

Web-Based Platform for Don Bosco High School – Senior High School – Technical Vocational Education Track in Adoption of Hybrid Learning

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Abstract

In the last two decades, the hybrid or blended learning paradigm has emerged as a viable alternative to traditional classroom instruction. This study, such elements associated with adopting blended learning addressed numerous results, implications, and possible future paths for Senior High School where Technical Vocational Education in the Philippines progressively interacts and develops with each other. This study aimed at developing a web-based platform or portal for DBHSP – Don Bosco High School Paranaque to resolve some classroom challenges such as conventional teaching, which is time-consuming, and the perennial lack of classrooms in public schools by providing additional/alternative teaching tools. To this end, this study further endeavored to determine the level of project effectiveness of the web-based portal in terms of the ISO 9126-1 software quality model main characteristics, namely: functionality, reliability, usability, efficiency, maintainability, and portability. The data processing was analyzed using Fourth Generation Techniques (4GT), dissemination of innovations, and Technology Acceptance Model (TAM), which is an information system theory that describes how users come to embrace and use technology. According to the paradigm, when users are presented with new technology, a variety of factors impact their decision about how and when they will use it. Hybrid learning predates modern instructional technologies. The authors conclude that its evolution will be inevitably linked to current information communication technologies and an encouraging environment for technology adopters teaching academics in a senior high school – Technical Vocational Education that is simulating some aspects of human thought perception processes. To evaluate the effectiveness, the author contends that Hybrid Learning integrates access, progress, and students' impression of their learning environments. The research technique used descriptive and developmental methodologies, and the DBHS – Senior High School were purposefully selected to benefit from the web-based approaches to teach both on and off-campus learners.

Keywords: *hybrid, blended learning, innovations*



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INTRODUCTION

Breakthrough such as technology and innovations introduces key basic changes in accomplishing huge upgrades in profitability. Used to help both educating and learning, innovation imbues classrooms with computerized learning devices, for example, PCs and handheld gadgets; extends course offerings, encounters, and learning materials; bolsters learning 24 hours per day, seven days; assembles 21st-century abilities; builds understudy engagement and inspiration, and quickens learning. Innovation likewise has the ability to change educating by introducing another model of associated instructing. One of the advancements of innovation is the Internet. The

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Internet is formed by enjoying two words that denote a global network: (international) and net (network) (Salamh, 2005).

The educational system has also profited from the advantages provided by the Internet. The Internet, which provides learners with access to knowledge as well as the ability to communicate by written, audio, and video means, has experienced fast growth all around the world. New internet-based teaching strategies have erased traditional place and time barriers, allowing students to access the material whenever and wherever they desire (Murphy, 2003). Because the learner can access information at any time and from any location, the Internet has become an indispensable part of education. Courses/subjects offered using technological tools can be considered a form of enriched education, and this includes web-based online courses and other types of internet-supplemented courses (Scida&Saury, 2006). According to Salamh (2005), web-based education is a novel education paradigm that may be utilized to promote the acquisition of new information skills as well as the enrichment of students' learning habits and experiences. Many educational strategies, including presentations, conversations, demonstrations, answer-questions, brainstorming, case studies, cooperative learning, and problem-centered learning, can be carried out in web-based environments. Learners can get experience through researching, writing, observing, listening, and performing tasks in this manner (Picciano, 2006). It may be claimed that due to the increasing popularity of computers and, in particular, the Internet, online learning instructional settings are rapidly becoming more prevalent. However, the online teaching-learning environment lacks numerous advantages that the face-to-face environment has, which led to the notion of blended learning. According to Ross and Gage (2006), online higher education students are less satisfied with completely online courses than with traditional courses. As a result, combining online learning with traditional learning environments could be far more effective in solving educational problems and meeting educational goals (Murphy, 2003). Furthermore, Graham (2006) contends that blended learning was established for its potential benefits in terms of providing more effective education, ease, and access to the teaching-learning environment. Many researchers employ blended learning in very diverse ways in international literature, referring to it as hybrid learning and mixed learning. Young (2002) defines blended learning as a form of education that integrates online and face-to-face learning activities in a planned, pedagogically valuable way, with certain face-to-face activities substituted by online ones.

