PROPOSED BLENDED LEARNING APPROACH OF CAGAYAN STATE UNIVERSITY

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Abstract

Adopting a new teaching strategy is frequently a difficult task, particularly if one is an early adopter in a setting with few resources, according to Keney and Newcombe (2011). This study aimed to assess the extent of compliance of the blended learning approach that is utilized in Cagayan State University-Andrews Campus in the teaching of Comp11a (Introduction to Computers). This study was limited to the analysis, design, development, utilization and evaluation of a blended learning approach in Cagayan State University-Andrews Campus with the purpose of designing a proposed blended learning model for Comp11a (Introduction to Computers) in this University. The one hundred (100) student-participants were taken only from two (2) classes of freshmen students, in the higher education level enrolled in Comp11a at the College of Business, Entrepreneurship and Accountancy, Cagayan State University, Caritan Centro, Tuguegarao City. The two classes were randomly chosen from the five (5) classes available during the semester. This study focused on the analysis, development, utilization and evaluation of a blended learning approach for Comp11a (Introduction to Computers). The research approach is non-experimental, qualitative and exploratory-descriptive. For the purpose of this study, descriptive research was used to determine the extent of compliance of the blended learning approach that is utilized in Cagayan State University-Andrews Campus in the teaching of Comp11a (Introduction to Computer) with a view of proposing a blended learning approach for Cagayan State University. Data were treated using descriptive statistics such as frequency count, percentage and weighted mean. In this study, meanings were formulated from extracted statements and then clustered into themes to provide full meaning of the results. The participants were consulted to ensure or confirm the credibility of the description. With the findings of this study, the Cagayan State University, a public higher education institution, is ready to implement the blended learning approach as a means of delivery of instruction. The utilization of the blended learning approach has been welcomed by the students with positive experience. In view of the findings, it is strongly recommended that the Cagayan State University to adopt or institutionalize blended learning program or approach to maximize both human and technological resources available.

Keywords: Blended Learning Approach, Compliance, Flex Model, a La Carte Model, Enriched Virtual Model, Rotating Model, Technical, Graphics, Navigation

INTRODUCTION

Education is delivered in a dynamic way. Modern technologies like the internet, cloud computing, and high-end gadgets have made it possible for education to take place outside of traditional classroom settings. The delivery of teaching is improved and enhanced through the use of available technology by educational institutions and faculty personnel. The use of a blended learning strategy is one technique to enrich and improve instruction.

Models of Blended Learning

The rotating model, Flex Model, A la Carte Model, and Enriched Virtual Model are the four blended learning models. The rotating approach, which alternates between online and in-person

instruction for students enrolled in a single course, is the most popular type of blended learning. Group projects, individual tutoring, whole-class or small-group instruction, and other activities can all be a part of the face-to-face component. Students still go to traditional brick-and-mortar schools every day under the flex model. But instead of only one or two courses, as in the rotating model, each class is split into online education and in-person teacher time. In these institutions, which frequently resemble offices, students have their own desks and a number of lecturers circulate to offer assistance as they work through online course material. The A la Carte concept allows students to take one or more courses totally online while also attending their regular in-person classes. On or off campus, students may take the online course. Last but not least, all students in the school split time between school and home for each course under the enriched virtual model. Due to the fact that kids do not go to the actual school every day, it is different from the flex model (Alison DeNisco, 2014). Although there is little agreement on the definition of blended learning and some academic studies contend it is a redundant phrase (Oliver and Trigwell, 2005), other educational think tanks and academic research have proposed distinct blended learning approaches.

Advantages and Challenges in the Adoption or Implementation of Blended Learning Approach

For students and members of the teaching faculty, a review of the literature on the blended learning method identified benefits and difficulties. As these courses have the potential to combine the capabilities of synchronous and asynchronous learning, Ho (2006) and Vaughan (2007) list four main benefits of a blended learning strategy. These benefits include: (1) more time flexibility; (2) accommodating various requirements and learning styles; (3) reflection time; and (4) lower dropout rates as compared to purely online courses (Ho et al., 2006). The adaptable design fits the busy schedules of working students and/or those who have domestic responsibilities. They might not be able to pursue their degrees or programs without flexibility. In addition to students who prefer online learning, the blended learning model accommodates students who prefer face-to-face interaction (King and Arnold, 2012). A community of inquiry, in the words of Garrison and Vaughn (2008), "creates a learning environment that integrates social, cognitive, and teaching elements in a way that will precipitate and sustain critical reflection and discourse" by allowing students to form bonds and work together with their peers. Students in the blended learning strategy have enough time to reflect on their readings and online inputs because they have both face-to-face interactions and online learning. Student motivation may rise with more channels for engagement and communication (Ho et. al., 2006). In light of the aforementioned benefits, blended learning approaches have lower dropout rates than solely online programs lacking in-person interactions.

