International Journal of Psychosocial Rehabilitation, Vol. 25, Issue 02, 2021
ISSN: 1475-7192

Enhancement of Learning through Collaborative Learning Techniques

Dr. Ram Mehar*

* Professor, Department of Education, USOL Panjab University, Chandigarh

Prabhjit Kaur**

**Research Scholar, Department of Education, Panjab University, Chandigarh

Abstract

The present paper examines the role of collaborative learning techniques in enhancing the learning of students .Collaborative learning is the educational approach of using groups to enhance learning through working together. The two groups or more learners work together to solve problems, complete tasks, or learn new concepts. This approach actively engages learners to process and synthesize information and concepts, rather than using rote memorization of facts and figures. In the paper types of collaborative learning have also been discussed. Various studies supported engagement of collaborative learning in improving learning has also given. The result of experiment conducted has shown that the collaborative learning significantly enhances the learning in of students and students prefer to work in groups to learn effectively.

Keywords: Collaboration, Collaborative Learning Techniques, Group Assessment.

Introduction

Collaborative learning is that the educational approach of using groups to reinforce learning through working together. The two groups or more learners work together to solve problems, complete tasks, or learn new concepts. This approach actively engages learners to process and synthesize information and concepts, rather than using rote memorization of facts and figures. Learners work with one another on projects, where they need to collaborate as a gaggle to know the concepts being presented to them. Through defending their positions, reframing ideas, taking note of other viewpoints and articulating their points, learners will gain a more complete understanding as a gaggle than they might as individuals.

Education is the pillar of our society. From the ancient times till today's period various changes have been take place in sphere of education. The method of teaching and learning, mode of instructions, availability of reading material, everything has been changed. Collaborative learning strategy is one of those changes in today's education system. Unlike traditional method, by using collaborative learning strategy the students use to learn in peer group which in many ways help them to learn better. Collaborative learning strategy has positive effect on achievement of students in any subject. Collaborative learning strategies in modern teaching helps the students to learn effectively in group which in turn inculcate among them various values like cooperativeness, tolerance, honesty, brotherhood etc. In general, collaborative learning strategy is advanced form of learning.

Learning is that the process of acquiring new or modifying existing knowledge, behaviors, skills, values, or preferences. Evidence that learning has occurred could also be seen in changes in behavior from

simple to complex, from moving a finger to skill in synthesizing information or a change in attitude (Gross, 2010).

In the modern times, the technological developments have given some new meanings to learning. Various changes have taken place. Collaborative learning is one of those changes. Collaborative learning is rooted in Vygotsky's (1997) concept of learning called zone of proximal development. Typically there are tasks that learners can and can't accomplish. Between these two areas is that the zone of proximal development, which may be a category of things that a learner can learn but with the assistance of guidance. The zone of proximal development gives guidance on what set of skills a learner has that are within the process of maturation. In Vygotsky's definition of zone of proximal development, he has given due importance to learning through interactions with others instead of independent work. This has made way for the ideas of group learning, one among which being collaborative learning.

Collaborative learning is extremely important in achieving critical thinking. According to Gokhale (1995), individuals are ready to achieve higher levels of learning and retain more information once they add a gaggle instead of individually, this is applicable to both the facilitators of knowledge, the instructors, and the receivers of knowledge, the students.

Lai (2011) that collaboration is the "mutual engagement of participants in coordinated efforts to solve a problem together." Collaborative interactions are characterized by shared goals, symmetry of structure, and a high degree of negotiation, interactivity, and interdependence. Non-responsive feedback, on the other hand, can be detrimental to student learning in collaborative situations. Collaboration can have intense effects on learning, particularly for slow-learners. However, kind of things may moderate the impact of collaboration on student learning, including student characteristics, group composition, and task characteristics. However, because many researchers appear to believe children are often taught to collaborate, they urge educators to supply explicit instruction that encourages development of skills like coordination, communication, conflict resolution, decision-making, problem-solving, and negotiation. Such training should also emphasize desirable qualities of interaction, like providing elaborated explanations, asking direct and specific questions, and responding appropriately to the requests of others. Teachers should structure tasks in ways that in which will support the goals of collaboration, specify "ground rules" for interaction, and regulate such interactions.

According to Dillenbourg (1999) collaborative learning is broadly defined as, "a situation during which two or more people learn or plan to learn something together", and more specifically as joint problem solving. He notes that nothing is inherently instructive about working with more than one person on a task; rather, interaction triggers the learning processes. Collaborative learning situations require instructions, a physical setting, and other forms of performance constraints. These elements don't guarantee collaboration; they only make it more likely.

