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Impact of Active Learning Strategy on the Student Engagement

Afzal Sayed Munna^{1*}, Md Abul Kalam²

¹, School of Business, University of Wales Trinity Saint David, London
 Winchester House, 11 Cranmer Rd, Vassal, London, UK SW9 6EJ.

Email: a.munna@uwtsd.ac.uk^{1*}

², School of Business,
 University of Wales Trinity Saint David, London
 Winchester House, 11 Cranmer Rd, Vassal, London, UK SW9 6EJ

Email: m.kalam@uwtsd.ac.uk²

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ABSTRACT

Economic development has encouraged innovation in a range of industries; however, the education industry has been following traditional modes of teaching until recently across the world. This has not only affected the capabilities of the youth but has also led to the problem of unemployment and diminished success rates at the workplace. One of the factors contributing to this situation is the lack of student engagement. In this research, we examined the factors affecting student engagement among higher education students and determining the impact of pedagogical approaches with active leaning on influencing the engagement level. Analysis of 50 higher education level 3-7 students has shown that the major hinderance in student engagement is assessing their current knowledge levels to teach lessons effectively. Hence, using practical knowledge impartation mechanisms such as gamification, collaborative and peer learning would improve the cognitive, learning, and emotional behaviour of students; thus, boosting the engagement level.

Keywords: Active learning; engagement; game-based learning; pedagogical approach.

INTRODUCTION

With the evolution of technology, 21st century is witnessing better opportunities in education and employment. However, the education industry across the world follows traditional modes of teaching and learning, which has resulted in several bottlenecks such as limited outreach, absenteeism, stunted learning potential and high dropout rates (Taylor and Wilding, 2009). This is particularly prevalent in STEM (Science, Technology,

Engineering, and Mathematics) education. Factors that constantly affect retention, persistence, and academic success are motivation, self-efficacy, and engagement level of students (Aji and Khan, 2019). Student engagement is the desire, willingness, or compulsion of students to participate in a learning process and successfully absorb information to develop their critical thinking capabilities (Miller, Rycek and Fritson, 2011). Education focused on connecting, owning, involving student response, and empowering students to enhance student's critical thinking abilities and promote the participation of students in classroom activities (Zyngier, 2008).

To develop a student-centric instructional module which not only enhances students' learning capacity but also develops their competencies and skills students, the concept of active learning has received widespread attention. Active learning is the concept of instruction that focuses on using student-centric instructor-led activities and instructional methods (Hartikainen et al., 2019). Being a constructivism-based learning paradigm, active learning-based strategies criticised the traditional concept of learning wherein the external sources are considered as the sole medium of providing knowledge to the students. Targeting the idea of understanding instead of memorising active learning strategies are the deep learning approaches. For example- active learning-based instructional modules create this consciousness among the students that the knowledge is a self-construction- based concept and each student with this responsibility should work towards exploring new concepts and understanding them (Fitzsimons, 2014). Though active learning-based method provides the benefit of increasing students' self-confidence and self-reliance, provides access to prior knowledge, creates the opportunity of better personal interpretation of situations and problems, sharpen the observational skills of students, and lead to cognitive development. But still with the risk of having a lack of participation of students, and few faculties available for handling the large group of students; academic institutions prefer to adopt the lecture-based traditional means of education (Sasikumar, 2014). Apart from this economic pressure, the resistance of faculties to adopt the new method of teaching and the preference of students for lecture-based teaching mechanism also prevented the advancement of the learning method (Killian and Bastas, 2015).

However, with the onset of the digital revolution and the growing dependency of people on technology; the need to replace the traditional instructional method has emerged. Even the contribution of active learning-based strategies like class discussion, learning cell, think-pair-share, collaborative learning group, debate, learning cell, or class game; in fulfilling the behavioural, cognitive, and emotional engagement of students promoted the requirement of implementing the active learning based instructional method (Schindler et al., 2017). Considering this growing need of having people who could think critically, solve problems, and adapt to changes for supporting the development of the rapidly evolving economy; the education system has begun to modify its learning mechanism. By focusing on this role of active learning strategies in the personal growth of students and upliftment of the economy; this study work on examining the relevance of active learning mechanisms in influencing the engagement and participation level of students.

AIM AND PURPOSE

Educational institutions play an important role in building up the personality and enhancing the capability of a person. Though the education direct towards raising the knowledge level of students but non-engagement of students in grasping them affects the entire process of learning. In today's scenario where the world is becoming more advanced and digitally dependent, one problem that could be seen is the growing non-engagement of students in higher educational institutions. Considering this aspect, this study aims at examining the factors which contribute to influencing the engagement level of students. Further, focusing on the growing relevance of practical pedagogy-based active learning strategies; this study aims at analysing the impact of these active strategies on influencing the engagement and participation level of higher education level students. This investigation would not only provide information about the factors which affect the participation level of students but would also help in identifying new strategies and methods which could help in improving the quality of the education system and enhancing the skill set of students.

LITERATURE REVIEW

The economic development of a country has brought changes in the mechanism of education. With the shift from the traditional form of education to the modern form, the need of introducing practicality and making concepts understandable has emerged. This led to the introduction of a new concept called pedagogy. Pedagogical practices are being used nowadays in the educational institutions for improving the learning skill of students and increasing the level of engagement and participation of students.

Pedagogy and its approaches

Pedagogy is a term that represents the teacher's efforts, approaches, and strategies that are used to influence the learning of others. Focusing on the stated theories, empirical studies, evidence-based research, political aspects, individual or group reflections, community requirements and expectations, and involving educator's expertise or experience; the pedagogy defines the art of building the educational curriculum (activities, interactions, routines, experiences, and planned or unplanned events) (Whiteside, 2017). The pedagogical approach of teaching was classified into four parts i.e., Behaviourism, Constructivism, Social constructivism, and Liberationism. Among these approaches' behaviourism was a teacher-centric approach which uses direct instruction or lecture-based teaching mechanism for educating students. Constructivism pedagogy is a reflection or experience-based mechanism wherein following the student-centric approach, methods like inquiry-based learning, or project work; are used for education.

Social constructivism is a combination of teacher and student-centric approach wherein the principle of teaching was that sound learning need collaboration between teacher and students. Following the group-based methods of studying, the social constructivism pedagogy worked on building the interaction between the educator and learner. Liberationism, the last pedagogy is a student-centric approach wherein democracy is maintained in the class, and educators along with students discover the subjects that are needed to be studied (Westbrook et al., 2013; Tes, 2018). Based on the focus of the educational institution respective pedagogical approach is applied in the teaching mechanism.

Student Engagement

Student engagement refers to the investment of effort, time, and other resources by students and educational institutions to provide the optimal experience and enhance the learning possibility (Trowler, 2010). Being considered as the indicator of personal development and learning, engagement of students helps in straightforwardly deriving the desired outcomes, grades, and satisfaction. There are three forms of engagement i.e., social, intellectual, and academic (Fredricks, 2011). Only in the presence of all three forms of engagement, student learning can be optimised. Lack of engagement of students not only affects their academic capabilities but also influences their social functioning. A high rate of student disengagement leads to low academic achievement, a high dropout rate, high unemployment, social exclusion, low income, crime engagement and health issues (Hancock and Zubrick, 2015; Olson and Peterson, 2015).

