Global Scientific JOURNALS

GSJ: Volume 11, Issue 7, July 2023, Online: ISSN 2320-9186

www.globalscientificjournal.com

THE USE OF BLENDED LEARNING MATERIALS IN TLE AND ITS RELATIONSHIPS TO THE HIGHER ORDER THINKING SKILLS AS PERCEIVED BY THE BTLED STUDENTS

A Thesis
Presented to the Faculty of the Education Program
Kolehiyo Ng Pantukan, Pantukan
Davao de Oro

In Partial Fulfillment of the Requirement for the Degree
Bachelor of Technology Livelihood Education
major in Home Economics

KAREL D. DIABORDO
KYLA D. CALIMPUSAN
JOHANA MAE M. CATIG
ARVIE JAMELA G. PATARATA
Authors

MARCH 2023

Kolehiyo ng Pantukan
Juan A. Sarenas Campus, Kingking, Pantukan, Davao de Oro

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KOLEHIYO NG PANTUKAN
College of Teacher Education
Juan A. Sarenas Campus
Kingking, Pantukan

Kolehiyo ng Pantukan
Juan A. Sarenas Campus, Kingking, Pantukan, Davao de Oro

APPROVAL SHEET

This quantitative research titled **"THE USE OF BLENDED LEARNING MATERIALS IN TLE AND ITS RELATIONSHIPS TO THE HIGHER ORDER THINKING SKILLS AS PERCEIVED BY THE BTLED STUDENTS"** is submitted by **KAREL D. DIABORDO, KYLA D. CALIMPUSAN**, **JOHANA MAE M. CATIG**, **ARVIE JAMELA G. PATARATA,** in partial fulfillment of the requirements for the degree, Bachelor in Technology and Livelihood Education major in Home Economics, which is hereby approved and accepted.

SANNY M. DARAMAN, LPT, MAHEED
Adviser

Panel of Examiners

APPROVED by the Panel of Examiners with a grade of_____**.**

DR. LYNARD BOBBY L. ASIRIT, LPT, PDSM, CESE
Chairperson, Advisory Committee

DR. CELEDONIA C. COQUILLA, LPT
Panel Member

DR. EUFROSINA P. MINES,CHE,LPT, FRIEDR
Panel Member

ACCEPTED in partial fulfillment of the requirements for the degree, Bachelor of Technology and Livelihood Education major in Home Economics.

FDR DR. JOCELYN H. HUA, DFRIEdr
College Administrator

ABSTRACT

Blended learning is a method that mixes in-person instruction with online learning activities (Eoghan Quigley, 2022). This study aims to determine the relationship between the use of blended learning materials and higher-order thinking skills as perceived by the BTLED students in Kolehiyo ng Pantukan. This study employed quantitative research and was anchored to the concept of Samsanova (2019) entitled “Blended Learning Tools” in independent variable while in dependent variable was anchored to “Bloom’s (Revised) Taxonomy by Anderson and Krathwohl (2001). It utilized descriptive correlational design that investigates the relationship of variables. The participants of this study are the BTLED students from first year to fourth year who enrolled in the academic year 2022-2023, which has a total population of 249 students. The study utilized a complete enumeration method. The researchers used an adapted and modified questionnaire as a research instrument. Thus, it utilizes mean, Pearson-r, and probability as statistical treatment in this study. As a result, the utilization level of blended learning materials in BTLED students in Kolehiyo Ng Pantukan was high. On the other hand, the level of higher order thinking skills as perceived by the BTLED students in Kolehiyo ng Pantukan was high. This indicates that there is a strong correlation between the use of blended learning resources and the quality of students' higher-order thinking abilities. Because of this, students should use technological tools to develop their higher-order thinking skills, teachers should incorporate technology as new pedagogy, parents should practice using specialized tools, and institutions should assess what technological tools are lacking to provide and improve school facilities and technical tools needed by students to enhance and strengthen their abilities and skills.

Keywords: Blended learning materials, Higher order thinking skills as perceived by the BTLED students in Kolehiyo ng Pantukan, Descriptive- Correlational Design, Philippines

DEDICATION

This study is wholeheartedly dedicated to our beloved Mentors, who have been our source of inspiration and gave us strength when we thought of giving up, who continually provide their moral, spiritual and emotional. To our mentor, friends, and classmates who shared their words of advice and encouragement to finish this study and lastly, we dedicated this Study to the Almighty God, thank you for the guidance, strength, power of mind, protection and skills and for giving us a healthy life. All of these, we offer to you.

The Researchers

ACKNOWLEDGEMENT

First of all, the researchers would like to thank the Almighty God for His enduring grace, guidance, and protection that he has bestowed upon us during this research project.

The researchers would also like to express their sincerest gratitude to their adviser, Mr. Sanny Daraman for his continuous support in our research, for his patience, motivation, and immense knowledge. His guidance helped us throughout our research and writing of our thesis.

The researchers would also like to express our appreciation to their thesis coordinator, Dr. Lynard Bobby Asirit, for his trust, advice, support, patience, and guidance from the start to the completion of the study. On the other hand, the researchers would also like to thank our beloved and gorgeous research panelists, Dr. Mines and Dr.

Coquilla, for their patience, advice, and guidance throughout these challenging research studies. Thus, we would also like to thank Mr. Ezziden M. Manidoc for imparting his knowledge to make this research possible.

To our parents, who have continuously supported us financially to accomplish this study and for their guidance, encouragement, and inspiration in our lives, a very special thank you for your parental presence and constant guidance.

The researchers would also like to thank our fellow classmates and friends for the stimulating discussions, for the sleepless nights they spent working together for deadlines, and for all the fun they have had for the last few months.

The Researchers

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CHAPTER I

THE PROBLEM AND ITS SETTING

Background of the Study

The pandemics have caused a significant disruption in the history of humanity. The school system is one of the areas where the epidemic had an impact. A pandemic is viewed as a test of the student's capacity for higher-order thinking. Because of this, teachers ensure that kids may continue learning even while at home. The teacher implemented and used blended learning platforms to improve the students' cognitive abilities. With the blended learning model, students can access additional learning materials in person and online, study the material more than once, complete exercises, and discuss and contact cheers outside of online learning hours (Utami, 2018).

The Ministry of Education of Thailand has announced a policy that integrates the National Education Plan's goal of student development, emphasizing preparing all students for the learning demands of the twenty-first century. This policy encourages instruction and learning that equips students with the critical thinking and problem-solving abilities that will enable them to develop higher-order thinking abilities (Office of the Education). Similarly, Bangkok Metropolitan sets the policies for educational arrangements, is cognizant of the significance of educational arrangements, and is thus committed to improving education to raise the caliber of children in the local communities, with a focus on the thinking process in all dimensions, particularly higher-order thinking skills of students under Bangkok Metropolitan, so that students will possess qualities that are widely recognized internationally (Department of Education, Bangkok Metropolitan, 2016).

Nonetheless, it is clear from Bangkok Metropolitan students' success in achieving a high educational quality that they have distinct problems with higher-order thinking skills. For example, Thailand's students, on average, performed lower on the Programmed for International Student Assessment in reading, arithmetic, and science than students from other OECD members, according to an OECD report from 2018.

(PISA). These problems are attributable to students' poor reading, logical thinking, and problem-solving skills (OECD, 2018).

The primary education curriculum covers a wide range of topics. However, teaching higher-order thinking abilities like critical thinking is challenging in the Philippines. The Program also supports International Student Assessment (PISA) results from 2018, which show that the test uses 21st-century skills like problem-solving, critical thinking, and logical solutions; consequently, integrating EDP into the curriculum could be a step toward fostering these higher-order thinking abilities. However, it could be difficult to employ EDP in an online environment where students must create prototypes because of the changes in educational environments brought on by the COVID-19 epidemic, which led to a switch from traditional face-to-face classes to online learning. Nonetheless, research indicates that students were able to become familiar with the engineering design process for evaluating open-ended design challenges through online support.

According to research by the Department of Teacher Education at the University of Mindanao-Tagum College, which looked at its graduating students, English primary pupils performed poorly on the subject's standardized test. The standardized test follows the fundamental principle of the cogn

itive domain, enabling it to evaluate students' ability to engage in higher-order cognition. However, 5.41 percent of English majors could not finish their degrees that year. the 2019 year (Armand James Anie Vallejo).

There are difficulties in teaching higher-order thinking skills (HOTS), which must be addressed immediately. The teaching methods will help the pupils organize their thoughts by the situation. Students should apply their knowledge to create new, meaningful things rather than memorizing them.

This study aims to determine how BTLED students in Kolehiyo ng Pantukan view the relationship between blended learning materials and higher-order thinking abilities. In addition, this study aims to determine how Kolehiyo Ng Pantukan students view the relationship between integrated learning resources and higher-order thinking skills.

Statement of the Problem

This study aims to determine the relationship between blended learning materials and higher order thinking skills as perceived by the students in Kolehiyo ng Pantukan.

Specifically, this research sought to answer the following questions:

1. What is the level of utilization of blended learning materials in TLE as perceived by the students in terms of;

1.1 Classroom technology;

1.2 Social- networking software;

1.3 Virtual communication tools;

1.4 E-learning system; and

1.5 Mobile learning?

2. What is the level of the higher order thinking skills as perceived by the students in terms of;

2.1 Analyzing;

2.2 Evaluating; and

2.3 Creating?

3. Is there a significant relationship between the level of utilization of blended learning materials in TLE and the level of higher-order thinking skills perceived by the students?

Null Hypothesis

HO1: There is no significant relationship between the level of utilization of blended learning materials in TLE and the level of higher-order thinking skills the students perceive.

Review of Related Literature

The literature and findings from previous studies that are comparable to, connected to, or have some influence on the current investigation are discussed in this chapter. This provided the author with sufficient background to comprehend the study.

Blended Learning

A kind of teaching known as blended learning, sometimes known as hybrid learning, combines conventional place-based classroom practices with online educational materials and interaction possibilities. Moreover, blended learning is a method that mixes in-person instruction with online learning activities (Eoghan Quigley, 2022). 2019 (Jerry Miller). One of the latest trends for instructors in the twenty-first century is blended learning, which can be defined as an educational approach in which more than one means is utilized to convey knowledge and experience to learners to obtain optimal learning outcomes. As a result, this model combines the advantages of online learning with classroom instruction; this type of education is built on the fusion of traditional learning with online learning (Al-Rimawi, 2016).

Technical support is crucial in B.L. because not all students are familiar with various learning technologies (Johnson, 2017). In addition to using technology to provide in-class online learning that students can complete at home provided they have access to the necessary technology, blended classrooms also include direct instruction or lectures, group discussions, and small-group work. Moreover, our curriculum uses blended learning, which combines face-to-face instruction with an experienced teacher, project-based community service learning activities, and digital learning that is accessible anywhere a student has access to the internet, 24 hours a day, 7 days a week.

When all of this is taken into account, coupled with a dedicated staff who makes sure kids know the goal of graduating from high school and beyond, there is no reason for students to fall behind. Students like this method because it lets them work at their own pace while giving back to the community and getting instructor assistance when needed. Courses are created by instructors using criteria from community-based

initiatives, and students are evaluated on how well they use the online learning environment to accomplish their tasks. 2020 (Larry Ferlazzo).

During the pandemic, the blended learning approach, combining online and offline modular learning modalities, has gained prominence (Mishra et al., 2020). According to the literature, the blended learning approach has been used to solve pressing educational issues (Jena,2020; Triatmojo & Priyadi, 2021).

A class's learning environment was changed by blended learning (Lapitan et al.,2021). According to Terry et al. (2018), effective implementation of the blended learning teaching method necessitates the cooperation of administrators, teachers, and professors. The principles for creating and developing skill training programs should be based on professors' experiences, attitudes, and opinions toward blended learning (Ibrahim & Nat, 2019; Dziuban et al.,2018). The knowledge and expertise of the instructors in managing blended learning significantly impact the student's academic achievement and technological use. (Boelens et al.; Baragash & Al-Samarraie; Medina, 2018).

When the use of technology in blended learning is effectively handled, students become engaged lifelong learners. (Diep et al., 2019; Serrano et al., 2019; Castro, 2019; Al-Samarraie & Saeed, 2018) In a virtual classroom, technology enhances the teaching and learning process (Shadiev & Yang, 2020; Huang et al., 2019). To address the needs of students in the twenty-first century, it is envisaged that instructors in higher education would receive online training through webinars (Sarker et al., 2019; Lim et al., 2019; Kibuku et al.)

