

PERCEIVED EFFECTS OF ENHANCING THE 21ST CENTURY SKILLS IN A BLENDED LEARNING ENVIRONMENT IN SELECTED ELEMENTARY PUBLIC SCHOOLS OF SAN PABLO CITY

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Abstract: This study aims to determine the Effects of Enhancing 21st Century Skills in a Blended Learning Environment in Elementary public schools of San Pablo City, Laguna, Philippines. The study will manifest the factors that affect the enhancement of 21st century skills in a blended learning environment in terms of teachers' technology and individual learning styles. A descriptive quantitative research design was used in the study and the researchers used survey questionnaires for gathering the necessary data. There were forty-two (42) respondents interviewed for this study. They consist of elementary public school teachers. Majority of the respondents are female, with age ranging from 30 to 40 years old, who have been in the service for more or less than 10 years with a total of 7- 10 seminars attended. Study results shows that most respondents agree with the Factors that affect the enhancement of 21st century skills in a blended learning environment in terms of Teachers Technology. For the Individual Learning Styles, most respondents agree with and majority of the respondents also agree with the desired outcomes for learning. Results also shows that most respondents agree in the 21st century skills of the elementary public-school teachers that needs enhancement. The respondents agree with the terms of the Challenges encountered by the teachers during their online blended learning.

Keywords: 21st century skills, Blended Learning Environment, Elementary School

INTRODUCTION

The past decade has witnessed an enormous revolution within the educational applications of the computer, whose use in education is in its starting taking numerous forms ranging from mistreatment computers in education to the employment of the net in education and eventually emerged the idea of intermingled learning, that depends on technology to produce the tutorial content to the learner during an innovative and effective method. The viewpoint in the developed societies is that the college has no alternative; however, to adapt to the knowledge age as a result of this adjustment has become necessary for the continued survival and progress (Bani Hamad, 2011). In blended learning, blending old ways of learning with the 21st-century

learning experiences designed by the teacher can happen in time both synchronously (all learners learning at the same time) and asynchronously (at individual learner's own convenient time and pace). The teacher can also plan the instructional design such that learning can happen in the sequential order from individual self-learning to teacher-led small-group instruction in the face-to-face and personalized online to collaborative online learning modes. The key to effective learning in the blended learning (as also in face-to-face) mode is to ensure learner engagement with the learning resources by making them think and apply the information for problem-solving or application of knowledge for doing a professional task.

An Online Learning Survey revealed that blended learning was expanding to the expansion rate of 46% or higher per year. Once structure facilitators and tutorial school members at the university and school become comfy with alloyed learning applications, they are sometimes highly actuated to explore any new and improved ways of exploiting blended learning for instructional services or social control coaching activities (Allen, Seaman & Garrett, 2007). In the Philippines, blended learning" or "hybrid learning" from the stance of the DepEd could be a fusion of "distant online learning" and "in-person" delivery of written materials to the homes of the learners through the barangays (villages) for people who do not have net access and interactive facilities within the comfort of their homes. Wherever this is often not possible in localities, the DepEd can use tv and radio-based instructions. Radios and televisions across the country will be accustomed to broadcasting lessons, materials, and directions to those who do not have access to a pc or the internet. The DepEd is optimistic and assured that "distant online learning" can work, providing 80% or 700,000 of their academics have laptops and desktops in their homes. This figure is predicated on a survey conducted by the DepEd. Likewise, the varied approaches of alloyed learning will be acclimatized to the context of the various localities wherever they are applied. Thus, "blended learning" is "differentiated instruction," where there is a mixture of online and in-person delivery. The net portion effectively replaces a number of the face-to-face contact time instead of supplementing it.

The researchers find a great interest in conducting this study to determine the effects of Enhancing 21st Century Skills in a Blended Learning Environment in Elementary selected public schools of the City of San Pablo. Enhancing the 21st-century skills of teachers will serve as a preparation in the roles and techniques of blended learning facilitation and will enable educators to understand how learners acquire and develop knowledge in a blended learning environment. Therefore, they will be better equipped to design and facilitate a blended learning environment.

Conceptual Literature

Blended learning (BL), or the mixing of face-to-face associate degreed online instruction (Graham 2013), is widely adopted across teaching with some students concerning it because the "new ancient model" (Ross and Gage 2006, p. 167) or the "new normal" in course delivery (Norberg et al. 2011, p. 207). However, chasing the correct extent of its growth has been difficultly attributable to definitional ambiguity (Oliver and Trigwell 2005), combined with establishments' inability to trace an innovative practice that in several instances has emerged organically. One early nationwide study sponsored by the Sloan association (now the web Learning Consortium) found that 65.2% of collaborating institutions of higher education (IHEs) offered homogenized (also termed hybrid) courses (Allen and Seaman 2003). A 2008 study commissioned by the U.S. Department of Education to explore distance education within the U.S. outlined BL as "a combination of online and in-class instruction with reduced in-class

seat time for students" (Lewis and Parsad 2008, p. 1, stress added). Exploiting this definition, the study found that 35% of upper education establishments offered blended courses, of which 12% of the 12.2 million documented distance education enrollments were in blended courses.