Workplace productivity can only be optimised with the presence of engaged and psychologically investing students. Thus, to promote the intellectual, emotional, and academic engagement of students there is a need for including activities aimed at supporting active learning, student-led practical projects, and applied academic skills in institutions (Jones, 2013). These activities build decision-making skills, communication skills, and evaluation skills. Active learning thus enables students in creating new opportunities for career development and coming up with innovations (Abubakr A; Abubakar Y; Itse J, 2017). Hence, to create the possibility of personality development of students and foster a productive youth culture, it is essential to promote the activities encouraging student engagement. Some of the research results with the drivers of student engagement in higher education has been summarised by Baily (2010) which can be outlined as below (refer to table 1):

Table 1: Student engagement in higher education

| Tinto (1993) has identified 7 reasons for withdrawal: (based on students in USA) | Yorke (2000): factors for non-engagement: based on UK students | <u>Drivers of student engagement (extrapolated by Baily, 2010):</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Academic integration:</u> academic difficulties (@ 35%) <u>Social integration:</u> adjustment difficulties (social maturity) unclear, narrow, changing goals weak and external commitment to HE financial inadequacies lack of 'fit' (social or academic) isolation (particularly in first year) | <u>Academic integration:</u> inability to cope with the demands of the study programme (academic) wrong choice of study programme <u>Social integration:</u> poor quality of student experience dissatisfaction with aspects of institutional provision unhappiness with the social environment matters related to financial need | academic integration 'settling in' Challenging, rewarding, and consistent goals ('Satisfaction?') Commitment to HE Sufficient finance 'fitting in' Having friends/being known |

Studies including Astin (1993), Pascarella & Terenzini (2005) and Bryson and Hand, (2007) suggest that active engagement of the students in the class ultimately enhances psychological investment in learning. However, Centre for Higher Education Research and Information (CHERI)'s report to Higher Education Funding Council for England (HEFCE) indicated that student population has been very diverse (caused by the widening participation strategy) which affects student engagement (copied from own research proposal). In this respect, it is worth noting that students get disengaged in the class due to some non-academic problems (family commitments, debt problems or underlying medical conditions).

Strategies linking Pedagogical learning with student Engagement

The pedagogical model was framed in order to describe the activities which teacher perform in order to provide more practical learning experience to students by engaging them in intellectually challenging work. This learning cycle is characterised into five forms: Engage, Explain, Explore, Evaluate, and Elaborate (Department of Education and Training, 2018). Based on these domains, some of the strategies that are commonly used for implementing pedagogical learning model are as follows:

Explore First strategy

Under this strategy, the teachers present students with tasks which not only challenge the available skills of students but also support them in investigating unknown aspects, generating questions about them, gathering all relevant information, and developing new perspectives and ideas. This strategy helps in navigating student learning and expanding preconceived perspectives and critical thinking (Victoria, 2018).

Peer Learning Strategy

Peer learning refers to a strategy wherein students not only learn from educators but also with each other, in both formal as well as informal ways. Under this instructional teaching mechanism, people belonging to similar group tend to work together and help each other for gaining some knowledge. Activities like classroom discussions, blogs, or online discussion forums, are example of peer learning strategies. This form of teaching not only provide the information to the students about the education related concepts but also improve the social cognitive skills (Wessel, 2015; Paul et al., 2018).

Collaborative/Networking Strategy

Under this strategy collaborative relationships are built i.e.; students are motivated to work together and learn. Activities like role play are done through which students are divided into different groups and are given task of performing the respective activity. This strategy not only build the social interaction skill of student but also develop the teamwork-based skills (Camarinha-matos and Afsarmanesh, 2006).

Game Based Learning

Game based learning strategy refers to the method wherein using the gaming principals, teachers try to engage students and make them learn the new things. Linking the games with the learning, educators try to motivate students for learning. Virtual stock trading competition or mock parliament are some of the game-based learning methods used for improving knowledge of economic or political science students. This strategy helps in

creating fun environment for studying along with providing opportunity to have practical implementation of knowledge (Torrente et al., 2011; Pho and Dinscore, 2015). All these strategies help students in exploring new concepts, building connection with others, and having practical knowledge. Providing an opportunity to have more or personal and social interaction, pedagogical approach helps in promoting emotional, behavioural, and cognitive engagement.

THEORETICAL FRAMEWORK

Below shown in the theoretical framework for this research

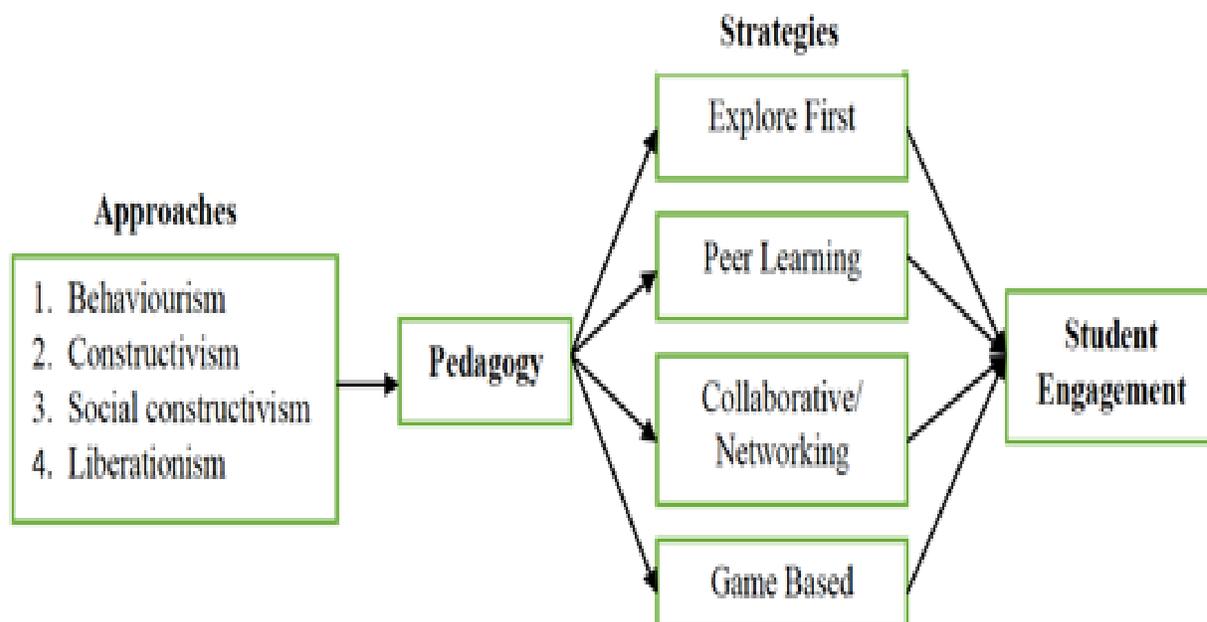


Figure 1: Theoretical framework of the research

Figure 1 shows that pedagogical approaches are mainly classified into four forms i.e., behaviourism, constructivism, social constructivism, and liberationism. Each approach provides different method for implementing the learning mechanism. However, with the increase in relevance of active learning and the need of improving the capability and knowledge of young population, the strategies that are implemented for increasing the student's engagement are explore first strategy, peer learning strategy, collaborative/Networking strategy, and game-based learning. All these strategies help in improving the knowledge of students and providing them more interactive environment.

