Comparative Study of Effectiveness of Fishbowl Strategy in Synchronous and Asynchronous Mode of Online Learning

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Abstract

Educators have used Online Learning modes extensively to stimulate and nurture the process of learning. However, Online Learning sometimes may lead to one-way lecturing. This can leave the online learners experiencing loneliness, low self-motivation, lack of interest, etc. Educators need to create opportunities for learners to interact with their fellow learners. This generates the need to explore different pedagogical approaches which keep them engaged in the learning process. Cooperative Learning (CL) offers a solution. CL has been proved to impart academic, psychological, and social benefits to learners when implemented. However, more focussed studies should be conducted to understand its effectiveness in the online environment, particularly in India.

This paper revolves around a study aiming at finding effectiveness of Fishbowl Strategy in Online learning. It is a discussion oriented, unique strategy with the potential of imparting rich learning experience to the learners. Here it is essential to remember that both synchronous and asynchronous modes of online learning offer different ways for interacting with peers. Thus, it is essential to study if both the modes can support the strategy and help learners to get maximum benefit from it. In order to study this aspect, 'Two Experimental Groups Pretest-Posttest design' was used. The study was conducted on higher education teachers across the country. Learners were expected to participate in the discussion willingly hence the purposive sampling technique was used. WizIQ Virtual classroom and Google Groups were used as Synchronous and Asynchronous platforms respectively. Statistical analysis of the achievement test scores indicated effectiveness of strategy in both the modes equally. Thus, this paper will give insight to readers regarding planning CL activity using online learning platforms for better learning experience. Also, it will give some perspective regarding utilizing both Synchronous and Asynchronous modes of Online Learning with equal ease.

Keywords: Cooperative Learning Strategies, Synchronous Online Learning, Asynchronous Online Learning, Fishbowl Strategy

Introduction

Today's educational approach has become more learner-centred and technology driven. Also, the diverse nature of today's classroom has increased demands on the teachers. It emphasizes on use of a variety of teaching methodologies favouring active participation of learners by means of online learning tools. To face these challenges teachers need to equip themselves with different educational approaches.

Considering these aspects, one cannot ignore the blooming field of 'Online Learning'. It is one of the fastest growing trends in the 21st century. It is the new face of teaching-learning. Online learning offers flexibility to the learners in terms of course selection, time, nature of the course, resources available, etc.

Online Learning

Online learning can be grouped broadly into two categories: Synchronous (Sync) and Asynchronous (Async) Learning. During Synchronous learning, learning experiences are delivered in real time, whereas asynchronous learning happens without real-time interaction. A more effective synergy of synchronous and asynchronous interaction is required for enhancing quality of learning experiences.

Both the modes have their own benefits and limitations. Many hybrid learning models include a blend of asynchronous as well as synchronous online learning. However, models which use a strictly synchronous or asynchronous learning approach have some distinctly different features (Best_Schools, 2020).

Synchronous online learning offers benefits like active discussion, immediate feedback, and a personal familiarity that one can only get through real-time interaction. It also provides more dynamic exploration of topics, ideas, and concepts (Lawless et al, 2020). Video conferencing tools like Zoom, GMeet, Skype, WizIQ, Chatrooms can come handy to deliver enriching learning experiences (Trach, 2018).

On other hand, some of the methods of asynchronous online learning include self-guided lesson modules, streaming video content, virtual libraries, posted lecture notes, and exchanges across discussion boards or social media platforms. Thus, it is completely based on the learner's understanding.

The major limitation of this mode is lack of personal touch resulting into lonely experience (Lawless et al, 2020). Asynchronous platforms include email, Google groups, discussion forums, social media groups, collaborative documents in the cloud, etc. (Trach, 2018).

The quality and integrity of the educational process in distance learning largely depends upon sustained, two-way communication (Kung-Ming, 2005). Thus, it is very essential to provide more opportunities to learners to connect with each other to exchange ideas and to construct knowledge. Cooperative learning is the good solution to bring elements of organised interactivity in Online Learning.

Cooperative Learning

Cooperative Learning consists of two words; "Cooperation" and "Learning". So, collectively it focuses on working together to achieve desired goals.