In comparison to traditional learning approaches or programs, the blended learning approach delivers quality instructional participation, greater quality contact between members of the teaching faculty and students, and a "community of inquiry" through flexible course design (Ho et al., 2006; Vaughn, 2007). According to King and Arnold (2012), the ability of blended courses to offer possibilities for more interaction between students and teachers is what

contributes to the high quality teaching experience. Some students feel more at ease connecting with their professors or instructors using an online learning management system or email.

In addition to the benefits of a blended learning method, literature and studies have also addressed potential difficulties that students and instructors may face. The first phase of a program is usually when technical problems first appear. For the online component of the blended learning strategy to be successful, students must be aware of and informed about technological tools. Another issue is that students could lack motivation to finish their schoolwork (Vaughan, 2007). According to Holenko and Hoic-Bozic (2008), problems with time management during the times when the class does not meet in person can contribute to a loss of enthusiasm. Students who lack time management skills risk falling behind on their assignments. Also, students in blended learning approach may have irrational expectation that meeting less means less work or assignment (Vaughan, 2007).

The sustainability of an institution of higher education's ICT infrastructure is another difficulty in implementing a blended learning tool or method. Aguinaldo (2013) identified many key issues that prevent the use of blended learning tools, including outdated computers, inadequate computers, malfunctioning computers, and no internet connection. The evaluation also made note of financial sustainability. Financial sustainability difficulties included the institution's delayed distribution of its budget for technological upkeep and the addition of internet fee costs to students' budgets (Aguinaldo, 2013). The social and institutional sustainability is a key factor in the application of the blended learning strategy. Lack of participation from the institution's leader, professors, parents, and students, as well as faculty work overload and many designees, are all factors that affect social and institutional sustainability (Aguinaldo, 2013). As a result, a straightforward and carefully thought-out practical solution was employed to successfully integrate blended learning utilizing the Bricolage technique in an academic institution with limited resources, helping the campus improve the quality of learning. The proposed Bricolage approach model's efficacy was discovered to be assessed and evaluated using the ICT sustainability kinds as additional useful metrics (Aguinaldo, 2013).

The execution of the aforementioned learning program must take into account both the faculties and the students' readiness to offer and participate in blended learning, respectively. Students are prepared to adopt a mixed learning method, according to Veras (2013), because they are accustomed to using a variety of technology. Even though the majority of faculty members lack experience with online learning or teaching, they are nonetheless willing to participate in trainings and programs pertaining to online or blended learning. Faculty members are also prepared to change their teaching strategies to a blended learning approach (Veras, 2013). One of the difficulties in implementing such a curriculum is also resistance to the blended learning method. The adoption or execution of a blended learning program is hampered, according to Plata (2013), by organizational change and the widespread usage of traditional teaching methods in classrooms. Additionally, to guarantee that students learn effectively, members of the teaching staff must carefully plan a blended learning method or course. Ho et al. (2006) claim that in some cases a faculty member must completely restructure a course, which takes a lot of time and money.

Adopting a new teaching strategy is frequently a difficult task, particularly if one is an early adopter in a setting with few resources, according to Keney and Newcombe (2011) in their study "Adopting A Blended Learning Approach: Challenges Encountered And Lessons Learned In An Action Research Study." In a large class in the college of education at a medium-sized institution, they pilot tested a blended instructional style, and their essay discusses the difficulties they had and the methods they used. The main goals of employing the hybrid approach were to increase student preparation, understanding, and involvement as well as to promote a more active rather than passive style of learning, which may be particularly challenging in large-scale undergraduate courses. The adoption process was documented, and the effectiveness of the blended approach was evaluated, using an action research study. The findings of the action research study, problems and obstacles that arise while implementing a new instructional technique, as well as suggestions for inspiring and assisting teachers when there is no funding, support, or training available, are reviewed.

As an early adopter of blended learning in a setting where there were little resources and little expertise supporting planned adoption of online education, the author learnt many valuable lessons. Her ability to learn from other professors who had adopted the method and her capacity to use action research to systematically evaluate and reflect on the adoption process were key factors in her adoption's success. The instructor was able to change the course's design and implementation thanks to the action research, which provided her with useful information. Other professors who are interested in implementing hybrid instruction can also benefit from this material, particularly when there is a lack of institutional support. The author's motivation to carry on was greatly aided by starting small with a pilot test and remembering that converting a course to a hybrid format requires time and is an ongoing process.

