



THE ATTITUDE OF STUDENTS AND TEACHERS TOWARDS BLENDED LEARNING AT THE ELEMENTARY LEVEL

Dr. Rumpa Das, Faculty, Department of Education, Cotton University, das.rumpadas.rumpa02@gmail.com

Abstract. This study can provide information about the attitude of students and teachers towards the blended learning approach at the elementary level. The blended learning approach is conducted with a combination of face-to-face and e-learning processes. The blended learning process can provide ultimate flexibility towards students, which is included in this study. Due to this facility, it is easy to state that the blended learning approach is more authentic than the traditional learning process. The time management process is maintained by this learning process, which is useful for learners. On the other hand, with the help of a blended learning process, students can increase their interaction with the teacher. This study is conducted with the involvement of positivism research philosophy, descriptive research design, and deductive research approach.

Keywords: Elementary level, positivism, blended learning process, e-learning, and time management.

I. INTRODUCTION

Blended learning

Online educational materials and opportunities are maintained with the involvement of the blended learning process. Opportunities for interaction online with traditional place-based classroom methods are also justified with the help of this learning process. With some elements of pace, path, and place students and teachers should present physically in this learning process. Along with this computer-mediated activities are present in the blended learning process; this learning process is treated as a context-dependent learning process. Along with this learning convenience and flexibility are justified with the help of the blended learning process. With the help of much research, it is observed that blended learning can provide a comprehensive understanding of learners (Lin et al. 2016).

Blended learning is one of the recently formulated innovative learning techniques that involve both e-learning procedures and methodologies along with traditional learning methods. It consists of new measures like incorporating computers in the traditional classrooms, including projectors for animated teaching classes, voice recorded lectures, one-on-one interaction-based teaching methods, and much more. This aspect of blended learning is also popularly recognized as hybrid learning or integrative and collaborative learning mechanisms (Dziuban et al. 2018).

Importance of blended learning

To provide information about the concept to students this learning process can use apps, games, and other measurable programs. According to Hrastinski (2019), with the help of this aspect, every student can maintain new materials and learning concepts easily in proper time. A blended learning process can help the student to engage with the material at their own pace, which is treated as an effective importance of this learning process. This learning process can provide flexibility for students. The blended learning process can increase student satisfaction, reduce stress, and promote deeper learning. With the help of this learning process, teachers can become more engaged with students. Along with this opportunity for students is increase

There is a vast importance of blended learning in the modern world. Among all the corresponding reasons, the five primary reasons that were identified are mentioned below:

- There are certain parameters within blended learning techniques that let the students measure themselves and their efficiency levels. There are numerous procedures that make the learning processes for respective subjects and topics much easier for the students and every student can choose the procedure that is best suited to their requirements (Boelens et al. 2017).
- The communication, interaction and engagement between the student and the teachers get increased in the blended learning procedures. Students can consult about their specific weak points with

the teachers; they can interact with the teachers irrespective of the time allocations via, chatting platforms, e-mails.

- Instead of making the overall learning experience monotonous and tedious, the blended learning procedures make the experience appealing, attracting and fun. Students can understand complex subject topics and theories with the help of simple applications, activities, games and animated contents.
- Provides the teachers with a lot of comforts, ease and opportunities. And with the help of the blended learning process that can increase student progress.

Scope of blended learning

Greater time flexibility, freedom and convenience are provided by the blended learning process, which is treated as an effective scope of this learning technique. With the help of this learning process students can learn concepts through video lectures. Along with this more interaction with teachers is provided by the blended learning process towards students. To maintain the concentration of students in class this learning process can decrease distraction, increase retention, and help to acquire information (Hubackova and Semradova 2016). On the other hand, the satisfaction of students is also maintained properly by this aspect of learning.

With the help of many researchers, it is observed that the blended learning approach is treated as the most relevant and evaluated aspect. These facilities can increase the popularity of the blended learning aspect than the traditional learning processes. Technology is evolving at a very fast rate in the modern world. And one of the most important an aspect of blended learning is technology and digitization. Therefore, in future, advanced autonomous technologies and AI intelligence methods will take blended learning to a whole new level. Students have evidently been benefitted from the blended learning procedures and are hoped to benefit even more in the coming times (Cleveland-Innes and Wilton 2018).

The attitude of teachers and students

The attitude of students and teachers can play a crucial role in the maintenance of the blended learning process. As per Smith and Hill (2019), it is important for teachers to maintain. The blended learning process is the combination of face-to-face learning and the e-learning process. In this learning approach, it is important for students and teachers to be present physically. According to many researchers, the blended-learning process is a student-centered learning process that can improvise the learning experience of students. It is important for teachers to maintain communication, creativity, information literacy, and collaboration with students in a blended learning approach. Critical thinking disposition and levels of students are maintained with the help of blended learning. Integrative motivation is treated as an effective attitude for teachers that can help students in the blended learning process. On the other hand, it is important to maintain defensive learning and receptive learning (Jowsey et al. 2020). The main idea behind the creation of blended teaching procedures and techniques is to provide the teachers and students with better-equipped learn-ability and teaching experience.

According to Ma'arop and Embi (2016), teachers can conduct smart classes which help in teaching a huge number of students at a single time, instead of conventional learning procedures which require a fixed number of students per class. Teachers can stay in touch with the students irrespective of the time and place and can direct them and assist them according to their necessities and problems. Not only can the teachers teach the students through online platforms, but they can also discuss any problems and queries with other teachers without any hassle and problem. Instead of using bookish language, the throw of speeches used in the animated videos and informational contents makes the understanding aspect easier. Such positive environments also tend to motivate the students to pursue higher education respective to their desired subject and ultimately excel in their career. Hence, as per the secondary data that were evaluated during this respective article, the attitude of the teachers and the students were found to be positive (Matheos and Cleveland-Innes 2018).

