge of all group members is limited, making it difficult for them to make meaningful progress in their discussions.
- 5) Partial knowledge exchange:** Not all group members participate in the discussions. However, those who do participate in the discussions are not necessarily considered “sources of answers.”

Conceptualizing is a group or individual creativity [7] technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its member(s).For students to join in group discussions without worrying about interpersonal relationships and peer pressure, a system has been developed for brainstorming on the Web. The students do not know the identities of their colleagues. This system operates in three phases. The first phase is for self-testing, during which each group member gives his/her answers to all of the questions. The second phase is for group discussion and voting: Each question is reviewed simultaneously by all group members, by displaying all the answers given, and then allowing the members to discuss these answers in an online chat room. Each group member has the opportunity to modify his/her own answer, according to the suggestions and criticism of others, following which an online vote is held to determine the best answer. The third phase is the assessment, wherein each group member assesses the value and contribution of his or her colleagues. These assessments are then used to determine group interaction patterns.

The following Figure.1 represents the system which identifies the interaction patterns for online student's community

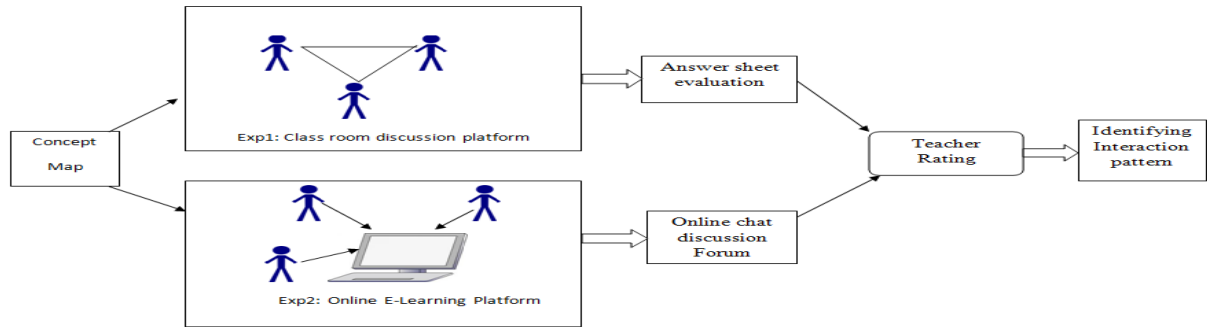


Figure.1 Architecture for identifying interaction pattern

#### IV.IMPLEMENTATION

To determine how collaborative e-learning affects peer interaction and learning achievement, two experiments were carried out during the academic year of 2014. Experiment 1 provided face-to-face conditions for group discussion, while experiment 2 ensured Collaborative E-Learning. Participants in both experiments were using the 5<sup>th</sup> standard science book in tamil which is incorporated in MOODLE. In Experiment 1 and Experiment 2, the 33 students were enrolled to learn the fifth standard science book in Tamil content in both offline and online. Each session consisted of a group discussion and lasted about an hour. The following Figure 2 represents the Science Book content which is incorporated in MOODLE for Collaborative Learning.