The transition to blended teaching was made successful with the aid of professional development money for instruction, tools, and a graduate student assistant. The author hopes that more faculty will become interested in online instructional approaches as she shares her experience and the successful student learning outcomes of the blended method and as the university places more emphasis on online education. She also expects that resources and support at her institution will rise as a result. Recently, a person was hired to help professors and COE programs as they switch to entirely online learning. The future of education is online, according to current trends, and preparing educators and institutions for this change through blended learning can be very beneficial.

Effectiveness of Blended Learning Approach

When a blended learning strategy is well-structured, it is seen as effective. Jimison (2013) asserts that in order to establish a successful blended learning environment, it is crucial to identify the classroom objectives and then develop a strategy for putting those objectives into practice through face-to-face instruction. Additionally, blended learning can produce an effective learning environment when teachers identify instructional goals and consider how technology can help them be met (Jimison, 2013). Another assessment makes the observation that whenever a new technology is developed, trainers question whether learning would be more successful if it were used instead of more conventional instructor-led training. According

to Clark (2012), the fundamental benefit of blended learning is the chance for teachers to utilize the elements particular to each delivery environment that enhance learning as well as media blends that allow one to exploit the special advantages of each. The top six advantages of the current use of IT were listed by Douglas Havelka (2003) at the University of Miami in Oxford, Ohio, as increasing work efficiency, changing behavior, enhancing communications, making life more convenient, saving time, and enhancing learning capacity. Research studies also indicate that various distant learning formats came to the conclusion that the learning outcomes of using these technologies were similar to those of receiving instruction in a traditional classroom. Based on Means et al. al. (2013), the development of web-based collaborative tools and applications, as well as the popularity of blended learning models that combine online and in-person classroom education, have heightened expectations for the efficacy of online learning.

Opina (2014) conducted research on the creation and validation of online learning modules for college English, evaluating the efficacy of the proposed online modules with college students enrolled in Communication Skills 1 at Centro Escolar University in the Philippines using an online format and the university's computer lab. In order to give online education for her experimental study using the internet, PCs, headsets, and webcams, the instructor-researcher was inspired by Alecia Bilton-(1997) Ward's concept of virtual teaching and videoconferencing method. The researcher created online modules, games, and other resources based on the communication 1 course syllabus. These were uploaded to an online learning management system (LSM) and connected to virtual class web portals. The researcher used a variety of tools, many of which are free websites for online instruction, including Quia, Slideshare, Quizmoz, Webposter emails, ym conversations, and Nicenet. Before the project began, ten English professors were asked to test the modules in their actual classrooms. The modules were then updated for the subsequent phase of the experimental study. The study's questionnaire was administered to 15 students for testing, and the results showed great reliability. To find potential subjects and participants for the study, all portions the researcher handled were examined using ANOVA. Only four of the eight sections—with 172 students—had pre-test scores and preliminary grades that were equivalent, making them the study's subjects. Based on the above mentioned-results, the subjects were grouped as slow and fast learners. The researcher also used linear correlation, Likert Scale, percentage, arithmetic mean and standard deviations, t-test for independent population. Given the reviews above, a blended learning strategy may be a useful way to give training.

STATEMENT OF THE PROBLEM

This study aimed to assess the extent of compliance of the blended learning approach that is utilized in Cagayan State University-Andrews Campus in the teaching of Comp11a (Introduction to Computers).

Specifically, it sought to provide answers to the following questions:

1. What is the extent of compliance of the blended learning approach utilized in terms of the following e-learning components as assessed by IT Specialists:?

    a) Instructional design;

    b) Technical characteristics;

    c) Accessibility features;

    d) Assessment tools;

    e) Navigation features;

    f) General design;

    g) Audio and narration;

    h) Fonts;

    i) Text contents;

    j) Graphics;

    k) Video and animation

2. What blended learning model can be proposed for implementation at Cagayan State University-Andrews Campus?

RESEARCH METHODOLOGY

This study was limited to the analysis, design, development, utilization and evaluation of a blended learning approach in Cagayan State University-Andrews Campus with the purpose of designing a proposed blended learning model for Comp11a (Introduction to Computers) in this University. It was confined in getting responses from the students and did not include teachers. However, the technical aspects of the study were gathered from the responses of Information Technology (IT) Specialists of Saint Paul University Philippines, University of Cagayan Valley and Cagayan State University. The one hundred (100) student-participants were taken only from two (2) classes of freshmen students, in the higher education level enrolled in Comp11a at the College of Business, Entrepreneurship and Accountancy, Cagayan State University, Caritan Centro, Tuguegarao City. The two classes were randomly chosen from the five (5) classes available during the semester.