Classroom Technology

Education technology Technology plays a significant role in our lives nowadays. While the grandparents' era had to memorize to utilize computers, scratch pad, iPads, and iPods as grown-ups, today's understudies are as of now acclimated to these contraptions. This makes it crucial for educators to stay abreast of technological advancements and classroom applications. 20221 (Vanessa Carter). Life as we know it has been completely altered by technology, and the classroom is very different today than

it was 50 or even ten years ago. Digital whiteboards have replaced traditional chalkboards, and there is an abundance of iPads in classrooms. (Ryan Greene, 2019) The adoption of technological advancements in the classroom was unavoidable and required due to the changes in today's schools.

Education must use cutting-edge resources and methods to prepare students for their future. "Technology must be interwoven into how [teachers] instruct and evaluate students (Brandon Blackburn-Dwyer, 2016). In 2017, research revealed that kids aged eight and younger spent two and a half hours per day in front of a device. In addition, teens spend more than four hours daily on social media (Watson, 2019). Netflix and other forms of screen entertainment are not included in these numbers. The percentage of people using screens is rising steadily and doesn't appear to be slowing down (Watson, 2019). Technology use continues to play a significant role in young people's daily lives, but the ramifications of these data are not yet clear. Because minors use technology more frequently, some states are changing their educational standards to keep up with technological advancements ("ISTE Standards for Students," 2020).

Within the "21st Century Skills" component of the Iowa Core standards, the Iowa Department of Education has included standards for employability, financial literacy, health literacy, political science-civic literacy, and technology literacy. The category of technological literacy has six standards. These range from using technology to demonstrate innovative thinking and problem-solving to comprehending technology's moral and legal implications ("Iowa Core," 2017). Other schools are focusing more on preparing teachers for the use of technology, while Iowa chose to incorporate 21st Century Skills into its requirements (Roland, 2015).

This Program provides guidance on how to teach students to use technology responsibly and an introduction to educational technology tools. In a 2014 research, only 18% of the included teachers said they had no technology training that year (Johnson, Jacovina, Russel & Soto, 2016, p. 20).

The responsible use of technology is advocated for both teachers and pupils (Johnson et al., 2016, p. 24). A 201gFarias 20128 evaluation of 386 school districts found that more than 55% of them provided laptops to each pupil. within the same collegiate

districts. At middle schools, one-to-one ratios rose from 56 to 63 percent between 2017 and 2018. (COSN Infrastructure Report 2018–2019, 2019).

The importance of using technology in the classroom has expanded as a result of the realization that children learn better when exposed to a variety of educational modes (Leung & Pluskwik, 2018). Students require diversified education, whether the discussion occurs one day or lectures the next. The use of laptops by students to complete course goals is one kind of differentiation (Stern, 2015).

Teachers must consider whether technology-integrated pedagogical approaches are most effective in light of the rising emphasis on technology use in classrooms. For each subject area, there may be different best practices, but without them, students may not be able to reach their full potential and may develop a negative attitude toward technology in the classroom. Glass and Kang evaluated students' comprehension of lectures in an English classroom by having them alternate between an electronic device and the lecture (2017). Their investigation revealed that using an electronic gadget unaffected pupils' short-term memory. Nonetheless, compared to utilizing paper and a pen, computers influenced pupils' long-term memory. As a result, the final exam marks fell. Students who did not use electronic gadgets to take notes claimed to have received better marks (Glass & Kang, 2017).

Social Networking Software

According to (Kinza Yasar, 2022) social networking is the use of a certain online platform to connect, converse, and collaborate with classmates, friends, and family. Popular social networking websites like Facebook, Yelp, Twitter, Instagram, and TikTok enable people to keep in touch, stay informed, and access and share a variety of information. Also, these websites enable communication between marketers and their target audiences. These platforms have developed dramatically since SixDegrees.com, the original social networking website, launched. According to Gomez, Roses, and Farias, social networks have made it possible to produce and exchange information with the rest of the globe on a daily. Also, according to Kwan & Yixing (2010), creating a personal

profile in a social network encourages the maintenance, growth, and development of interpersonal connections. In this profile, any network member can post and share information that is already public. Numerous studies have been carried out to ascertain how social networks impact the teaching-learning process and teacher-student interaction because they have grown in importance as a channel for communication between teachers and students, particularly in higher education (Akcaoglu & Bowman, 2016; Albayrak Yildirim, 2015; Chromey, Duchsherer, Pruett, & Vareberg (2016).

Modern society is quickly embracing newer social networking sites. A Kepios investigation from January 2022, according to DataReportal, showed that there are more than 4.62 billion social network users worldwide. Another social networking application with self-hosting and expandable features is called Open Source Social Network. It speaks several languages and provides support for them. Mohammed Mustafa, the year 2022.

Social networking services are one of the technologies used in educational settings (SNS). Some professors, educators, and teachers have been inspired to use these technologies for university-level educational procedures due to the recent development and widespread use of social applications. Moreover, using appropriate technology to support various teaching and learning activities in collaborative contexts is called SNS in educational activities. 2018's (Akhmad Habibi et al.)

According to some data, some students may object to teachers and formal education intruding into their online activities because they desire to keep them from their academic life. However, it appears that only social networks— notably Facebook—are affected by this, not other kinds of network media (Manca & Ranieri, 2016). Furthermore, there is proof that students know the challenges and opportunities these tools bring for a wide range of vocations (Stacy & Zayer, 2015). For instance, students commonly use networking, cooperation, and support of these tools to increase their learning in formal education even though they are not required as official learning activities by the professors (Smith, 2017).

Virtual Communication Tools

Over the past ten years, virtual communication technology has become more prevalent in the workplace and educational settings (Kiers, 2020). This use of virtual communication technology will increase at an unprecedented rate in 2020 due to the COVID-19 worldwide pandemic's lockdown and shelter-in-place tactics (World Health Organization, 2020). Despite the growing usage of virtual communication technologies, little study has been conducted on how these technologies might deliver behavioral treatments and how they impact performance and satisfaction. This review examines virtual communication research published in two applied behavior analytic journals over the past ten years and compares the impact of various virtual delivery mechanisms of behavioral treatments on performance and satisfaction in work and school settings (2011-2020).

When two people communicate virtually, they are not speaking face to face. Its application in training sessions, or e-learning, is an example. Instructors can communicate and deliver classes from anywhere and anytime if they and the audience have the proper tools. (Theresa Pojuner, 2022) In addition, virtual communication tools are frequently employed in user-to-user information exchange. Also, they are crucial for enabling information professionals to collaborate in teams, share knowledge and ideas, and work on a common project or problem.

According to Akhandanand Shukla (2012), there is a list of these virtual communication technologies that can be used for e-learning. Effective video communication with students is a must for modern education. To foster positive learning environments, video communications can improve the relationship between educators, pupils, and parents. You can broaden the reach of your education by utilizing video communication tools like those offered by Zoom, Big Blue Button, or Google Meet. Simple class discussions that take place online can turn into interesting activities and educational sessions by utilizing two-way communication solutions.

Virtual communication technology is utilized in companies that allow distant work to be done by two or more people. Any form of communication conveyed through a computer, smartphone, or other automated devices is referred to in this examination as "virtual communication." According to Lee & Oh (2015), "computer-mediated

communication" (CMC) is any kind of human communication that takes place over networked computers. Examples of CMC include videoconferencing, which uses real-time human communication, and computer-based instruction and training, which uses recorded videos and modules. Also, you may provide students withelp studentstime by using online communication platforms like Google Meet and Zoom. These tools may be applied to one-on-one conversations or group endeavors (Joseph Mulcahy, 2022).

E-learning System

E-learning, sometimes referred to as online learning or electronic learning, is the process of learning using digital tools and media. In layman's words, e-learning is simply defined as "learning that is supported electronically." E-learning often takes place online, giving students access to their course materials whenever and whenever they want. The most common types of e-learning include courses, degrees, and programs offered online (Sander Tamm, 2020). E-learning is a strategy in which educational resources are made available online via computers, smartphones, and other electronic devices. Presentations, films, online courses, virtual activities, and other delivery methods are all options. For synchronous or self-paced learning, you may build up a flexible learning solution. (2018) Daniel Brown

Students are projected to achieve significant progress in their learning activities by utilizing the e-learning system (Al-Rahmi et al., 2020). Manageable prices and support facilities to foster learning effects are two factors that are commonly taken into account while building e-learning in higher education (Clark & Mayer, 2016). E-learning, often known as web-based training, is teaching provided to students with access to a browser anywhere, anytime, over the Internet or a corporate intranet. In contrast to conventional learning approaches, e-learning enables learners of all types—students, personnel undergoing training, and casual learners—to participate in a structured learning experience from anywhere. in 2020 (Ben Lutkevich).

E-learning is a type of digital learning that takes place online with the use of electronic media. It is accessible from the majority of electronic devices, including computers, laptops, tablets, and cellphones, making it a practical and flexible tool for students to study wherever they are. E-learning resources come in a variety of formats,

including applications, interactive online platforms, and digital courses. E-learning, usually referred to as digital learning or online learning, is a hot issue right now in educational circles especially in light of the recen,t lockdown measures across the U.K. (Thomas Camilleri, 2019). E-learning can be done via videos, PDF documents, slideshows, and word documents (Thomas Camilleri, 2019). Teachers have used e-learning in a variety of ways to carry on their curriculum's instruction. One significant method is the use of online "classes" or "classrooms," utilizing video communication tools like Zoom. All students may participate in class from their homes, and the teacher can prepare and conduct regular courses. The wonderful thing about Zoom is that it can be used on both a phone and a computer, giving students more freedom.

Via websites like Google Classroom and Edmodo, teachers may now produce and share educational resources. Also, there are a ton of freely distributable resources online for lesson plans and educational materials. 2019 (Camilleri). E-learning is currently playing a significant role in education by guaranteeing that students may continue their studies despite the current economic crisis. However, aside from that, e-learning also plays a significant role in the modern classroom by allowing teachers to communicate with parents about their children's academic progress and allowing students to continue their studies outside of the classroom by using apps, online resources, and sharing hubs.

Last but not least, e-learning brings schools and classrooms a little bit closer to being paperless. Although it cannot be predicted that paper books and materials will totally disappear, e-learning resources significantly contribute to cutting down on paper waste and encouraging schools to be more environmentally friendly. 2019 (Camilleri).

Mobile Learning

A novel technique for using mobile devices to access instructional information is called "m-learning," or mobile learning. As long as you have an online contemporary mobile device, you can learn whenever and wherever you want. (2022, Priscila). Mobile learning is a new method for using mobile devices to access instructional materials. Continuous access to the learning process is supported by mobile learning (Priscila, 2022). Bannan, Cook, and Pachler (2016) claim that mLearning has established itself as a recognized branch of technology-enhanced learning. The idea of bridging the gap

between formal and informal learning by utilizing mobile technology in daily life is a common driving force behind it (see, for example, Khaddage, Müller, & Flintoff, 2016; Nguyen, Wahman, Pissinou, Iyengar, & Makki, 2015; Pimmer, 2016). Mobility between settings is equally important as the learner's or the device's mobility (Brown et al., 2010) M-learning is described as "learning in numerous contexts, through interactions with people and with content, using personal electronic devices" (Crompton, 2013, p. 4).

The use of mobile devices to access educational resources is known as mobile learning. Mobile technologies provide new options for student access and enable collaborative, cooperative, and interactive learning, enabling mobile learning. They do this by offering anytime, anywhere access to e-learning and learning networks (Priscila, 2022). (2013) Lai et al. introduced mobile-blended collaborative learning (MBCL), in which mobile technologies for collaboration, coordination, and communication may provide a flexible setting merging formal and informal situations. From many different perspectives, academics have characterized m-learning in the literature. According to Alzaza and Yaakub (2011), M-learning is the next development of e-learning that utilizes mobile technology. Al Emran and Shaalan (2014) further demonstrate another benefit of M-learning: the encouragement of information sharing between instructors and students. Last but not least, Matias and Wolf (2013) defined M-learning as learning that is mediated across different contexts using portable mobile devices, as opposed to merely learning that is dependent on the utilization of mobile devices. Briefly said, mobile learning (M-learning) enables teachers and students to swiftly and conveniently perform daily tasks wherever they are using mobile devices like tablets or smartphones.

Higher Order Thinking Skill

Three HOTS were identified by Hwang et al. (2017): creativity, critical thinking, and problem-solving. Government decision-makers, educators, researchers, and the general public have all stressed the significance of HOTS (Abosalem, 2016; Elfeky, 2019; Lu et al., in press). Student achievements and learning outcomes are not just about grades but also their skills and ability to think critically in solving various problems individually, cooperatively, and creatively. These are known as higher-order thinking skills.