It is essential to determine teachers' specific professional development needs to provide targeted learning experiences to improve teaching and learning (Parsons et al., 2016). Meeting teachers at their point of need is critical in providing professional development experiences to support pedagogical change (Parsons et al., 2016). Involving teachers knowledgeable about specific pedagogical beliefs and practices essential for change garners additional interest and support in professional learning opportunities (Parsons et al., 2016). Providing teachers with a choice in professional learning opportunities supports teacher agency by including them in the decision-making process (Parsons et al., 2016). Studies comparing homogenized learning with ancient face-to-face have indicated that learners perform equally well in blended learning associate degree their performance is unaffected by the delivery methodology (Kwak, Menezes, & Sherwood, 2013). In another study, learning expertise and performance are illustrious to boost once traditional course delivery is integrated with online learning (Stacey & Gerbic, 2007). Such improvement, as noted, is also an indicator of blended learning effectiveness. Our study, however, delves into improved performance and seeks to determine the potential of blended learning effectiveness by considering grades obtained during a blended learning experiment. Score fifty and higher than is taken into account a pass during this study's setting and learners evaluation this and higher than are going to be thought-about to own passed. This may build our conclusions about the potential of homogenized learning effectiveness.

Regarding knowledge construction, it has been noted that effective learning happens wherever learners are actively concerned (Nurmela, Palonen, Lehtinen & Hakkarainen, 2003, cited in Zhu, 2012), and this may be an indicator of learning atmosphere effectiveness. Effective blended learning would need that learners are ready to initiate, discover and attain the processes of data construction as antecedents of blended learning effectiveness. A study by Rahman, Yasin, and Jusoff (2011) indicated that learners could use some steps to construct through an internet discussion method through assignments given. Within the process of giving and receiving among themselves, the authors noted that learners learned by writing what they understood. From our perspective, this could be thought-about to be an accomplishment in the data construction process.

Their study shows that learners construct meaning on an individual basis from assignments, and this stage is brought up as pre-construction that, for our study, is a facet of discovery in the knowledge construction process. On-task behavior is another factor that can be affected by blended learning. On-task behavior can be defined as student participation during class or as the level of task completion at the end of the class. Researchers' results about on-task behavior were mixed. Smith and Suzuki (2015) and Light and Pierson (2014) saw increased work completion and on-task behavior in a blended learning classroom. They attributed this to the ability to self-pace. Conversely, de la Varre, Keane, and Irvin (2011) as well as Najafi, Evans, and Federico (2014) both found that students in the treatment group, who used blended learning, had the same level, or even a slightly lower level, of on-task behaviors as those in the control group, who were using only online learning. However, because they were not comparing students to a control group in a traditional classroom, it is not easy to compare these results to the other studies in this review. By looking at the types of activities that the different studies used, it is possible to compare at least the blended portions of the different studies. De la Varre et al. (2011) and Najafi et al. (2014) both used activities

that were not as fully blended as classes that saw increased student engagement through on-task behavior. When professional development is sustained over time, teachers have more time to absorb and revisit concepts to develop sound instructional practices (Leake, 2014; Parsons et al., 2016). Job-embedded professional development experiences can help teachers develop the skills necessary to provide meaningful opportunities for students (Butler et al., 2017; Spencer, 2014). Adult learners need ongoing support with specific feedback to improve teaching (Spencer, 2014). Educative models of professional development that are continuous over time and consist of job-embedded learning experiences provide authentic learning opportunities for teachers (Parsons et al., 2016; Sugar & van Tryon, 2014). Teachers participate in active learning opportunities while incorporating strategies learned during professional development in their classrooms (Parsons et al., 2016).

Continuous self-reflection, collaboration with peers, and coaching support the development of effective instructional practices over time (Bayar, 2014; Parsons et al., 2016). Investing time and opportunity for ongoing professional development builds the ability for teachers to develop knowledge and skills essential for meeting the needs of all students (Parsons et al., 2016). Not all researchers found that engagement and on-task behavior increased with blended learning. Both de la Varre et al. (2011) and Najafi et al. (2014) found that students were equally engaged or less engaged in a blended classroom. De la Varre et al. (2011) found that some students were less likely to participate because of a lack of immediate teacher feedback in some blended learning programs. They did a two-year Randomized Control Trial with 700 students at 93 rural high schools across the United States focusing on online distance education. The study used a control group, which did online distance education with a facilitator who only answered technical questions and kept Running head: EFFECTS OF BLENDED LEARNING 16 students on-task, and a treatment group, which had a facilitator who would interact more with students by offering tutoring sessions, encouraging students to keep with the program, answering questions, and leading discussions, which made these online distance courses more of a blended environment. In this particular study, however, the facilitator was not the course instructor, and feedback was usually asynchronous, meaning that students did not hear back immediately from the actual instructor. This frustrated many of the students, and the observers found that students who participated at higher levels in traditional classes participated and asked questions less in the blended course because of the disconnect with the instructor. This study looks at an extreme of blended learning where most of the content is online while only a tiny portion of the class is done in the physical classroom, which could have contributed to the disconnect for students. Teacher feedback is an essential aspect of learning, so having minimal teacher feedback likely created a disconnect and lower engagement for these students. In a more balanced blended learning environment, Najafi et al. (2014) found that on-task behavior did not increase for the blended students. This study followed 29 Canadian students in a college preparatory high school taking an economics course. The instructor had students enroll in a Massive Open Online Course (MOOC) and complete lessons within the MOOC as part of their instruction in the course for three weeks. The control group did not meet as a class during these three weeks.