II. SIGNIFICANCE OF THE STUDY

This study can provide information about the proper attitude of students and teachers in the blended learning approach (Rasheed et al. 2020). The blended learning process is treated as an effective combination of face-to-face and e-learning process, which can increase the flexibility of students. This study can provide information about the time flexibility of blended study. A positive attitude of students

is required to maintain a blended learning process. To maintain the concentration of students this learning process can use apps, games, and other effective programs. It is important for teachers to learn about the integrative and instrumental motivation that can help them to maintain the attitude of students.

The blended learning process can provide opportunities for students to increase interaction with the teacher, which is evaluated in this study. This process can encourage students to concentrate in class. According to Akbarov et al. (2018), the blended learning approach is conducted with the involvement of a unique learning style, which can make this learning approach more authentic than the traditional learning approach. Individual needs of the learner are maintained by the blended learning approach which is an effective benefit of this learning approach. Various blended learning models are observed such as face-to-face, self-blend, personalized blend, online lab, flex, online, and rotation.

III. OBJECTIVE OF THE STUDY

- To identify the involvement of teachers in the blended learning approach.
- To justify the proper attitude of students in the blended learning process at their elementary level.
- To evaluate the importance of blended learning approach at the elementary level.
- To identify the benefits and key components of this learning process.
- To justify the attitude of student and teacher towards a blended learning approach at the elementary level.

IV. HYPOTHESIS OF THE STUDY

H1: Blended learning approach is beneficial for students.

H0: Blended learning approach is not beneficial for students.

V. METHODOLOGY

Research Philosophy

Research philosophy is used in the study to deal with the nature, development and source of the knowledge. In another word, we can consider it provides a way through which the data is collected, analyzed and used. Various types of research philosophies are used for conducting the studies such as positivism, realism, pragmatism and interpretivism. All the research philosophies are used with different purposes in the study. In the completion of this study, we have used the positivism research philosophy as it provides a large sample for the data collection which are of highly structured (Ryan 2018).

Research Approach

Research approach plays an important role in the completion of any study as it provides a plan and procedure for completing the research. Various types of research approaches are used for the completion of any study. There are three types of research approaches such as deductive research approach, inductive research approach and abductive research approach which can be used for the completion of any study. For the completion of this study we have used a deductive research approach as it provides an ease to understand the relationship between the concepts and the variables. Frew et al. (2018) stated that the quantitative concepts used in the research can be easily measured by this approach.

Research Design

Research design is defined as the overall strategy for the completion of the study. It provides a logical plan for tackling the established research questions. Various types of research designs including experimental research design, co relational research design, descriptive research design and diagnostic research design are used for providing framework to the research methods chosen for the completion of study. Descriptive research design is chosen in this study as it focuses on the importance of study and less

time consuming. It helps others to understand the needs of the research (Leavy 2017). Descriptive research design easily analyzes the non-quantified topics.

VI. SAMPLING DESIGN

Sampling design is treated as a fundamental part of this study. Sampling design can help to avoid the risk of bias during this study. Along with this understanding of the population in this study is maintained with the involvement of sampling design. The inherent variability of data is justified with the involvement of sampling design. Sampling design can maintain the authenticity of this study. A simple random sampling technique is used in this study to maintain collected information. To avoid errors in this study it is important to implement a high-performing sampling design. Soler et al. (2017) stated that representative sampling design can help to avoid the risk of errors.

Sampling design can reduce the margin of errors easily. 100 respondents are involved in this study, among them 50 respondents are teachers and 50 respondents are students. Respondents can provide authentic information about the blended learning approach. Equal chance for being chosen is provided towards all participants by simple random sampling technique. The flexibility of this study is increased with the help of this sampling method. A small but important sub-section of the population are present in this sampling design. Significance and confidence interval are maintained by this aspect (Banditvilai 2016).

VII. DATA COLLECTION TECHNIQUES

Data collection techniques can maintain the efficiency and authenticity of collected information. Interview, observation, survey, and questionnaire are treated as effective data collection techniques that can help to collect primary data. The success of the study depends on authentic data collection techniques. On the other hand, relevant documents are used widely as a data collection technique. The Focus group interview process is also used widely. To maintain the credibility of outcome and strength of sources it is important to select authentic data collection techniques (Sajid et al. 2017).

Published journals, media, news papers and books are used as an effective data collection technique for secondary information. To maintain the visual presentation of secondary data qualitative data using matrices are implemented successfully. According to Birbal et al. (2018), on the other hand, the individual interview is treated as an effective data collection tool. Four effective tools are implemented in the primary data collection process such as face-to-face, phone, mail, and online. The quantitative data analysis process is maintained with the involvement of these tools. Published questionnaires, reporting, and focus groups are treated as an effective data collection tool for secondary data. Offline and online data gathering tools are implemented successfully in this article that can help to collect secondary data.

