

Students' perception in a blended learning environment based on different learning styles

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ABSTRACT

The study is a descriptive survey research design. It is aimed at investigating students' perception on blended learning environment using different learning styles. The study was carried out at Ignatius Ajuru University of Port Harcourt, Rivers State, Nigeria. The population of the study was 75 post graduate students in the department of curriculum studies and Instructional technology, faculty of Education, Ignatius Ajuru University of Education. A sample of 50 students was used for the study. A simple random sampling technique was used in the selection process. A structured questionnaire was used as the Instrument to collect data with 25 item questions. Face validity was used and reliability of 0.62 was obtained using Pearson product moment correlation. Mean and Z test was used for this study. The study found that students preferred visual learning style, verbal learning style, social learning style and logical learning style. The study also found that blended learning can enhance students' learning outcomes and improve students' motivation. Based on the findings, it was recommended that teachers should use multiple learning styles while teaching, students should focus on pedagogy as well as technology and teachers should engage their students in conversation about the subject matter.

Keywords: Blended Learning; students' perception; environment; learning styles, flexible learning environment

I. INTRODUCTION

The concept of blended learning has been defined by several researchers and scholars. For instance, Singh & Reed (2001) defined blended learning as a learning program where more than one delivery mode is being used to optimize the learning outcome and cost of program delivery. The effectiveness of blended learning has been

demonstrated by many studies, for example, the findings of meta-analysis have shown that blended learning brings more positive impact on students learning than online and face-to-face learning (Mugenyi, Chang & Edmond, 2017). Despite the merits of blended learning itself, the effectiveness is determined by the proper design. How to achieve the equilibrium between e-learning and face-to-face modes is crucial to the success of the blended learning environment (Osguthorpe & Graham, 2003).

In any learning environment, the pedagogical, social interaction and technological components play different roles. The technical design offers a basic condition for pedagogical and social design while pedagogical and social design is considered as the most important factor that influences the effectiveness of learning (Wang, 2008).

Blended learning is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology. (Stewart, 2018). It is a training approach that combines different learning techniques. In the standard educational model, blended learning often refers to the use of laboratory equipment or computers to complement the class sessions and strengthen the teaching process through practice and the application of theories learned in class (Kaplan & Owen, 2013). In the world of eLearning, the blended learning approach refers to the complementary use of eLearning in the standard education model, due to the benefits it offers on a broad scale, to name a few, self-paced learning, testing and quizzing, monitoring and feedback.

The advantages of this method are far more important than one might think, as they affect

not only the trainees, but also the trainer and the learning process itself. The advantages are:

1. Learner is more engaged using a variety of content types: The reason why books for younger ages are illustrated is rather simple. A child is much less likely to sit down and read pages and pages filled with text. Firstly, it is taken into account the comprehension level of the learner, and realize that pictures will make the material easier to understand. Second, in the instances that the material presented is easy to grasp, the illustration is oftentimes a good way to help the learner sink-in the information faster. Another good way to have that effect is presenting the learner with practical examples of the theory taught (Kaplan & Owen, 2013). To achieve engagement, the blended approach in learning uses a plethora of different material types. Video, audio and visually enhanced presentations are included in a blended learning course design to help keep learners engaged and, also, to make sure that all material is easily understood something that is not always the case in the fast-paced environment of a physical classroom.
2. Different learner, different learning style: However, diversifying teaching methods is a good way to approach the issues that arise when offered an online course to a possibly large number of individuals from all over. This could not be truer for the traditional training model as well, whether talking about a classroom full of students, or a business training environment (Namyssova, Tussupbekova, Kelmer, Malone, Afzal&Jonbekova, 2019). Blended learning complements both environments and helps all types of learners in various ways:
 - a. Time is always an issue in a physical class environment: it is restricted by a one or two-hour limit and getting all the information across is sometimes a trivial task. Especially when facilitating understanding is of essence. Blended learning allows trainees to take information home and have their own time to assimilate it without the pressure of keeping up with the rest of the class.
 - b. Quizzing and testing online allows for trainers to have more time to educate in the physical classroom environment. It earns the trainer extra time to facilitate contact with learners and answer questions, address concerns and make sure that everyone's issues are being resolved.
3. Instructor can assess learner trends and act accordingly: As advanced as technology may be, some things are just not doable in the physical education environment, and that's where the benefits of blended learning shine. Two of the many reasons that eLearning is very appealing to instructors is that it allows updating and tweaking of material on-the-fly. An awesome feature that some Learning Management Systems (LMS) offer is Reporting. Reporting is not only good because it allows for a graphical representation of information found within the LMS: it is also a good way to have a quick overview of what learners are doing, how far they have progressed, how they score in different kinds of testing methods, amongst others features (Kaplan & Owen, 2013). By trying out different methods of testing, quizzing, and even different types of material, a teacher has the ability to tweak around how much emphasis they give on traditional types of material in eLearning (such as text and video), and how much they want to diversify using other types of material or testing methods. This one is probably the most useful of the blended learning benefits, as it helps training become much more meaningful in practice, with the eLearning process being adjusted according to the learners' progress.
4. Improved feedback: Blended learning greatly affects the way feedback is facilitated. To begin with, by testing and quizzing online, as mentioned above, the trainer has the time to arrive to conclusions about the learners' performance without wasting valuable time from the class. Blended training allows for feedback to be prepared from home, and then, harvesting all the benefits of blended learning, the trainer can provide it to learners in the physical environment, simply by using information from within the Learning Management System, in the forms of a report or automatically generated feedback. This advantage of blended learning is also very important for the learners, as feedback is the primary indication of their performance and progress. So, the trainer needs to make use of both the right tools and blended training methods to prepare feedback, in order to assess learners' performance, spending as little time as possible (Masalela, 2009)
5. It can make learning fun: Learning is not a one-sided all-serious process. You simply cannot deny that adding an entertaining twist