RESEARCH METHODOLOGY

Igwenagu (2016) stated that research methodology states the theoretical or systematic statement of the principles and methods which are used for fulfilling the purpose of the study. With the aim of understanding the impact of active learning strategies on student engagement level, this action research uses the experimental research design. Using the quantitative and qualitative research method, the study emphasises on evaluating the relevance of active strategy in case of higher education students. The data for the analysis

was collected from the students of level 4 (first year undergraduate) to level 7 (master's degree) using the semi-structured questionnaire. The targeted population for the study is the UK students (considered as home students) who are enrolled on the programmes that we directly teach. Sample from the given population was derived using the simple random sampling method. At the 5% confidence interval, the sample size for the research was computed using Cochran's formula i.e.

$$n = \frac{z^2 * p * (1 - p)}{e^2}$$

$$n = 50.0830 \approx 50$$

Wherein,

n = sample size for the study

Z = z-score value at the concerned confidence level of the study i.e., 95% (z value at 0.95 = 1.96)

p = estimated proportion of population having survey attribute (12% of the population i.e., 0.12)

e = desired error level permitted in the study (9% level of error i.e., 0.09)

A semi-structured questionnaire with a mix of open and close ended questions was used for collection information from the higher education students. The questionnaire is divided into three sections wherein first part collect data about the demographical characteristics of the students through close ended questions. Background section having close ended questions to collect information about the knowledge of students regarding the usage of pedagogical approaches in the class. Lastly, the inferential section with the combination of open and close ended questions to collect information about the student's perception on the impact of pedagogical approaches on the cognitive, learning, and emotional behaviour of students. Further, this section through open ended questions collect data on the most effective pedagogical strategy. Thus, by focusing on the responses of 50 higher education students, this research assesses the impact of active learning on the engagement level of students. This data was analysed using the interview and graphical/tabular analysis through MS Excel. It was ensured that responses which are redundant or insignificant was eliminated from the analysis. Moreover, the data was collected through voluntary participation of students and the information collected from them was kept confidential. Privacy of the respondents was maintained by keeping all the responses in a password protected device. Hence, the result derived from the analysis is ethical, reliable, and valid.

FINDINGS AND RESULTS

Descriptive Statistics

Figure 2: Demographic analysis of the respondents

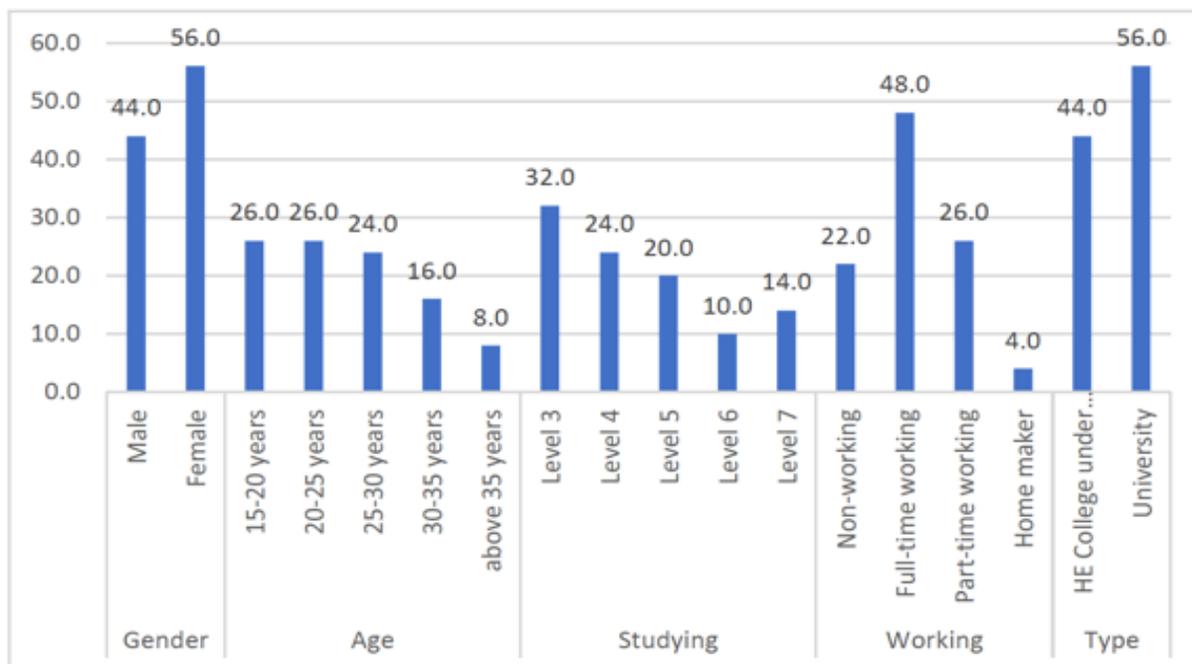


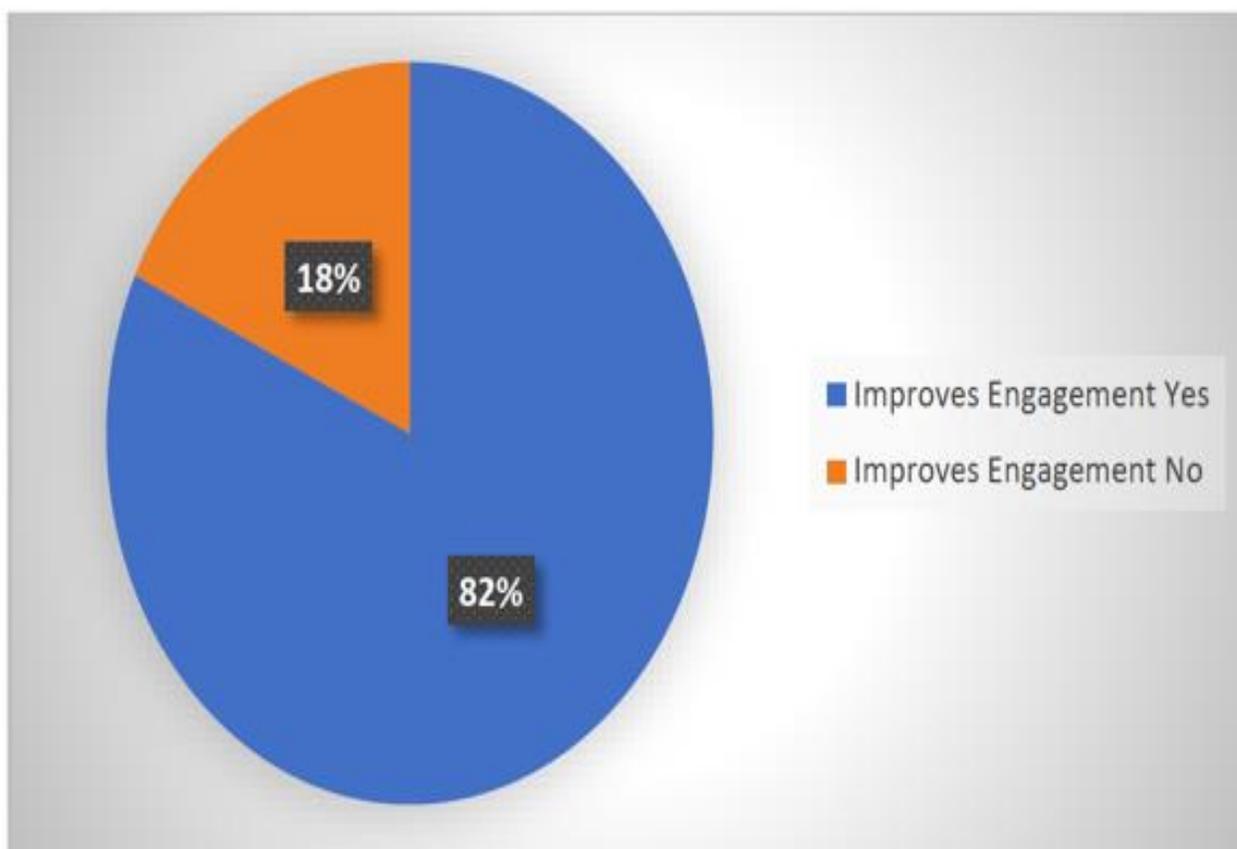
Figure above shows that 56% of the respondents were female while about 44% were male. Majority of the respondents belonged to the age group 15-30 years, i.e., about 76%. 32% of the respondents are from Level 3 i.e., foundation year undergraduates, 24% from Level 4 (first year), 20% from Level 5 (second year), 10% from Level 6 (third year), and about 14% from Level 7 (master's degree). Most of the respondents i.e., about 48% students are working full time with having family commitments to fulfil. Thus, there is a need to keep them engaged in order to motivate them to complete their studies. Only about 26% respondents are either non-working or homemaker. About 44% students are from higher education colleges having partnership with university while 56% are studying in university. These demographics indicate that students aim to build skills to enhance their earning capacity and fulfil their family commitments. Next, with the ongoing challenge of keeping students engaged, it is required to understand the expectation of student from learning process and work on creating the effective from of teaching.