VIII. RESULTS OF THE DATA TABLES

Questions for teachers

1. How far do you agree that Blended learning at the Elementary level can be beneficial for students?

Options	Response percentage	Respondent	Total Number of Respondents
strongly disagree	38%	14	50
Disagree	12%	6	50
Neutral	4%	2	50
Agree	36%	18	50
strongly agree	20%	10	50

2. How far do you agree that teacher make advantage of the blended learning in response to online learning?

Options	Response Percentage	Respondent	Total number of respondents
Assess students work	30%	15	50
Analyze students work	50%	25	50
Synthesize students work	20%	10	50

3. What is the important role of teacher in bended learning?

options	Response percentage	Respondent	Total number of respondents
Strongly disagree	20%	10	50
Disagree	12%	6	50
Neutral	8%	4	50
Agree	40%	20	50
Strongly agree	20%	10	50

4. How far do you agree that school is important in blended distance learning?

options	Response percentage	Respondent	Total number of respondents
Strongly disagree	20%	10	50
Disagree	10%	5	50
Neutral	4%	2	50
Agree	40%	20	50
Strongly agree	26%	13	50

5. What are appropriate process for teach blended learning?

Options	Response percentage	Respondent	Total Number of Respondents
Redefining role in classroom	30%	15	50
determining learning objectives	20%	10	50
selection of a blended learning model	50%	25	50

Questions for Students

1. How far do you agree that students are benefitted by blended learning in elementary level?

options	Response percentage	Respondent	Total number of respondents
strongly disagree	30%	15	50
Disagree	10%	5	50
Neutral	2%	1	50
Agree	28%	14	50
Strongly agree	30%	15	50

2. What are the characteristics of blended learning environment?

options	Response percentage	Respondent	Total number of respondents
strongly disagree	24%	12	50
Disagree	16%	8	50
Neutral	4%	2	50
Agree	36%	18	50
strongly agree	20%	10	50

3. how far do you agree that time management is an important role of blended learning in elementary level.

options	Response percentage	Respondent	Total number of respondents
increasing students engagement in learning	24%	12	50
responsibility for learning	16%	8	50
increase institutional reputation	36%	18	50
flexible learning environment	24%	12	50

4. How far do you agree that blended learning is more efficient than traditional learning?

options	Response percentage	Respondent	Total number of respondents
strongly disagree	20%	10	50
Disagree	10%	5	50
Neutral	10%	5	50
Agree	30%	15	50
strongly agree	30%	15	50

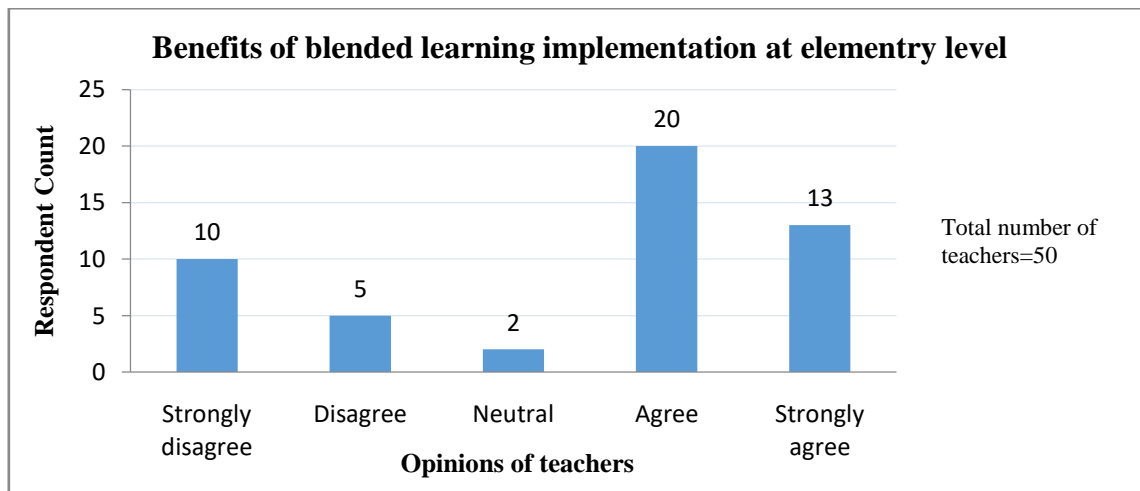
5. How far do you agree that bidirectional communication is important for blended learning?

options	Response percentage	Respondent	Total number of respondents
strongly disagree	28%	14	50
Disagree	16%	4	50
Neutral	4%	2	50
Agree	36%	18	50
Strongly agree	24%	12	50