Cooperative Learning is process driven, i.e., those involved engage in a social process and must pay attention to that process for them to achieve their desired end point. It usually involves people working in groups (at least two people are involved, usually more). There may be "group products" towards which learners are working and there may be "individual products" which are achieved through the people in the group helping each other deal with their own individual learning concerns (Agarwal and Nagar, 2011, p.19).
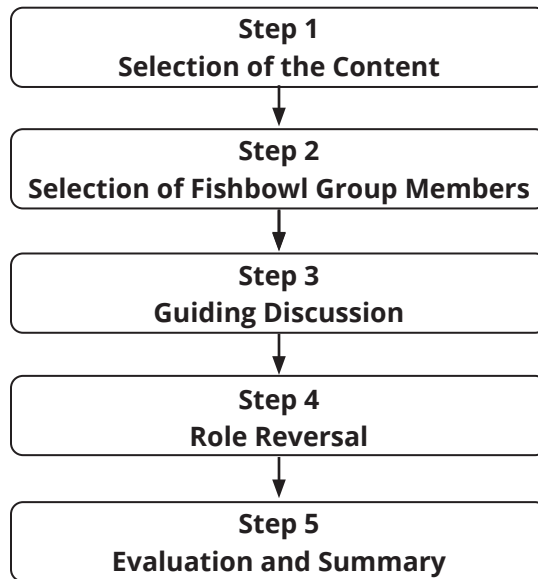
Cooperative Learning allows learners to negotiate, plan, investigate, evaluate their learning outcome together. Rather than working individually and in competition with each other, learners are given the responsibility of creating a learning community where all learners participate in significant and meaningful ways.

Fishbowl Strategy

During Fishbowl, the facilitator chooses a group of learners to discuss a given topic. The rest of the class watches, listens, and observes the discussion. A secondary discussion occurs concerning the outcomes and process of the first.

Steps of the Fishbowl strategy are depicted in Figure-1 (Yabarmase, 2013, Fishbowl, n.d.).

Figure-1: Steps of the Fishbowl strategy

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┌─────────────────────────────────────┐
│              Step 1                  │
│       Selection of the Content       │
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┌─────────────────────────────────────┐
│              Step 2                  │
│  Selection of Fishbowl Group Members │
└─────────────────────────────────────┘
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┌─────────────────────────────────────┐
│              Step 3                  │
│          Guiding Discussion          │
└─────────────────────────────────────┘
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┌─────────────────────────────────────┐
│              Step 4                  │
│            Role Reversal             │
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│              Step 5                  │
│       Evaluation and Summary         │
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Cooperative Learning in Online Environment

Cooperative learning strategies lend themselves easily to the online learning environment. They are found to impart a variety of benefits when implemented in online learning. These strategies are known to enhance language proficiency, intrinsic motivation of students (Yoshida, 2014), social interaction (Duckworty, 2010), Communication skills (Soh, 2011) and academic achievement when implemented using discussion forums (Kupczynski, 2012). They are more suited to Web 2.0 applications. The prerequisite for incorporating CLS in online learning is 'technical and interpersonal skills' of the learners (Stape, 2009).

Over the period various CLS are tested for their effectiveness. Strategies such as Jigsaw strategy (Yashavantrao, 2010; Lin, 2010), team – pair – solo strategy (Nair, 2010) and Students Teams – Achievement Division (STAD) strategy (Adesoji, 2009) are studied to test its effectiveness in the online environment. In one study, fishbowl strategy was used in online learning to understand roles played in the courtroom by law students. In the process, learners observed role played by their group members in online set-up and shared their opinion (Douglas, 2010). In another study, researcher used Webdialogos tool to conduct online Fishbowl discussion in collaborative environment (John Peter, 2018). In a comparative study (Miller, 2008) effectiveness of online thread discussion and fishbowl discussion was studied. Both the approaches were equally appreciated by learners in collaborative environment.

Thus, the researcher felt the need to have focused and strategy-oriented studies using various online learning tools. Also, she felt the need to find effectiveness of these CLS in both the modes of online learning. As technology is evolving every day, new ICT tools are introduced at an alarming rate. Thus, the researcher sensed the need to explore various tools and see which tools will be best suited to implement interesting CLS.

Objectives

The objectives of the study are as follows:

1. To test effectiveness of Fishbowl strategy in Synchronous mode of Online Learning in terms of Academic Achievement

2. To test effectiveness of Fishbowl strategy in Asynchronous mode of Online Learning in terms of Academic Achievement

3. To compare effectiveness of Fishbowl strategy in Synchronous vs. Asynchronous mode of Online Learning in terms of Academic Achievement

Methodology

It was decided to use the Experimental Method for the said study. The True experimental method was used for the present study and 'Two experimental group Pre-test Post-test Design' was used. Table-1 presents the research design used for the study.