Perception on the current usage of practical pedagogy approaches

Considering this requirement of modifying the learning process, we have started using some practices like discussions, Kahoot, or Padlet. These are some of the pedagogical approaches using peer learning, experimental learning, and game-based learning strategy. Though all students have noticed a change in our teaching mechanism as some of them stated that, "Earlier the focus was only on the syllabus-based requirements about a concerned topic which was though informative but less interacting. But not from past few sessions, the open house discussions provide the opportunity to express our perspective and explore different possible viewpoints". But 82% of the students were of

this viewpoint while 18% of them stated that “The lecture-based approach was better than this discussion. Though initially, these discussions start from a valid point but after a certain time, instead of an informative session, the whole process turns out to be a debate. The entire discussion is reserved for certain students and in fact, not everyone gets the opportunity to express themselves.

Figure 3: Pedagogical approach impact on engagement

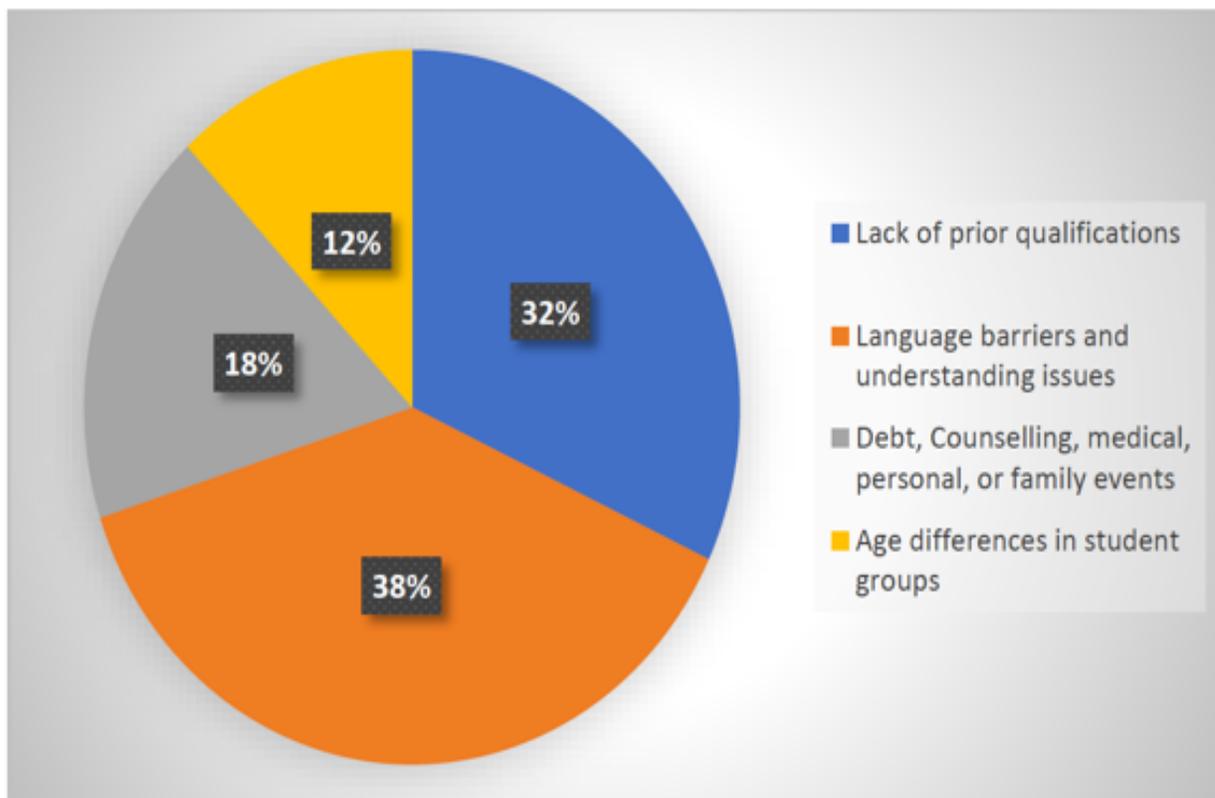


Hinderance in Engagement

Focusing on these differences in perspectives of students about the pedagogical approaches, students were asked about the factors which mainly affect their engagement in the teaching activities. About 38% of the students stated that they are unable to understand the current teaching mechanism due to language issues. Even the pace of coping up is different for each student due to which it is difficult for each student to learn. Further, about 32% of the student's state that the knowledge level of each student varies due to different prior qualifications. It could be in form of having not much clarity on basic concepts, had different stream, or followed the different teaching style. As the educators at higher education level follow the same mechanism of study irrespective of student's knowledge level, thus students must face problem in understanding things. Further, about 18% of the students said that due to personal issues like debt, counselling, medical problem, or family events; students are not able to focus on studying. Lastly,

about 12% of students stated that presence of different age group does not act as a problem in adjustment. This does influence the engagement level of students.

Figure 4: Factors acting as hinderance in student engagement



Hence, in order to promote student engagement, it is essential to focus on each student knowledge level and design a curriculum which could be easily understandable to everyone. Further, activities promoting teamwork or mixing up of students are needed.