Roschelle and Teasley (1995) define collaboration more specifically as "mutual engagement of participants in a coordinated effort to solve a problem together". Dillenbourg (1999) found the difficulty of agreeing on a definition of collaborative learning, even among experts. Ambiguity within the meaning of

collaborative learning stems from several sources. First, the size of such interactions may range from two people to thousands, with different theoretical tools needed to research interactions occurring at differentlevels.

Van-Boxtel, Vander-Linden and Kanselaar (2000) explain that collaborative learning activities allow students to elaborate and reorganize their knowledge. Social interaction stimulates elaboration of conceptual knowledge as group mates plan to make themselves understood, and research demonstrates that providing elaborated explanations improves student comprehension of concepts. Once conceptual understandings are made visible through communication, students can negotiate aiming to reach convergence, or shared understanding.

According to Gilles (2000), collaborative learning strategy has been used successfully as a classroom strategy to promote learning and achievements in different curriculum areas, such as, mathematics, science, and writing. In affective domains, collaborative learning strategy has fostered social skills, self-esteem, positive attitudes, motivation, and social acceptance.

In teaching and learning process, collaborative learning may be a technique, teachers use to group students to impact learning during a positive way. Proponents of collaborative learning believe that it help students in some ways .When we are working together increases learning outcomes of the performance. Collaborative learning can occur between just two students or within a bigger group, and it can take a spread of forms. Collaborative learning transfers the responsibility of learning to the learner, within the role of "researcher" and self-directed learner. In order to figure towards a collaborative learning approach, the teacher must fully understand their students' preferred learning styles and their own notions of learning. This could preferably help the teacher decide where and how to start a project, which could also help the teacher to motivate the students of all kinds such as:

(i) Collaborative learning focuses on active participation, like moving around, drawing, creating, and performing.

(ii) All learning should be student-focused, not content-focused. This means that when planning for instruction, an educator should consider how her/his students learn and what methods are often wont to enhance their learning.

(iii) Learners sometimes learn more easily and readily from a peer or a group of peers. Creating opportunities for this dynamics during a classroom adds to traditional teacher-led instruction.

(iv) Students need to be offered chances to solve problems. Working with other students to seek out solutions to problems, sort of a word problem in math or a long-term collaborative group project, gives children an opportunity to unravel problems in tandem or with other group members. This gives them positive skills in appropriate social interaction, like cooperation, listening to others, formulating opinions, and compromise (Babu, Suresh & Pariventhan, 2017).

Collaborative learning is aimed toward getting the scholars to require almost full responsibility for working together, building knowledge together, changing and evolving together and in fact, improving together. It is an academic approach to teaching and learning that involves groups of scholars working

together to unravel a drag, complete a task, or to make a product. According to Gerlach, "Collaborative learning is predicated on the thought that learning is actually a social act during which the participants talk among themselves (Gerlach, 1994). It is through the talk that learning occurs."

Review of Related Literature

Lou and Kim-MacGregor (2004) revealed that group strategies were perceived favorably by the students and had a positive impact on the collaborative learning skills, the knowledge revealed through their online dialogue, and therefore the project performance of all students, especially the less effective groups. The results provide some insights into the computer-supported collaborative learning process among students during a education context.

Kesterand and Paas (2005) conducted a study to foster learning in computer supported collaborative learning environments by designing instructional interventions that enhance collaboration between learners.

Lauron (2008) studied that collaboration can be effectively used to improve the quality and quantity of education in online learning environments. There are numerous tools and methods which will be wont to facilitate and stimulate collaboration in online education.

Wichadee (2013) compared summary writing abilities of students learning by wiki-based collaboration and students learning by face-to-face collaboration.The results indicate that the post-test many both groups were significantly above the pre-test scores and tons of benefits were identified, showing students' positive attitudes towards learning through wiki.

Ishtaiwa and Aburezeq (2015) revealed that that Google Docs is a valuable application to promote student–student and student–instructor interactions. In addition, it had been found that Google Docs has the facility to enhance student–content and student–interface interactions through the resources and features offered by the appliance

Vlahopol (2016) conducted a study which offers a possible approach of collaborative learning within the course of study Musical Analysis, pleading for the necessity of the social component development of the learning activities of the instrumental performer student, through his involvement within a group.