The treatment group met once a week with the instructor for an hour. The research team used clickstream data from the MOOC to track student on-task behavior, including how many of the videos students watched, how many practice quizzes they took, and how many times they retaken quizzes for a higher score. Clickstream data track what students have clicked on within the MOOC. It Running head: EFFECTS OF BLENDED LEARNING 17 cannot tell whether students are actively engaged in what they click on, but it can tell whether or not they

have taken the time to click through the different components of the MOOC. In this study, Najafi et al. found that the clickstream data for students in both groups had no statistically significant differences, and the treatment group watched slightly fewer videos than the control group. One flaw of this study is that it took place in a college preparatory school, which has students who are more likely to be self-motivated, which could have led to the control group having higher numbers of task completion than would be seen in a public school. Another flaw is that it relies on clickstream data, which cannot tell whether students actively watched the videos and absorbed any content. Nonetheless, it is essential to note that in both of these studies, students in a blended classroom did not engage more, as measured by their time-on-task, than those in a purely online classroom (de la Varre et al., 2011; Najafi et al., 2014). In studies comparing a blended classroom to a traditional classroom, however, data indicates that students complete more tasks in the blended environment (Light & Pierson, 2014; Smith & Suzuki, 2015). While task completion may be higher in a blended classroom than in a traditional classroom, that does not always mean that students are achieving higher. If schools invest in the technology necessary for blended learning, it is vital to consider not just whether or not it will engage students but whether it will help them achieve more.

Another question that researchers sought to answer was whether or not blended learning was more suited to simple skills or complex skills. Both Huang and Hong (2016) and Ahn et al. (2016) determined that blended learning can help students with lower-level Running head: EFFECTS OF BLENDED LEARNING 20 skills that require rote memorization or were best suited to drilling. Huang and Hong studied 77 Taiwanese students in an English classroom, and they found that students had statistically significantly higher English reading comprehension scores after spending twelve weeks using blended learning compared to the control group, which used only face-to-face learning. Much of the online portion of the class involved watching videos or participating in English language drills, which are lower-level skills. Ahn et al. (2016) also found that blended learning can succeed for lower-level skill achievement. They studied 9,204 mathematics students in the District of Columbia Public Schools in grades four through eight. The researchers focused on demographics and time in the program, First in Math (FIM), and how those two factors compared to student achievement results. They found that time in the program was necessary for lower-achieving students, who had much higher gains in their achievement than students who were already high achieving. The program focused on basic, rote drills, and the researchers determined that it was very effective for lower-achieving students who may be missing some of the basic skills that the program focused on. They argued that even twenty hours of rote math drills using FIM per school year could improve scores for lower-achieving students and is worth the time and investment for the district. In both studies, basic skills were enhanced through blended learning. However, Smith and Smith (2012) argued that it is not lower-level skills that are best learned in blended learning but higher-level skills. They studied 51 secondary students in California in a Computer-Aided Design course. While the experiment only lasted one week, it produced statistically significantly higher scores for the experimental group, who used blended learning through online videos to explain the content, compared to Running head: EFFECTS OF BLENDED LEARNING 21 the control group, who learned the material using a textbook. Smith and Smith specifically noted that student scores for the experimental group were highest on the more complex tasks and not as significantly higher on the more straightforward tasks. They argued that this showed the potential impact of blended learning on higher-level skills because it offers students a variety of ways to access the material to reach a wider variety of learners.

The 21st-century skills, exceptionally soft and arduous selection, are vital in instruction, thence the requirement for inclusion within the institutions' curriculum. In step with Hadiyanto (2010) and Partnership for 21st Century Skills (2008), info technology has allowed new graduates to acquire data of any educational subject easily. The broader skills embody retrieval and handling of digital technology information, communication, and presentation, coming up with drawback solving, with social development and interaction crucial for graduate employment. Sorensen et al. (2011) stressed the importance of skills development at higher education change graduates operate a lot of effectively in the world of work and life. The 21st-century skills are sometimes noninheritable throughout university education, no matter disciplines, though students equally need the knowledge to achieve success (Laura et al., 2016; Hadiyanto, 2010). Furthermore, the university plays an accountable role in strengthening upper education's justification in developing students' (Ristekdikti, 2015; Washer, 2007). Also, supported the quality and challenges, Hadiyanto (2019), Ristekdikti (2015), and Washer (2007) stressed that the requirement for university program blending learning refers to a mix of the most effective options involved with face-to-face and online lessons. For instance, interactive study conferences are dead to the scholars within the classroom, whereas virtual sessions full of multimedia-rich materials are accessible by students anyplace and anytime through web use (Ananga and Biney, 2017; Kara, 2016). The aims of those related activities embody providing completely different modes of content delivery to encourage students' interaction, promoting the acquisition of data and skills through physical lecture rooms, and also the continuation of academic processes electronically. Varied educational activities and assignments organized in physical classrooms by academics where students collaborate are currently capable of being commanded through online or electronic means (Sheridan et al., 2019). Moreover, student-to-student interactions and reflections are encouraged by the choices of reportage associate degreed presenting these come in an e-learning environment and affords the teacher the flexibility to ensure clear directions and realistic goals for individual and collective tasks (Hadiyanto, 2019; Rosenberg and Foshay, 2007).