Hypotheses

The following hypotheses were formulated to test the objectives:

1. H_0: There will be no significant difference between pre-test and post-test scores of the participants for Fishbowl Strategy in Synchronous mode of Online Learning

2. H_0: There will be no significant difference between pre-test and post-test scores of the participants for Fishbowl Strategy in Asynchronous mode of Online Learning

3. H_0: There will be no significant difference between post-test scores of the participants for Fishbowl strategy in Synchronous mode and Asynchronous mode of online learning

Table-1: Research design for 'Two experimental group Pretest-Posttest design' Variables

	Pre-test	Treatment	Post-test
Experimental group 1	O_1	XT_1	O_2
Experimental group 2	O_1	XT_2	O_2

The variables of the study were as listed below:

Independent Variables:

1. Fishbowl Strategy in Synchronous Mode of Online Learning

2. Fishbowl Strategy in Asynchronous Mode of Online Learning

Dependant variable:
Academic Achievement

Sample

Higher Education Faculty members across India with at least one year of teaching experience were selected as a sample. It was essential for the participants to take part in the activity willingly and join the discussion actively. Hence, 'Non-Probability-Purposive sampling technique' was used. Initially, eighty participants registered for the program. Seventy-eight participants appeared for the pre-test which was based on the selected content. None of the participants scored 80 percent or more, so all were selected as a sample. By the end of the study, seventy-four participants completed the activity and appeared for post-test. Sample, therefore, comprised 74 participants containing 42 female participants and 32 male participants with their teaching experience in higher education ranging from 1 year to 29 years. Sample was from the nine states of India.

Selection of Content

"Cooperative Learning" was selected as the content for the study which focused on 'Concept of Cooperative Learning'. The details of the module are as listed below:

Topic:

Concept of Cooperative Learning

Sub Topics:

a.   Meaning and Definition of Cooperative Learning

b.   Elements of Cooperative Learning

c.   Cooperative Learning Vs Collaborative Learning

Resource Identification

A variety of online resources were identified for the selected content. These resources were in the form of Videos, Web pages and PDF of information, Case-based learning material, etc.

Selection of CLS

It was decided to select one CLS and implement in both synchronous as well as asynchronous mode of online learning. Many CLSs were studied extensively before finalizing one CLS for this study. After extensive referencing, it was decided to use Fishbowl Strategy for learning the selected content.

Rationale for selecting Fishbowl Strategy

Fishbowl Strategy is most suitable for learning discussion-oriented content. It helps learners to analyse the content, listen and understand opinions of others, rationalize and put-forth their views and opinions.

In addition, Fishbowl allows learners to understand perspectives of their group members and develop empathy and tolerance. It also helps develop much needed social skills like team-work, conflict-resolution, effective communication, respect and active listening.

Thus, the Fishbowl strategy was selected to give a fulfilling learning experience to the learners.

Development of Tools

Parallel achievement tests based on Revised Bloom's Taxonomy were developed. Pre-test and Post-test consisted of objective type questions.

Formation of two experimental groups

The main objective of the pre-test was to form two parallel groups for the study. It was also necessary to eliminate samples already possessing mastery over the content. The pre-test was administered to all registered participants. All participants scored less than 80 percent.

Two parallel groups formed based on criteria mentioned below:

a.   Scores were sorted and Matching of Mean was used for the final formation of groups.

b.   'Institution of affiliation' was another level of sorting. It was essential to avoid the problem of contamination. Thus, care was taken to add participants from one institution in the same group.

Lottery method was used to assign labels 'Group A' and 'Group B' to two experimental groups.

Implementing Fishbowl Strategy in Synchronous and Asynchronous Mode of Online Learning

Two separate courses were created on Moodle LMS. All learning resources and announcements were posted on two individual courses created for two experimental groups. Two separate WhatsApp groups were

created for troubleshooting. No academic deliberations were allowed or encouraged on these WA groups, ensuring use of selected ICT platforms for participating in the activity.

The Group A was treated through asynchronous mode for the selected topic and vice versa. Google Group discussion was used for Group A where activity was conducted in asynchronous mode. WizIQ Virtual classroom platform was used for Group B to discuss in the synchronous mode.