to the material is more likely to increase the engagement level of the learners. By fun it does not mean that learning should be set aside, but the combination of the two, by using different and more interactive material (like presentations that are not just pages filled with bullet-points), or what is called Gamification. The end-of-day result should be to allow the learners to have access to information from anywhere, effectively empowering them to take learning into their own hands, create their own schedule, and enjoy the process by doing something interesting. Thus, the importance of blended learning as a training approach does not only show in words, but it is more prevalent on the learning process itself, as well as the learners (Kaplan & Owen, 2013).

For the learning environment to achieve the purpose of developing learners' learning styles, its structural components should be designed to provide favorable condition for critical thinking. It is generally accepted that there are seven different learning styles. While most of us fall across the spectrum of each of these styles, facilitating lessons that are engaging on all levels gives students the best chance of success (Lam, 2017). According to (Lam, 2017), the following strategies to improve engagement for students of each learning style include;

1. **Auditory and musical learners:** Auditory learners like to hear solutions and explained to them, and may gravitate towards music subjects and group learning as a way to understand information. Auditory learners often have a high aptitude for distinguishing notes and tones in music and speech.
2. **Visual and spatial learner:** According to Safranjan&Ziviak (2018), visual learners like diagrams, drawing out concepts, charts and processes. They learn by looking at visual concepts, creating them, and watching other people creates them. Visual learners might be organized or creative in their application, and find things like colors and shapes useful. To engage a visual learner in the classroom, include elements like maps, diagrams and imagery. It is also important to try to include relevant images to go along with the course content. In geography and history, maps are helpful, while for mathematics and logic, go with diagrams. Charts, images and diagrams will aid most students.
3. **Verbal learner:** Verbal learning includes both writing and speaking. Verbal learners might have a preference for reading and writing, word games and poems. Verbal learners know the meanings of a broad category of words, can use them effectively, and actively seek out new words to add to their repertoire. Verbal learners often seek out careers in journalism and writing, administration, law and politics. Verbal learners will want to write down notes, talk about concepts and potentially present them as well. Some may learn more to talking, while others to reading and writing.
4. **Logical and mathematical learner:** Perhaps unsurprisingly, mathematical learners err towards careers in programming, accountancy, science, research and other number and pattern-orientated careers (Safranjan, 2016). Mathematical learners will greatly appreciate any type of learning that logically explains the subject at hand.
5. **Physical or kinaesthetic learner:** Commonly called hands-on learners, kinesthetics prefer to physically engage with the materials of the subject matter (Siti, 2017). Physical learners represent about 5% of the population, and gravitate towards careers with lots of hands-on work like emergency services, physical education and sports (Peptia& Mega, 2017). Channeling the energy and excitability of physical learners is key to offering a good lesson. Taking breaks so they can move around can help, but so can encourage role play and movement within the lesson itself. Physical interaction is also important. The use of props and models will greatly benefit a kinaesthetic learner (Abbas, 2011).
6. **Social and interpersonal learner:** Social learners show preference towards groups and collaboration. Some, but not all, will gravitate towards leadership within a group. It is important for educators to understand that not all social learners are extraverted or highly communicative, and that they can also be visual, auditory, verbal, logical or physical learners. The interpersonal aspect perhaps better describes the settings in which they are most comfortable, rather than how they absorb information. As such, teachers should be cognisant of the breadth of variation between different types of social learners. Some social learners prefer to listen in a group setting, rather than on their own (Christopher, 2015)
7. **Solitary and intrapersonal learner:** Solitary learners can be visual, auditory, physical, verbal or logical learners. Fulfilling all the needs of the solitary student will ensure they are fully engaged. Intrapersonal learners may