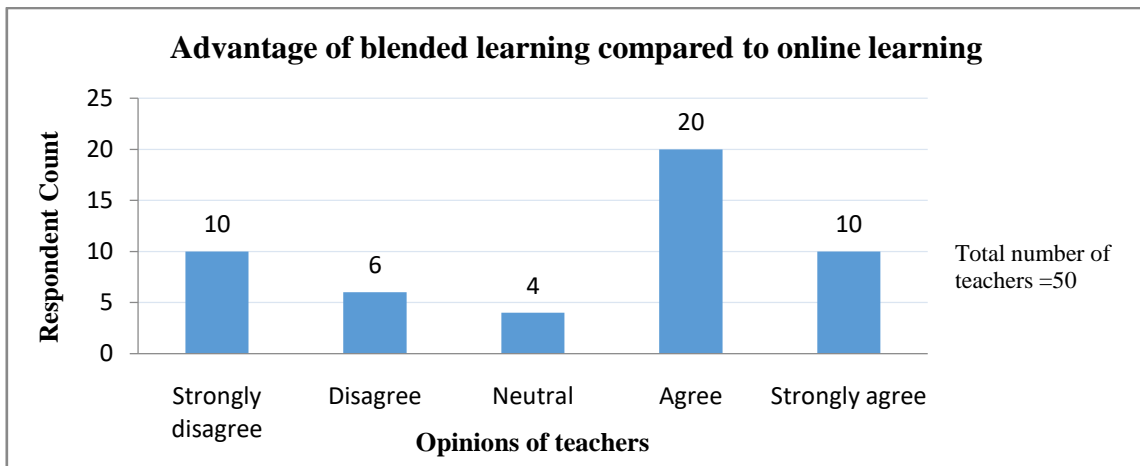
IX. GRAPHICAL REPRESENTATION

Questions for teachers

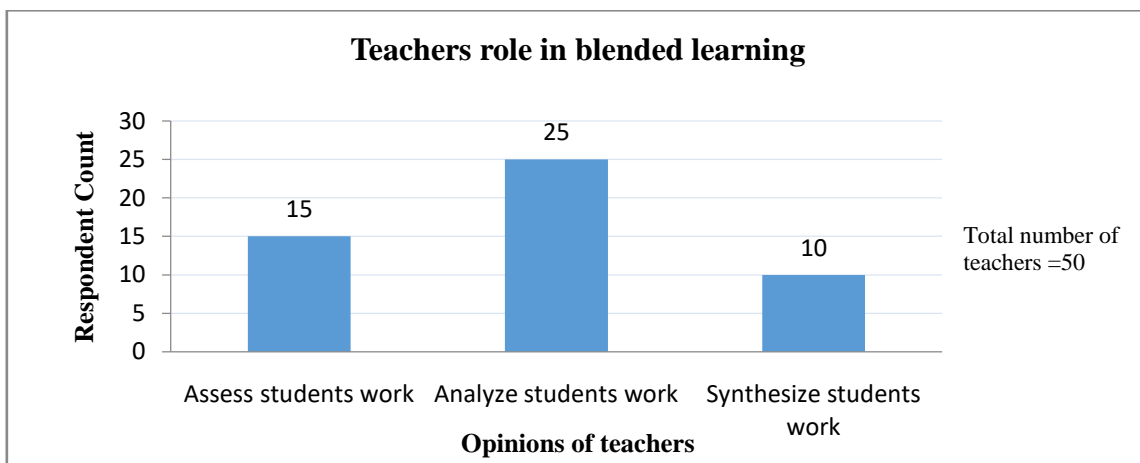
1. How far do you agree that Blended learning at the Elementary level can be beneficial for students?



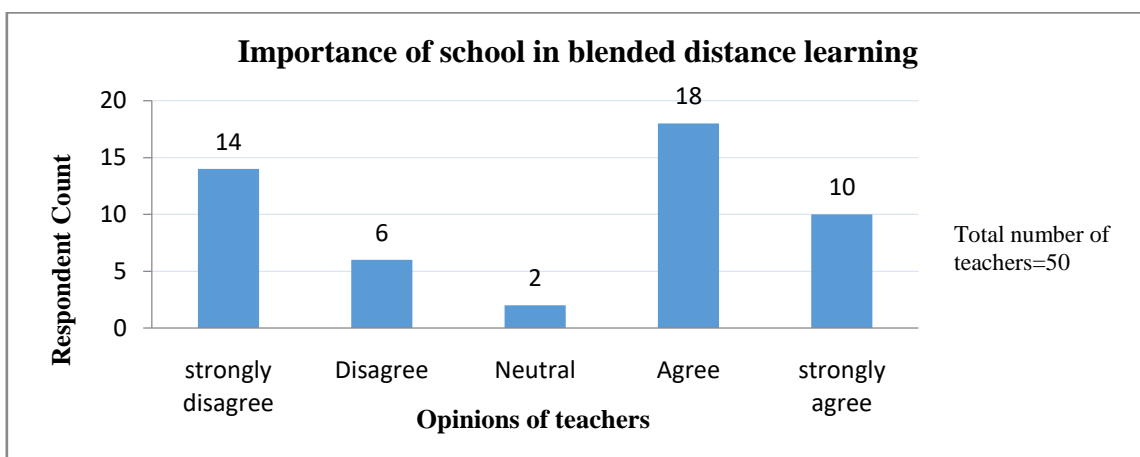
2. How far do you agree that teacher make advantage of the blended learning in response to online learning?



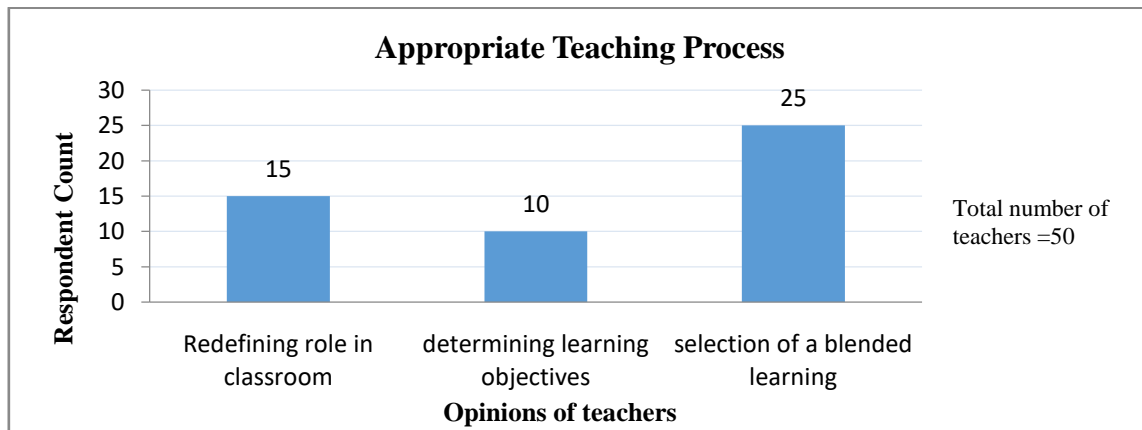
3. What is the important role of teacher in bended learning?