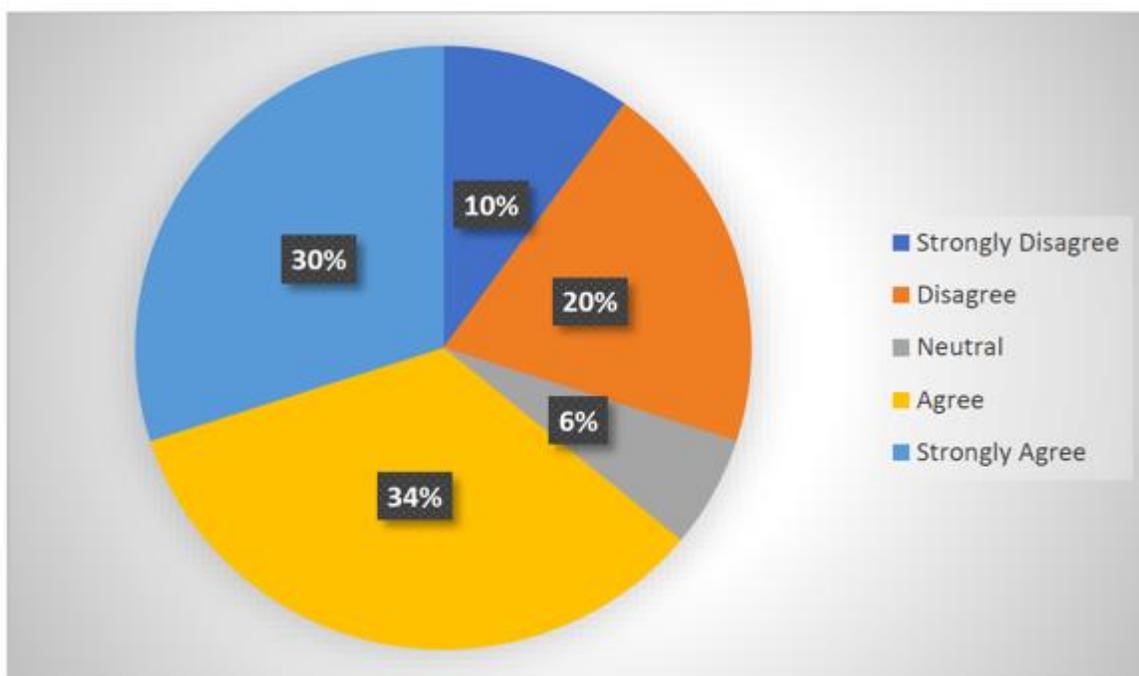
Strategies for promoting Students' Engagement

In order to assess the impact of currently applied strategies, the responses of students were examined to know how successful the strategy was in influencing their engagement.

Cognitive Behaviour

With respect to the cognitive behaviour i.e., the willingness of students to involve in the learning process, the analysis is shown below

Figure 5: Pedagogical approaches significance on Cognitive Behaviour



About 64% of the students responded positively to the impact of implementing the pedagogical approaches on their willingness to learn and only 30% believed that not much changes could be seen on their willingness due to change in mechanism of study. Aspect wise analysis is shown below