Don Bosco High School Paranaque – Senior High School is envisioned to be a premier institution for Technical-Vocational Education in Paranaque City, Philippines; thus, the school is committed to producing graduates who are equipped with lifelong skills and competencies, desirable values, and work ethics in order that they may become responsible and productive citizens of the community. In line with the core values of DBHSP – Don Bosco High School Paranaque, the school is committed to providing effective instruction to the students and efficient service to its clientele. Based on the interview, one of the classroom challenges is that conventional teaching in the classroom is not time-wise. Therefore the researcher developed an alternative way of learning. Hybrid or Blended learning will provide a big convenience for the instruction to achieve its target

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by combing the face-to-face interaction in traditional learning and time, place, and material richness provided by Web-Based Platform learning.

A Web-Based platform gives Internet users a single, personalized access point to a network-based campus. The most interesting portals in the context of education are horizontal. Horizontal means providing practically everything an individual user within the organization requires doing his or her function. Authentication and access are determined by the individual's function or roles inside the company. Horizontal enterprise portals (HEPs) are adaptable and adjustable. They are designed to provide access to practically everything that an individual user affiliated with the campus needs to manage his or her relationship with the school, and if effectively built, they can replace most of the user's computer "desktop." These users can include students, faculty, staff, parents, prospective students, alumni, and members of the community at large.

LITERATURE REVIEW

The ideas enriched the researcher's insight on the subject and provided a broader perspective in the pursuit of the study. Views, concepts, theories, and erudite researchers related to the present investigation were considered the presentation of the review.

State of the Art

The reviewed literature was found to have a bearing on the present study. They served as the foundation for conceptualizing the research problem, research design, and methodology for the study.

E-learning

When one enters the field of integrated e-learning, there are numerous options available (also referred to as hybrid or mixed-mode learning). Many scholars, researchers, and educators believe that blended e-learning provides the best synchronous and asynchronous e-learning possibilities. Combining face-to-face sessions with online sessions is one of the most popular blended-learning modalities. Because the in-person portion provides more opportunities for social interaction, access to nonverbal cues that support affinity-seeking efforts, casually building relationships, familiarity and trust, addressing and diffusing misunderstanding of Formative feedback for all participants, knowledge or communications, and more, this format offers many benefits (Garrison & Vaughan 2008; Kim & Bonk 2006). Furthermore, online sessions offer better schedule flexibility (since not all sessions must be synchronous and in-person), time savings (due to no travel to a central place), self-direction, peer learning and collaboration, and student responsibility for learning (Finger et al., 2010; Garrison & Vaughan 2008; Kim & Bonk, 2006). Lest readers think that blended learning is the ideal answer for e-learning, it likewise has issues. Similarly, as different sorts of e-learning require much arranging and cautious outline, the same is valid for mixed learning (Finger et al., 2010; Garrison & Vughan 2008). Notwithstanding the standard plan requests, one should likewise consider which activities best fit the up close and personal or remote sessions and mastermind or change them in view of the evaluation. Arranging, coordination, and facilitation become key concerns in blended learning. (King 2017)

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Distance learning has many names and forms:

- Distributed learning refers to the fact that learning resources and users are distributed.
- Distance learning entails a significant physical distance between users (which is not always the case)
- A three-dimensional simulated environment can be used for virtual learning.
- Mobile Learning, which is usually delivered to portable devices such as tablets or smartphones.
- Blended or Hybrid learning, which mixes traditional face-to-face instruction with some form of distance learning delivery system and beyond.

Asynchronous e-Learning

This broad term refers to learning that is delivered non-simultaneously via online technology. This form of delivery does not necessitate the teacher and users to be connected at the same time. One of the most notable benefits of this format is the lack or elimination of time constraints. Some learners may be able to watch videos and answer questions in the middle of the night, while others may be able to do so in the afternoon or evening. However, there are many other opportunities to customize the format for asynchronous e-learning:

- The class size is not fundamentally limited. (consider MOOCs)
- Peer learning and collaboration provide a wide range of opportunities. (Small and large groups, discussion forums, joint initiatives, and so forth.).
- There are numerous methods for presenting or discovering knowledge (e.g., video and audio clips, presentations, web pages, articles, books, dialogue, interactivity, music, movies, animations, graphics, simulations, etc.).