This study focused on the analysis, development, utilization and evaluation of a blended learning approach for Comp11a (Introduction to Computers). The research approach is non-experimental, qualitative and exploratory-descriptive. Non-experimental is suitable to the study because the type of research question would not be appropriate for an experimental research and qualitative studies do not interfere with the natural behavior of the participants being studied (Polit et al, 2001). In this study, data were gathered without introducing any treatment. For the purpose of this study, descriptive research was used to determine the extent

of compliance of the blended learning approach that is utilized in Cagayan State University-Andrews Campus in the teaching of Comp11a (Introduction to Computer) with a view of proposing a blended learning approach for Cagayan State University

Two-content validated survey instruments and evaluation checklist were the primary data collection instruments. The survey instrument was used to gather data on the extent of compliance of the blended learning approach that is utilized in Cagayan State University-Andrews Campus in the teaching of Comp11a (Introduction to Computer) with a view of proposing a blended learning approach for Cagayan State University to better the delivery of instruction.

Data analysis means to organize, provide structure and elicit meaning. Analysis of qualitative data is an active and interactive process (Polit et al, 2001). Data analysis commenced after administering the first survey instruments and the result was used as basis in the development of the blended learning approach for Comp11a (Introduction to Computers) while the succeeding data analyses were performed after the administration and conduct of the second survey instrument and evaluation checklist, respectively. The researcher comprehended, synthesized, and theorized the data and information gathered. Significant statements that pertain to the subject of study were extracted. Statements which were used to formulate meanings were organized into clusters. The researcher also returned the description to the source for confirmation of validity. Data were treated using descriptive statistics such as frequency count, percentage and weighted mean. In this study, meanings were formulated from extracted statements and then clustered into themes to provide full meaning of the results. The participants were consulted to ensure or confirm the credibility of the description.

The following Likert Scale and descriptive interpretation were used as basis for the interpretation of the results and findings:

Table 1: Likert Scale and Descriptive Interpretation for the extent of compliance of the E-learning Component of the Blended Learning Approach with the commonly Accepted characteristics of a good e-learning environment

Mean Range	Descriptive Interpretation
90%-100%	Very great extent
80%-89%	Great extent
70%-79%	Moderate extent
60%-69%	Little extent
50%-59%	Very little extent

RESULTS AND DISCUSSIONS

1. The Extent of Compliance of The E-Learning Component of the Blended Learning Approach with the Commonly Accepted Characteristics of a Good E-Learning Environment

The following results are presented to measure the degree of compliance of the said subject to existing standards. The data were derived from the responses of the Information Technology Specialists of the University relative to the characteristics of Blended Learning Approach.

Table 2: Characteristic Instructional Design of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Instructional content relates directly to objectives	9	100	Very great extent
Course objectives are met	8	89	Great extent
Various instructional methods are used	7	78	Moderate extent
Objectives are clearly stated	7	78	Moderate extent
Objectives include measurable criteria	7	78	Moderate extent
Content is segmented into small chunks	7	78	Moderate extent
Information is logically grouped	7	78	Moderate extent
Major headings are clear and descriptive	7	78	Moderate extent
Feedback is provided for questions answered	7	78	Moderate extent
Over-all Weighted Mean		**81.66**	**Moderate extent**

Table 2 shows the summary results of the responses of the IT Experts as to the assessment of the characteristics of the instructional design of the e-learning component. As shown, almost all variables under the instructional design were perceived to have moderately conformed to standard. Nonetheless, it was perceived that the instructional content relates directly to objectives at a very great extent, giving a perfect rating of 100%. Course objectives were also met at a great extent being rated at 89% conforming. With an over-all weighted mean of 81.66%, it indicates that the instructional design characteristics of the e-learning component of the University is perceived to conform to standards at a great extent. The general rating on this particular characteristic indicated a better provision of e-learning experiences to students. This result is consistent with the research done by Algahtani, A. (2011), which underlined that e-learners think they can learn on their own using all of the features provided by the technology. They claimed that the interactive nature of e-learning motivated them, and they pursued their courses with vigor and success.

Table 3: Technical Characteristics of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Project load time is reasonable	7	78	Moderate extent
Shortcut keys have been defined	7	78	Moderate extent
Hardware requirements have been identified	7	78	Moderate extent
Software requirements have been identified	7	78	Moderate extent
Dimensions are optimized for target audience	7	78	Moderate extent
Course is viewable in all web browsers	7	78	Moderate extent
Pages are easily printed	7	78	Moderate extent
Pages are easily printed	7	78	Moderate extent
Contact information is available for questions	7	78	Moderate extent
Over-all Weighted Mean		**78**	**Moderate extent**

Table 3 illustrates the technical characteristics of the E-Learning component of the University. As shown, all variables were perceived to be moderately conforming to the standard requirements with all eight (8) items equally rated at 78%. As per findings, the technical characteristic of the e-learning component to be able to be highly responsive to students' learning needs requires more room for improvement since it was only moderately rated by the IT specialists. These findings are consistent with those of Al-Adwan, A. S. (2021), who showed that factors of quality, such as the instructor, technical system, support service, educational systems, and course content quality, have a direct positive influence on students' satisfaction, perceived usefulness, and system use. Additionally, students' pleasure, perceived usefulness, and system utilization are all negatively impacted by self-regulated learning. Key indicators of students' academic achievement include contentment, perceived usefulness, and system utilization. These results have significant ramifications for e-learning stakeholders, ensuring the efficient, effective use of e-learning that enhances students' learning.