4. How far do you agree that school is important in blended distance learning?

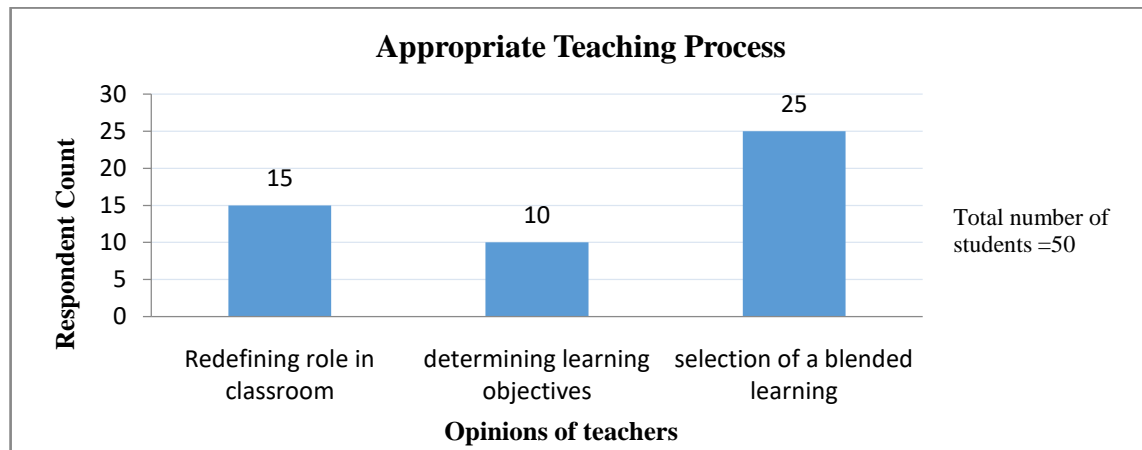


5. What are appropriate process for teach blended learning?

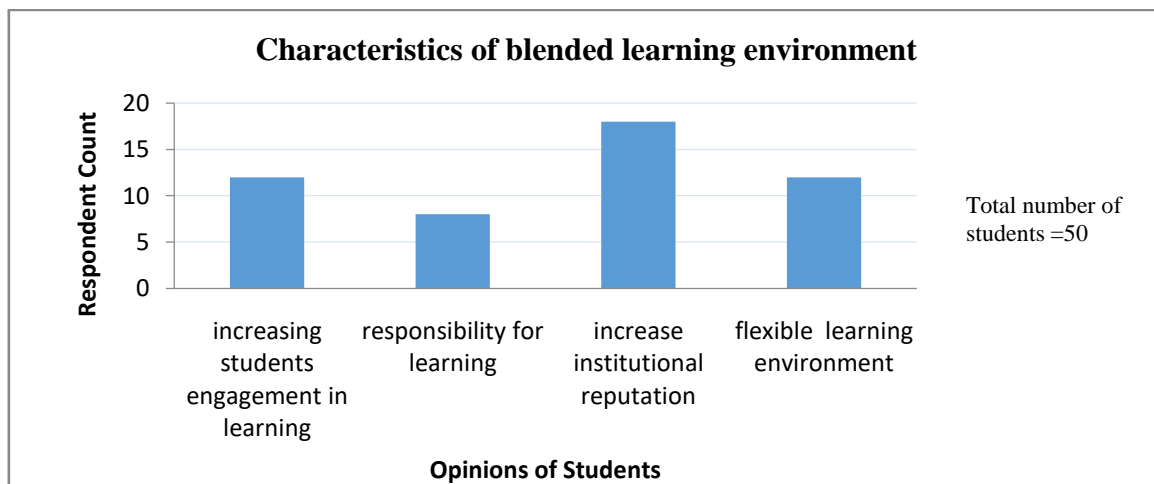


Questions for Students

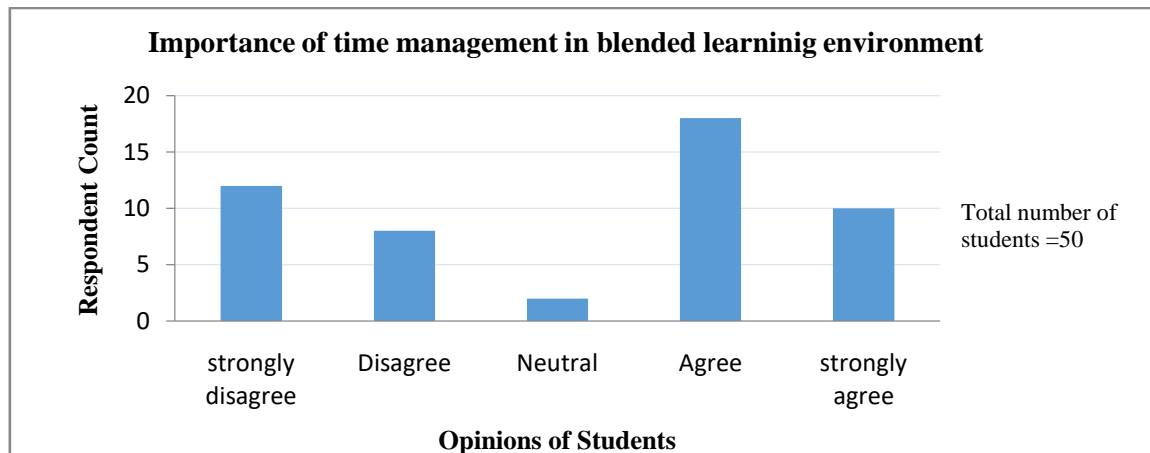
1. How far do you agree that students are benefitted by blended learning in elementary level?