Synchronous e-Learning

Synchronous e-learning occurs when learners and instructors connect through technology at the same time. Given the great benefits of flexibility that synchronicity provides, why anyone would persevere through scheduling and technical difficulties.

Impact of Hybrid/Blended Instructional

In the study of Rawlins, Troy A.; Ali, Rifath (2017); A conventional classroom environment makes a worldview in which college teachers must have the capacity to rapidly distinguish and suit contrasts among understudy adapting necessities to accomplish good scholarly execution scores while all the while working inside college arrangements in regards to course deviation(s) or alteration(s) in dates and times. Educators in on-grounds classrooms use PowerPoint slides in addresses or trade modules, cluster assignments, and flipped classrooms while using appropriate informational mechanical stages to associate with understudy learning and update execution scores in classes. Overall, these instructional framework strategies have been successful in attaining positive understudy execution scores for family unit understudies in Eastern Kentucky University's (EKU) Occupational Safety and Health (OSH) degree program courses. However, EKU's understudies of the Muslim faith who were selected in OSH 261 Principles of Occupational Safety and Health achieved lower than average execution scores than their residential partners inside a standard on-campus instructional outline. This scientist assumes the real reason for

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Muslim understudies bring down scores in OSH 261 is identified with poor class participation caused by going to a week-by-week Friday religious service called Jumu'ah. In spite of the way that there is a school procedure regarding course support, there is no understanding, avoidances, or plans offered which provide guidance to a religious cabin for understudies of Muslim certainty. Instructors, rather, are dependent on sorting out imaginative instructional arrangement courses of action, which meet understudy adjusting needs (instructional strategy) towards extending insightful execution scores while working inside school approach for course investment in the midst of class dates and times. In this easygoing mixed technique pilot examination of 96 (N = 96) Muslim understudies enrolled in OSH 261 were introduced to creamer or blended approach to managing instructional arrangement over three semesters called Adobe Connect to address both the understudy adjusting needs and to follow the school game plan with respect to understudy participation to help augments in academic execution scores. The quantitative outcome of this pilot study revealed that understudies of Muslim certainty had their ordinary insightful execution scores increased by 5% after Adobe Connect was implemented at the close of each semester.

Faces of Blended Learning

The blended learning model—the mix of web-based learning and physical tutoring—isn't new. Be that as it may, as this model keeps on advancing and developing, it's creating new sorts of learning encounters. Mixed learning started decades back as a reasonable answer for filling holes in access to educational modules content. Schools that couldn't provide specific advanced or optional coursework found an answer in online courses, which could fairly convey substance to understudies whenever and wherever commonly coming to crosswise over the region and state lines. In spite of the fact that understudies kept on taking conventional face-to-face classes, they could supplement these courses with online courses.

Three Trends in Blended Learning (Horn and Fisher 2017, p. 59-63)

1. Schools Continue to Adopt Station Rotation.
2. Schools Explore Ways to Unlock Flexible Pacing.
3. The Flex Model in high schools challenges traditional structures.

METHODOLOGY

The research technique used descriptive and developmental methodologies for Don Bosco High School Paranaque – Senior High School. The research began by identifying the current system of Don Bosco High School of Paranaque – Senior High School TVE or Technical Vocational Education Track. This is done by interviewing, observing, and recording stakeholders' personal experiences. The system was aimed at solving problems encountered by teachers and students and also suggestions for improving the present system. Furthermore, the study aims to determine the systems acceptance and quality level. Thus, a descriptive method is used using the survey instrument and test cases. The study designed a new model of web platform using a hybrid learning system for Don Bosco High School – Senior School, Technical Vocational Education track (DBHSP – SHS TVE Track), tested its acceptance, and evaluated its quality based on research development method.