gravitate towards careers with a lot of self-determination or motivation, as well as solitary workloads. In a classroom environment it can sometimes be difficult to engage a solitary learner. They might sit silently in the back of the classroom, only to ace the exam at the end of semester. For the educator, it is important to engage them during class. Provide visual materials, books and learning aids. Designate quiet areas, and collaborate with defined sharing time so the solitary learner can feel adequately prepared (Lam, 2017).

Statement of the Study

Blended learning models are those that combine technology with traditional instruction. Examine the challenges associated with these teaching models, and the natural consequences that teachers try to mitigate. Most online classes offer the convenience of completing assignments from home on student’s schedule. However, some students lack direction in online classes because they do not really connect with the teacher or the other students. Some significant challenges to blended learning model include the expense of technology, inadequate training, technological issues, the need to adapt content for blended learning, decreased motivation, and weakened relationships between students and teachers.

Aim and Objectives of the study

The aim of the study is to investigate students’ perception on blended learning environment using

different learning styles. Specifically, the study intends to:

1. Examine students’ learning styles
2. Determine students’ perception towards blended learning approach
3. Investigate problems with students learning styles

Research Questions

1. What are the learning styles student’ prefer?
2. What is students’ perception towards blended learning approach?
3. What are the problems with students’ learning styles?

Method

The study is a descriptive survey research design. It is aimed at investigating students’ perception on blended learning environment using different learning styles. The study was carried out at Ignatius Ajuru University of Port Harcourt, Rivers State, Nigeria. The population of the study was 75 post graduate students in the department of curriculum studies and Instructional technology, faculty of Education, Ignatius Ajuru University of Education. A sample of 50 students was used for the study. A simple random sampling technique was used in the selection process. A structured questionnaire was used as the Instrument to collect data with 25 item questions. Face validity was used and reliability of 0.62 was obtained using Pearson product moment correlation. Mean and Z test was used for this study.

II. RESULTS AND DISCUSSIONS

Research Question 1: What are the learning styles students prefer?

Table 1 Learning styles students prefer

| S/N | Learning Styles | S | A | A | S | D | D | Mean | S | D | R | a | n | k | Total Respondents | |
|-----|-----------------------------|---|---|---|---|---|---|---------|---------|------|---|---|---|---|-------------------|---|
| 1 | Visual learning style | 3 | 4 | 1 | 4 | 2 | - | 3 . 6 4 | 0.55 | 8 | 1 | h | 5 | 0 | | |
| 2 | Verbal learning style | 4 | 9 | 1 | - | - | - | 3 . 9 8 | 0.98 | 1 | s | t | 5 | 0 | | |
| 3 | K i n e s t h e t i c | 3 | 3 | 1 | 7 | - | - | 3 . 6 6 | 0.38 | 7 | 1 | h | 5 | 0 | | |
| 4 | Active and reflective style | 3 | 9 | 1 | 1 | - | - | 3 . 7 8 | 0.41 | 4 | 1 | h | 5 | 0 | | |
| 5 | Sensing and Intuitive style | 4 | 0 | 1 | 0 | - | - | 3 . 8 0 | 0.45 | 3 | r | d | 5 | 0 | | |
| 6 | Sequential and global style | 1 | 4 | 2 | 0 | 1 | 0 | 6 | 2 . 8 4 | 0.97 | 1 | 0 | 1 | h | 5 | 0 |