Babu, Suresh and Pariventhan(2017) examined that the mutual learning gives learners a chance to take part in discourse, assume liability for their own particular learning, and thus they become critical thinkers.

Vicente, Tan and Yu (2018) conducted a study aimed at enhancing students' learning of software engineering methods. A collaborative approach implemented through projects has been the established pedagogy for introducing the Software Engineering course to undergraduate computing students. The study explored an enhancement to the collaborative approach to project development.

Gratton (2019) conducted a study on student’s experience about collaborative learning and identify the range of benefits of collaborative learning like effective self-directed and autonomous learning, interdependence, enhanced verbal communication skills and social-cohesion.

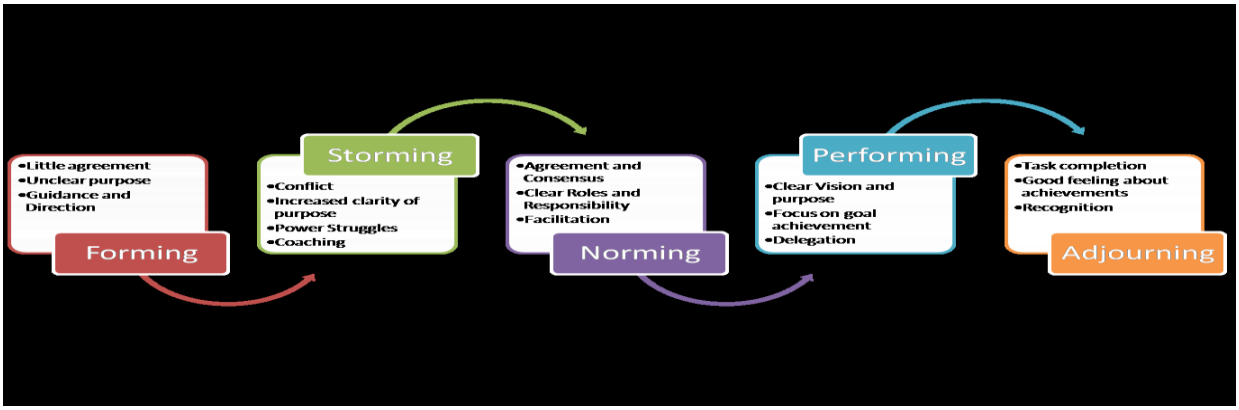
Sobko, Unadkat, Adams and Hull (2020) in their study explore networked collaborative learning in the context of an online undergraduate education course. They concluded that collaborative learning enhances learning and knowledge construction.

Types of Collaborative Learning

- Formal Collaborative learning is structured, facilitated, and monitored by the educator over time and is employed to realize group goals in task work. Any course material or assignment can be adapted to this type of learning, and groups can vary from 2-6 people with discussions lasting from a few minutes to hours. Types of formal collaborative learning strategies include jigsaw, assignments that involve group problem solving, laboratory or experiment assignments, and referee work (e.g. editing and writing assignments).
- Informal Collaborative learning incorporates group learning by drawing attention to material through small groups throughout the lesson or by discussion at the top of a lesson, and typically involves pairs. This type of learning enables the scholar to process, consolidate, and retain more information learned.
- Group-based Collaborative learning is effective for learning complex material over the course or semester and produce supportive peer relationships, which motivates and strengthens the student's commitment. Base group approaches also make the students accountable to educating their peer group in the event that a member is absent for a lesson. This is effective both for individual learning as well as for social support (Babu, Suresh &Pariventhan, 2017).

Techniques of Collaborative Learning

As Collaboration is one of the most important components of learning experiences, yet to be implementing suitable learning technique, that allow interactivity and collaboration depends greatly on the nature and content of the course. Creating a collaborative learning environment is an important factor especially that within this discipline information and communication technologies can facilitate the collaborative and active learning process for students by giving them additional tools to support the work. Psychologist Tuckman (1965) first came up with "forming, storming, norming and performing" back in 1965 to explain the trail that the majority teams follow:



(Tuckman's Model)

There are various techniques of collaboration that one can use in classroom to enhance the learning of students:

- **Think/Write, Pair, Share**: The think/write, pair, share strategy is a collaborative learning technique that encourages individual participation and is applicable across all grade levels and class sizes. Students think through questions using three distinct steps:

(i) *Think/Write:* Students think independently about a question/topic that has been posed, forming ideas of their own and write them down.

(ii) *Pair:* Students are grouped in pairs to debate their thoughts. This step allows students to articulate their ideas and to think about those of others.