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Project Development

Nowadays, another procedure, known as the Fourth Generation Technique (4GT), is being utilized to rapidly create data frameworks. This procedure makes utilization of various programming advancement apparatuses. The designer needs to indicate just a couple of attributes of the product at an abnormal state. The instruments at that point naturally build up the code for the given details.

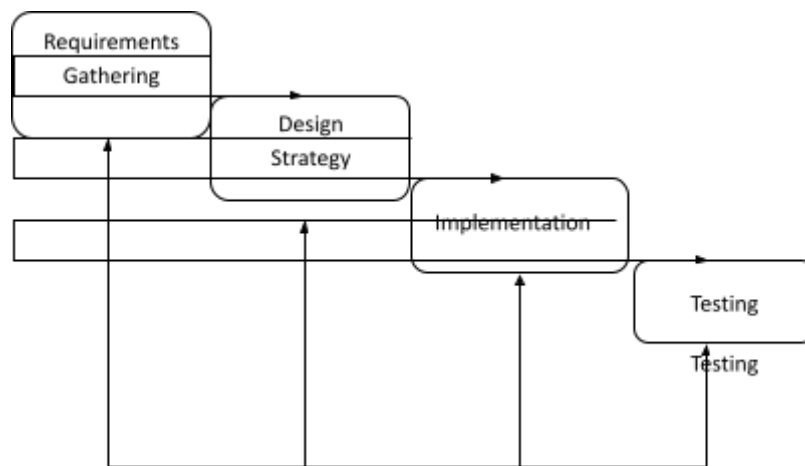


Figure 1. Fourth Generation Techniques (4GT)

Project Design

Web-Based Portal Data Flow Diagram is utilized as a stage to make a review of the E-learning without broadly expounding, which can later be explained. It typically comprises general application dataflow and procedures of the e-learning process. It contains the majority of the user flow and their substances such as all the streams of Student, Activity Log, Files, Teachers, Subject Teacher. The majority of the beneath charts have been utilized for the representation of information handling and structures outline of the E-Learning procedure and working stream.

The author discusses the project technical descriptions, testing and evaluation findings, data analysis, and interpretation based on the results of the distributed surveys. This section also shows the expectations and observations of each respondent towards the system. The author explains the *Level of Software Quality Characteristics* in terms of functionality, dependability, usability, efficiency, maintainability, and portability.

Project Technical Description

This technical description covers the design, the preparation of all required operation and construction studies, the supply of all required metering, IT, communication, and equipment, the installation of such equipment, and finally, the acceptance of the operational system.

The Web-Based Platform for Don Bosco High School Paranaque is developed and designed using an open-source course management system. MOODLE stands for "Modular

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Object-Oriented Dynamic Learning Environment. Developed by Martin Dougiamas, it is used by thousands of educational institutions worldwide to provide an organized interface for e-learning or Internet-based learning. Moodle core includes the entire infrastructure required to create a Learning Management System.

Testing Result

Software testing is an area that is being examined and given utmost importance of the fast-paced world of technology. There are various stages at which testing is done to ensure the quality of delivery.

Legend:

Range Equivalent	Interpretation	
3.50 – 4.00	Strongly Agree	Strongly Acceptable
2.50 – 3.49	Agree	Acceptable
1.50 – 2.49	Disagree	Unacceptable
1.00 – 1.49	Strongly Disagree	Strongly Unacceptable

Evaluation Result

Summary of Level of Software Quality Characteristics

This summarizes the level of functionality, reliability, usability, efficiency, maintainability, and portability of the system with the sub-characteristics.