Various researches have enumerated some edges of this manner of study, as well as the development and motivation of learners, attitudinal enhancement, educational achievement, teamwork, ability acquisition, and so forth. Students are also granted various opportunities to extend knowledge, skills, and competencies on the far side of the room through online learning endeavors (Bourdeau et al. 2018; Wichadee, 2017). Concerning the current study context, this merger can develop students' 21st-century proficiencies, concerning the mixing of data and competencies, more determined by the choice and implementation of delivery strategies within the specific category or on virtual platforms. Furthermore, appropriate learning methods directly concentrate on advancing soppy skills, comprising the availability of interactive, exploratory, and cooperative opportunities to students, on facilitating the action of experience and arduous skills (Anita Singh & Lata Bajpai Singh, 2017; Glowa & Goodell, 2016). They observe and develop soft skills and communication, IT, numeracy, teamwork, innovation, drawback solving, and understanding are edges of the combined instructional approach. The encouragement of the scholars to amass arduous skills and course comprehension and aptitudes are further advantages. In step with Ma, Li, and Liang (2019), the internet creates the potential to communicate, learn, collaborate, incorporate, participate, use, produce, and share info. Previously, Shand & Susan (2018); Shand & Glassett (2017), and Adams et al. (2010) unconcealed blending learning arrangements proffer avenues for college students to observe employable qualities, with the availability of opportunities and versatile occasions to participate in classrooms and to continue with these endeavors through period experiences.

These activities have increased the emphasis on engaging students to communicate, connect, liaise, explore, use technology and supported applications, accomplish online presentations through synchronous and asynchronous methods, and intensify the use of current skills rather than depend solely on direct educational techniques. Reports of the benefits of blended learning have been stated in the preceding literature. Educators are encouraged to select and utilize the appropriate delivery methods to create additional opportunities for students to apply each part of the compiled modern employable and teachable traits. Therefore, this research aimed to demonstrate the benefits of soft skill practices generated by the blended learning approach compared to face-to-face methods.

Research Literature

According to Fullan (2016), "Implementation consists of the process of putting into practice an idea, program, or set of activities and structure new to the people attempting or expected to change" (p. 67). The implementation phase refers to the first couple of years of the initial change and consists of the initial experiences of applying new pedagogies into practice (Fullan, 2016). A big part of the problem of educational change comes from difficulties involving the planning and coordination of large-scale change instead of the resistance of change (Fullan, 2016; Sheninger & Murray, 2017). Fullan (2016) suggested that curriculum materials, pedagogical practices, and pedagogical beliefs would have to change to 49 fully implement an innovation or reform. Changes in these areas would be critical for successful implementation (Fullan, 2016). Moreover, it identified four characteristics of change: need, clarity, complexity, quality/practicality. Formal identification of specific needs is strongly related to a successful implementation of educational change (Fullan, 2016). Clarity about goals and expected practices must be clear for implementation to be successful (Fullan, 2016; Sheninger & Murray, 2017). Teachers must have a clear understanding of their expectations for successful change (Fullan, 2016). The change's complexity refers to the difficulty or skill set required. The extent beliefs are altered, instructional strategies, and new materials (Fullan, 2016). This creates problems for many educators and results in more significant change (Fullan, 2016). The quality and practicality of the educational change are essential for successful implementation (Fullan, 2016). Many decisions to adopt new initiatives have been made without the time and opportunity essential for successful implementation (Fullan, 2016). Other factors that can impact the implementation phase are school districts, school boards, principals, the role of teachers, as well as other external factors (Fullan, 2016).