| | | | | | | | | | | |
|-----|------------------------------|-----|-----|-----|---|----------------|-------------|---------|---|---|
| 7 | Aural learning style | 3 0 | 1 0 | 1 0 | - | 3 . 4 0 | 0.80 | 9 ' ' h | 5 | 0 |
| 8 | Social learning style | 3 4 | 1 6 | - | - | 3 . 6 8 | 0.47 | 6 ' ' h | 5 | 0 |
| 9 | Solidary learning style | 4 5 | 5 | - | - | 3 . 9 0 | 0.30 | 2 ' ' d | 5 | 0 |
| 1 0 | Logical learning style | 3 9 | 1 1 | - | - | 3 . 7 8 | 0.41 | 4 ' ' h | 5 | 0 |
| | A v e r a g e M e a n | | | | | 3 . 6 4 | 0.57 | | | |

Table 1 show that students prefer the following styles, with higher scores more better than the others. Verbal learning style (Mean=3.98; SD=0.98), Solidarity learning style (Mean= 3.90; SD= 0.30) and Sensing and Intuitive style (Mean=3.80; SD=0.45). An overall mean of 3.64 suggests that students preferred Verbal learning styles, solidarity learning styles and sensing and

intuitive learning styles better than the other learning styles. This is because students learn to define everything from ideas, emotions, experience, thought, objects and people. The learning styles they prefer help them to enjoy working independently and learn best when working alone in a blended environment and help them discover possibilities and relationships.

Research Question 2: What is students' perception towards blended learning approach?

Table 2: Perception towards blended learning approach

| S/ N | I t e m s Perception towards blended learning | S | A | A | S | D | D | Mean | S | D | Total Responde nts |
|------|---|---|---|-----|---|---|---|---------|---------|---|--------------------|
| 1 . | I am motivated that I interact with friends on the internet and in classroom in the learning process | 4 | 3 | 7 | - | - | | 3 . 8 6 | 0 . 3 5 | | 5 0 |
| 2 . | Blended learning approach helps student-student interaction | 4 | 0 | 1 0 | - | - | | 3 . 8 0 | 0 . 4 0 | | 5 0 |
| 3 . | The features of online course materials influence students' participation | 3 | 5 | 1 5 | - | - | | 3 . 7 0 | 0 . 4 5 | | 5 0 |
| 4 . | The different activities enrich the blended learning approach and it motivates me towards the lesson | 4 | 4 | 6 | - | - | | 3 . 8 8 | 0 . 3 2 | | 5 0 |
| 5 . | Face to face lessons in blended learning approach plays significant role on my lesson | 2 | 5 | 2 0 | 5 | - | | 3 . 4 0 | 0 . 6 6 | | 5 0 |
| 6 . | Learning management system used in lecturing improves teaching | 4 | 3 | 5 | 2 | - | | 3 . 8 2 | 0 . 4 8 | | 5 0 |
| 7 . | Blended learning approach encourages both in class and out of class environment | 4 | 9 | 1 | - | - | | 3 . 9 8 | 0 . 9 8 | | 5 0 |
| 8 . | Blended learning models extend the reach of the instruction beyond the classroom through the use of digital resources | 4 | 7 | 3 | - | - | | 3 . 9 4 | 0 . 2 4 | | 5 0 |
| 9 | Class time is reduced and the process of instruction is streamlined through | 4 | 5 | 3 | 2 | - | | 3 . 8 6 | 0 . 4 5 | | 5 0 |

| | | | | | | | | | |
|----|--|---|---|---|---|---|------|------|----|
| | the use of technology | | | | | | | | |
| 10 | Blended learning can enhance students' learning outcomes and improve students' motivation. | 4 | 8 | 2 | - | - | 3.96 | 0.20 | 50 |
| | Average Mean | | | | | | 3.82 | 0.45 | |

Table 2 show that students accepted the entire item as their perception towards blended learning approach. This is because the entire item mean was above the criterion mean of 2.50. Therefore, the table revealed that Blended learning approach encourages both in class and out of class

environment, it can also enhance students' learning outcomes and improve students' motivation. This is because the teacher may take time to have conversations with students, celebrate the little things and have fun using technology; the driving force will help motivate students.