Table 1. The Summary of Level of Software Quality Characteristics

FUNCTIONALITY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q1	1	4			Suitability	3.60
Q2	1	4			Accurateness	3.20
Q3	5				Security	4.00
RELIABILITY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q4		5			Maturity	3.00
Q5	1	4			Fault Tolerance	3.20
Q6	3	1	1		Recoverability	3.40
USABILITY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q7	3	2			Understandability	3.60
Q8		5			Learnability	3.00
Q9	1	4			Operability	3.20
Q10	1	4			Attractiveness	3.20

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EFFICIENCY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q11	2	3			Time Behavior	3.40
Q12	2	3			Resource Utilization	3.40
MAINTAINABILITY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q13	1	3	1		Analyzability	3.00
Q14	1	4			Changeability	3.20
Q15	2	3			Stability	3.40
Q16	3	2			Testability	3.60
PORTABILITY	SA 4	A 3	D 2	SD 1	Sub-Characteristics	Weighted Mean
Q17	2	3			Adaptability	3.40
Q18	2	3			Installability	3.40
Q19	2	3			Conformance	3.40
Q20	2	3			Replaceability	3.40

Table 1 shows the summary result of the evaluation conducted among different IT Professionals composed of IT Teachers from DBHS – Don Bosco High School Paranaque and government schools, Programmer, IT staff, and Web Developer.

FINDINGS AND DISCUSSION

The finding of the study revealed that the level of overall Software Quality Characteristics obtained a mean of 3.36 and was interpreted as acceptable. The level of functionality was strongly acceptable (WM = 3.60). For the rest of the characteristics, it was acceptable, i.e. reliability (WM = 3.20), usability (WM = 3.25), efficiency (WM=3.40), maintainability (WM = 3.30) and portability (WM = 3.40)

CONCLUSION AND FURTHER RESEARCH

Based on the findings of the study, it can be concluded that web-portal or web-based platform Software Quality Characteristics were acceptable to the respondent-evaluators.

Recommendations:

1. Develop and provide more information about the course/subject based on DepEd Curriculum Guide. In addition, it is recommended to yearly update the content of the portal and its references.
2. Enhance the system flexibility based on uses and functions by providing more activities for the students

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3. Improve the systems Graphical User Interface (GUI) and color harmony to be a lot easier to use for students and other users.
4. Enhance system performance and operation by providing good internet connectivity for the students and other users' fast access to the portal.
5. Maintain system portability by checking and updating computer specifications, performance, and backups.

REFERENCES

- Al-Azawei, A. Al-Bermani, A., Lundqvist, K. (2016). Journal of Information Technology Education. Vol. 15, p109-130.
- Bath, D. & Bouke, J. (2010). Getting started with blended learning, Griffith University ISBN: 978-1921760-24-2
- Forest, E (2017). Educational Technology: An Overview, Viewed November 6, 2017
<https://EducationalTechnology.net/Educational-Technology-AnOverview/>
- Guest, G. Bunce, A & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability first published February 1, 2006
<http://Journals.Sagepub.com/DOI/ABS/1.1177/152822X05279903>
- Horn, M.B., Fisher, J.F. (2017). ASCD / www . Ascd . Org 60 Educational Leadership / March 2017 Copyright of Educational Leadership is the property of Association for Supervision & Curriculum Development 59-63 (, p. 59-63)
- Horn, M.B., Staker, H (2014). Using Disruptive Innovation to Improve Schools, San Francisco: Jossey-Bass. Copyright © 2014.
- Insook L., Junghoon L., Eunmo S (2006.) A Study on the Development of Collaborative Learning Model, The Journal of Korean association of computer education, vol. 9 , no. 2, (2006), pp. 27-36 Information Technology Curriculum Integration, DOI: 10.4018/978-1-59904-881-9.ch132
- Rawlins, Troy A.; Ali, Rifath (2017). Evaluating of the Impact of Hybrid or Blended Instructional Design on Muslim Students; Online Journal of Distance Learning Administration, v20n1 Spr.
<https://www.ed.gov/oii-news/use-technology-teaching-and-learning> viewed November 6, 2017
<https://techterms.com/definition/moodle> viewed January 18, 2018
<http://www.softwaretestinghelp.com/web-application-testing/> viewed January 18, 2018
<https://www.guru99.com/web-application-testing.html> viewed January 20, 2018
<http://what-when-how.com/portal-technologies-and-applications/benefits-and-limitations-of-portals/> viewed January 20, 2018