Higher Order Thinking Skill (HOTS) is the capacity for analytical and creative problem-solving thought. The capacity for cognitive thought, which includes the ability to analyze, evaluate, and create, is known as HOTS (Pajar et al., 2018; Series, 2018). It implies that HOTS is a component of the capacity for critical thought that incorporates cognitive processes while tackling issues. Consequently, it may be said that having the capacity for critical and creative thought as well as problem-solving constitutes a higher-order thinking skill (HOTS).

The curriculum for teaching and learning at the higher education level should include higher-order thinking skills. (Tri Kurniawati, 2019) HOTS performs analysis, evaluation, and creation in the cognitive domain (Susilaningsih, Setyowati, & Diputera, 2018). Moreover, it has been discovered that specific language traits can identify higher-order thinking on a micro level (Boyd & Kong, 2017). Reasoning words like "so," "may," "could," "because," "think," and "agree" are among these characteristics (Boyd & Kong, 2017). Boyd and Kong (2017) also point out that a teacher's usage of these reasoning languages might encourage pupils to think more abstractly.

The abilities of the twenty-first century are equal to thinking abilities and abilities that will enable individuals to rule their areas in the twenty-first century (Kivunja, 2015). Creativity, critical thinking, and problem-solving are three of the key 21st-century skills (Laar, Deursen, Dijk, & Haan, 2017; Rahman, 2019). Higher-order thinking skills or high-level thinking abilities (HOTS).

Analyzing

The fourth level of Bloom's pyramid is an analysis of when students use their judgment to start evaluating the information they have acquired. 2019 (Sue Watson). Investigating information from many sources is part of the analysis process (Anderson & Krathwohl, 2001). According to Virranmäki et al. (2020), analysis questions call for the students to choose, categorize, or investigate which material is pertinent to the solution.

Analyzing a dimension entails dissecting a material's component pieces into smaller ones and figuring out how they relate to the overall structure or what the

connecting elements' roles are. This dimension includes the cognitive functions of organizing, discriminating, and assigning (Burhanudin Rais, 2020).

First, differentiating is a cognitive process that separates the presented information or material into relevant and irrelevant parts or important parts from unimportant parts. Differentiating can also be referred to as discriminating, distinguishing, focusing, and selecting. Second, organizing is a cognitive process that entails figuring out how the communication or situation connects systematically and coherently. Most of the time, this cognitive process happens simultaneously as differentiating or attributing. Thirdly, attributing is a cognitive process in which the presented message or material's value, opinions, or purpose are identified. In contrast to the process of interpreting, which aims to comprehend written text semantically, Students must be able to attribute beyond the pragmatics process, which is referred to as Deconstruction, an alternative term for attributing (Burhanudin Rais, 2020).

A component of HOTS is problem-solving abilities (Yuliati & Lestari, 2018). The capacity to solve problems is a way of thinking that encourages pupils to treat and examine problems with the intention of finding solutions. To find has a number of advantages, including teaching people how to work together procedurally and methodically, fostering creativity, expanding thought processes, enhancing intellectual abilities, boosting individual motivation, and increasing individual activity in the learning process.

Hence, problem-solving skills are a necessary skill for everyone (Achsin, 2016; Susanti, 2018). The organizing, classifying, and assigning subcategories of this cognitive process (Anderson & Krathwohl, 2001). Differentiating refers to questions that ask students to choose or separate the important information from the irrelevant information in their answers. Also, questions on arrangement urge students to think about or explain how the components fit together in the arrangement. Last but not least, attribution questions encourage students to pinpoint the main idea, goal, or value of the provided information.

Evaluating

Evaluating is the highest level in Bloom's taxonomy, involves students determining the value f ideas, resources, and objects. 2019 (Sue Watson) (Sue Watson). It is the capacity to evaluate information using standards like effectiveness, consistency, and quality (Anderson & Kratwohl, 2001; Brookhart, 2010). This thought process is divided into the subcategories of checking and criticizing (Anderson & Krathwohl, 2001). Moreover, students may be required to offer a solution to an issue as part of their checking assignments (Crowe, 2010).

After categorizing and examining the material, students can decide if they think it is ultimately worthwhile. This might entail discrediting a claim as unfounded, analyzing a piece of writing, or identifying the precise nature of a mathematical error. By developing this level of thinking, kids advance from merely absorbing a lesson plan without question to developing complex ideas on the material (Bill Nye, 2022).

The activity of making decisions based on specific standards or criteria is part of the evaluation dimension. Efficiency, quality, consistency, and effectiveness are just a few of the most common evaluation criteria. First, the standard may be evaluated using qualitative or quantitative methods, such as assessing the number of things or their goodness. Then, the standards that were applied to the criteria are typically evaluated by evaluating the things' effectiveness or quality. This dimension includes checking and critiquing as cognitive processes. (Burhanudin Rais, 2020).

First, checking is a cognitive activity that involves internal testing or detecting to identify discrepancies or faults in service or function. Second, critique—also referred to as the foundation of critical thinking—is a cognitive process that entails making an objective assessment of a service or activity to ascertain its consistency or correctness in problem-solving. In a criticism, students must identify a product's advantages and disadvantages before assessing it (Burhanudin Rais, 2020).

Additionally, creative and critical thinking skills are intertwined (Niess, 2017), particularly in problem-solving. According to Brookhart (2010), Norris & Ennis, creative thinking does not require evaluation. However, to evaluate the decisions made, this procedure is required. As a result, to solve problems, one must be able to think creatively

and critically simultaneously. This requires engaging in a task that requires them to evaluate their choices.

Creating

Creating. according to Hwang et al. (2017), also includes the capacity to discover novel ideas and approaches by building upon, enhancing, and analyzing preexisting ones. It is obvious that pupils are using high-level synthesis thinking when they combine the bits of information they have looked at to create new meaning or a new structure. 2019 (Sue Watson) (Sue Watson). Thinking creatively is capable of producing products through new ideas (Hashanah, 2017; Herman, 2017). The capability of creative thinking has many benefits, such as being able to produce ideas, changing thinking flexibly, and being able to develop ideas to find problem solutions. Create deals with producing because students are given a description of a result and must create a product that matches the description given. Students need to build their ideas. (NP Anggraini et al 2019).

Students that propose questions must come up with several answers or a plan of attack for the issues (Brookhart, 2010). This process of thinking is divided into the subcategories of creating, planning, and organizing. These substitutes interact with one another and lead the kids through a creative process. Students are asked questions during the generation process that call on them to offer believable answers to the problem. The students must then create the problem-solving strategies and incorporate them into an action plan during the planning stage. The students then create the solutions to the challenge during the producing session.

Combining elements into a coherent structure or pattern that functions as a whole creates a new product that has never been presented before by creating dimension. Education aims to produce products that every student can and will do. This dimension includes producing, planning, and other cognitive processes (Burhanudin Rais, 2020).

First, generating is a cognitive activity that entails constructing hypotheses under predetermined criteria. Producing is part of the cognitive level of understanding, which includes all cognitive functions. Yet understanding cognitive processes generally

resembles the convergent feature or one meaning. In contrast, the generating characteristic in the cognitive process of creation sometimes resembles divergence, such as speculating on potential outcomes. The hypothesis is another word for producing. Second, devising strategies to tackle problems is a cognitive process involved in planning. Planning can be evaluated by asking students to come up with answers, having them describe their plans for solving problems or selecting the best plan for the situation (Burhanudin Rais, 2020).

Theoretical and Conceptual Framework

This study is anchored to the concept of Samsonova (2019) entitled "Blended Learning Tools" and Bloom's (Revised) Taxonomy Anderson and Krathwohl (2001).

Samsonova's (2019) concept states that the presentation's objectives are to (a) discuss the benefits of blended learning, including alternative types of learning techniques, media, assessment techniques, and ways to contact and collaborate with teachers; (b) discuss the variety of "learning spaces" for blended learning; and (c) introduce a variety of materials and technologies used for blended learning, including classroom technology (PowerPoint, interactive whiteboards, and audiovisual equipment). (d) to introduce a variety of blended learning resources, including learning management systems (Google Classroom, Kiddom, and Online Learning Exchange, Edmodo and Blackboard), university resources and free open courseware (Stanford University, Yale University, and University of Kentucky Open Courseware), free online texts and library resources (ipl2, Project Gutenberg, Planet eBook, and High Wire), and tools to create and organize video content (Google Drive-Dropbox, Hightail, a tool) (Google Forms, Slide share, Scribed, and iTunes).

This review was conducted using 34 studies. With a demand for deeper investigation into the benefits and drawbacks of employing these resources in diverse educational contexts, including K–12 schools and higher educational institutions, a critique of the blended learning method and materials will be presented.

A revised version of Bloom's taxonomy by Anderson and Krathwohl (2001). Higher- and lower-order learning objectives are divided into several categories by Bloom's (Revised) Taxonomy. Higher-level learning is dependent on lower-level knowledge and skills. In addition to critical and creative thinking, higher-order thinking goes by these

names. The taxonomy is broken down into six stages, with the lowest order processes (Remembering) being the simplest and the highest order processes (Creating) being the most complex. Higher order thinking skills include creating, evaluating, and analyzing, while lower order thinking skills include applying, understanding, and remembering.

Figure 1 shows the conceptual paradigm of the study. The study's dependent variable is higher-order thinking abilities, including generating, analyzing, and remembering. The independent variable is blended learning resources, which have the following indicators:

Conceptual Framework

The figure 1 depicts the independent variables and dependent variables of the study. It shows the relationship between Blended Learning Material with the indicators of Classroom Technology, Social Networking Software, Virtual Communication Tools, E-learning System, Mobile Learning and also Higher Order Thinking Skill with the indicators of Analyzing, Evaluating, Creating.

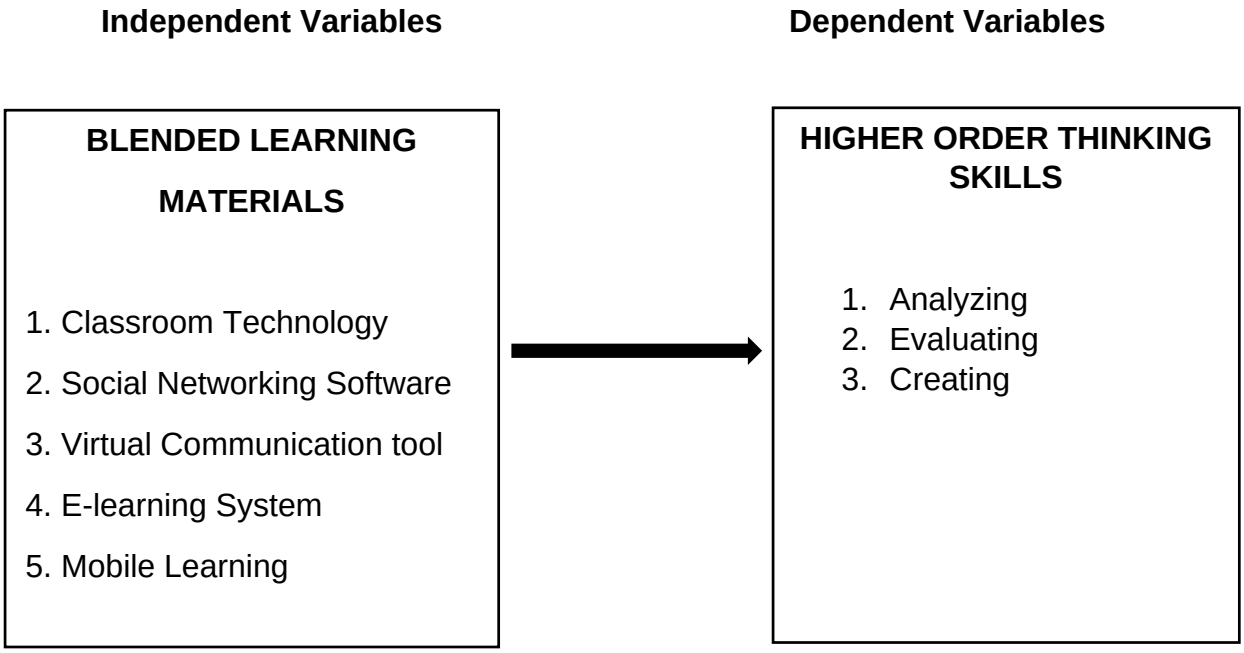

Figure 1: Conceptual Paradigm

Significance of the Study

This study aims to acquire crucial information and expertise on the topic from the respondents, current research on the topic or those, and pertinent websites in order to satisfy the expected importance to the individual as follows:

The Students. The results will provide the students with some knowledge of the relationships between blended learning materials and higher-order thinking skills as perceived by the students. As well as they will be able to determine their progression.