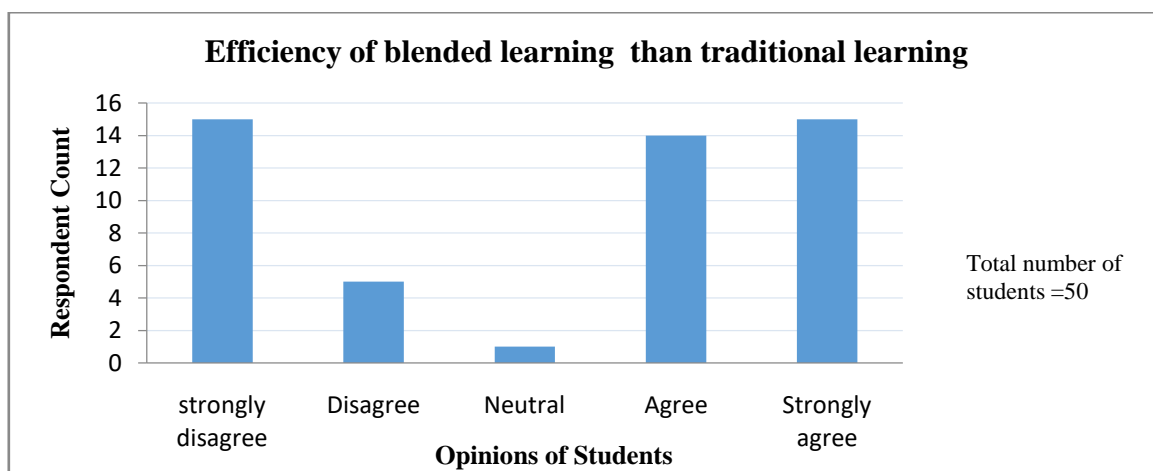
2. What are the characteristics of blended learning environment?



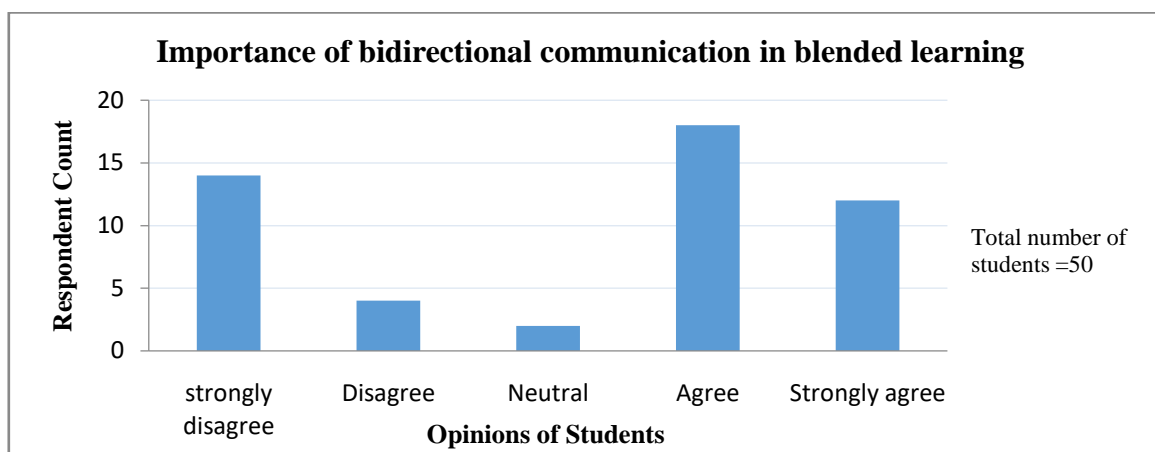
3. how far do you agree that time management is an important role of blended learning in elementary level?



4. How far do you agree that blended learning is more efficient than traditional learning?



5. How far do you agree that bidirectional communication is important for blended learning?



X. ANALYSIS OF THE DATA

There were a total of 50 students and 50 teachers were selected for the survey conduction procedure. 10 separate questions were asked to them regarding various aspects relative to the blended learning environment. Among the 10 questions, 5 were formed respectively for the teachers who have some form of notion and understanding about how a blended learning environment and procedure works. Adekola

et al. (2017) stated that, the remaining 5 were formulated specifically for the students and therefore were asked to them.

The first question that was asked to the teachers was regarding their opinions whether blended learning at the elementary level is beneficial for students or not. Among the 50 teacher respondents, 20 per cent strongly disagreed with the idea. 10 per cent of the teachers simply responded to the disagree option. 4 per cent of them had a neutral opinion, meaning they were neither against nor for the idea. 40 per cent of the teachers, which is a significant amount of the total teacher respondent positively agreed with the idea. Lastly, 26 per cent of the teacher respondents were strongly for the idea (Jowsey et al. 2017).

The second question was regarding the opinion of the teachers about blended learning having an advantage over online learning. The resultant percentage of opinions accounted for 20 per cent strongly against the idea, 12 per cent simply denying the idea, 8 per cent giving a neutral opinion, 40 per cent giving a positive opinion and lastly, 20 per cent being strongly supportive of the statement (Smith and Hil 2019).

The third question was about the importance of teachers in blended learning. According to the survey results, 30 per cent of them mentioned the need of teachers for student work assessment, 50 per cent of the teachers mentioned the importance of teachers for the analysis of the student works in the corresponding learning environment, and the last 30 per cent mentioned the importance of teachers for synthesization of student works and activities.