The study of Smith and Suzuki (2015) and Light and Pierson (2014) had findings that indicated that on-task behavior increased with blended learning. Smith and Running head: EFFECTS OF BLENDED LEARNING 15 Suzuki observed that more students took adequate notes in the blended learning classroom at one school, which they attributed to an increased ability to self-pace, allowing students to complete all lectures, even when they were absent. Light and Pierson also saw self-pacing as a key for student completion of work. Light and Pierson completed their research in four Chilean schools similar to charter schools. To give a basis for comparison, Light and Pierson also observed classrooms in a fifth school, a public school in Chile. Teachers in all five schools used Khan Academy for classes from fourth grade through twelfth grade. Through observations and interviews with administrators and students, the researchers concluded that students were completing more problems in these classrooms than in a regular classroom because they could self-pace and work at their level within the Khan Academy online materials. However, one issue with these results is that there is no control group for comparison. These results are based on Light and Pierson's perceptions and

administrator and student perceptions of how much work they would complete in a traditional classroom instead of their blended classroom. One of the studies on mingling learnings by Macoun, two016, aimed to explore the impact of pattern the mingling learning in students' accomplishment and information preservation for the fifth graders among the biology course. One all told high colleges of the city center of the capital was that way} selected, from that two random sections were chosen: one represents the experimental group, which studied via blended learning, and so the choice represents the management group, which studied via the quality learning. Via blended learning, the difference represents the management group studied via everyday learning. The total sample size was sixty students when statistically removing five failing students that every cluster consisted of (30 students). AN accomplishment, take a look at consisting of (30) multiple-choice things were ready, and the study validity and responsibleness were checked. The results expressed the prevalence of the experimental group to the management group within the achievement test and knowledge retention. (Al-Rimawi, 2014), that aimed to analyze the result of mingling learning on the direct and delayed achievement of the sixth graders in the West Germanic course; to attain the objectives of the study, the similar experimental approach was used, and the man of science prepared an achievement test, whose validity and responsibleness was checked.

The study members consisted of (60) students of Um-Qasir School for boys in Quwaismeh, Amman, who were distributed into experimental and control groups. The study results showed statistically significant differences between the means of direct and delayed achievement for the experimental group members. (Al-Ajab, 2006) aimed to explore the effect of blended learning, which combines distance learning and face-to-face learning in teaching computer skills to students in the pre-medicine stage in the Arabian Gulf University in Bahrain; the study sample included 157 students who were registered in the computer skills course in the Arabian Gulf University. Through assessing the results of the inputs taken from students on the (Web cat) of the course topics through the system and questions related to the topic, the results concluded that the method of blending between the distance e-learning and face-to-face learning proved valid and it developed the educational skills needed by students in their future studies. (Al-Hasan, 2013) aimed to spot the technology of blended learning and the impact of exploitation on the tutorial accomplishment within the biology course among the second graders in the non-public secondary colleges and their trends towards it. To realize this objective, the man of science followed the approach, and a random sample of forty-one students was chosen from the private secondary schools; they were divided into two unequal clusters: experimental consisting of (26) students who studied via the blended learning technology, and also the management group consisting of (25) who were instructed in the ancient method. Information was collected using two tools: an accomplishment check and a form to live the trend towards blended learning. The info was treated through the exploitation of suitable applied math methods. The analysis shows statistically significant variations in favor of the scholars who have studied through the blended e-learning (the experimental group). There are statistically significant positive trends among the sample members who versed the things of the questionnaire trend measuring towards blended learning.

Many studies showed the effectiveness of blended learning compared with the traditional way as (Maccoun, 2016); some studies showed a statistically significant difference in the student's achievement due to the method of the blended learning (Al-Rimawi,2014), studies focusing on the trends and development of skills such as (Al-Hassan, 2013), studies concerning with the fundamental stage as (Shahin, 2008), studies on the high level as (Maccoun, 2016), and studies on the stage of university education such as (Al-Ajab, 2006). This study is

consistent with some previous studies focusing on blended learning. Such studies were beneficial in the methodology and design of the current study and the structure of its tools'. This study differs from the previous studies in focusing on the third graders who consider blended learning a vital source in learning science and the main entrance for their mental and physical growth. This study addressed many outcomes, implications, and potential future directions for mingling learning (BL) in teaching in an exceeding world wherever info-communication technologies (ICTs) more and more communicate with every other. The authors contend that BL coalesces around access, success, and student's perception of their learning environments in considering effectiveness. Success and withdrawal rates for face-to-face and online courses are compared to those for BL as they move with minority status. Investigation of student perception regarding course excellence unconcealed the existence of sturdy if-then call rules for determinative. However, students appraise their academic experiences. Those rules were freelance modality, perceived content relevance, and expected grade. The authors conclude that though mingling learning preceded modern educational technologies, its evolution is inextricably absolute to modern info-communication technologies approximating some aspects of human thought processes.