The Teachers. The teacher has a vital role in developing students' higher-order thinking skills. This study will help the teacher to be aware that blended learning materials are an effective method for promoting students higher order thinking skills.

The Parents. The parents will be able to determine their children's Higher Order Thinking Skills. Therefore, parents will be able to know the best thing to do to prevent the factors that may hinder the student's learning process. Thus, students' higher-order thinking will be retained.

The Institutions. The result of this study will help the institutions monitor and provide solutions when problems arise regarding higher-order thinking skills.

Future Researchers. For the aspiring instructor, like the researcher, being unfamiliar with this kind of subject is challenging. Thus, this tool will direct and steer them as they find credible, trustworthy, and significant variables recognized as a necessary material for a deeper knowledge of the topic.

Definition of Terms

The following terminology are defined in the context of this research for a better understanding of the study.

*Blended Learning***.** The teaching approach that blends conventional placement-based classroom tactics with online educational resources and chances for online participation is known as hybrid learning. In this investigation, blended learning is a strategy that mixes conventional teaching and teamwork techniques with online educational resources. (Eoghan Quigley, 2022)

Materials. This refers to any instructional materials accessed from a computer or mobile device (Salma Torres, 2022). It also refers to the things that you need for a

particular activity. (Collins, 2022). In this study, the material is defined as a tool for incorporating learning for both the students who participate in blended learning and the teacher who uses it.

Classroom Technology. Technology is used in the classroom to enhance a lesson, such as through the use of internet resources, mobile applications, and handheld devices, with the goal of increasing classroom participation (Pamela Jones Ponners, 2020).

In this study, classroom technology is a material used in instructional settings. The teacher will use this to educate students and help the teachers present subjects more interactively and creatively with the use of PowerPoint presentations and interactive whiteboards.

Social- Networking Software. A social network is a website that enables users to connect and exchange information, images, and videos. (2022, Karen Goulart). In this study, social networking software is an online platform used by students and teachers to build social relationships online to maintain contact and interaction for educational purposes only.

Virtual Communication Tools. Virtual communication tools are any programs, online portals, or other tools that allow remote teams to collaborate and communicate with one another from any place. Bryan Nyhan (year 2021). In this study, "virtual communication tools" refers to the usage of digital technologies by the instructor and students for communication. It consists of messaging, emails, and video conferences.

E-learning System. An electronic learning system is a term used to describe an online learning environment. Because of its simplicity and flexibility, studying using an

electronic learning management system (LMS features) leads in effective learning experiences and outcomes. They also function well with most industries given the current context of quickly shifting industries, dispersed workforces, and reliance on internet technology. Daniel Brown as of 2018. In this study, e-learning is a type of learning conducted digitally via electronic media that involves the Internet. The teacher and students may use group collaboration tools, conferencing systems, and virtual learning environments (VLEs).

Mobile Learning. Mobile learning, commonly called "M-learning," is a new method of leveraging mobile devices to access educational content. As long as you have an online contemporary mobile device, you can learn whenever and wherever you want. (Priscila, 2022). This study defines mobile learning as a new method of leveraging mobile devices to access educational materials. In addition, mobile solutions for collaboration, coordination, and communication can help build an adaptable environment that blends formal and informal settings, supporting mobile learning's goal of enabling ongoing access to the learning process.

Higher Order Thinking Skills. This refers to the mental processes that enable you to make meaningful connections between the knowledge and use those connections to address issues. (Editorial Staff of Truly, 2022). In this study, higher-order thinking skills refer to the mental abilities of the student to think critically to address certain problems.

A*nalyzing*. Bloom's pyramid has four levels, and analysis is the fourth level. In this level, students use their judgment to start analyzing the knowledge they have learned (Sue Watson, 2019). Analysis in this study is described as the capacity to dissect a piece of information into its constituent elements to comprehend how it is organized. This could

involve identifying the components, analyzing their interaction, and acknowledging the organizational principles.

Evaluating. The final level of Bloom's taxonomy, evaluation, requires pupils to evaluate the worth of concepts, objects, and resources. Susan Watson (2019) In this study, Evaluation is the capacity to assess information using standards like quality, effectiveness, and consistency.

Creating. Hwang et al. (2017) assert that Creativity also includes the capacity to build upon, improve, examine, and assess preexisting ideas to develop fresh concepts and procedures. In this research, creating is the process of developing, planning or producing elements to form a new pattern or structure. It also describes merging components to produce a logical or practical whole.

Chapter II

METHODS

The researchers describe the study's methodology in this chapter. This covers the details of the research design, the study's subject, the methods used to collect data, and the statistical software used to analyze the data. Consequently, this chapter explains how the researcher acquired the relevant information for this investigation.

Research Design

In this study, quantitative research was used. The process of gathering and interpreting numerical data is known as quantitative research. It can construct ideas, find

trends and averages, look into causes, and generalize findings to larger groups (Pritha Bhandari. Reviewed on October 10, 2022.). For example, the table below shows that one block acquires a percentage of 10.2%, while the other block gains 13.5%.

A descriptive correlational research design is used in this study. Using a correlational study design prevents the researcher from directly manipulating or controlling any of the variables. A correlation shows the strength and/or direction of the relationship between two (or more) variables. Both positive and negative correlations are possible. Pritha Bhandari in 2022.

This study will determine the relationship between blended learning materials and the students' higher-order thinking skills.

Respondents

The respondents of this study are first- to fourth-year students who enrolled in the Bachelor of Technology and Livelihood Education program in the academic year 2022–2023. The first-year students had a total population size of 75. In contrast, the second-year students had a total population of 53, the third-year student had a total population of 54, and the fourth-year student had a total population of 67, with an overall population of 133 respondents who studied at the institution of Kolehiyo Ng Pantukan with the said program. Kolehiyo ng Pantukan (KNP) is a local college school that is located at Juan A. Sarenas Campus, Kingking, Pantukan, Davao de Oro, Philippines.

This study utilizes a complete enumeration method. Complete enumeration is used to estimate the unknown parameters of the population. However, these methods do not

obtain exact results. In a complete Enumeration Survey, the information is obtained from every unit of the entire population. (Anshulee Gautam, 2020).

Table 1

Distribution of Respondents

Respondents	Populations
First Year	75
Second Year	53
Third Year	54
Fourth Year	67
Total	249

Research Instrument

In this study, the researchers will use an adapted and modified questionnaire. The questionnaire is a list of questions that have been meticulously prepared for each respondent to answer in an ordered fashion. The 5-point Likert scale is being used in the questionnaire to collect data. Respondents can indicate how strongly they agree or disagree with a statement or question using the Likert scale, which (often) provides five alternatives for replies (McLeod, 2019).

The questionnaire searches for answers regarding the Blended Learning Materials and Higher Order Thinking Skills among the BTLED students in Kolehiyo ng Pantukan with the following indicators of the independent variable: classroom technology, social-networking software, virtual communication tools, e-learning system, and mobile learning.

And the indicators for dependent variables are: analyzing, evaluating, and creating. Five choices are used for the proponents to decide in answering the survey using the following level of the Likert scale with a numerical coefficient: 1-Strongly Disagree, 2-Disagree, 3-Neither Agree nor Disagree, 4-Agree, 5-Strongly Agree.

The students were given questionnaires to fill out and instructed to check their chosen responses. Their responses will determine if blended learning materials help develop their higher-order thinking skills. There are nine indicators, and there are five questions per indicator, equivalent to 45 items questions.

For the independent variable, the researchers employed parameter limits.

Parameter Limits	Description	Interpretation
4.50-5.00	Very High	This means that Blended Learning Materials is evident at all times
3.50-4.49	High	This means that Blended Learning Materials are evident at most times.
2.50-3.49	Moderate	This means that Blended Learning Material is sometimes evident.

1.50-2.49	Low	This means that Blended Learning Materials are less evident.
1.00-1.49	Very Low	This means that Blended Learning Materials are not evident.

For the dependent variable, the researchers employed the parameter limits. The descriptive equivalents are the following:

Parameter Limits	Description	Interpretation
4.50-5.00	Outstanding	This means that the Thinking Skills of the student are excellent.
3.50-4.49	Very Satisfactory	This means that the Thinking Skills of the student is very good
2.50-3.49	Satisfactory	This means that the Thinking Skills of the students is average
1.50-2.49	Fair	This means that the Thinking Skills of the students are low.

1.00-1.49	Poor	This means that the Thinking Skills of the students are very low.

Data Gathering Procedure

The researcher will present the data-gathering procedure for conducting this study in this section.

Seeking Permission to Conduct the Study. The researchers sought approval to conduct the study from the College President through the Dean of the Bachelor of Secondary Education. Upon receipt of the approval letter, the researchers will furnish a copy to the President of Kolehiyo Ng Pantukan regarding the Use of Blended Learning Materials and Its Relationship to the Higher Order Thinking Skills as Perceived by the BTLED students in Kolehiyo Ng Pantukan.

Administration and Retrieval of the Questionnaire. After a letter of permission is validated, the researchers will meet with the respondents on the dates scheduled for distributing and answering questionnaires that the researchers conducted. Instructions will be given for the study's validity to ensure honest, clear, and complete answers. After the respondents answer the questionnaires, researchers will personally retrieve them. Before distributing the questionnaires, the respondents were given a brief explanation of the study's objectives and how to complete it.

*Processing, Collecting, and Checking data***.** All of the respondents' replies will be examined, compiled, and counted. The statistician will next use the aforementioned

questionnaire to conduct statistical analysis in an effort to find solutions to the issues identified in the first chapter.

Statistical Treatment

The gathered data will be tabulated and analyzed by the following statistical tools.

Mean. The mean is the average or most frequent value among a set of numbers. The mean was determined by the degree of blended learning materials in classroom technology, social networking software, virtual communication tools, e-learning system, and mobile learning. Also, this was utilized to gauge the pupils' higher-order thinking abilities in analyzing, evaluating, and inventing. Researchers and professionals of all shades most frequently utilize the mean to indicate a core tendency. This central tendency measure is also known as the average (Ashley Crossman, 2019).

Pearson-R. Pearson R statistical test measured the strength between the different variables and their relationships. This was used to determine the significant relationship between Blended Learning Materials and Higher Order Thinking Skills in BTLED students. The Pearson correlation coefficient is the most often used technique for establishing a linear relationship (r). It ranges from -1 to 1, and shows the intensity and direction of the relationship between two variables. (Shaun Turney, 2022).

Probability. It was used to measure the likelihood that an event occurred in a Random Experiment (Radke, 2017)

Ethical Consideration

The primary consideration of this investigation is the BTLED students who are in the custody of ethics. Therefore, this study focuses on the blended learning material and its relationship to higher-order thinking skills as perceived by BTLED students. The following ethical principles are observed in this study.

Voluntary Participation. The researchers inform the respondents of their willingness to participate in this study. This is determined upon signing their informed assent or consent form.

Privacy and Confidentiality. The researchers fully adhere to the Data Privacy Act of the Philippines and will observe the confidentiality of the respondents. Therefore, all data will be secured and kept private, and the respondents' identities shall be kept confidential.

Informed Consent Process. The principle of respect for persons solicited with consent and how and when it will be done will be undertaken and secured.

Recruitment. The respondents in this study shall be determined with inclusion criteria after getting the right sample size.

Risks and Benefits. The researchers ensure that this study is free from any risk that will harm the respondents and that the benefits of this study will be for the respondents.

CHAPTER III

RESULT AND DISCUSSION

In this chapter, the researchers present, analyze, and interpret the data gathered in textual and tabular form.

The level of blended learning material in TLE as perceived by the BTLED students in terms of classroom technology

The data presented shows that item number 3: "I can advise other students to engage in classroom technology such as PowerPoint to create presentations easily." gathered the highest mean score among the other items, which is 4.16. Item number 1, "I know concepts and strategies that enable me to plan lessons involving classroom technology, such as using a PowerPoint presentation," gathered a mean score of 4.14. Item number 5, "It's meaningful to plan lessons involving technology in the classroom," gathered a mean score of 4.10. Item number 4: "I am motivated to plan lessons involving technology in the classroom, such as a PowerPoint presentation." gathered a mean score of 4.05, and item number 2, "I have the skills to plan the lessons involving classroom technology." gathered the lowest mean score of 3.98. All items are described as high.

The overall mean for classroom technology is 4.09, which is described as High. Thus, this means that blended learning in classroom technology is usually evident.

This conclusion is reinforced by Kevin C. Costley's (2014) research, which shows that integrating technology into the classroom can improve learning outcomes, social relationships, and motivation among students. The use of technology in the classroom,

according to Kurt (2010), can be a tool for carrying out meaningful projects that encourage students to think critically and solve problems.