Research Question 3: What are the problems with students' learning styles?

Table 1.3: Problems with students' learning styles

| S / N | I t e m s | S | A | A | S | D | D | Mean | S | D | Total Respondents |
|--------------|--|---|---|---|---|---|---|-------------|-------------|---|-------------------|
| 1 | Students take up a lot of focus without providing any real benefit | 4 | 5 | 5 | - | - | | 3.90 | 0.30 | | 50 |
| 2 | Visual or hearing impairment is one of the challenges of students learning style | 4 | 2 | 8 | - | - | | 3.96 | 0.20 | | 50 |
| 3 | The personality of the teacher can influence the students learning style | 4 | 4 | 6 | - | - | | 3.88 | 0.32 | | 50 |
| 4 | Gender is also a factor that affects the student's learning style | 4 | 7 | 2 | 1 | - | | 3.92 | 0.33 | | 50 |
| 5 | Personality goal of the teacher can also affect the students learning | 4 | 0 | 1 | 0 | - | | 3.80 | 0.45 | | 50 |
| Total | | | | | | | | 3.89 | 0.32 | | |

Table 3 shows that students accepted the entire item as their challenges towards learning styles while in a blended learning environment. This is because the entire item mean was above the criterion mean of 2.50. Therefore, the table revealed that Visual or hearing impairment is one of the challenges of students learning style gender is also a factor that affects the student's learning style. This is because students with a vision or hearing related problem may typically lose their

place while reading words and this can lead to low performance in the blended learning environment. Gender can also affect little difference because boys are seen to be slightly better in masculine subjects like mathematics and physics related courses earlier studies have found.

III. DISCUSSION OF FINDINGS

The study in table 1 found that students preferred verbal, solidarity and sensing and

intuitive learning styles with more respondents than the other learning styles.

The result of the present study is in agreement with those of Awla (2014) who found that learning styles play an important role in the lives of learners. When students recognize their own learning styles, they will be able to integrate it into their learning process.

The result of the present study is also in agreement with those of Mehraj&Bhat (2014) who found that teaching to students' learning styles can help students get more excited about the subject, explore and understand the fact, enjoy grappling with the implications, and most importantly, be more willing to put what they have learned into practice.

Furthermore, Diaz & Ryan (2012) who found that online students were more independent and on-campus students were more dependent in their learning styles as learners. Online students appeared to be driven more by intrinsic motives and clearly not by the reward structure of the class.

Research Question 2: What is students' perception towards blended learning approach?

The study in table 2 found that students accepted the entire item as their perception towards blended learning approach. This is because the entire item mean was above the criterion mean of 2.50. Therefore, the table revealed that Blended learning can enhance students' learning outcomes and improve students' motivation and also blended learning approach encourages both in class and out of class environment.

The present study is in agreement with those of Bendania (2011) who found that students hold positive attitude towards blended learning environment and the influencing factors mainly include experience, usefulness, and intention to use, motivation and whether students had ICT skills.

The present study is also in agreement with those of Radovan & Kristl (2017) who found that adoption of blended learning approach improves students' learning engagement and experience as it produces a positive impact on learners' perceptions of the learning environment and pedagogical approach.

The result is also in agreement with those of Kundu et al (2021) who found that online learning experiences and on-campus classroom contact which encourages learners to learn in a collaborative and interactive environment at their own time.

Research Question 3: What are the problems with students' learning styles?

The study in table 3 found that visual or hearing impairment is one of the challenges of students learning style gender is also a factor that affects the student's learning style.

The study is in agreement with those of Nathaniel, Samuel & Mudasiru (2019) who found that most schools do not have adequate digital media to facilitate good instruction.

IV. CONCLUSION

The following conclusions were made by the researchers:

1. The study found that students preferred visual learning style, verbal learning style, social learning style and logical learning style
2. The study also found that blended learning can enhance students' learning outcomes and improve students' motivation and also blended learning approach encourages both in class and out of class environment.
3. It was also found that visual or hearing impairment is one of the challenges of students learning style gender is also a factor that affects the student's learning style.

Recommendations

Based on the conclusion, the following conclusions were made by the researchers:

1. Teachers should use multiple learning styles while teaching.
2. Students should focus on pedagogy as well as technology
3. Teachers should engage their students in conversation about the subject matter.

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