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# Implementation of GENYO e-Learning in Saint Columban College: An Evaluation

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***Abstract***— *The quest for superior education directs to advancing information and communications technology (ICT). Hence, this study's primary purpose was to evaluate teachers' and students' perceptions of utilizing GENYO e-Learning at Saint Columban College- Secondary Department during the school year 2014-2015. This study also sought to reveal the problems/challenges encountered in implementing GENYO e-Learning and suggestions for improvement. This evaluation concluded that the implementation of GENYO e-Learning is successful and effective. However, the teachers averagely utilized the online learning platform in their teaching. This study asserted that the students demonstrated positive attitudes and beliefs towards implementing e-learning in the school curriculum. However, there is still room for improvement for GENYO e-Learning integration in upgrading internet connection, workability or maintenance of computers and other related resources, better infrastructure in general, and intensified assistance from the Learning Integration Specialist (LIS) since they are essential in the progress of learning. Likewise, time constraints in making the lesson packages for teachers and studying and answering the learning activities through GENYO e-Learning for students, inadequacy or malfunctioning of computers, schedule, or non-availability of GENYO Laboratory, unavailable links or attached files in the assigned lessons, broken laboratory materials such as the headset, keyboard and mouse, and electrical power interruption (brown-out) are also a hassle in the teaching-learning process.*

***Keywords***— *Evaluation, GENYO e-Learning, Saint Columban College.*

## I. INTRODUCTION

The need for providing quality and excellent education is an appealing venture. The constitutional mandate of protecting and promoting the right of all citizens to quality education has been expressed concretely by the Presidential Task Force for Education. The vision of every Filipino family is to ensure that each son or daughter gets the opportunity for a high-quality education that would lead to a productive, well-paying job or become a successful entrepreneur (PTFE, 2008).

The quest for superior education has always been important, especially in a science and technology-based world where teaching and research are crucial in a country's development process, welfare, progress, and security. This development, led by information and communications technology (ICT), continue to influence the scientific and technological progress and even the smallest detail of our lives (Amer, 2007).

Our century is characterized by a highly technological and global economy, where information and knowledge are the most critical commodities and tools of production (Nemenzo, 2004). Rising international competition, workplace opportunities, and challenges in the 21st century require better-educated workers who are proficient at reasoning, problem-solving, analyzing, and making sense of things. Intuitively, having deep knowledge and hands-on application of computer technology is pivotal for achieving these skills (Salem, 2004).

The advent of the Computer Age makes people live today in an age of rapid information and technology change. Modern computers and new telecommunication equipment have made worldwide exchange information briefly or instantaneously, something that never happened before. In addition, computers' large capacity for storage, rapid retrieval of data, ease of access, and interactivity for learners provide inspiration and feedback. Immediate benefits include high motivation and learning that is more enjoyable, conveying the idea of continuity and lifelong learning (Almoberek, 2001).

Computer-Assisted Instruction (CAI), as a type of e-learning, uses a computer to provide instruction to the students to react to that instruction and get the result of their reaction immediately. Frequently cited advantages include varied instructional events, individualized instruction, accessibility, time efficiency, instructional effectiveness, instructional consistency, critical thinking skills, convenience, and student privacy (Hirschheim, 2005). Individualized instruction allows students to self-pace their learning. When students comprehend the topic or material, they can move to the next topic without waiting for their classmates. Conversely, students who struggle with the material can spend more time reviewing and learning without detaining their peers (Kinney, Keskula, & Perry, 1997).

One of the breakthroughs that brings e-learning in the Philippines to the next level is the GENYO e-Learning of DIWA SLE (Superior Learning Experience). GENYO e-Learning is the leading integrated Online Learning Management System for Basic Education in the Philippines. This e-learning program uses the most modern technology today to use computer graphics, texts, and moving picture animations to enhance the learning process by utilizing the latest innovations in state-of-the-art multimedia equipment.

This online learning system is a software application for delivering, tracking, and managing the learning process. It is used to create, deliver, and access content, record, monitor, and assess students' performance. Since 2008, over 180,000 students from over 300 schools have used GENYO, which has grown year after year.



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The GENYO e-Learning is described by the so-called 4Cs, namely content, connectivity, community, and change management. GENYO (Content) is an exclusive online learning management system that contains curriculum-based multimedia resources in Science, English, Math, Filipino, Araling Panlipunan (HS), and HEKASI (GS). It has thousands of learning resources like animated tutorials, interactive activities and games, video and audio files, assessment and evaluation tools, a test bank, and more. The teacher can access the said resources or ready-made lessons and tests inside GENYO and assign these activities (as review, diagnostic, or introductory training, remedial, enrichment, assessment, homework, or classwork) to be answered by the students. The teachers can create their lesson, assign it to the students, track their progress online, and upload files and assign them to students, which the students will download to view and upload their work for submission offline.

GENYO (Connectivity) includes infrastructure, hardware such as desktop computers, DLP projector, headsets or speakers, software, and internet connection (wifi/wired). GENYO is accessed through a different set of hardware devices within and outside of the school. For example, schools, teachers, and students could use it through a computer laboratory, classroom with a projector, and access from a home, library, or anywhere.