The study of Florida conjointly helps the United States spot successive mixes in education involving ICTs, or specialized AI (Floridi 2014, 25; Norberg 2017, 65). Learning analytics, reconciling learning, label peer review, and automatic essay grading (Balfour 2013) are advanced processes that, provided they are intelligent interfaces, will work well with the teacher permitting him or her to focus on human attributes equivalent to being caring, creative, and fascinating in problem-solving. This can, of course, like all technical advancements, be wont to save resources and augment the role of the teacher. For instance, if computing is used to work beside teachers, permitting them longer for private feedback and student mentoring, we will have created a transformational breakthrough. The Edinburg University pronouncement for teaching online says bravely, "Automation need not impoverish education—we welcome our golem colleagues" (Bayne et al. 2016). If North American country wisely, they will teach us additional concerning ourselves, and about what is human in education. This rising mix also will affect information and policy questions, equivalent to the what? And what for? The new traditions for education are in perpetual flux. Floridi's (2014) philosophy offers us tools to know and be up to speed and not simply look on and watch what happens. In several respects, he has addressed the new normal for mixed learning. Studies done by Morris and Lim (20019) have investigated learner and educational factors influencing learning outcomes in integrated learning. They do not handle such variables within the contexts of blended learning style as a facet of innovative pedagogy involving the utilization of technology in education. Excluding the learner, variables adore gender, age, experience, study time as tackled before, this study considers social and background aspects of the learners such as family and social support, self-regulation, attitudes towards blended learning, and management of work to seek out their relationship to blended learning effectiveness. The varied sorts of learner variables concerning their relationship to integrated learning effectiveness are fundamental during this study as we tend to start innovative pedagogy with technology in teaching and learning.

The study by Kintu and Zhu (2016) investigated the chance of emulsified learning in an exceedingly Ugandan University. It examined whether or not student characteristics (such as self-regulation, attitudes towards blended learning, pc competence) and student background (such as family support, social support, and management of workload) were vital factors in learner outcomes (such as motivation, satisfaction, data construction, and performance). The characteristics and background factors were studied at the side of blended learning style

options similar to technology quality, learner interactions, and Moodle with its tools and resources. The findings from that study indicated that learner attitudes towards blended learning were significant factors to learner satisfaction and motivation, whereas work management was a big issue to learner satisfaction and data construction. Among the emulsified learning style features, solely learner interaction was a significant factor to learner satisfaction and knowledge construction. Hudson & Paugh's study, as cited in Park and Choi (2019), family and peer support for learners is essential for success in online and face-to-face learning. Support is needed for learners from all areas in web-based courses, which may be from family, friends, co-workers, and peers in class. Greer, Hudson, and Paugh further noted that peer encouragement assisted new learners in computer use and applications. The authors also show that learners need time budgeting, appropriate technology tools, and support from friends and family in web-based courses. Peer support is required by learners who have no or little knowledge of technology, especially computers, to help them overcome fears. Park and Choi (2019) showed that organizational support significantly predicts learners' stay and success in online courses because employers at times are willing to reduce learners' workload during the study as well as supervisors show that they are interested in job-related learning for employees to advance and improve their skills.

(Shahin, 2018) aimed to measure the extent of the effectiveness of the blended learning on achievement and develop the science operations among the fifth graders in Al-Naser Experimental School in Tanta and their trends towards it. The most vital results of the study reached to the effectiveness of homogenized learning since it combines the e-learning and also the traditional learning serving to give the tutorial materialism. Several and manners through the presence of a statistically vital distinction in many ways between the marks suggests that of the experimental cluster that studied via the blended learning and the degrees of the management group which studied through the standard way within the post-application of the accomplishment check-in science in favor of the experimental group. Also, statistically significant variations appeared between the mean of the student's marks in the experimental cluster within the post-application for the trend' scale towards the homogenized learning in favor of the experimental group.

RESEARCH METHOD

Research Design

A descriptive quantitative research design was utilized in this study. This was done through a survey form using standard questionnaires. This type of design was utilized to determine the effects of Enhancing 21st Century Skills in a Blended Learning Environment in selected Elementary public schools in the City of San Pablo.

Population and Sampling Techniques

A total of forty-two (42) respondents were approached for participation in this study. The respondents were composed of elementary public teachers of San Isidro Elementary School, San Joaquin Elementary School, Antonia Manuel Magcase Elementary School, CM Azcarate Elementary School, San Mateo Elementary School, and Dapdapan Elementary School in the City of San Pablo. Purposive sampling was used to identify the respondents for this study. Participation of the respondents was voluntary, and no incentives were given.

Research Locale

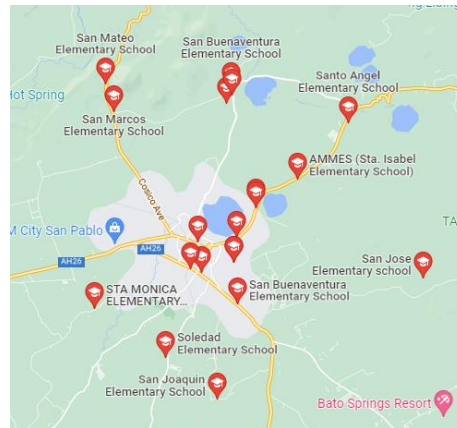


Figure 2. Research Locale

This study was conducted in some elementary schools in San Pablo City, Laguna. The study was conducted virtually using Google Forms, and the finalization of the study was done in December 2021.