Table 2.

Level of the blended learning materials in TLE as perceived by the students in terms of classroom technology

ITEMS	MEAN	DESCRIPTION
1. I know concepts and strategies that enable me to plan lessons involving classroom technology, such as using a PowerPoint presentation.	4.14	High
2. I have the skills to plan the lessons involving classroom technology.	3.98	High
3. I can advise other students to engage in classroom technology such as PowerPoint in order to create presentations easily.	4.16	High
4. I am motivated to plan lessons involving technology in the classroom, such as a powerpoint presentation.	4.05	High
5. It's meaningful to plan lessons involving technology in the classroom.	4.10	High
OVERALL MEAN	4.09	High

Level of blended learning in terms of

Social-Networking Software

The data shows that item 5, "I used social networking sites to get information regarding current social events," gathered the highest mean score of 4.08. Item 1, "I use social networking sites for collaborative learning," gathered a total mean score of 4.07. The number 4 gathered a mean score of 3.88. The 3, "I use social networking sites to become more sociable," gathered a mean score of 3.24, and the 2, "I use social networking to learn about my curricular aspect," gathered the lowest mean score of 3.19. Therefore, item number 1 and item number 5 are described as high, and items 2, 3, and 4 are described as moderate.

The overall mean of social networking software is 3.69, which is described as high, which means that the level of blended learning when it comes to social networking software is evident at most times.

This finding is supported by Ean & Lee (2016) and Hamid, Waycott, Kurnia, & Chang (2015). By extending beyond the traditional classroom and establishing new venues for teaching and learning, using social networks gives teachers and students a chance to stay in constant communication.

Table 3.

Level of the blended learning materials in TLE as perceived by the students in terms of social-networking software

ITEMS	MEAN	DESCRIPTIONS
1. I use social networking sites for collaborative Learning.	4.07	High
2. I use social networking to learn about my curricular aspect.	3.19	Moderate
3. I use social networking sites to become more sociable.	3.24	Moderate
4. I use social networking sites for strengthening interpersonal relationships.	3.24	Moderate
5. I used social networking sites to get information regarding current social events.	4.08	High
OVERALL MEAN	3.69	High

Level of the blended learning materials in TLE

as perceived by the students in terms of

Virtual communication tools

The data presented shows that item 1, "Virtual Communication Tools such as Zoom and Google Meet Help Me Foster a Supportive Learning Environment," had the highest mean of 4.12. Item number 4, "I am more participative during virtual communication than actual classes," gathered a mean of 3.92. Item number 2, "I find virtual communication tools easy to acquire," gathered a mean of 3.89, as did item number 3, "I can easily learn using virtual communication tools rather than face-to-face classes," which also got the same mean of 3.89. Item 5, "I can understand the discussion easily via Zoom," gathered the lowest mean of 3.73. All items are described as high.

The overall mean of virtual communication tools is 3.91, which is high, which means that the level of blended learning materials when it comes to virtual communication tools is most evident.

Lee & Oh concur with this conclusion (2015). Any form of human interaction involving networked computers, such as videoconferencing and other real-time human interaction, as well as pre-recorded movies and modules, is referred to as a virtual tool (e.g., computer-based instruction or training). One-to-one, one-to-many, and many-to-many formats are used in CMC to exchange text, audio, and/or video messages. Businesses employ virtual communication technology to communicate between two or more individuals while working remotely.

Table 4.

Level of the blended learning materials in TLE as perceived by the students in terms of Virtual Communication Tools

ITEMS	MEAN	DESCRIPTION
1. Virtual Communication Tools such as Zoom and Google meet helps me foster a supportive learning environment.	4.12	High
2. I find virtual Communication tools easy to acquire	3.89	High
3. I can easily learn using virtual Communication tools rather than face to face classes.	3.89	High
4. I am more participative during virtual Communication rather than actual classes.	3.92	High
5. I can understand the discussion easily via Zoom.	3.73	High
OVERALL MEAN	3.91	High

Level of the blended learning materials in TLE

as perceived by the students in terms of

E- the learning system

The data presented shows that item 1, "I believe that e-learning can enhance the quality of education," gathered the highest total mean of 4.16. Item number 2, "I believe that using e-learning can increase my productivity," gathered a mean of 4.0. Item number 4, "I believe that e-learning enables learners and instructors to communicate and interact better with one another," gathered a mean of 3.92. Item number 5, "I believe that e-learning is more effective than the traditional classroom-based approach," gathered a mean of 3.83, and item number 3, "I have enough time to prepare my homework by using electronic technology facilities," gathered the lowest mean of 3.30. All items except for item 3 are described as high. Item number 3 is described as moderate.

The overall mean of e-learning systems is 3.85, which is high, which means that the level of blended learning materials when it comes to e-learning systems is evident at most times.

Moravec et al. (2015), who examined the effects of e-learning tools on students' academic performance, provided evidence in support of this conclusion. According to Moravec et al. (2015), the study compares the outcomes of inquiries from the legal field when the tool was made available in a pilot form with the outcomes of inquiries where the e-learning tool was not made available. The e-learning resources had an impact on the students' performance, the researchers discovered. Moreover, Horton (2011) defines e-

learning as the delivery of information via any electronic medium, including the Internet, intranets, and extranets.

Table 5.

Level of the blended learning materials in TLE as perceived by the students in terms of e- learning system

ITEMS	MEAN	DESCRIPTION
1. I believe that e-learning can enhance the quality of education.	4.16	High
2. I believe that using e- learning can increase my productivity.	4.02	High
3. I have enough time to prepare my homework by using electronic technology facilities.	3.30	Moderate
4. I believe that e- learning enables learners and instructors to communicate and interact better with one another.	3.92	High

5. I believe that e- learning is more effective than the traditional classroom-based approach.	3.83	High
OVERALL MEAN	3.85	High

Level of the blended learning materials in TLE

as perceived by the students in terms of

Mobile learning

The data presented shows that item 3, "Mobile Learning Apps Promote Self-Directed Learning in Students," had the highest mean of 3.99. Item number 2, "Mobile learning apps such as google classroom help me stay engaged in the learning process," gathered a total mean of 3.94. Item number 4, "Mobile apps should be used along with traditional teaching to improve educational outcomes," gathered a mean of 3.88. Item 5, "Mobile apps reduce the importance of traditional lectures," gathered a mean of 3.58. Item 1, "Mobile learning apps such as Edmodo help me assess my learning," gathered the lowest mean of 3.29. All items except for item number 1 are described as high. Item number 1 is described as moderate.

The overall mean in terms of mobile learning is 3.74, which is high, which means that the level of blended learning materials when it comes to mobile learning is evident at most times.

Sung et al. (2016: 252-253), who contend that mobile technologies offer significant potential for supporting more creative teaching techniques, complement this conclusion.

In addition to aiding students' acquisition of topic knowledge, these patterns in instructional methodology may also promote the growth of their communication, problem-solving, creativity, and other high-level talents.

Table 6.

Level of the blended learning materials in TLE as perceived by the students in terms of Mobile learning

ITEMS	MEAN	DESCRIPTION
1. Mobile learning apps such as Edmodo help me assess my Learning	3.29	Moderate
2. Mobile learning apps such as google classroom help me stay engaged in the learning process.	3.94	High
3. Mobile Learning apps promote self-directed learning in students.	3.99	High
4. Mobile apps should be used along with traditional teaching to improve educational outcomes.	3.88	High

5. Mobile apps reduce the importance of traditional lectures.	3.58	High
OVERALL MEAN	3.74	High

Summary on the level of blended learning materials

in BTLED students in Kolehiyo ng Pantukan

This data shows the utilization summary of the level of blended learning materials in BTLED students in Kolehiyo ng Pantukan. It has an overall mean score of 3.85 with a description of high which means that the level of blended learning materials is usually evident. Based on the gathered data, classroom technology reaped an overall mean of 4.09 which is the highest among the five indicators described as high, with an equivalent description of high which means that the level of blended learning is also evident at most times. All indicators got a high mean score, but classroom technology is at the top most of the time. On the other hand, a virtual communication tool reaped an overall mean of 3.91. To be followed by the E-learning system that reaped an overall mean 3.85 and mobile learning which reaped an overall mean of 3. 74. Lastly, the social networking software got an overall mean of 3.69. The data shows that all indicators under blended learning materials are most evident.

This assertion, made by Ulfia Rahmi (2019), that blended learning requires evaluating students' higher-order thinking skills in order to determine how the concept operates, is supported by the evidence. Online and in-person discussions are also a part

of the mixed learning environment. Also, in the United States, the Department of Education (Means, Toyama, Murphy, Bakia, & Jones, 2009) offers access to the widest array of learning modes and approaches for increasing students' abilities and competence as learners (Cleveland-Innes, 2017). Many research on blended learning show advancements in students' capacity to collaborate with others to learn, think creatively, study on their own, and tailor their learning experiences to meet their individual requirements. As an important and rapidly developing form of education, with a focus on the advantages it provides for both teachers and students, including more flexibility and convenience as well as possible gains in learner creativity and independence.

Table 7.

Summary of the level of utilization of blended learning materials in BTLED students in Kolehiyo ng Pantukan

INDICATORS	MEAN	DESCRIPTION
Classroom Technology	4.09	High
Social Networking Software	3.69	High
Virtual Communication Tool	3.91	High
E-learning System	3.85	High

Mobile Learning	3.74	High
OVERALL MEAN	3.85	High

The level of the higher-order thinking skills

as perceived by the students

in terms of Analyzing

The data presented shows that item number 1, "I am a person who's good at oral logical thinking," gathered the highest mean of 3.96, as well as item number 5, "When faced with a problem, my colleagues and peers are accustomed to seeking my advice in their decision-making because I can objectively analyze the situation." Item number 4, "I appreciate myself as a person who has comprehensive and precise thoughts during online and offline sessions," gathered a mean of 3.90. In item number 3, "I can easily organize my thoughts face-to-face rather than in online classes," the total mean was 3.76, and in item number 2, "I find it hard to solve problems during online classes," the total mean was 3.34. Therefore, all items except for item number 2 are described as very satisfactory. Item number 2 is described as satisfactory.

The overall mean for analyzing is 3.67, which is excellent and indicates that pupils consistently have higher-order thinking abilities when it comes to analyzing.

This conclusion is supported by Brookhart, S.M. (2010). Students are given knowledge (or instructed to locate information) in analysis-level questions, which are followed by questions or problems with answers requiring distinguishing or logically organizing the components. The explanation of the logic used to connect the components is a common part of analysis work. The next slides will go through three ways to assess your students' analytical prowess, including putting them on a quest.

Table 8.

Level of the higher order thinking skills as perceived by the student in terms of Analyzing

ITEMS	MEAN	DESCRIPTION
1. I am a person who's good at oral logical thinking.	3.96	Very Satisfactory
2. I find it hard to solve problems during online classes.	3.34	Satisfactory
3. I can easily organize my thoughts face to face rather than online classes.	3.76	Very Satisfactory

4. I appreciate myself as a person who has comprehensive and precise thoughts during online and offline sessions.	3.90	Very Satisfactory
5. When faced with a problem, my colleagues and peers are accustomed to seeking my advice in their decision-making because I can objectively analyze the situation.	3.96	Very Satisfactory
OVERALL MEAN	3.67	Very Satisfactory

The level of the higher-order thinking skills

as perceived by the students

in terms of Evaluating

The data presented shows that item number 1, "I write out a list of positive and negative consequences when I am evaluating important details during online classes," and item number 5, "Facilitators provided sufficient opportunities for discussion during online sessions," both gathered the highest mean of 3.96. Item number 4, "My attention and engagement of class was enhanced by blended learning," gathered a mean of 3.90. Item number 3, "I prefer blended learning over traditional lecturer for the new discussion," gathered a mean of 3.76, and item number 2, "I search for new information randomly

during face-to-face classes," gathered a mean of 3.34. Therefore, all items except for item number 2 are described as high. Item number 2 is described as moderate.

The overall mean in evaluating is 3.79, which is high, which means that the students' higher-order thinking skills when it comes to evaluating are evident at all times.

This assertion is supported by the work of Brookhart, S.M. (2010). You must provide materials or activities that ask students to judge the value of resources and provide instructions for using them as intended if you want to measure student learning. Students can assess the topic using established standards or their own custom standards, but according to Bloom, evaluation necessitates that they "critically analyze the information and make conclusions." This type of judgment is reasoned, can be stated as a thesis or conclusion, and is based on logic and evidence rather than being a question of personal preference.

Table 9.