Table 4: Accessibility Features of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
All ALT tags have been used	8	89	Great extent
Entire course can be navigated with keyboard	7	78	Moderate extent
Text is provided for all non-text elements	7	78	Moderate extent
Over-all Weighted Mean		**81.66**	**Great extent**

Table 4 presents the accessibility features of E-learning component of the BLA. As shown, there were three (3) access features being assessed. Accordingly, respondents agreed that navigation of the entire course with the keyboard were done on a moderate extent and so with the provision of texts for all non-text elements, both of which had ratings of 78%. All ALT tags were utilized to a great extent (89%). Generally, at an average of 81.66, there is an indication of a great extent of accessibility features of the E-learning method of the University. This is a good indicator that this feature would provide for better e-learning experiences for the students.

These findings were in agreement with those of Dey, P., and Bandyopadhyay, S. (2019). In which the article introduces a web-enabled blended-learning platform that combines synchronous e-learning with traditional classroom interactions, supervised by qualified online instructors using digital audio-visual materials. The pilot study carried out utilizing the suggested blended learning platform shows it is possible to give poor school kids a quality education. The results show that blended learning platforms in classroom settings, along with high-quality digital content, qualified online teachers, and on-site teaching assistants serving as class coordinators, create a learning environment that can significantly boost students' academic success and general wellbeing, regardless of their socioeconomic status.

Table 5: Assessment Tools in Measuring Students' Performance in the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Assessments/tests are relevant and complete	7	78	Moderate extent
Assessments are challenging and realistic	7	78	Moderate extent
Various quiz methods/types are used	7	78	Moderate extent
Assessments/tests are used throughout	7	78	Moderate extent
Final assessment at the end	7	78	Moderate extent
Pass/fail marks are appropriate	7	78	Moderate extent
Feedback provided is adequate	7	78	Moderate extent
Feedback is presented within reasonable time	7	78	Moderate extent
Post course assessment/evaluation is included	7	78	Moderate extent
New content is not presented in assessments or in assessment feedback	7	78	Moderate extent
Over-all Weighted Mean		**78**	**Moderate extent**

Table 5 presents the various assessment methods and tests in measuring the students' performance in the implementation of E-learning component of the BLA. There were two prominent tools used in the evaluation of students' performances though conducted in various means, the paper tests and the feedback method. Both tools were used by the respondents at a moderate extent, as indicated by an over-all weighted mean of 78%. These findings are in agreement with those of Heilporn, Lakhal, and Bélisle. (2021), the results of which highlighted the significance of a well-paced, well-structured course that fully utilized and integrated synchronous and asynchronous modes of BL. At the beginning of the semester, building trustworthy relationships with students and clearly outlining the course's structure and requirements also seemed to be important for promoting student participation in BL. At the undergraduate level, the use of various digital tools was also emphasized to encourage behavioral and emotional involvement from students, whereas graduate students' cognitive and emotional involvement was primarily targeted through experience-sharing and learning co-construction between students.

Table 6: Characteristics of the Navigation Feature of E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
All hyperlinks work	8	89	Great extent
Backward links to navigate to previous screens		89	Great extent
Main navigation is easily identifiable	8	78	Moderate extent
All navigation is correct sequence	7	78	Moderate extent
Hyperlinks are clearly identified	7	78	Moderate extent
Minimum use of external links	7	78	Moderate extent
Number of navigation icons is reasonable	7	78	Moderate extent
Over-all Weighted Mean		**81.14**	**Great extent**

Table 6 shows the characteristics of the navigation feature of the E-learning component of the University. As gleaned from the results, navigation in the University's website manifests the moderate use of appropriate tools and programs. However, those that concerns hyperlinks especially items 4 and 5 were perceived to be very efficient based from the rating of 89%. The result from the table reveals that navigating from to and outside the University's website is easy and user-friendly. In the research Dáz, J., Saldaa, C., & Avila, C. conducted in 2020 also demonstrated how much a set of students valued their interactions with the Meta verse, demonstrating its applicability both within and outside of the classroom.