The fourth question that was asked was regarding the importance of school in distant blended learning. According to Bowyer and Chambers (2017), the received opinions from the teacher respondents were respectively 38 per cent opting for the strongly against option, 12 per cent opting for disagree option, 4 per cent being neutral, 36 per cent opting for the agree with option and lastly, 20 per cent opting for the strongly agree option.

The fifth and the last question for the teacher respondents was about the appropriate teaching processes in the blended learning environment. 30 per cent of the respondent teachers opted for redefining roles in the classroom, 20 per cent opted for determining learning objectives, and a total of 50 per cent of teachers opting for the selection of a proper blended learning model.

The sixth question and the first question for the student respondents was whether students gain any benefit from blended learning in elementary level or not. 20 per cent of the student respondents opted for the strongly disagree option, 10 per cent for simply disagree, 10 per cent were simply neutral about the statement, 30 per cent agreed to the question statement and the last 30 per cent opted for strongly agree; making the total feedback 60 per cent positive.

The seventh question was regarding the student respondents' opinion about the whole blended learning environment. Alsalhi et al. (2019) stated that, 24 per cent of the respondents thought that it increases the engagement of the students in learning processes, 16 per cent opted for it increasing the aspect of responsibility in learning, 36 per cent mentioned it to increase the reputation of the institutions where it has been implemented, and the last 24 per cent opted for its importance in making the learning environment more flexible.

The eighth question was about the student respondents' opinion regarding time management's importance in blended learning at the elementary level. 24 per cent of the respondents opted for the strongly disagree option, 16 per cent opted for simple disagree option, 4 per cent opted to be neutral about the question statement, 36 per cent opted for the agree option and the remaining 20 per cent opted for the strongly agree option (Coyne et al. 2018). Thus a total of 56 per cent among the 50 student respondents were for the idea of the importance of time management, making the question statement positive.

The ninth question was related to the efficiency of blended learning compared to traditional learning procedures. 30 per cent of the student respondents opted for the strongly disagree option, 10 per cent of the students opted for the disagree option, 2 per cent of the students opted for neutral option, and among the remaining 58 per cent, 28 per cent opted for agreeing and 30 per cent for strongly agree option (Nair and Bindu 2016).

The last question of the survey questionnaire was for the student respondents about their perception of the importance of bidirectional communication in blended learning. 28 per cent of the respondents opted

for the strongly disagree option, 16 per cent opted for the disagree option, 4 per cent were neutral, 36 per cent agreed to the question statement and the remaining 24 per cent opted for strongly agree.

XI. FINDINGS AND RESULTS

The total percentage of positive response that was recorded for the first question asked was 66 per cent, therefore making the statement of blended learning to be beneficial for the students at elementary level positive.

The second question also got an overall 60 per cent positive feedback making blended learning more viable compared to online learning.

According to the third asked question, analysis of the student work was the most voted requirement for blended learning.

As per the findings related to the fourth asked question, a total of 56 per cent of the respondents were against the requirement of school in blended learning.

The results for the fifth survey question showcased the most votes for the teachers to select a proper blended learning model

As per the seventh question, most of the student respondents believed blended learning to increase the reputation of the institutions.

As per the results of the eighth question, a total of 56 per cent among the 50 student respondents were for the idea of the importance of time management, making the question statement positive.

Harahap et al. (2019) stated that, regarding the ninth asked question to the students, 58 per cent of the responses from the student respondents were positive therefore proving blended learning to be more efficient than traditional learning.

As for the result of the last asked question, 58 per cent of the student respondents were positive about the idea of bidirectional communication being important for blended learning.

XII. DISCUSSION

Blended learning can be described as an amalgamation of technology and traditional learning. It is one of a kind innovative procedure that assists the students to increase their performance in aspects of knowledge, motivation and satisfaction. It is a unique form of learning technique which involves the benefits of both traditional learning technique as well as modern e-learning techniques to provide the best form of the learning procedure. Blended learning accounts for every inclusive student in the procedure and helps them learn according to their preferred learning speed, style and environment (Akbarov et al. 2018). For example, if a student simply wants a visual representation of the study and subject topics, then blended learning can provide that to him/her. On the other hand, if the student or student prefers one-on-one interactive learning environments from the teachers, then blended learning can also facilitate such a procedure. It provides a world-class educational environment for students at a much cheaper cost. If compared to conventional one-on-one tuitions and interactions, it is a much preferable option. The teaching and learning experience that learning blended learning provides is fun and enjoyable for both the teachers and the students. Usage of computerized voice communications, online class groups, statistical learning outcomes and visual (pictorial and graphical) information representation makes it much more entertaining than conventional book-reading activities (Vo et al. 2017).

XIII. CONCLUSION

Conclusively, as per the analysis, results and findings of the conducted survey and the evaluation of the relative topic of blended learning, it has been found out that blended learning has more positive effects and thus can prove to be beneficial if implemented in the elementary levels of education. Not only will the students receive the benefits, but the teachers also will be benefited by such a form of learning procedure

implementation. The implemented processes of learning in the blended learning environment are reasonably more efficient and smart, which is concluded in this study. It simply means that the respective teachers can teach more and input more knowledge in the students in shorter periods of time without any hassle.

XIV. RECOMMENDATIONS/SUGGESTIONS

The recommendations that can enhance blended learning procedures have been summed up in four separate points:

- The learning process and matrix should be inclusive of the teaching process and self-study. If such a format is maintained students will develop self-knowledge about the respective study topics.
- The more the learning models and processes are individual-focused, the better the knowledge enrapturing for the students.
- Flexibility should always be maintained within the blended learning models. The online study should not hover over offline study practices.
- Lastly, the involvement of the right teachers and subjects in the subjective courses. There are a lot of branches to the core subjects that are present in the educational syllabus. The focus should be maintained on the necessary subjective topics.