Level of the higher order thinking skills as perceived by the student in terms of Evaluating

ITEMS	MEAN	DESCRIPTION
1. I write out a list of positive and negative consequences when I am evaluating important details during online classes	3.96	Very Satisfactory

2. I search for new information randomly during face to face classes.	3.34	Satisfactory
3. I prefer blended learning over traditional lecturer for the new discussion.	3.76	Very Satisfactory
4. My attention and engagement of class was enhanced by blended learning.	3.90	Very Satisfactory
5. Facilitators provided sufficient opportunities for discussion during online sessions.	3.96	Very Satisfactory
OVERALL MEAN	3.79	Very Satisfactory

The level of the higher-order thinking skills

as perceived by the students

in terms of Creating

The data presented shows that item number 1, "I am a person who can generate fast new ideas during face-to-face sessions rather than online sessions and item number" 4, "I really enjoy the challenge of finding a different way to solve a problem during an online session are both" gathered the highest mean of 3.79. Item number 3, "New ideas seldom work out during online classes because of slow network connectivity," gathered

a total mean of 3.22. Item number 2, "I am a person who becomes more standup comedians during face-to-face classes," gathered a mean of 3.06, and item 5, "Ideas take too much time to generate during online classes," gathered the lowest mean score of 2.92. Item number 1 and item number 4 are both described as high. Item numbers 2, 3, and 5 are all described as high.

The overall mean in creating is 3.36, which is high, which means that the students' higher-order thinking skills when it comes to creating are average.

S.M. Brookhart adduces proof in support of this. (2010). According to Bloom's taxonomy, creation is "using the knowledge to create something new, or putting unrelated elements together to form a new whole, or reorganizing existing elements to form a new structure." To assess students' creations, assign them a task or problem that calls for multiple solutions, have them devise a process to reach a goal, or have them create something. In the creative process, "anything goes" isn't always the case. Several individuals are concerned that creativity may be measured. Nevertheless, it can be scored or not scored and reviewed as a performance evaluation with comments. Performance reviews allow students to be creative while also allowing professors to assess students on the caliber of their ideas and the precision with which they express it.

Table 10.

Level of the higher order thinking skills as perceived by the student in terms of Creating

ITEMS	MEAN	DESCRIPTION
1. I am a person who can generate fast new ideas during face to face sessions rather than online sessions.	3.79	Satisfactory
2. I am a person who becomes more standup comedians during face to face classes.	3.06	Satisfactory
3. New ideas seldom work out during online classes because of slow network connectivity.	3.22	Satisfactory
4. I really enjoy the challenge of finding a different way to solve a problem during an online session	3.79	Very Satisfactory
5. Ideas take too much time to generate during online classes.	2.92	Satisfactory
OVERALL MEAN	3.36	Satisfactory

Summary on the level of Higher Order Thinking Skills

in BTLED Students in Kolehiyo ng Pantukan

This information summarizes how the BTLED students at Kolehiyo ng Pantukan rate their degree of higher order thinking skills. It has a high description and an overall mean score of 3.60, indicating that the pupils' capacity for higher-order thought is high. On the other hand, this variable has three indicators: analyzing, evaluating, and creating. Among the three of the said indicators, only creating got an overall mean of 3.36 which means that the students' higher-order thinking skills are moderate. On the other hand, while analyzing got an overall mean score of 3.67, and evaluating got an overall mean score of 3.79, the level of higher-order thinking skills as perceived by the students is high.

This conclusion is corroborated by Gong et al. (2020), who found that in a flipped classroom setting, students' learning strategies directly affected HOTS like Creativity, critical thinking, and problem-solving. Government decision-makers, educators, researchers, and the general public have all stressed the significance of HOTS (Abosalem, 2016; Elfeky, 2019; Lu et al., in press). Hwang et al. (2017) found three HOTS: problem-solving, critical thinking, and Creativity after analyzing prior research.

Table 11

Summary on the level of Higher Order Thinking Skills in BTLED Students in Kolehiyo ng Pantukan

INDICATORS	MEAN	DESCRIPTION
Analyzing	3.67	Very Satisfactory
Evaluating	3.79	Very Satisfactory
Creating	3.36	Satisfactory
OVERALL MEAN	3.60	Satisfactory

Relationship between the level of the Utilization of Blended Learning Materials and Higher Order Thinking Skills

Variables	r-value	Interpretation	Value a= 0.05	Decision on Ho	Conclusion
Blended Learning materials					

Higher order thinking skills	0.425	High Positive Correlation	.0001	Rejected	Significant
Coefficient of Determination					0.181

The study's findings imply that when students utilize blended learning resources more often, their higher-order thinking abilities improve. As a result, blended learning is superior than the traditional paradigm. Moreover, it demonstrates how lecturers and other teaching staff may employ blended learning as an alternate learning strategy to raise student HOTS (Abosalem, 2016; Sagala & Andriani, 2019; Yusuf et al., 2022). Additionally, it is necessary to assess students' higher-order thinking abilities in order to ascertain how effectively the blended learning concept operates (Ulfia Rahmi, 2019). Online and face-to-face instruction are also discussed in a blended learning environment. Also, according to Luckyardi & Rahman, e-learning may improve students' conceptual understanding and be used as a learning innovation that can help instructors and students use software (2021; Stojanovi et al., 2021).

CHAPTER IV

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter presents the summary of this study's findings, recommendations, and conclusion.

Summary of Findings

Based on the result, the following is the summary of findings:

These were the mean ratings for the level of blended learning for the indicators; 4.09, or blended learning is evident at most times for the indicator classroom technology, 3.69 or blended learning is evident at most times for the indicator social networking software, 3.91 or blended learning is evident in most times for the indicator virtual communication tool, 3.85 or blended learning is evident in most times for the indicator e-learning system and 3.74 or blended learning is evident in most times for the mobile indicator learning.

The mean ratings for the level of blended learning materials in BTLED students are 4.09 for classroom technology, 4.69 for social networking software, 3.91 for virtual communication tools, 3.85 for e-learning systems, and 3.74 for mobile learning are all high. When it comes to Higher order thinking skills, it has an overall mean score of 3.60 with a description of high which means that higher order thinking skills of the students are high. On the other hand, this variable has three indicators: analyzing, evaluating, and creating. Among the three of the said indicators, only creating got an overall mean of 3.36 which means that the students' higher-order thinking skills are moderate. On the other hand, while analyzing got an overall mean score of 3.67, evaluating got an overall mean score of 3.79 which means that the level of higher-order thinking skills perceived by the students is high.

The R-value obtained from the calculated data of both variables is 0.425 with a p-value of .001, making the data reject the null hypothesis.

Conclusions

Based on the findings, the following conclusions are drawn.

1. The level of blended learning material in classroom technology is high, social networking software is high, virtual communication tools are high, e-learning system is high and mobile learning is high. This means that classroom technology, social networking software, virtual communication tool, e-learning system, and mobile learning is evident most of the time.

2. Higher-order thinking skills in analyzing are high, evaluating is high, and creating are moderate. This means that the students' higher-order thinking skills when it comes to analyzing and evaluating are high, and the higher-order thinking skill when it comes to creating is average.

3. There is a significant relationship between the utilization level of blended learning materials and the level of higher-order thinking skills as perceived by the students.

Recommendation

Based on the findings and conclusion, the researchers have come up with the following recommendations:

1. Learners may keep themselves actively reading some concept, analogy, or problem in order to enhance their higher-order thinking skills, especially in creating or synthesizing in Bloom's Taxonomy.
2. Teachers and school administration may improve their teaching strategies and use of technology by attending seminars in different places. To enhance their

ability and skills to impart knowledge to the students and for the students to develop their higher-order thinking skills amid the blended learning style.

3. The parents may explore different platforms of educational learning, such as YouTube, and use it to test whether their child enhances their higher-order thinking skills.
4. The Institution may examine what technological tools schools are lacking. So that they can be able to provide and improve school facilities and technological tools needed by the students to enhance and strengthen their abilities and skills.
5. Future researchers may conduct a similar study and look for other factors that can affect higher-order thinking amidst the use of different blended learning styles.

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APPENDICES A

Letter of Permission to Conduct Study

LETTER OF PERMISSION TO CONDUCT STUDY

February 22, 2023

FDR. DR. JOCELYN H. HUA, DFRIEdr
College President Kolehiyo ng Pantukan
Juan A. Sarenas Campus, Kingking, Pantukan, Davao de Oro

Dear Dr. Hua:

The undersigned are currently working on their research entitled **"THE USE OF BLENDED LEARNING MATERIALS IN TLE AND IT'S RELATIONSHIP TO THE HIGHER ORDER THINKING SKILLS AS PERCIEVED BY BTLED STUDENTS"** as a requirement for their degree of Bachelor of Technology and Livelihood Education Major in Home Economics.

In this this regard, the researchers would like to request your approval to conduct the study.

Also, the confidentiality of the data will be utmost priority. Looking forward to your favorable response on this said request.

Sincerely yours,

KAREL DIABORDO
JOHANA MAE CATIG
ARVIE JAMELA PATARATA
Researchers

Noted by:

MR. SANNY DARAMAN, MAHEEd
Research Adviser

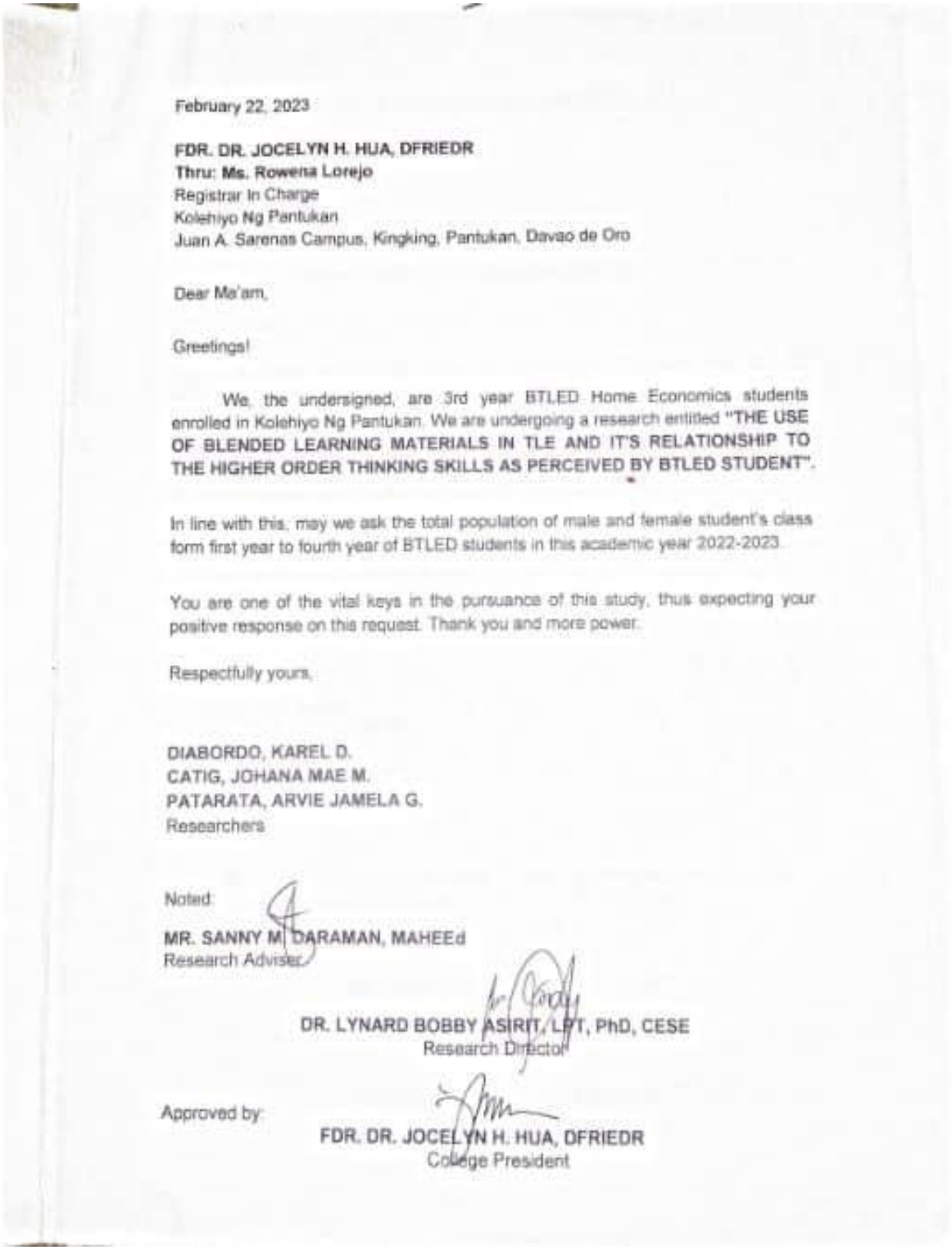
MR. MHARFE MICAROZ, MAED
Program Head

DR. LYNARD BOBBY L. ASIRIT, CESE
Research Director

FDR. DR. JOCELYN H. HUA, DFRIEdr
College President

APPENDICES B

INTENT OF LETTER



February 22, 2023

FDR. DR. JOCELYN H. HUA, DFRIEDR
Thru: Ms. Rowena Lorejo
Registrar In Charge
Kolehiyo Ng Pantukan
Juan A. Sarenas Campus, Kingking, Pantukan, Davao de Oro

Dear Ma'am,

Greetings!