Implementing Fishbowl in Asynchronous mode of online learning

Two Google Groups were formed for conducting the discussion on the topic. Specific Google groups invites were sent to participants for joining the respective group. All the details regarding the activity were posted as a Google Group thread. Group A participants were divided in 2 sub-groups viz. A1 and A2, each having 19 participants. The grouping was done on the basis of Pre-test scores. The scores were sorted initially and then means were matched. Further 8 participants were selected randomly from each sub-group based on their pre-test score. This sub-group was termed as 'Fishbowl group'. Care was taken to maintain balance between high achievers, mid achievers, and low achievers in the group. Thus, the Fishbowl group contained two high achievers, two low achievers and four mid achievers selected randomly by chit method. Details of grouping strategy are shown in Figure-2.

Figure-2: Grouping for 'Asynchronous Fishbowl Strategy'
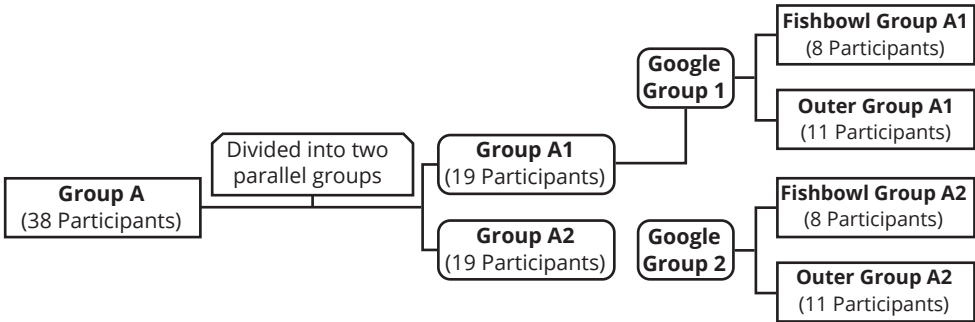
During the first phase of the Fishbowl Strategy, Fishbowl group participants discussed the topic 'Concepts of Cooperative Learning'. Meanwhile, Outer group participants observed the discussion and they were suggested to take notes of points they would like to opine on in the second phase. They did not take active participation in the discussion. Outer group participants had given only viewing rights to ascertain that the discussion would take place amongst Fishbowl Group members only. Three hours were allotted for the first phase. Participants were given the deadline, but were given freedom to login anytime during these hours as per their own convenience. Figure 3 represents discussion threads for Fishbowl activity in Asynchronous Mode.

**Figure-3: Fishbowl Activity in 'Asynchronous Mode' of Online Learning**
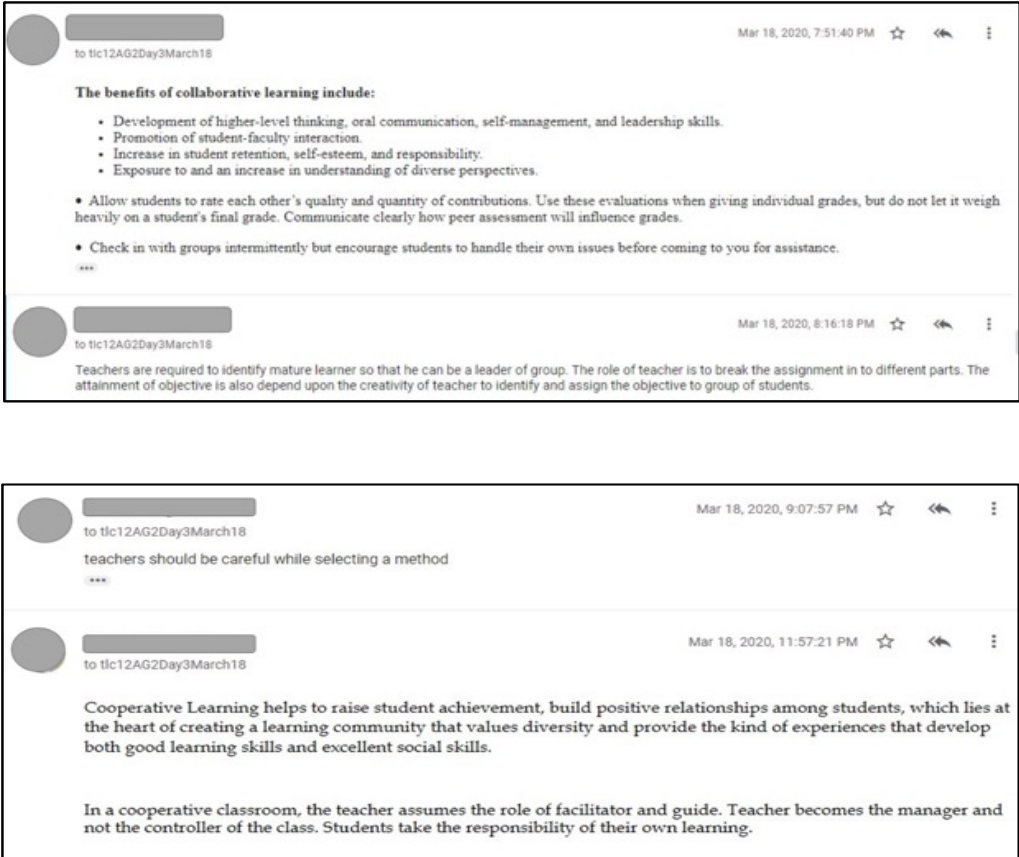
After the time out, phase two began. During Phase two, Outer group members were given editing rights. This enabled them to post their views, opinions, observations, and comments on discussion that happened during phase one between Fishbowl group members. The forum was kept open for the Outer group participants throughout the night. All participants were encouraged to check discussion threads as per their convenience.