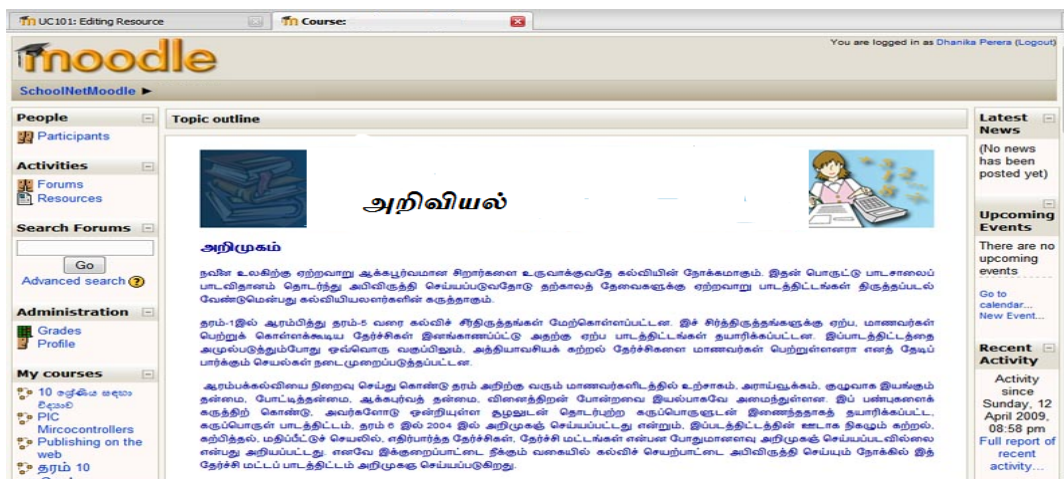


Figure.2 Fifth Standard Science Book incorporated in Moodle

In Experiment 1, group members sat together and discussed their written answers face to face. In Experiment 2, meanwhile, group members were scattered, were required to conduct discussions using the system described in conceptualizing, and were prohibited from revealing their identities during the discussion. At the end we evaluate the experiment 1 and experiment 2, as chat forum content, based on that we can identify the interaction patterns for each student. The following Table.1 depicts a representation of the vote values and the estimation of peers.

| Name     | Question1 | Question 2 | Question3 |
|----------|-----------|------------|-----------|
| Student1 | 3 Votes   | 1 Votes    | 9 Votes   |
| Student2 | 1Votes    | 5 Votes    | 5 Votes   |
| Student3 | 4 Votes   | 11Votes    | 11 Votes  |
| Student4 | 4 Votes   | 6Votes     | 4 Votes   |

Table. 1- Voting of Students

**Calculation of Centralized Knowledge Exchange = Max vote (Q1+Q2+Q3)**  

$$=(4+11+11)/3 = 26/3 = 8.6667$$

**Hence student3 is having centralized knowledge Exchange among all three students.**

### V.PERFORMANCE EVALUATION

A Collaborative Learning Environment, being conducive for all members to utilise the resources optimally, shows better performance. Moodle further enhances the performance of Collaborative Learning by facilitating the members involved with an effective means to share the same set of approaches and experiences in learning. Thus, it is very clear that collaborative learning using MOODLE improves the performance of learners which is represented using Figure 3. Further, identifying interaction patterns among students using chat conversation provides a high possibility for members to share each others' approaches and hence, experiences, it scores more in terms of the Higher Order Thinking involved. Correlation of knowledge gained and application of it is more prominent in case of Collaborative Learning using MOODLE by analyzing and identifying their interaction patterns.

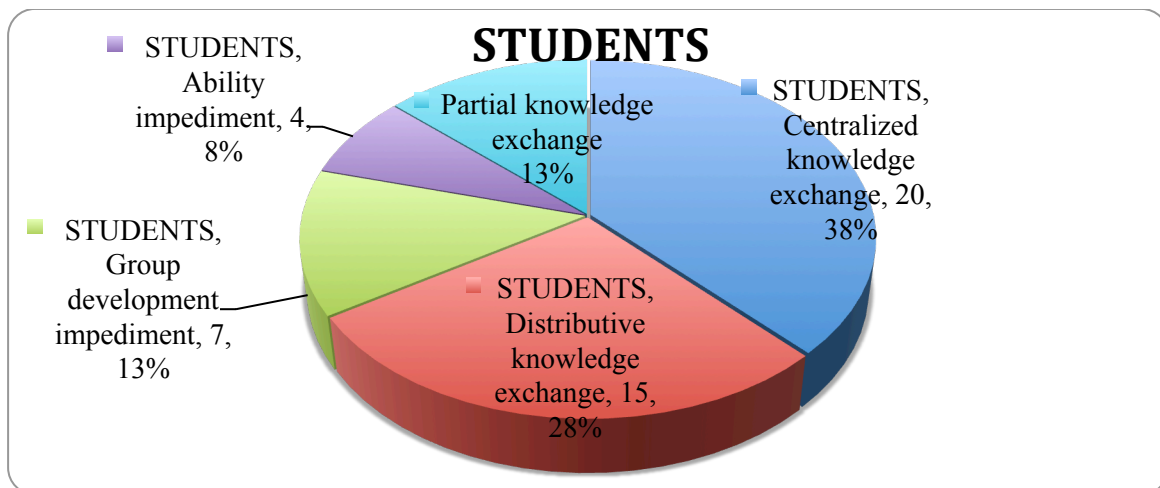


Figure 3: Anonymous Peer interaction percentage based on Collaborative E Learning

### VI. CONCLUSION & FUTURE WORK

In this paper, we have identified various interaction patterns which enables the students to learn and improve their learning. By using a system that helps group members conceal their identities, students are less affected by interpersonal relationships and peer pressure and are therefore more willing to participate fully in discussions, learning more from the process as a

result. One of the goals of collaborative learning is to facilitate frank and productive group discussions. Anonymous group discussion may be closer to this ideal than group discussions conducted in face-to-face conditions.

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