(iii) *Share:* Student pairs share their ideas with a bigger group, like the entire class. Often, students are easier presenting ideas to a gaggle with the support of a partner. In addition, students' ideas became more refined through this three-step process.

- **Round Table:** Round Table may be a collaborative learning technique that permits students to assess prior knowledge, recall information and practice communication skills. The steps are:

(i) *Write:* Each student writes one (or two or 3) sentences a few given topic (or this might be a solution to a question) on a bit of paper.

(ii) *Share*: The paper is passed around to at least one group member at a time. Each group member responds in writing.

(iii) *Summarize:* When the first is returned, the scholar reads the comments from the group and shares what the collective sense of what was said within the group about the topic (or question).

- **Jigsaw:** Jigsaw is collaborative learning technique that gives students opportunity to practice and presentation of latest material. Interdependence and status equalization are developed. The method is:

(i) Every student in the team becomes an “expert” on one topic

(ii) “Experts” group with members from other teams assigned the topic.

(iii) After returning to their teams, each one, in turn, teaches the group.

(iv) Students are all assessed on all aspects of the topic.

- **Concept Mapping:** Concept mapping is also be a collaborative learning technique that allows students working in groups how of illustrating the connections that exist between terms or concepts covered in course material. The method is:

(i) Students write terms from the course on an outsized piece of paper

(ii) Lines are drawn connecting individual terms to point the relationships between terms. Most of the terms during a concept map have multiple connections.

(iii) Developing an idea map requires the scholars to spot and organize information and to determine meaningful relationships between the pieces of data.

- **Buzz Groups:** it's a collaborative learning technique during which students discuss course-related questions informally in small groups of peers. It is particularly useful for generating lots of ideas quickly to prepare for and improve whole class discussions (Tuckman, 1965).

Collaborative Learning in Classroom

As pedagogical instrument, the collaborative learning aims to place the learning responsibility upon the student, the teacher waiving the status of absolute knowledge holder and providing an accessible, easy to uptake knowledge. "Cooperative learning" is one of the main learning patterns (self-directed learning, cooperative learning and inquisitive learning), recommended by the reforms in the European educational systems, especially the English system (Yang 2004). Collaborative learning represents a learning/teaching technique and, at an equivalent time, a philosophy intensively discussed within the educational literature generally, also as in various disciplinary branches, in particular.

True collaboration is achieved when students are working in groups to achieve a common goal. The learning environment plays a key role in encouraging students to figure collaboratively, this includes the physical set-up of a classroom also because the learning aids available to students and teachers e.g. access to technology. Technology facilitates collaborative learning; students can use education technology like interactive displays to unravel problems together. In order for a classroom to be functioning collaboratively, schools got to evaluate the training environment during which the teachers and students work. The space, technology and pedagogy got to be working in-sync to realize true collaboration. This is a replacement approach to education technology that empowers teachers and students to rework how knowledge is made and shared, and extends learning beyond traditional classroom boundaries.

In order to conduct the experiment to see the enhancement in learning through collaborative learning approach, think-pair-share technique was adopted. The students were introduced to a gamut of topics. They were put into groups of five according to their roll numbers. They were asked to choose any number from 1-40 and based on the number they were assigned a topic i.e. India as mixed economy, Green revolution, Forms of Market, Law of Demand and Supply.

The groups were given 7 days to prepare for the topics. In this given time the each member of group must contribute to the work and they should know whether the content is prepared. Choice is given to students that they can present the material in any way. This will give the chance to show their creativity. They will search for new material and new sources of information. They can develop the power of logical and critical thinking. After 10 days, in the classroom, the groups were asked to present their material. They were also told to learn the difficult words in their presentations. Marks were given on the basis of content selection, mastery over the content, presentation, confidence of students, etc. In doing this activity students were showing great interest and enthusiasm to participate. In addition it may have following advantages:

- This can enhance the confidence level of the students.
- Collaboration inculcates the values like tolerance and cooperativeness amongst the students.
- When students use to do their work in groups, they develop we feeling for each other.
- It fosters mentoring in students of better caliber for the weaker students.
- It helps in learning them new words.
- It broadens their mental horizon and enhances their knowledge.
- It will lead to clarification of concepts.

In the collaborative learning environment, the teacher act as a guide who uses to guide the students at each and every step. It can also be useful for students to work together somewhat independently, relying on a teacher's guidance only indirectly. Working with peers may be a major feature of collaborative learning. In this approach, students work on a task in groups and sometimes are rewarded either partially or completely for the success of the group as an entire. Aspects of collaborative learning have been part of education for a longtime.