Implementing Fishbowl in Synchronous mode of online learning

Fishbowl strategy was implemented in 'Synchronous Mode' of Online Learning for Group B. The synchronous session was implemented using 'WizIQ' Virtual Classroom platform. Two WizIQ sessions were scheduled. Participants of Group B were divided into two sub-groups. Groping is done by following the same procedure described for Asynchronous Fishbowl Strategy.

Details of grouping for the activity are shown in figure-4.

Figure-4: Grouping for 'Synchronous Fishbowl Strategy'
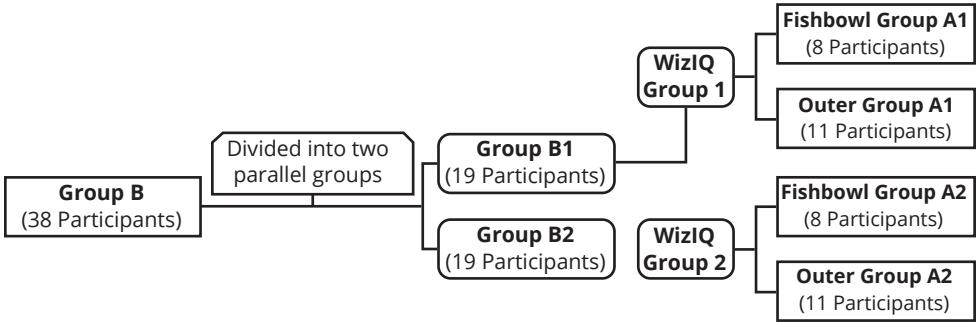
WizIQ Virtual Session link was shared with the respective participants through email. 'Whiteboard' was used to post instructions. During phase one, Fishbowl group participants initiated the discussion while Outer group participants played the role of silent but vigilant observers. 'Chat' feature of WizIQ was used for conducting the discussion. It was observed that the Fishbowl group completed their discussion in about 20 minutes. The outer group participants then started sharing their views, opinions and observations related to the earlier discussion. It was the second phase of the strategy. At the end of the second phase, the session was summed up by randomly selected participants.

Role of facilitator

During Cooperative Learning activity, facilitators let learners take change of their learning process and intervene wherever necessary. During the complete process, the researcher played the role of a facilitator. She encouraged participants to design their own learning and conflict management strategy. She focused on giving constructive feedback to group members if required, to avoid any misinterpretation of the resources or incorrect conceptual understanding.

Results and Discussion

Three objectives were formulated and tested for the purpose of comparing effectiveness of Fishbowl strategy in

Synchronous Vs Asynchronous mode of online learning.

The result and corresponding discussion are given below:

Objective 1:

The objective of the research was 'To test effectiveness of Fishbowl Strategy in Synchronous mode of Online Learning in terms of Academic Achievement'.

The corresponding null hypothesis "There will be no significant difference between pre-test and post-test scores of the participants for Fishbowl Strategy in Synchronous mode of Online Learning" was tested by calculating t-ratio.