REFERENCES

1. Adekola, J., Dale, V.H., Gardiner, K. and Fischbacher-Smith, M., 2017. Student transitions to blended learning: an institutional case study. *Journal of Perspectives in Applied Academic Practice*, 5(2), pp.58-65.
2. Akbarov, A., Gönen, K. and Aydogan, H., 2018. Students' Attitudes toward Blended Learning in EFL Context. *Acta Didactica Napocensia*, 11(1), pp.61-68.
3. Akbarov, A., Gönen, K. and Aydogan, H., 2018. Students' Attitudes toward Blended Learning in EFL Context. *Acta Didactica Napocensia*, 11(1), pp.61-68.
4. Alsalhi, N.R., Eltahir, M.E. and Al-Qatawneh, S.S., 2019. The effect of blended learning on the achievement of ninth grade students in science and their attitudes towards its use. *Heliyon*, 5(9), p.e02424.
5. Banditvilai, C., 2016. Enhancing students language skills through blended learning. *Electronic Journal of e-Learning*, 14(3), pp.223-232.
6. Birbal, R., Ramdass, M. and Harripaul, M.C., 2018. Student teachers' attitudes towards blended learning. *Journal of Education and Human Development*, 7(2), pp.9-26.
7. Boelens, R., De Wever, B. and Voet, M., 2017. Four key challenges to the design of blended learning: A systematic literature review. *Educational Research Review*, 22, pp.1-18.
8. Bowyer, J. and Chambers, L., 2017. Evaluating blended learning: Bringing the elements together. *Research Matters: A Cambridge Assessment Publication*, 23, pp.17-26.
9. Cleveland-Innes, M. and Wilton, D., 2018. Guide to blended learning.
10. Coyne, E., Rands, H., Frommolt, V., Kain, V., Plugge, M. and Mitchell, M., 2018. Investigation of blended learning video resources to teach health students clinical skills: an integrative review. *Nurse education today*, 63, pp.101-107.
11. Dziuban, C., Graham, C.R., Moskal, P.D., Norberg, A. and Sicilia, N., 2018. Blended learning: the new normal and emerging technologies. *International journal of educational technology in Higher education*, 15(1), pp.1-16.
12. Frew, A., Weston, L.A., Reynolds, O.L. and Gurr, G.M., 2018. The role of silicon in plant biology: a paradigm shift in research approach. *Annals of botany*, 121(7), pp.1265-1273.
13. Harahap, F., Nasution, N.E.A. and Manurung, B., 2019. The Effect of Blended Learning on Student's Learning Achievement and Science Process Skills in Plant Tissue Culture Course. *International Journal of Instruction*, 12(1), pp.521-538.
14. Hrastinski, S., 2019. What do we mean by blended learning?. *TechTrends*, 63(5), pp.564-569.
15. Hubackova, S. and Semradova, I., 2016. Evaluation of blended learning. *Procedia-Social and Behavioral Sciences*, 217, pp.551-557.

16. Jowsey, T., Foster, G., Cooper-Ioelu, P. and Jacobs, S., 2020. Blended learning via distance in pre-registration nursing education: A scoping review. *Nurse education in practice*, 44, p.102775.
17. Jowsey, T., Foster, G., Cooper-Ioelu, P. and Jacobs, S., 2020. Blend
18. Leavy, P., 2017. Research design.
19. Lin, Y.W., Tseng, C.L. and Chiang, P.J., 2016. The effect of blended learning in mathematics course. *EURASIA Journal of Mathematics, Science and Technology Education*, 13(3), pp.741-770.
20. Ma'arop, A.H. and Embi, M.A., 2016. Implementation of blended learning in higher learning institutions: A review of the literature. *International Education Studies*, 9(3), pp.41-52.
21. Matheos, K. and Cleveland-Innes, M., 2018. Blended learning: Enabling higher education reform. *Revista Eletrônica de Educação*, 12(1), pp.238-244.
22. Nair, T.S. and Bindu, R.L., 2016. Effect of Blended Learning Strategy on Achievement in Biology and Social and Environmental Attitude of Students at Secondary Level. *Journal on School Educational Technology*, 11(4), pp.39-52.
23. Rasheed, R.A., Kamsin, A. and Abdullah, N.A., 2020. Challenges in the online component of blended learning: A systematic review. *Computers & Education*, 144, p.103701.
24. Ryan, G., 2018. Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, 25(4), pp.41-49.
25. Sajid, M.R., Laheji, A.F., Abothenain, F., Salam, Y., AlJayar, D. and Obeidat, A., 2016. Can blended learning and the flipped classroom improve student learning and satisfaction in Saudi Arabia?. *International journal of medical education*, 7, p.281.
26. Smith, K. and Hill, J., 2019. Defining the nature of blended learning through its depiction in current research. *Higher Education Research & Development*, 38(2), pp.383-397.
27. Smith, K. and Hill, J., 2019. Defining the nature of blended learning through its depiction in current research. *Higher Education*
28. Soler, R., Soler, J.R. and Araya, I., 2017. Subjects in the blended learning model design. Theoretical-methodological elements. *Procedia-Social and Behavioral Sciences*, 237, pp.771-777.
29. Vo, H.M., Zhu, C. and Diep, N.A., 2017. The effect of blended learning on student performance at course-level in higher education: A meta-analysis. *Studies in Educational Evaluation*, 53, pp.17-28.