We, the undersigned, are 3rd year BTLED Home Economics students enrolled in Kolehiyo Ng Pantukan. We are undergoing a research entitled **"THE USE OF BLENDED LEARNING MATERIALS IN TLE AND IT'S RELATIONSHIP TO THE HIGHER ORDER THINKING SKILLS AS PERCEIVED BY BTLED STUDENT".**

In line with this, may we ask the total population of male and female student's class form first year to fourth year of BTLED students in this academic year 2022-2023.

You are one of the vital keys in the pursuance of this study, thus expecting your positive response on this request. Thank you and more power.

Respectfully yours,

DIABORDO, KAREL D.
CATIG, JOHANA MAE M.
PATARATA, ARVIE JAMELA G.
Researchers

Noted:

MR. SANNY M. DARAMAN, MAHEEd
Research Adviser

DR. LYNARD BOBBY ASIRIT, LPT, PhD, CESE
Research Director

Approved by:

FDR. DR. JOCELYN H. HUA, DFRIEDR
College President

APPENDICES C

KOLEHIYO NG PANTUKAN
COLLEGE OF TEACHER EDUCATION
BACHELOR OF TECHNOLOGY AND LIVELIHOOD EDUCATION
major in HOME ECONOMICS
Juan A. Sarenas Campus, Pantukan, Davao de Oro

VALIDATION SHEET FOR RESEARCH QUESTIONNAIRE

TITLE	**THE USE OF BLENDED LEARNING MATERIALS IN TLE AND ITS RELATIONSHIPS TO THE HIGHER ORDER THINKING SKILL AS PERCEIVED BY THE BTLED STUDENT**

Name of Evaluator:	**Eufrosina P. Mines, EdD**
Highest Degree:	**Doctor of Education**
Kindly check the appropriate box for your rating.	
Points Equivalent	**5 - Strongly Agree 4 - Agree 3 - Neither Agree or Disagree 2 - Disagree 1 - Strongly Disagree**

ITEMS	5	4	3	2	1
1. Clarity of Directions And Items *The vocabulary level, language, structure, and conceptual level of questions suit the level of participants. The best directions and the items are written in a clear and understandable manner.*	/				
Presentation and Organization of Items *The items are presented and organized in a logical manner.*	/				
Suitability of Items *Each item is appropriate and represents the substance of the research. The questions are designed to determine the conditions, knowledge, perception and attitudes that are supposed to be measured.*	/				
4. Adequateness of Items per Category or Indicator *The items represent the coverage of research adequately. The number of questions per area category is representative enough of all the questions needed for research.*		/			
5. Attainment of Purpose *The instruments as well as a whole, fulfil the objectives for which it was constructed.*	/				
6. Objectivity *Each item questions only one specific answer or measures only one behavior and no aspect of the questionnaire is a suggestion of the researcher.*		/			
7. Scale and Evaluation Rating Scale *(for survey questionnaires only)* *The scale accepted is appropriate for the items*		/			

REMARKS:

EUFROSINA P. MINES, EDD
Signature over Printed Name

KOLEHIYO NG PANTUKAN
COLLEGE OF TEACHER EDUCATION
BACHELOR OF TECHNOLOGY AND LIVELIHOOD EDUCATION
major in HOME ECONOMICS
Juan A. Sarenas Campus, Pantukan, Davao de Oro

VALIDATION SHEET FO RESEARCH QUESTIONNAIRE

TITLE	**THE USE OF BLENDED LEARNING MATERIALS IN TLE AND ITS RELATIONSHIPS TO THE HIGHER ORDER THINKING SKILL AS PERCEIVED BY THE BTLED STUDENT**

Name of Evaluator:	**Lynard Bobby L. Asirit, PhD, CESE**
Highest Degree:	**PD StraMa**
Kindly check the appropriate box for your rating.	
Points Equivalent	**5 - Excellent 4 - Very Good 3 - Good 2 - Fair 1 – Poor**

ITEMS	5	4	3	2	1
1. Clarity of Directions And Items *The vocabulary level, language, structure, and conceptual level of questions suit the level of participants. The best directions and the items are written in a clear and understandable manner.*		/			
Presentation and Organization of Items *The items are presented and organized in a logical manner.*		/			
Suitability of Items *Each item is appropriate and represents the substance of the research. The questions are designed to determine the conditions, knowledge, perception and attitudes that are supposed to be measured.*		/			
4. Adequateness of Items per Category or Indicator *The items represent the coverage of research adequately. The number of questions per area category is representative enough of all the questions needed for research.*	/				
5. Attainment of Purpose *The instruments as well as a whole, fulfil the objectives for which it was constructed.*		/			
6. Objectivity *Each item questions only one specific answer or measures only one behavior and no aspect of the questionnaire is a suggestion of the researcher.*	/				
7. Scale and Evaluation Rating Scale *(for survey questionnaires only)* *The scale accepted is appropriate for the items*	/				
REMARKS: Approved!					

LYNARD BOBBY L. ASIRIT, PhD,CESE
Signature over Printed Name

KOLEHIYO NG PANTUKAN
COLLEGE OF TEACHER EDUCATION
BACHELOR OF TECHNOLOGY AND LIVELIHOOD EDUCATION
major in HOME ECONOMICS
Juan A. Sarenas Campus, Pantukan, Davao de Oro

VALIDATION SHEET FO RESEARCH QUESTIONNAIRE

TITLE	**THE USE OF BLENDED LEARNING MATERIALS IN TLE AND ITS RELATIONSHIPS TO THE HIGHER ORDER THINKING SKILL AS PERCEIVED BY THE BTLED STUDENT**

Name of Evaluator:	**ALBEB Q. TARAY, MBA**
Highest Degree:	**MBA**
Kindly check the appropriate box for your rating.	
Points Equivalent	**5 - Excellent 4 - Very Good 3 - Good 2 - Fair 1 – Poor**

ITEMS	5	4	3	2	1
1. Clarity of Directions And Items *The vocabulary level, language, structure, and conceptual level of questions suit the level of participants. The best directions and the items are written in a clear and understandable manner.*		/			
Presentation and Organization of Items *The items are presented and organized in a logical manner.*		/			
Suitability of Items *Each item is appropriate and represents the substance of the research. The questions are designed to determine the conditions, knowledge, perception and attitudes that are supposed to be measured.*		/			
4. Adequateness of Items per Category or Indicator *The items represent the coverage of research adequately. The number of questions per area category is representative enough of all the questions needed for research.*		/			
5. Attainment of Purpose *The instruments as well as a whole, fulfil the objectives for which it was constructed.*		/			
6. Objectivity *Each item questions only one specific answer or measures only one behavior and no aspect of the questionnaire is a suggestion of the researcher.*		/			
7. Scale and Evaluation Rating Scale *(for survey questionnaires only)* *The scale accepted is appropriate for the items*		/			
REMARKS: APPROVED.					

ALBEB Q. TARAY, MBA
Signature over Printed Name

APPENDICES D.

KOLEHIYO NG PANTUKAN
COLLEGE OF TEACHER EDUCATION
BACHELOR OF TECHNOLOGY AND LIVELIHOOD EDUCATION
major in HOME ECONOMICS
Juan A. Sarenas Campus, Pantukan, Davao de Oro

OVERALL VALIDATION TALLY SHEET

Validator	Score
1	32
2	31
3	28
Average	91
Remarks	**APPROVED**

Verified:

LYNARD BOBBY L. ASIRIT, PhD, CESE
VP for Research

APPENDICES E.

RELIABILITY TEST RESULTS

Scale Reliability Statistics

	Mean	SD	Cronbach's α
scale	3.76	0.366	0.814

Note. items 'G', 'H', 'K', 'N', 'W', and 'AA' correlate negatively with the total scale and probably should be reversed

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Sheet1 analysis Sheet2

APPENDICES F.
RESEARCH INSTRUMENT

5- Strongly Agree 4- Agree 3- Neutral 2- Disagree 1- Strongly Disagree

Classroom Technology	**5**	**4**	**3**	**2**	**1**
Q1. I know concepts and strategies that enable me to plan lessons involving classroom technology, such as using a PowerPoint presentation.					
Q2. I have the skills to plan lessons involving classroom technology.					
Q3. I can advise other students to engage in classroom technology such as PowerPoint in order to create presentations easily.					
Q4. I am motivated to plan lessons involving technology in the classroom, such as a PowerPoint presentation.					
Q5. It's meaningful to plan lessons involving technology in the classroom.					

Social-Networking software	**5**	**4**	**3**	**2**	**1**

Q1. I use social networking sites for collaborative Learning.					
Q2. I use social networking to learn about my curricular aspect.					
Q3. I use social networking sites to become more sociable.					
Q4. I use social networking sites for strengthening interpersonal relationships.					
Q5. I used social networking sites to get information regarding current social events.					

Mobile Learning	**5**	**4**	**3**	**2**	**1**
Q1. Mobile learning apps such as Edmodo help me assess my learning.					
Q2. Mobile learning apps such as Google Classroom help me stay engaged in the learning process.					
Q3. Mobile Learning apps promote self-directed learning in students.					
Q4. Mobile apps should be used along with traditional teaching to improve educational outcomes.					
Q5. Mobile apps reduce the importance of traditional lectures.					

Virtual Communication Tool					
Q1. Virtual Communication Tools such as Zoom and Google Meet help me foster a supportive learning environment.					
Q2. I find virtual communication tools easy to acquire.					
Q3. I can easily learn using virtual communication tools rather than face-to-face classes.					
Q4. I am more participative during virtual communication than in actual classes.					
Q5. I can understand the discussion easily via Zoom.					

E-learning System	**5**	**4**	**3**	**2**	**1**
Q1. I believe that e-learning can enhance the quality of education.					
Q2. I believe that using e-learning can increase my productivity.					
Q3. I have enough time to prepare my homework by using electronic technology facilities.					
Q4. I believe that e-learning enables learners and instructors to communicate and interact better with one another.					
Q5. I believe that e-learning is more effective than the traditional classroom-based approach.					

Analyzing	5	4	3	2	1

Q1. I am a person who's good at oral logical thinking.					
Q2.I find it hard to solve problems during online classes.					
Q3. I can easily organize my thoughts face-to-face rather than in online classes.					
Q4. I appreciate myself as a person who has comprehensive and precise thoughts during online and offline sessions.					
Q5. When faced with a problem, my colleagues and peers are accustomed to seeking my advice in their decision-making because I can objectively analyze the situation.					

Evaluating		4	3	2	1
Q1. I write out a list of positive and negative consequences when I am evaluating important details during online classes.					
Q2. I search for new information randomly during face-to-face classes.					

Q3. I prefer blended learning over traditional lectures for the new discussion.					
Q4. My attention and engagement in class were enhanced by blended learning.					
Q5. Facilitators provided sufficient opportunities for discussion during online sessions.					
Creating		4	3	2	1
Q1. I am a person who can generate fast new ideas during face-to-face sessions rather than online sessions.					
Q2. I am a person who becomes more of a standup comedian during face-to-face classes.					
Q3. New ideas seldom work out during online classes because of slow network connectivity.					
Q4. I really enjoy the challenge of finding a different way to solve a problem during an online session.					
Q5. Ideas take too much time to generate during online classes.					