Research Supporting Collaborative Learning

Research on collaborative learning gives positive results. This type of learning requires students to interact in group activities that increase learning and adds other important dimensions. Students use to do work in groups as a team which enhances their learning. They can discuss with each other and learn from each other. It will lead to better understanding.

Ratcliffe, Holloway and Ellis (2004) concluded that collaboration lead to improve the learning of students. Roberts, Thomas, McFadden and Jacobs (2006) concluded that online learning improves collaboration. Tsay and Brady (2010) examined that students who participated in group activities, adopted collaborative behaviors, provided constructive feedback and cooperated with their group Su, Yang, Hwang and Zhang (2010) supported positive contribution of collaborative learning towards the learning of students. Students prefer to learn in groups. Rojas-Drummond, Mazón, Littleton and Vélez (2014) concluded that primary school students develop reading comprehension through collaboration. López-Yáñez, Yáñez-Márquez, Camacho-Nieto, Aldape-Pérez and Argüelles-Cruz (2015) shown that teaching learning process through collaborative learning can be enhanced at post graduate level. Babu, Suresh and Pariventhan (2017) supported that collaborative learning techniques helps in improving learning among students.

Collaborative learning has many limitations that would cause the method to be more complicated than first perceived. Some students do not feel comfortable participating in a group setting, even at a distance (i.e. shyness, fear of criticism). This awkwardness may keep some students from benefiting from the instruction. Since collaborative learning generally grants the scholars more control over the flow of data, there's the likelihood that the main target of the instruction may vary from its intended course. As with any group activity, some members may contribute while others don't. At a distance this might pose even a greater problem than if all students were within the same room. Gifted students feel exploited when collaborative learning is employed as a predominate method of instruction. However, teachers must bear in mind that efficacy of this method lies in defining and confining the group size to variety not exceeding 25 counting on the task assigned. The ultimate desire is to succeed in our goal of enabling our students to obtain good results.

Conclusions

Collaborative learning is very important in achieving critical thinking, creativity and higher order mental ability. Students are able to achieve higher levels of learning and retain more information when they work in a group rather

than individually, this applies to both the facilitators of knowledge, the instructors, and the receivers of knowledge, the students. Collaborative learning has been found to increase attendance, time on task, enjoyment of school and classes, motivation and independence. Students and teachers prefer to use this technique in the ordinary classroom setup. This strategy may inculcate various values amongst students which include cooperativeness, tolerance, we-feeling, patience etc. So, this technique may be used as an improvement over traditional teaching in the modern classroom. Furthermore, students not only need time to reflect upon challenges put before them, but they need time to discuss their ideas with other students in their classes. When this collaborative process begins in the classroom, it continues outside of class and becomes a valuable life-long skill. It is through such collaboration with peers that all students test their new understandings and correct their misinterpretations. As knowledge is gained, it is molded with the preexisting insights held by the student. This is how knowledge grows in their minds. Hence, fr4om above discussion it may be concluded that besides some limitations collaborative learning is an effective strategy to intensify the learning of students.

Recommendations

Collaborative learning is the innovative technique of learning in this era of technology. Students use to learn new things in groups. It is a improvement over the traditional mode of teaching. Research also supports this technique of learning. On the basis of above discussion following recommendations can be made:

- This technique is more feasible for students and teachers to use in ordinary classroom setup.
- It can be used at secondary and senior secondary level
- This technique is very much effective in higher level courses i.e. graduate and post graduate courses.
- Groups should be comprised of bright average and slow learners so that slow learners can also learn in groups with bright and average students.

References

Babu, G., Suresh, P.,& Pariventhan, K. (2017).Enhancement of learning through collaborative learning techniques. *New Man Journal of Multidisciplinary Studies*, *4*(1), 29-38.

Dillenbourg, P. (1999). What do you mean by ‘collaborative learning? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp.1–19). Oxford: Elsevier.

Gerlach, J. M. (1994). Is this collaboration? In K. Bosworth,& S. J. Hamilton (Eds.), *Collaborative learning: Underlying processes and effective techniques, new directions for teaching and learning* (pp.5-14). San Francisco, USA: Jossey-Bass Publishing.

Gilles, R.M. (2000).The maintenance of cooperative and helping behaviors in cooperative groups. *British Journal of Educational Psychology*, *70*(1), 97-111.