Figure 6: Cognitive behaviour aspects

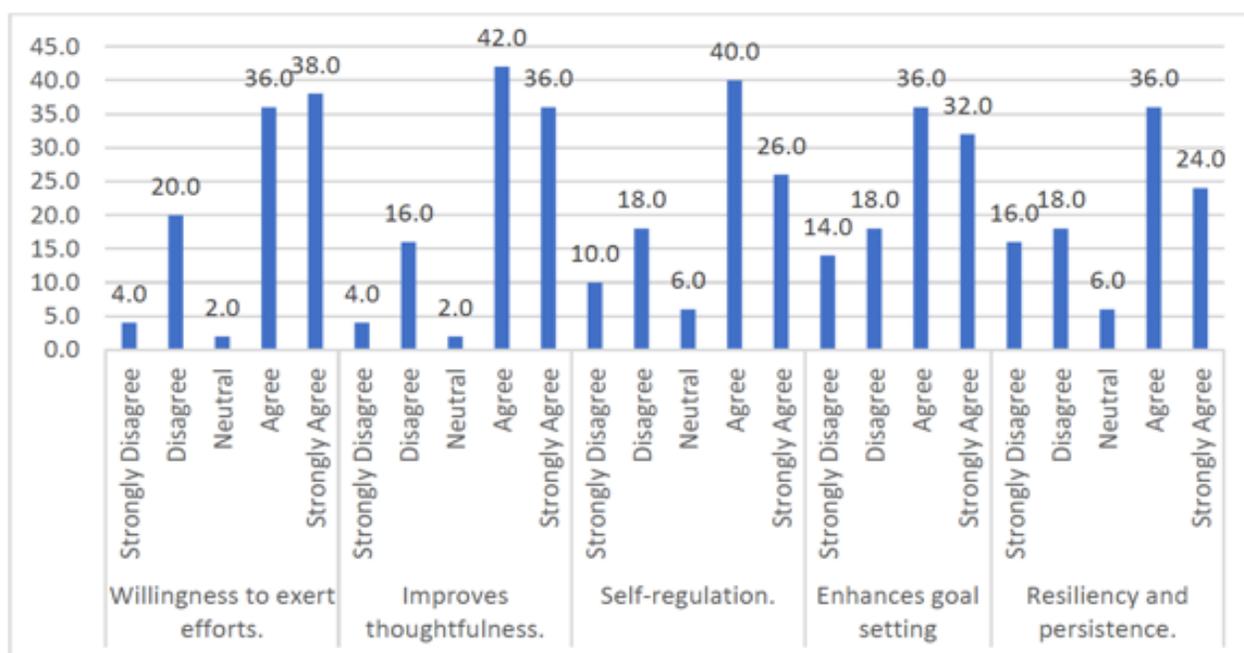


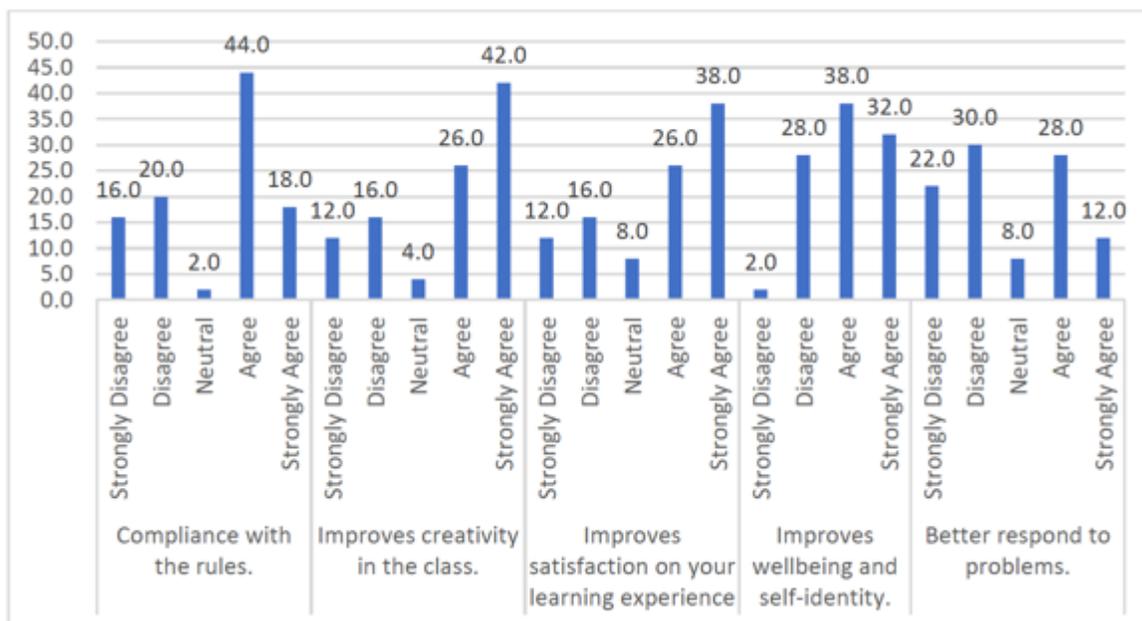
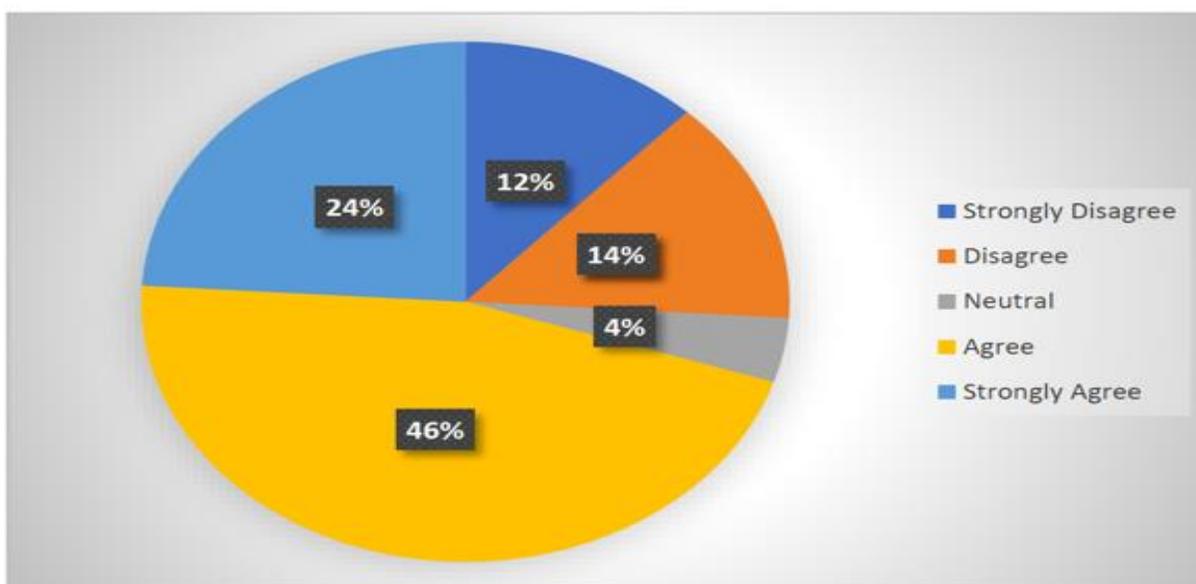
Figure 7: Cognitive behaviour aspects

Figure above reveals that the usage of interactive learning improved the willingness to exert efforts, thoughtfulness, self-regulation, goal setting ability, creativity level, and wellbeing and self-identity of students in most of the cases.

Learning Behaviour

Learning behaviour states the young people understanding and knowledge about a certain concept. Students responses on the impact of pedagogical strategy on the learning behaviour is shown below:

Figure 8: Pedagogical approaches significance on Learning Behaviour

The above analysis shows that about 70% of the students agree that the usage of pedagogical strategies has improved their knowledge level and even provided them with in-depth information about the concept. Only 26% of the students considered pedagogical strategies are not efficient enough to improve the knowledge and stated that these efforts are not able to make the student well aware of a concept. Aspect wise analysis is shown below

Figure 9: Learning behaviour aspects

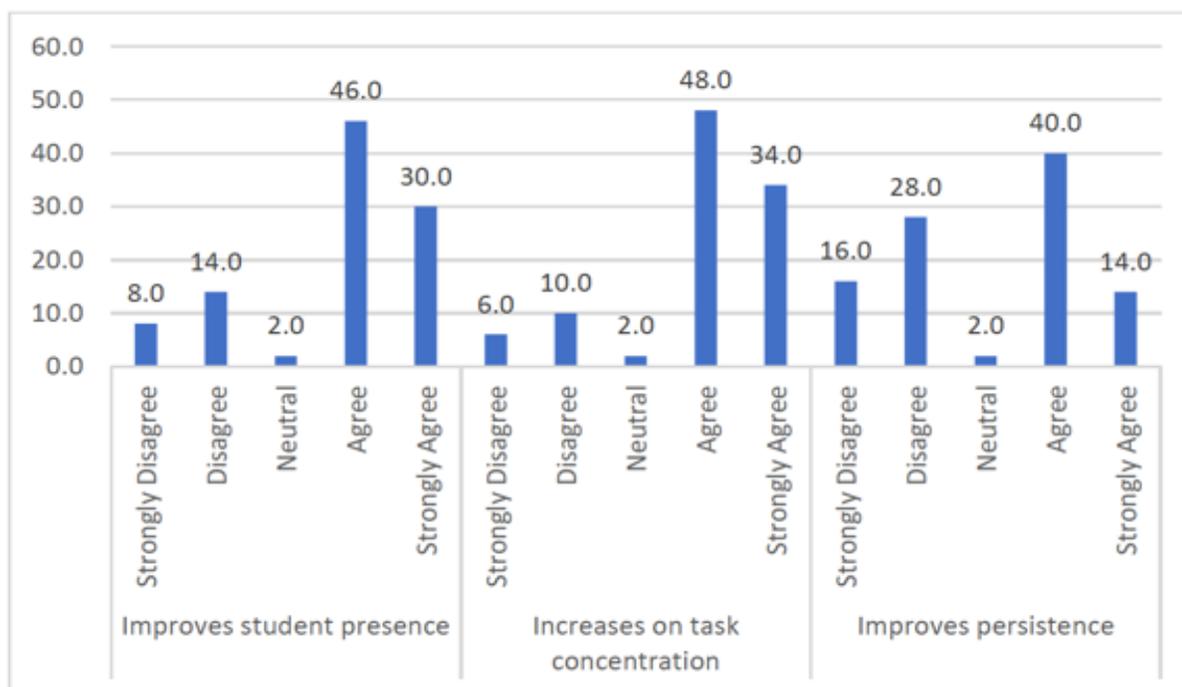
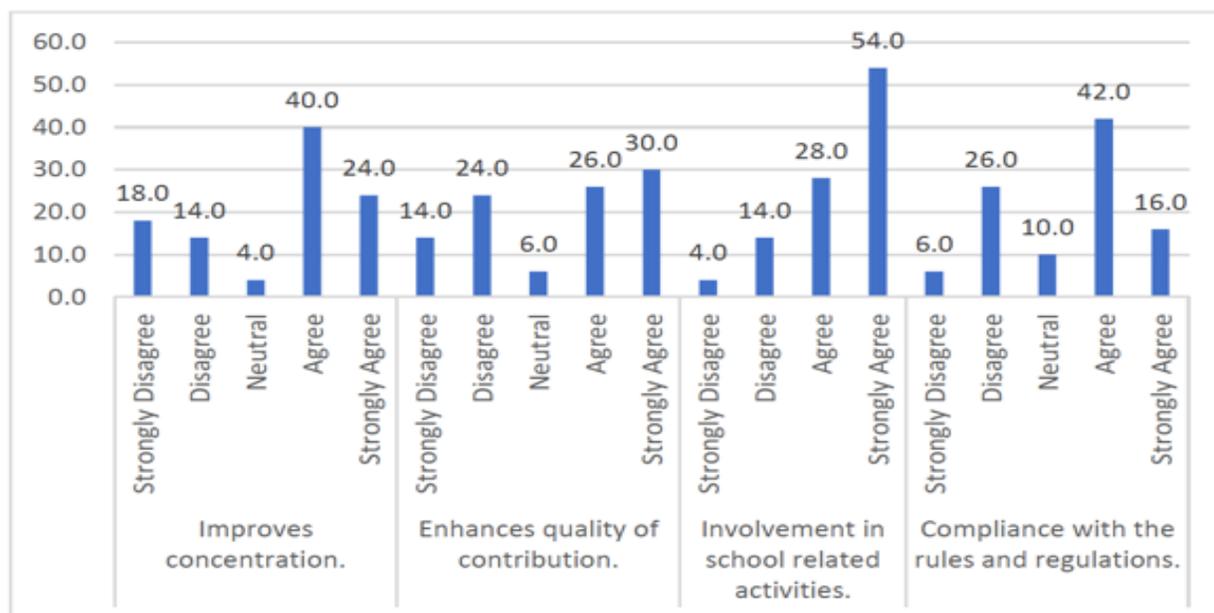