Research Instruments

The primary instrument used to gather the necessary data in this study is a questionnaire. A *questionnaire* is a research instrument consisting of questions to gather information from respondents (Saul, 2018). Questionnaires can be thought of as a kind of written interview. They can be carried out face to face, by telephone, computer or post. In this study, we disseminate our questionnaire online to gather the data from the respondents. This study used a descriptive quantitative approach to identify the effects of Enhancing 21st Century Skills in a Blended Learning Environment in Elementary public schools of the City of San Pablo.

Statistical Treatment of Data

The data gathered from the questionnaires were tabulated and analyzed to draw findings, conclusions, and recommendations. The study used frequency count and weighted mean to identify the effects of Enhancing 21st Century Skills in a Blended Learning Environment in Elementary public schools in San Pablo.

This was utilized to distinguish values and emerge collective responses to items. The researchers gathered data, analyzed it, and tabulated it to have an accurate result. Different statistical tools were used to test the hypothesis of the study. The researchers utilized descriptive qualitative statistics in the analysis of data.

Percentage. To determine how a part relates to its whole. To describe the profile of the respondents, percentage statistical measure will be used broadly. It will be solved by the formula:

$$p = \frac{fx}{n} \times 100$$

Where:

P = Percentage

F = Frequency of the respondent answers

N = Total number of respondents

100 = the constant number

Standard Deviation. To determine how large is the distribution of the results from the respondents to its weighted mean.

Weighted Mean. Since the options of the items of the questionnaires were assigned with points, the weighted mean is used as the measure of central tendency to come up with the basis or range of the items.

It is solved by the formula:

$$W_n = \frac{\sum fx}{\sum f}$$

Where:

$\sum fx$ = the summation of the product of the frequency and the variable

f = the frequency

x = the variable

Scale for the mean variables

Points	Ranges	Interpretation
5	4.50-5.00	Strongly Agree
4	3.50-4.49	Average
3	2.50-3.49	Neutral
2	1.50-2.49	Disagree
1	1.0-1.49	Strongly Disagree

RESULTS AND DISCUSSION

After each initial presentation of appropriate tables, the analysis of the collected facts was interpreted. The analyses of the study were geared toward measuring the effects of Enhancing 21st Century Skills in a Blended Learning Environment in Elementary public schools in San Pablo.

Table 1 Frequency and Percentage of the Profile of the Respondents

Table 1.1 Frequency and Percentage of the Profile of the Respondents in terms of Age

Age	Frequency	Percentage
20- 30 years old	8	19
31- 40 years old	10	23.8
41- 50 years old	16	31.8
41- 50 years old	8	19
Total	42	100.0

Table 1.1 shows the frequency and percentage of the profile of the respondents in terms of age. Results shows that 19% of the respondents are within the age range of 20- 30 years old,

23.8% of them are 31- 40 years old, 31.8% are 41- 50 years old while 19% of the respondents are 41- 50 years old. Majority of the respondents are 31- 40 years old.

Table 1.2 Frequency and Percentage of the Profile of the Respondents in terms of Sex

Sex	Frequency	Percentage
Male	8	19
Female	34	81
Total	42	100.0

Table 1.2 frequency and percentage of the profile of the respondents in terms of sex. Results show that 19% of the respondents are male, while 81% are female. Most of the respondents are female.

Table 1.3 Frequency and Percentage of the Profile of the Respondents in terms of Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	33	78.6
Master's Degree	7	16.7
Professional Degree	2	4.8
Total	42	100.0

Table 1.3 shows the Frequency and Percentage of the Profile of the Respondents in terms of Educational Attainment. Results show that 78.6% of the respondents finished their Bachelor's Degree, 16.75% had their Master's Degree, and 4.8% had their Professional Degree. The majority of the respondents have already finished their Bachelor's Degree.

Table 1.4 Frequency and Percentage of the Profile of the Respondents in terms of Length of Service in Teaching

Length of Service in Teaching.	Frequency	Percentage (%)
1-3 years	10	23.8
4- 6 years	4	9.5
7- 10 years	6	14.3
10 years and above	22	52.4
Total	42	100

Table 1.4 shows the Frequency and Percentage of the Profile of the Respondents in terms of Length of Service in Teaching. Results show that 23.8% of the respondents are already in the teaching service for 1-3 years, 9.5% are teaching for 4- 6 years, 14.3% are teaching for 7- 10 years, while 52.4% are in the teaching service for 10 years and above. The majority of the respondents have 10 years and above the length of service in teaching.

Table 1.5 Frequency and Percentage of the Profile of the Respondents in terms of Number of Seminars Attended

Number of Seminars Attended	Frequency	Percentage
1- 3	1	2.4
4- 6	2	4.8
7- 10	39	92.9
Total	42	100.0

Table 1.5 shows the Frequency and Percentage of the Profile of the Respondents in terms of the Number of Seminars Attended. Results show that 2.4% of the respondents attended 1-3 seminars, 4.8% attended 4-6 seminars, and 92.9% have already attended 7-10 seminars. The majority of the respondents had attended a total of 7- 10 seminars.