Table 7: Characteristics of the General Design of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Total design is uniform in appearance	7	78	Moderate extent
Branding/identity guidelines have been followed	7	78	Moderate extent
Use of logos is appropriate	7	78	Moderate extent
Colors used are consistent and suitable	8	89	Great extent
Color schemes were chosen for visibility & contrast	9	100	Very great extent
Over-all Weighted Mean		**84.60**	**Great extent**

Table 7 presents the results of survey on the general design of the E-learning component of the University. The propriety of the general design was measured by its appearance and content. The propriety of appearance was rated by the respondents at a great extent, where visibility and contrast of color schemes was perceived to be perfect based on the rating of 100%. A great extent of confirmation was given by the respondents as to the consistency and suitability of colors, rated at 89%. All others, like uniformity of appearance, branding and the use of logos were rated at a moderate extent. Hence, the general view of the over-all design is acceptable at a great extent (84.60%). The general design of the e-learning component of the BLA of the University was rated high in conformity by the IT specialists, thereby, indicating the suitability for better learning experiences for the students. The results of Waluyo, B., (2020) corroborated such a significant discovery whose findings provide insight into the design of curricula and courses with reference to ICT integration, the integrated-skills approach, and formative assessment.

Table 8: Characteristics of the Audio and Narration of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Narration is clear and concise	7	78	Moderate extent
Audio quality is high (not fuzzy or scrambled)	7	78	Moderate extent
Audio synced to the content	7	78	Moderate extent
Audio can be paused	7	78	Moderate extent
Volume can be muted	7	78	Moderate extent
Volume can be controlled by user	7	78	Moderate extent
Over-all Weighted Mean		**78**	**Moderate extent**

Table 8 presents the results of survey on the audio and narration of the E-learning Component of the University. As shown in the table, all variables measured under this aspect were rated moderately by the respondents resulting to an over-all rating of 78%. These findings indicate that audio and narration of the E-Learning Component of the University is programmed at a moderate extent. In this case, the audio and narration still need to be improved in order to be more responsive to the students' learning needs. This finding agrees with those of Chen, H. T. M., and Thomas, M. (2020), which showed that those with little prior understanding of the subject matter performed better on memory tests while watching a lecture video with hand-drawn illustrations.

Table 9: Characteristics of the Fonts of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Maximum of two or three fonts are used throughout.	9	100	Very great extent
Font colors are visible against background color.	9	100	Very great extent
Styles and colors are consistent throughout.	9	100	Very great extent
Body text is left justified.	8	89	Great extent
Decorative fonts are only used for headings.	7	78	Moderate extent
Appropriate line spacing is used	7	78	Moderate extent
Paragraph length is appropriate.	7	78	Moderate extent
Font sizes are appropriate and easily readable.	7	78	Moderate extent
Emphasis (bold, italics) is used sparingly.	7	78	Moderate extent
Over-all Weighted Mean		**95.22**	**Very great extent**

The characteristics of the fonts of the E-Learning Component was assessed by the respondents and the results are shown in Table 9 As presented, the number of fonts used, its visibility against the background color and its style and color consistency were perceived to be excellent as all three characteristics were rated at 100% each. The body text which is left justified was perceived to be used also at a great extent being rated as 89%. The rest of its characteristics were all rated moderately. The over-all rating is 95.22% which implies that characteristics of fonts in the E-Learning Component is very acceptable at a very great extent. These findings indicate a very good compliance of this feature to the requirement of the e-learning approach, thus, contributing much to a better learning experiences of the students. Results supported by

the study by Ghai, A., and Tandon, U., (2022) which identified consistency, typography, visuals, grid, and layout as factors influencing e-learning usability. The study has implications for instructional practices that support efficient learning. The research is useful for course designers who create modules by taking into account visual design features that can encourage interaction with and comprehension of content by online learners. Similarly, S. Astuti et al (2021) highlighted in his paper, which discusses design guidelines suitable for platform-specific applications. Based on research, user interface testing has been done using the System Usage Scale (SUS), which was administered to 32 respondents, and analysis of the results. The findings indicated that the majority of respondents thought the mobile application's development had satiated the user interface element's requirements.