Gokhale, A.A. (1995). Collaborative learning enhances critical thinking. *Journal of Technology Education*, *7*(1), 22-30.

Gratton, R. (2019). Collaboration in students' learning: The student experience. *Support for Learning, 34*(3), 254-276.

Gross, R. (2010). *Psychology: The science of mind and behavior* (6th Ed.). London: Taylor & Francis.

Ishtaiwa, F. F.,& Aburezeq, I. M. (2015). The impact of Google Docs on student collaboration: A UAE case study. *Learning, Culture and Social Interaction*, *7*, 85-96.

Kester, L.,& Paas, F. (2005). Instructional interventions to enhance collaboration in powerful learning environments. *Computers in Human Behavior*, *21*(4), 689-696.

Lai,E.R. (2011).*Collaboration: A literature review.* Retrieved June 1st, 2020 fromhttp://www.pearsonassessments.com/research

Lauron, A. G. (2008). Fostering collaboration to enhance online instruction. *Turkish Online Journal of Distance Education*, *9*(2), 109-121.

Lopez-Yariez, I., Yariez-Márquez, C., Camacho-Nieto, O., Aldape-Perez, M., & Argüelles-Cruz, A. J. (2015).Collaborative learning in postgraduate level courses. *Computers in Human Behavior*, *51*, 938-944.

Lou, Y., & Kim-MacGregor, S. (2004). Enhancing project-based learning through online between-group collaboration. *Educational Research and Evaluation*, *10*(4-6), 419-440.

Ratcliffe, M., Holloway, J.,& Ellis, W. (2004).Enhancing student learning through collaboration. *ACM Special Interest Group on Computer Science Education, 36*(3), 272-272.

Roberts, C., Thomas, M., McFadden, A. T.,& Jacobs, J. (2006).Leading online learning through collaboration. *Journal of Online Learning and Teaching*, *2*(3), 217-225.

Rojas-Drummond, S., Mazón, N., Littleton, K.,&Vélez, M. (2014).Developing reading comprehension through collaborative learning. *Journal of Research in Reading*, *37*(2), 138-158.

Roschelle, J., &Teasley, S. D.(1995).The construction of shared knowledge in collaborative problemsolving. In C.E. O'Malley (Ed.), *Computer supported collaborative learning* (pp. 69–97). Berlin: Springer-Verlag.

Sobko, S., Unadkat, D., Adams, J.,& Hull, G. (2020).Learning through collaboration: A networked approach to online pedagogy. *E-Learning and Digital Media, 17*(1), 36-55.

Su, A. Y., Yang, S. J., Hwang, W. Y.,& Zhang, J. (2010). A Web 2.0 based collaborative annotation system for enhancing knowledge sharing in collaborative learning environments. *Computers & Education*, *55*(2), 752-766.

Tsay, M., & Brady, M. (2010). A case study of cooperative learning and communication pedagogy: Does working in teams make a difference? *Journal of the Scholarship of Teaching and Learning, 10*(2), 78-89.

Tuckman, B. (1965). *Collaborative learning techniques*. Retrieved June 5, 2020 from http://www.bates.edu

Van- Boxtel, C., Vander- Linden, J.,& Kanselaar, G. (2000).Collaborative learning tasks and the elaboration of conceptual knowledge. *Learning and Instruction, 10*(4), 311–330.

Vicente, A., Tan, T., & Yu, A. (2018). Collaborative approach in software engineering education: An interdisciplinary case. *Journal of Information Technology Education: Innovations in Practice*, *17*(1), 127-152.

Vlahopol, G.(2016).Collaborative learning: A possible approach of learning in the discipline of study musical analysis. *Review of Artistic Education, 11*(1), 99-108.

Vygotsky, L. (1997). Interaction between learning and development. In. M. Gauvain, & G. M. Cole (Eds.), *Readings on the development of children* (pp-29-36). New York: W.H. Freeman and Company

Wichadee, S. (2013).Improving students' summary writing ability through collaboration: A comparison between online wiki group and conventional face-to-face group. *Turkish Online Journal of Educational Technology, 12*(3), 107-116.

Yang, Y. (2008).*The relationship between cooperative learning and second language acquisition.* Unpublished Master of Science in Education Dissertation, Platteville: University of Wisconsin-Platteville. Retrieved June 9, 2020 from https://minds.wisconsin.edu/bitstream/handle/1793/34690/YangYang.pdf?sequence=5