Table-2 depicts calculation of t-ratio of Pre-test and Post-test scores for Fishbowl Strategy in Synchronous mode of online learning.

Table-2: Calculation of t-ratio of Pre-test and Post-test scores for Fishbowl Strategy in Synchronous Mode

	Mean	SD	SEM	N	SED	Critical Value	t-Value
Pre-test scores	5.22	1.69	0.28	36	0.293	2.03*	2.1791
Post-test scores	5.86	1.22	0.20	36			

*at 0.05 level of significance

Calculated t-value > Critical value of t at 0.05 level of significance.

Thus, the null hypothesis is rejected.

The two-tailed P value equals 0.0361

By conventional criteria, this difference is statistically significant.

The result of the t-test indicates that there is a significant difference between pre-test and post-test scores of the participants participating in Fishbowl Strategy in synchronous mode of Online Learning in favour of post test scores.

Objective 2:

The objective of the research was 'To test effectiveness of Fishbowl Strategy in Asynchronous mode of Online Learning in terms of Academic Achievement'.

The corresponding null hypothesis "There will be no significant difference between pre-test and post-test scores of the participants for Fishbowl Strategy in Asynchronous mode of Online Learning" was tested by calculating t-ratio.

Table-3 depicts calculation of t-ratio of Pre-test and Post-test scores for Fishbowl Strategy in Asynchronous

mode of online learning

Table-3: Calculation of t-ratio of Pre-test and Post-test scores for Fishbowl Strategy in Asynchronous Mode

	Mean	SD	SEM	N	SED	Critical Value	t-Value
Pre-test scores	5.05	1.58	0.26	38	0.322	2.71*	4.0041
Post-test scores	6.34	1.19	0.19	38			

*at 0.01 level of significance
Calculated t-value > Critical value of t at 0.01 level of significance.

Thus, the null hypothesis is rejected. The two-tailed P value equals 0.0003.

By conventional criteria, this difference is statistically significant.

The result of t-test indicates that there is significant difference between pre-test and post-test scores of the participants participating in Fishbowl Strategy in asynchronous mode of Online Learning in favour of post test scores.

Objective 3:

online learning.

The third objective of the research was 'To compare effectiveness of Fishbowl strategy in Synchronous vs. Asynchronous mode of Online Learning in terms of Academic Achievement'.

The corresponding null hypothesis "There will be no significant difference between post-test scores of the participants for Fishbowl strategy in Synchronous mode and Asynchronous mode of online learning" was tested by calculating t-ratio.

Table-4 depicts calculation of t-ratio of Post-test scores for Fishbowl Strategy in Synchronous Vs Asynchronous mode of

Table-4: Calculation of t-ratio of Post-test scores for Fishbowl Strategy

	Mean	SD	SEM	SED	N	Critical Value	t-Value
Fishbowl Sync Mode	6.34	1.19	0.19	0.281	36	2.000*	1.7137
Fishbowl Async Mode	5.86	1.22	0.20		38		

*at 0.05 level of significance
Calculated t-value < Critical value of t at 0.05 level of significance.

Thus, the null hypothesis is retained.

The two-tailed P value equals 0.0909.

By conventional criteria, this difference is not statistically significant.

There is no significant difference between post-test scores of the participants participating through Fishbowl strategy in Sync mode and Async mode of online learning. Therefore, Fishbowl strategy was found to be equally effective in both Sync mode and Async mode of Online Learning in terms of Academic Achievement.

Conclusion

Fishbowl strategy was found to be effective in Online Learning. This strategy can be implemented effectively in both Synchronous and Asynchronous Mode of Online Learning in order to improve academic achievement of learners. When compared for effectiveness in Synchronous vs Asynchronous Mode of

Environment.

Online Learning, Fishbowl strategy was found to be equally effective in terms of academic achievement.

Along with the significant increase in the achievement, Fishbowl strategy helps enhance higher order thinking and other cognitive abilities of the learners. It allowed participants to interact with each other, understand different perspectives and analyse group discussion before precisely expressing their own view points. They were engaged in interactions and negotiations, even in an online environment. The joy and satisfaction of learning on your own and learning together could be created by these activities.

It is suggested that more cooperative learning strategies can be tested in online learning environments in synchronous as well as asynchronous environments. Qualitative analysis of the user-generated data can further be analysed to understand patterns of knowledge generation and learner dynamics in Online Learning

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