Table 10: Characteristics of the Text Contents of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Language is clear and concise.	9	100	Very great extent
Correct capitalization is used.	9	100	Very great extent
Content is not plagiarized.	8	89	Great extent
Date formats, measurements, are consistent.	8	89	Great extent
Punctuation is appropriate.	8	89	Great extent
Complex sentences are avoided.	7	78	Moderate extent
Spelling has been checked.	7	78	Moderate extent
Grammar has been checked.	7	78	Moderate extent
Tone is consistent throughout.	7	78	Moderate extent
Tone is appropriate for the audience.	7	78	Moderate extent
Text is gender neutral.	7	78	Moderate extent
Facts, statistics, data are accurate.	7	78	Moderate extent
Correct capitalization applies to units and acronyms.	7	78	Moderate extent
Language is culturally appropriate.	6	67	Limited extent
Content has been localized for all localized for all	6	67	Limited extent
Over-all Weighted Mean		**81.66**	**Great extent**

The perception of the respondents as to characteristics of the text content of the E-Learning Component of University is shown in Table 10 accordingly, clarity of the language used as well as its conciseness was rated excellent (100%). Also there is an excellent use of correct capitalization (100%). Compliance to non-plagiarism, accuracy of date formats and measurements and appropriate punctuation are observed at a great extent, with all three variables rated at 89% each. However, it was perceived that there is a little extent of compliance to the use of culturally appropriate language and its localization, where these two variables were being rated at 67% each. The over-all rating of 81.66 indicated a great extent of compliance of the University to the appropriate characteristics of the text content of its E-Learning Component. The finding reveals that this particular characteristic will bring good learning experiences to students. This result revealed agreement with the 2022 study of Oktarina, S.'s research and analysis findings where it was found that the generated content has benefits such as being engaging, inspiring, full of information, simple to use, and full of opportunities for learning, and that the language is simple and easy to grasp The quality of e-

learning based learning media utilizing LMS Moodle, which was built as a learning media on the observation report text material, is declared to be a valuable and effective contribution in increasing the quality of learning outcomes, as described by Ray, S. A. ()2020) in the results of his study.

Table 11: Graphical Characteristics of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Graphics & images are meaningful	7	78	Moderate extent
All images resized and compressed	7	78	Moderate extent
Images use appropriate file type	7	78	Moderate extent
Photos are consistent in quality, size, type	7	78	Moderate extent
Over-all rating		**78**	**Moderate extent**

The perception of the respondents as to the level of compliance on the graphical characteristics of the E-Learning Components in the University is shown in Table 11 As clearly indicated, generally, there is a moderate degree of compliance at 78% on all the variables being measured. The findings indicate the need for more improvement in the graphical characteristics of the e-learning component, to cope up with the needs of the student-learners. Similar findings have been made by Alshehri, Rutter, and Smith. (2019), it was stated that the analysis of the results revealed that information quality is the most crucial factor, followed by e-learning system navigation. The survey also showed that, in terms of importance for evaluating the usability of an e-learning system, the system learnability and visual design came in third and fourth, respectively. Finally, instructional assessment and system interactivity were the least significant design factors that affected the e-learning system usability assessment.

Table 12 Characteristics of the Videos and Animations of the E-Learning Component of the Blended Learning Approach

Items	Frequency	Percentage	Descriptive Interpretation
Use of animations and videos is appropriate	7	78	Moderate extent
Videos are consistent in quality, size and type	7	78	Moderate extent
Over-all rating		**78**	**Moderate extent**

Table 12 presents the characteristics of videos and animations of the E-Learning Component of the University based on the two identified characteristics. Accordingly, these are the 1.) Appropriateness on the use of animation and videos and 2.) Their consistency in the quality, size and type. Both were rated as moderately compliant given a rating of 78% each. In this case, since it was perceived by the IT specialist to be just at an average level, there is also a need for improvement on this particular characteristic so that it could answer the needs of the student learners in the e-learning component. El-Ariss, B., Zaneldin, E., & Ahmed, W. endorsed the use of this component. (2021), which highlighted how students' performance had improved and the majority of the course's learning objectives had been met. When compared to in-person lectures, video-based online learning with animations produced greater learning outcomes. One of the outstanding advantages for students using the e-learning method is having access to the course instruction videos at any time and from any location.

THE PROPOSED BLENDED LEARNING APPROACH MODEL

Rotation Model

Rotation model, particularly the flipped classroom method was used by the researcher in conducting the study. Short video lectures and modules were viewed by the students at home before the next lecture session. The video was either recorded or recommended by the instructor. In class, the time is devoted to board works, seat works, projects or discussions. The video lecture is vital in the delivery of the lesson. The ease with which video can be accessed and viewed today has made it so universal that flipped classroom model has already been evident and existent.

The concept of the use of a flipped classroom is to encourage active learning, student engagement and hybrid course design. The value of a flipped classroom is in the shifting of the traditional method of teaching into more of a workshop where students can inquire about the lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During the lecture session, the instructor functioned as a coach or advisor, encouraging students in individual inquiry and collaborative effort.