Figure 10: Learning behaviour aspects

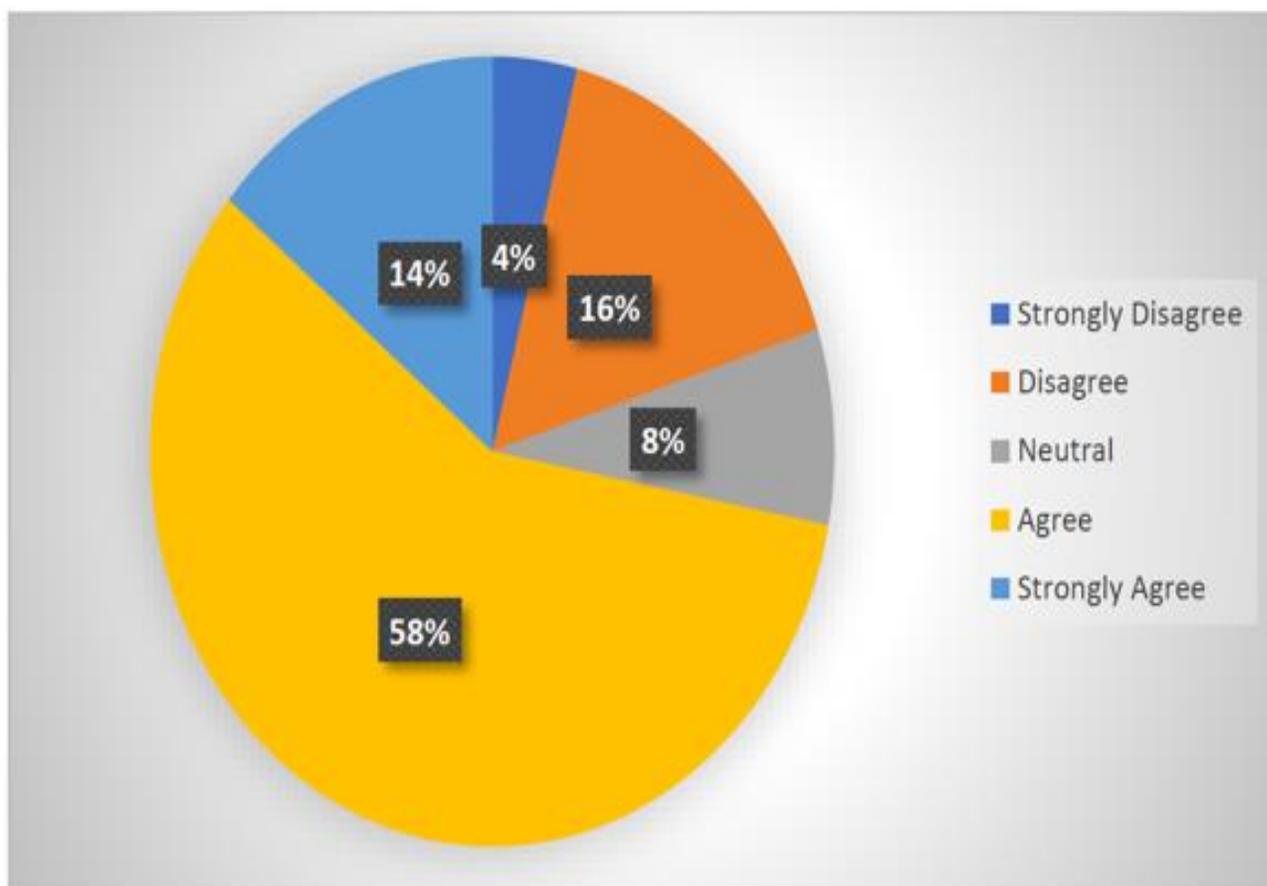


This analysis shows that pedagogical strategies have improved the presence rate of students, increased the task-based concentration level of students, and promoted the involvement of students in school related activities.

Emotional Behaviour

Emotional behaviour explains feelings of students which help them in remaining involved and enthusiastic about the learning activities. Analysis of the impact of pedagogical approach on emotional behaviour is shown below:

Figure 11: Pedagogical approaches significance on Emotional Behaviour



Above figure shows that about 72% of the student accepted that game-based strategy and collaborative strategy motivated them to get involved in learning activities and in fact collaborative work motivated them to participate actively. Only 20% of the students stated that pedagogical approaches though provided with interesting options of studying but was not majorly a booster of interest. Aspect wise analysis of emotional behaviour is shown below