APPENDICES G

Sheet1 analysis Sheet2

	K	L	M	N	O	P	Q
1							
2	SOP 1		1.1 Descriptives				
3				N	Mean	SD	
4			IV 1.1	250	4.14	0.714	
5			IV 1.2	250	3.98	0.676	
6			IV 1.3	250	4.16	0.661	
7			IV 1.4	250	4.05	0.687	
8			IV 1.5	250	4.10	0.620	
9			IV 1	250	4.09	0.466	
10							
11							
12			1.2 Descriptives				
13				N	Mean	SD	
14			IV 2.1	250	4.07	0.664	
15			IV 2.2	250	3.19	1.027	
16			IV 2.3	250	3.24	0.955	
17			IV 2.4	250	3.88	0.808	
18			IV 2.5	250	4.08	0.645	
19			IV 2	250	3.69	0.473	
20							
21							
22			1.3 Descriptives				
23				N	Mean	SD	
24			IV 3.1	250	3.29	1.060	
25			IV 3.2	250	3.94	0.758	
26			IV 3.3	250	3.99	0.679	
27			IV 3.4	250	3.88	0.808	
28			IV 3.5	250	3.58	0.784	
29			IV 3	250	3.74	0.446	
30							
31							
32			1.4 Descriptives				
33				N	Mean	SD	
34			IV 4.1	250	4.12	0.686	
35			IV 4.2	250	3.89	0.761	
36			IV 4.3	250	3.89	0.773	
37			IV 4.4	250	3.92	0.764	
38			IV 4.5	250	3.73	0.753	
39			IV 4	250	3.91	0.523	
40							
41							
42			1.5 Descriptives				
43				N	Mean	SD	
44			IV 5.1	250	4.16	0.673	
45			IV 5.2	250	4.02	0.705	
46			IV 5.3	250	3.30	0.950	
47			IV 5.4	250	3.92	0.698	
48			IV 5.5	250	3.83	0.679	
49			IV 5	250	3.85	0.414	
50							
51							
52		OVERALL	Descriptives				
53				N	Mean	SD	
54			IV 1	250	4.09	0.466	
55			IV 2	250	3.69	0.473	
56			IV 3	250	3.74	0.446	
57			IV 4	250	3.91	0.523	
58			IV 5	250	3.85	0.414	
59			IV	250	3.85	0.301	

Sheet1 analysis Sheet2

	K	L	M	N	O	P	Q	R
60								
61								
62	SOP 2		2.1 Descriptives					
63				N	Mean	SD		
64			DV 2.1	250	3.96			
65			DV 2.2	250	3.34	0.636		
66			DV 2.3	250	3.76	0.818		
67			DV 2.4	250	3.90	0.681		
68			DV 2.5	250	3.96	0.693		
69			DV 1	250	3.67	0.672		
70						0.407		
71								
72			2.2 Descriptives					
73				N	Mean	SD		
74			DV 2.1	250	3.96	0.636		
75			DV 2.2	250	3.34	0.818		
76			DV 2.3	250	3.76	0.681		
77			DV 2.4	250	3.90	0.693		
78			DV 2.5	250	3.96	0.672		
79			DV 2	250	3.79	0.408		
80								
81								
82			2.3 Descriptives					
83				N	Mean	SD		
84			DV 3.1	250	3.79	0.753		
85			DV 3.2	250	3.06	0.903		
86			DV 3.3	250	3.22	0.797		
87			DV 3.4	250	3.79	0.755		
88	eved from https://cran.r-p		DV 3.5	250	2.92	1.160		
89			DV 3	250	3.36	0.482		
90								
91								
92		OVERALL	Descriptives					
93				N	Mean	SD		
94			DV 1	250	3.67	0.407		
95			DV 2	250	3.79	0.408		
96			DV 3	250	3.36	0.482		
97			DV	250	3.60	0.314		
98								
99								
100	SOP 3		Correlation Matrix					
101					IV	DV		
102			IV	Pearson's r	—			
103				p-value	—			
104				N	—			
105			DV	Pearson's r	0.425	—		
106				p-value	< .001	—		
107				N	250	—		
108								
109								
110			COEFFICIENT OPF DETERMINATION					
111								
112				r=	0.425			
113				r^2=	0.181			
114								
115								
116								
117								

APPENDICES H.

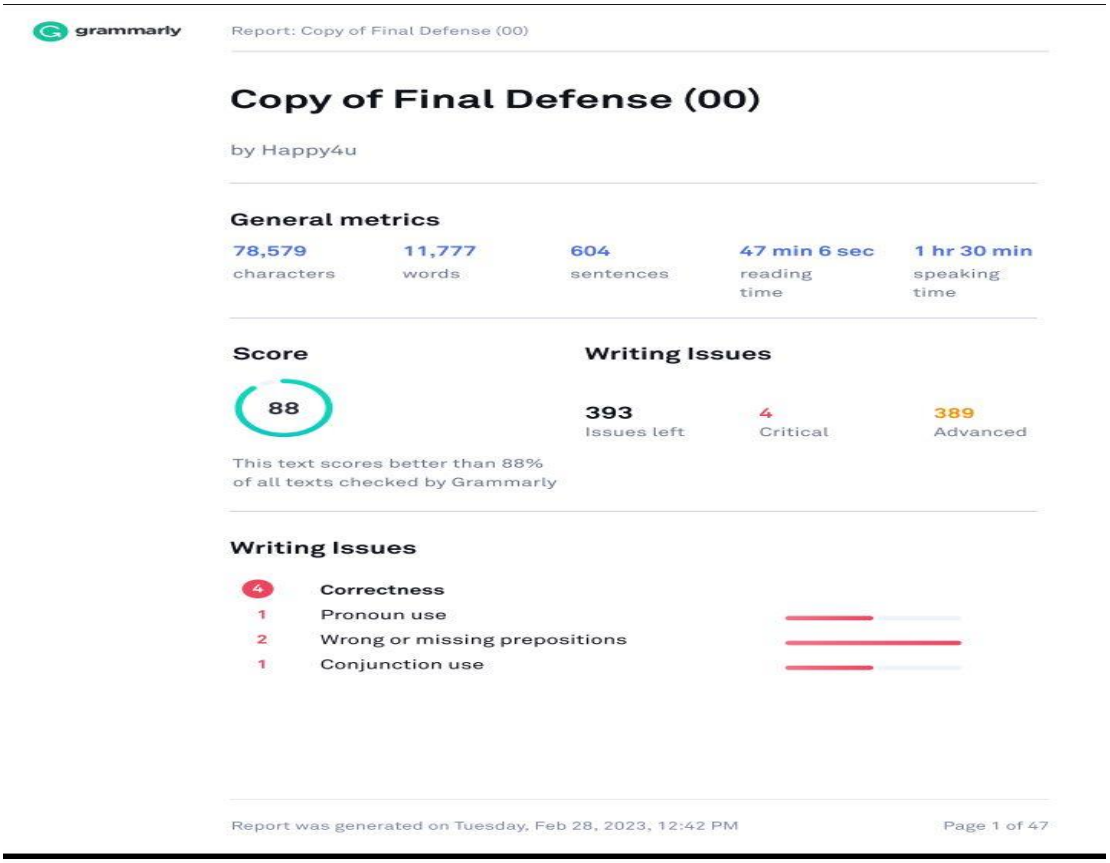
EVIDENCES OF THE DATA GATHERING





APPENDICES I.

GRAMMAR RATE RESULT



grammarly

Report: Copy of Final Defense (00)

Copy of Final Defense (00)

by Happy4u

General metrics

78,579	11,777	604	47 min 6 sec	1 hr 30 min
characters	words	sentences	reading time	speaking time

Score

88

This text scores better than 88% of all texts checked by Grammarly

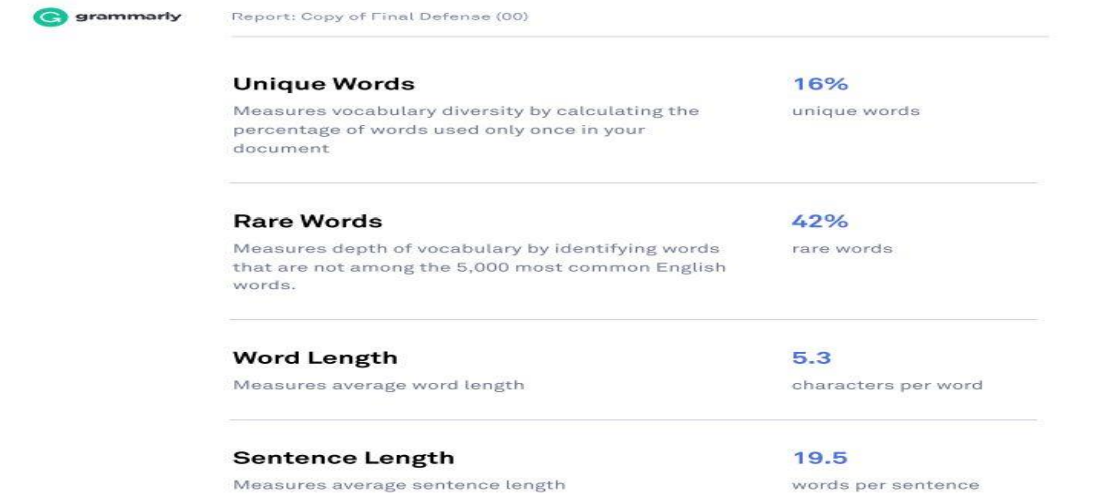
Writing Issues

393	4	389
Issues left	Critical	Advanced

Writing Issues

4	Correctness
1	Pronoun use
2	Wrong or missing prepositions
1	Conjunction use

Report was generated on Tuesday, Feb 28, 2023, 12:42 PM Page 1 of 47



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Report: Copy of Final Defense (00)

Unique Words

Measures vocabulary diversity by calculating the percentage of words used only once in your document

16% unique words

Rare Words

Measures depth of vocabulary by identifying words that are not among the 5,000 most common English words.

42% rare words

Word Length

Measures average word length

5.3 characters per word

Sentence Length

Measures average sentence length

19.5 words per sentence

APPENDICES J.

PLAGIARISM TEST

172 RN6MJR6K6Q-Diabordo-BTLED HE-3-UT

ORIGINALITY REPORT

18%	10%	5%	9%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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3	Submitted to University of Mindanao Student Paper	1%
4	digitalcollections.dordt.edu Internet Source	1%
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CURRICUM VITAE

Karel D. Diabordo

Puntalinao Banaybanay Davao Oriental

Email Address: karel_diabordo@knp.edu.ph

Contact Number: 09517966982

Personal Information

Birthdate:	September 27, 2001
Birthplace:	Kingking, Pantukan
Religion:	Seventh Day Adventist
Father:	Jerel P. Diabordo
Mother:	Katherine D. Dela Cerna

Educational Attainment

Senior High School:	Tambongon National Highschool Pantukan Davao De Oro 2019 - 2020
Junior Highschool:	Tambongon National Highschool Pantukan Davao De Oro 2017- 2018
Elementary School:	Looc Pt. Elementary School Banaybanay Davao Oriental

Johana Mae M. Catig

Puntalinao Banaybanay Davao Oriental

Email Address: johannamae_catig@knp.edu.ph

Contact Number: 09514168177

Personal Information

Birthdate:	December 17, 2001
Birthplace:	Puntalinao, Davao Oriental
Religion:	Baptist
Father:	Jomar Arado Catig
Mother:	Mira Bacus Catig

Educational Attainment

Senior High School:	Puntalinao National Highschool Banaybanay Davao Oriental 2019 - 2020
Junior Highschool:	Puntalinao National Highschool Banaybanay Davao Oriental 2017 - 2018
Elementary School:	Looc Pt. Elementary School Banaybanay Davao Oriental 2013 – 2014

Arvie Jamela Patarata

Pintatagan Banaybanay Davao Oriental

Email Address: arviejamela_patarata@knp.edu.ph

Contact Number: 09635704815

Personal Information

Birthdate:	August 18, 2000
Birthplace:	Lupon, Davao Oriental
Religion:	Jehovah's Witnesses
Father :	Arvin B. Patarata
Mother:	Jaimaima G. Patarata

Educational Attainment

Senior High School:	Kolehiyo ng Pantukan Pantukan Davao De Oro 2019 - 2020
Junior Highschool**:**	Puntalinao National Highschool Banaybanay, Davao Oriental 2017 - 2018
Elementary School:	Looc Pt. Elementary School Banaybanay, Davao Oriental 2013 – 2014

Kyla D. Calimpusan

Tambongon, Pantukan Davao De Oro

Email Address: kyla_calimpusan@knp.edu.ph

Contact Number: 09531370453

Personal Information

Birthdate:	April 04, 2000
Birthplace:	Tambongon, Pantukan Davao De Oro
Religion:	Roman Catholic
Father :	Ireneo I. Calimpusan
Mother:	Leah D. Calimpusan

Educational Attainment

Senior High School:	Kolehiyo ng Pantukan Pantukan Davao De Oro 2018 - 2019
Junior Highschool:	Tambongon National Highschool Pantukan, Davao De Oro 2015 - 2016
Elementary School:	Matio Elementary School Pantukan, Davao De Oro 2011 - 2012