During the run of the model, students viewed multiple lectures of three to ten minutes each. Online practice quizzes or activities were combined to test what the students have learned from the lecture. The immediate feedback from the practice quiz and the ability to rerun lecture segments helped the students to clarify points of confusion. The instructor-led in-class discussions and even sometimes turned the classroom into a studio where the students created, collaborated and put into practice what they have learned from viewing the lectures outside of the classroom. As an on-site expert, the instructor suggested different approaches, clarified content, and monitored student progress. There were instances that the instructor grouped the students in order for them to solve a particular problem that several are struggling to understand. The researcher found the use of flipped classroom significant as the use of video and other prerecorded media places the lectures under the control of the students: they can watch, rewind, and fast-forward as needed. This ability may be of particular value to students with accessibility concerns, especially where special methods like captions are applied to the lecture for persons with disabilities. Lectures can also be viewed more than once by those students with whom English is not their first language. Devoting lecture session to application of concepts gave instructors a better opportunity to detect errors in thinking, particularly those that are widespread in class. At the same time, collaborative works can encourage social interaction among students, making it easier for them to learn from one another and for those of varying skill levels to support their peers.

The nice thing about flipped classroom method is it is becoming more popular. New tools may emerge to support the out-of-class portion of the curriculum. In particular, the ongoing development of powerful mobile devices will put a wider range of rich, educational resources into the hands of students, at times and places that are most convenient to them. Greater number of courses will likely employ the elements of the flipped classroom, supplementing the traditional method of teaching with video presentations and supporting project-based and lab-

style efforts during regular class time. At a certain level of adoption, colleges and universities may need to take a hard look at class spaces to ensure they support the kinds of active and collaborative work common in flipped classes. The implementation of flipped classroom constitutes a role change for instructors, who give up their front-of-class position in favor of a more collaborative and cooperative contribution to the teaching process. There is also an associated change in the role of the students, many of whom are used to being passive participants in the education process, where instruction is served to them. The flipped classroom model puts more responsibility for learning on the shoulders of students while giving them more motivation to explore. Activities can be student-led, and communication among students can become the determining dynamic of a session devoted to learning through hands-on work. What the method does particularly well is to bring about a distinctive shift in priorities-from merely covering material to working towards the mastery of it.

SUMMARY OF FINDINGS

Extent of Compliance of the E-Learning Component of the Blended Learning Approach with the Commonly Accepted Characteristics of a Good E-Learning Environment

The extent of compliance of the e-learning component was measured through the following indicators:

1. These features of the e-learning component of the blended learning approach were perceived to be conforming to the standard characteristics at a moderate extent: instructional design of the e-learning, accessibility, navigation, and text contents.

2. The following characteristics of the e-learning component were perceived to conform at a moderate extent with a rating of 78% each:

    2.1. Technical Characteristics

    2.2. Assessment Tools in Measuring Students' Performance

    2.3. Audio and Narration

    2.4. Graphics

    2.5. Video and Animation

3. The general design was seen to be conforming at a great extent.

4. The characteristics of the font was perceived conforming at a very great extent.

CONCLUSIONS

With the findings of this study, the Cagayan State University, a public higher education institution, is ready to implement the blended learning approach as a means of delivery of instruction. The utilization of the blended learning approach has been welcomed by the students with positive experience. It has been proven to be an effective approach in the delivery of quality instruction since most of the students are satisfied with it. Said readiness was confirmed

by the evaluation of the IT Specialists in the level of compliance of the learning management system of the University.

RECOMMENDATIONS

In view of the findings of the study, the following recommendations are offered:

1. Like many schools or universities, the Cagayan State University faces challenges as it takes steps to transform or enhance its delivery models to create greater access to quality education and deepen student learning, while integrating use of technology. The researcher believes that the University's plan for blended learning should be closely aligned with its technology infrastructure, other resources and its improvement planning process. As such, the researcher is proposing the model utilized   in this study;

2. For Cagayan State University to adopt or institutionalize blended learning program or approach to maximize both human and technological resources available;

3. For Cagayan State University to encourage the faculty members to develop syllabus using the blended learning approach;

4. For Cagayan State University to constitute a committee to review or assess blended learning program or approach developed   by the faculty members;

5. For Cagayan State University to develop a plan to boost the existing number of equipment and facilities to cope up with the demand of the increasing number of students.

6. As to the extent of compliance of the E-learning component of the blended learning approach, the following area need to be further enhanced:

    a) Instructional design;

    b) Technical characteristics;

    c) Accessibility features;

    d) Assessment tools;

    e) Navigation feature;

    f) Audio and narration;

    g) Text content;

    h) Graphics; and

    i) Videos and animation.

7. A Rotation Model, particularly flipped classroom type is also recommended. In this model, the students rotate on a fixed schedule or the instructor's discretion between learning modalities, at least one of which is online learning. Further, students are encouraged to participate in online learning off site in place of traditional homework and attend the traditional learning environment.

8. A longitudinal study may be conducted to assess the effectiveness of the blended learning approach.

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