Figure 12: Emotional behaviour aspects

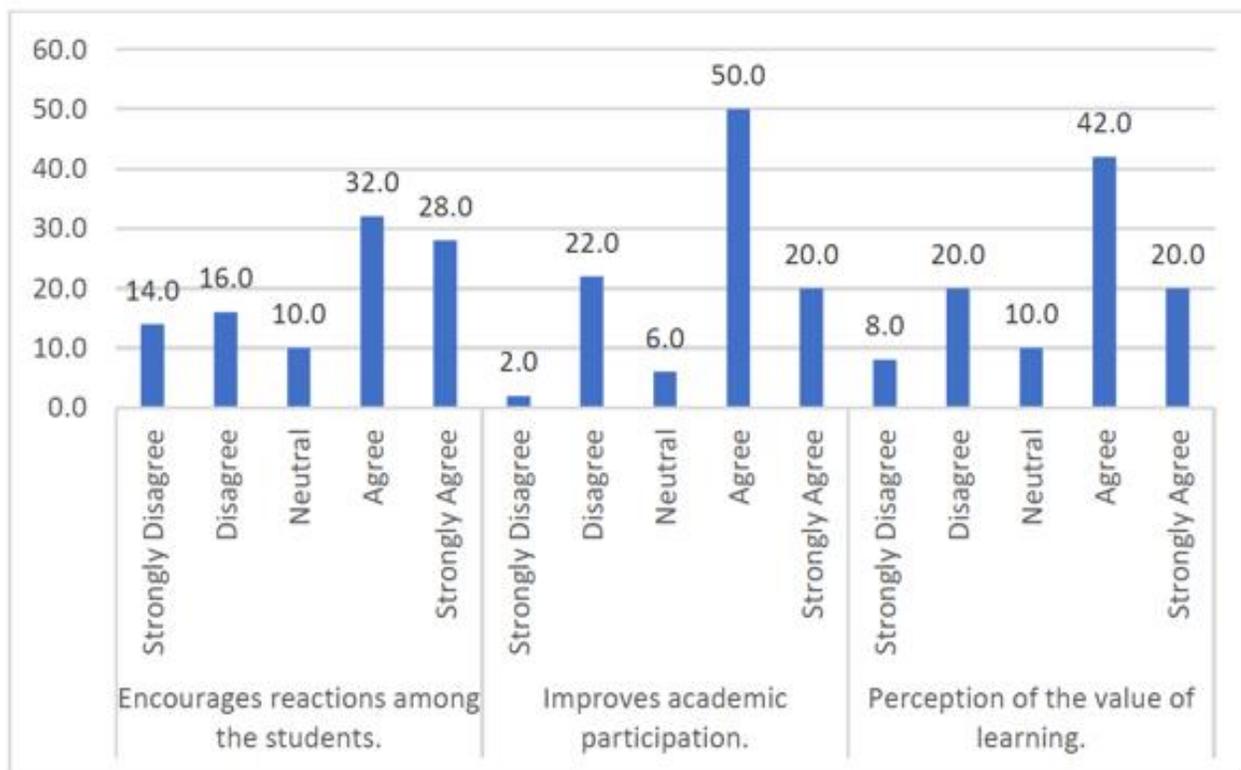
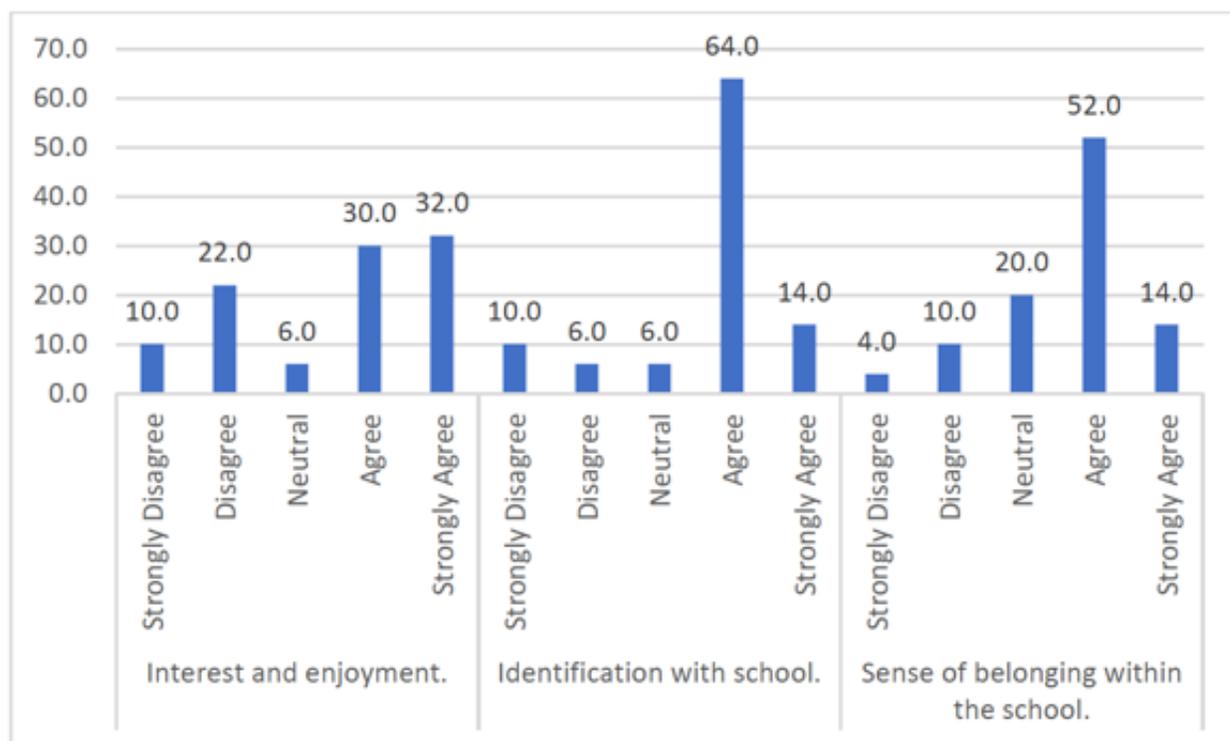


Figure 13: Emotional behaviour aspects



Above analysis show that majorly pedagogical strategies improved the academic participation of students along with increasing the identification with school and sense of belonging within school.

EFFECTIVE APPROACHES FOR BOOSTING STUDENT ENGAGEMENT

A majority of the students perceive game-based learning as an effective strategy for boosting their engagement in the classroom. One student stated that “Game-based learning models not only test our knowledge levels but also provide us an opportunity to use theoretical knowledge in practice. Usually, we resist studying new concepts, but games are something which gains our attention”. Some students also supported the collaborative strategy by stating that “Togetherness is what motivates an individual. Collaborative actions like role play help in building social connection and even understand different viewpoints about a concept”. Peer learning strategy is also though supported by some students by stating that “discussions provide an opportunity to express yourself” but still some students consider that “equal opportunity is not available to all students in discussions”. Thus, game-based learning strategy and collaborative strategy are the most effective strategy.

One new approach suggested by students is the Inquiry-based learning approach wherein as per the problem given by the instructor or selected by the student himself, research would be conducted by a student either in a group or individually to perform an experiment. Further, technology-based teaching mechanisms should be used by creating virtual trips. These smart teaching methods provide in-depth information about a concept. Further, a participatory teaching approach should be used wherein using case studies, problem-solving activities, panel discussions, practical work sessions, or mini-projects; the students are provided with the opportunity to explore new information and learn things. Thus, all these activities would create a friendly environment wherein students could feel belonged and develop the willingness to learn and engage in learning activities.

DISCUSSION, CONCLUSION AND FUTURE IMPLICATIONS

Student engagement is a critical issue in educational institutions these days, particularly in higher education. This is due to the usage of the traditional instructional method of teaching wherein lack of interaction fails to captivate students in classroom sessions. To cope up with the problem and enhance students’ academic performance, it is essential to implement pedagogical approaches to teaching. These teaching approaches using the strategy of game-based learning, collaborative learning, or peer learning provide the opportunity of developing the social interaction skill of students. These strategies also act as assessment tools of students’ prevailing knowledge levels. This action research of pedagogical strategies of 50 higher education students shows that a positive impact of pedagogical strategies is accepted by students.

The survey showed that as students reach higher education levels, their priorities shift towards career development and fulfilling family commitments. Many students work full time to earn their livelihood. Herein to keep students engaged in their studies it is essential to provide practical, real scenario-based knowledge to students. In this context, the study identified that understanding each student’s learning issues and unequal level of prior knowledge is the main hinderance in the engagement level of students.

Implementation of game-based strategy or collaborative strategy has helped them in providing in-depth knowledge about different concepts. Further, with the promotion of team-based activities, the motivation and involvement level of students also got influenced. Thus, educational institutions should make changes in their curriculum and start using these active learning strategies for the better development of the young population. Even some new approaches like technology-based learning or participatory teaching approach could be used. These approaches help in virtually assessing actual scenarios and in the practical implementation of knowledge which further improves the knowledge level of students along with creating an interesting medium of learning. Hence, it is required to modify the teaching process and use an interacting medium for teaching. Though the study focuses on the perspective of only 50 students, generalising the results to different educational settings such as those in developing countries requires more evidence. However, the problem of student engagement and commitment towards learning is universal, thus results derived from the analysis are reliable. Further studies in this regard can aim to practically examine the impact of these learning approaches and even compare the skill set of students undergoing the traditional method of teaching and active learning.

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