Table 2. Factors that affect the enhancement of 21st Century Skills in a Blended learning Environment

Teachers Technology	Mean	Descriptive Interpretation
1. Internet for developing lesson plans/ideas.	4.76	Strongly Agree
2. Assistive Technology Tools	3.64	Agree
3. Management programs for student data	3.63	Agree
4. Test preparation	4.75	Strongly Agree
5. Web design	4.72	Strongly Agree
Average mean	4.30	Agree
Individual Learning Styles	Mean	Descriptive Interpretation
1. Structured Lessons	4.70	Strongly Agree
2. Global approach from general to specific	4.69	Strongly Agree
3. Content organization	4.70	Strongly Agree
4. Analytical approach	3.60	Agree
5. Personalizing individual work	3.65	Agree
Average Mean	4.27	Agree
Desired outcomes for learning	Mean	Descriptive Interpretation
1. Understanding the content of the module	4.64	Strongly Agree
2. Knowledge and skills are applied	4.63	Strongly Agree
3. Good teaching competencies	3.63	Agree
4. Self-readiness in teaching	4.65	Strongly Agree
5. Organized facilitation of activities	4.61	Strongly Agree
Average Mean	4.43	Agree

Table 3. The 21st Century Skills of the Elementary Public School Teachers that Needs Enhancement

	Mean	Descriptive Interpretation
1. Brainstorm and seek out opportunities for students to improve their ideas	4.51	Strongly Agree
2. Manipulate model and simulation for the learners	4.55	Strongly Agree
3. Make use of graphic organizers	3.68	Agree
4. Provide learners with performance standards	4.63	Strongly Agree
5. Observation of the students	4.50	Strongly Agree
6. Ensuring comprehensive approach	4.74	Strongly Agree
7. Use engaging structural strategies	4.70	Strongly Agree
8. Allow an open conference style of interaction	3.60	Agree
9. Respects the experience of views of the students	4.58	Strongly Agree
10. Focused on project-based learning	3.64	Agree
Average Mean	4.31	Agree

Table 4. Challenges encountered by the teachers during their online blended learning

	Mean	Descriptive Interpretation
1. Limited Internet	4.57	Strongly Agree
2. Unsuitable Smart Phone	3.60	Agree
3. System Log in problems	3.64	Agree
4. Sound Problems	3.67	Agree
5. Video Problems	3.53	Agree
6. File upload Problems	4.65	Strongly Agree
7. Inequality of Opportunity	4.63	Strongly Agree
8. Lack of communication to the students	4.60	Strongly Agree
9. Being not accustomed to the system	3.63	Agree
10. Not getting feedbacks	4.71	Strongly Agree
Average Mean	4.12	Agree

CONCLUSION

Most of the respondents agree with the Factors that affect the enhancement of 21st-century skills in a blended learning environment in terms of Teachers Technology, with an average mean of 4.30. This means that they have good and stable teaching technologies such as the Internet for developing lesson plans/ideas, Assistive Technology Tools, Management programs for student data, Test preparation, and Web design. When it comes to Individual

Learning Styles, most respondents agree with it with an average mean of 4.27. This means that the teachers agree that they prepare Structured Lessons from Global approach from general to specific containing Content organization, Analytical approach, and Personalize individual work. When asked about the Desired outcomes for learning, the majority of the respondents also agree with it with a mean of 4.43, which shows that they understand the content of the module, their knowledge and skills are applied, they have sound teaching competencies, and Self readiness in teaching and they also have Organized facilitation of activities. Results of the study also show that most of the respondents agree that the 21st-century skills of elementary public-school teachers need enhancement. These skills include Brainstorming and seeking out opportunities for students to improve their ideas, manipulate models and simulations for the learners, making use of graphic organizers, providing learners with performance standards, Observation of the students, Ensuring a comprehensive approach, Using engaging structural strategies, Allowing an open conference style of interaction, Respecting the experience of views of the students and Focusing on project-based learning. In terms of the Challenges encountered by the teachers during their online, blended learning, results show that the respondents agree with it, having a mean of 4.12. This means that the respondents agree that they encounter challenges during their online, blended learning, such as Limited Internet, Unsuitable Smart Phone, System Log in problems, Sound Problems, video problems, File upload Problems, Inequality of Opportunity, Lack of communication with the students, being not accustomed to the system and not getting feedbacks.

Therefore, the researcher recommended that the elementary public-school teachers master their competencies so that the knowledge and skills of the students will be hastened, and apart from it, positive learning outcomes will see. These positive learning outcomes can be as follows:

- Using new technology with content and pedagogy to specifically meet the learning needs of the students.
- Instructional materials should be aligned, particularly those standards that embody 21st-century knowledge and skills.
- Having structurally balanced project-oriented teaching methods for the teachers.
- Assessment ranges strategies for the evaluation of student performance and
- differentiates instruction.
- Acting as mentors and peer coaches with fellow educators. Being active in learning communities by having the expertise within a school or school district through coaching, mentoring, knowledge-sharing, and team teaching.
- Using formative assessment strategies to create a good environment with differentiated teaching and learning styles
- Positive side on the learning opportunities and pursuing the learning career and having or containing professional ethics in teaching.

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