GENYO (Community) provides schools, students, teachers, and parents an opportunity to be part of a global online learning community. Several schools in the Philippines, Singapore, and other countries have used GENYO. And more importantly, its plans and programs foster camaraderie within and among its subscribers.

GENYO (Change Management) provides a necessary teacher and student training on basic ICT skills and e-Teaching strategies and e-Learning Training for Education (eLite). The teachers will undergo training on basic ICT skills and techniques, navigate the internet, create online lesson plans and tests, use online communication tools, use online assessment, and e-learning teaching strategies. In addition, DIWA SLE will assign a dedicated and full-time Learning Integration Specialist (LIS) to help the teachers and students integrate e-learning in the teaching-learning process.

The primary consideration of the teachers in the teaching-learning process is how to hook students through engaging and thought-provoking experiences. Spontaneously, GENYO e-Learning, primarily a blended learning or mixing of different strategies to achieve the perfect blend in education. GENYO e-Learning will organize the technology around student learning and use the tools to help students think and communicate effectively.

In its search to continuously enhance its curriculum offering and learning environment, the Saint Columban College – Secondary Department, Pagadian City, in partnership with DIWA Learning Systems, adopted and integrated GENYO e-Learning Program into its curriculum. The school has been using computer-assisted instruction since 2012, and the education stakeholders have experienced positive outcomes and negative feedback and results.

Thus, this study aimed to examine how teachers and students perceive the utilization and implementation of GENYO e-Learning in Saint Columban College – Secondary Department. The researcher intended to uncover the problems/challenges encountered by the teachers and students in the teaching-learning process and solicit their suggestions for improving the program implementation. Therefore, the conduct of this study is timely and of great help because the result of this endeavor would give further enlightenment to the stakeholders in the acquisition of high-quality education.

*Research Questions*

This evaluation sought answers to the following queries:

1. What is the extent of teachers' utilization of the GENYO e-Learning in terms of:
   1.1 frequency of usage;
   1.2 usefulness of e-learning; and
   1.3 readiness to teach and learn using e-learning?
2. What is the extent of students' perception of the GENYO e-Learning in terms of:
   2.1 general attitude towards e-learning;
   2.2 the ability to learn autonomously and interact with the content; and
   2.3 connectivity and management of e-learning?
3. What problems/challenges are encountered by both the teachers and students in the implementation of GENYO e-Learning?
4. What are the suggestions for the improvement of the teaching-learning process using GENYO e-Learning?
5. Based on the findings, what implications can be designed for the utilization of e-learning in the public school system?

*Significance of the Study*

The importance of this study was to make the teaching-learning experiences more effective and meaningful through the integration of e-learning. Explicitly, the study would have significant value to the students, teachers, parents, school administrators, Department of Education officials, DIWA Learning Systems, and other stakeholders being considered the direct recipients of the results of this study.

*Scope and Delimitation of the Study*

The study was delimited primarily to evaluate the utilization of GENYO e-Learning according to the perceptions of the teachers and fourth-year students of Saint Columban College- Secondary Department during the school year 2014-2015. It also investigated the problems/challenges encountered by the teachers and students in the implementation of e-learning. It provided suggestions for the improvement of the teaching-learning process using computer-assisted instruction. The descriptive type of research was used to evaluate with the survey questionnaire as the key in generating the necessary data.

*Definition of Terms*

*Computer-Assisted Instruction (CAI)*. It refers to distance learning, online instruction, computer-assisted learning, blended learning, synchronous/asynchronous learning, web-based instruction, or cyber education (Sobkowicz, 2010), and

the ability for people to get and use technology within their educational setting.

*GENYO e-Learning*. It is the first and only fully integrated Online Learning Management System for Basic Education in the Philippines. This e-learning program uses the most modern technology today to use computer graphics, texts, and moving picture animations to enhance the learning process by utilizing the latest innovations in state-of-the-art multimedia equipment. This online learning system is a software application for delivering, tracking, and managing the learning process. It is used to create, deliver, and access content, record, monitor, and assess students' performance.

## II. Literature Review

The role and responsibility of teachers are becoming more crucial as they are expected to integrate technology into their instruction. However, not all teachers are willing to incorporate e-learning into their teaching. Zeitoun (2008) further emphasized the importance of delivering learning content via electronic multimedia and computer networks to give the learner the possibility of dealing actively with the content and with the teacher and with peers, whether synchronous and asynchronous.

Significantly, e-learning evolved from distance learning, technology, and pedagogy (Algahtani, 2011). One of the most famous definitions of distance learning concerned an educational process in which a significant proportion of the teaching was conducted by someone remote from the learner (Perraton, 2012). Because of technological progress, distance learning included the management of educational institutions, where multimedia provided mutual interactive communication between the parties of the educational process and support for autonomous learning at synchronous or asynchronous times and in diverse places. Therefore, it became a middle way or a compromise between traditional teacher-centered learning and student-centered learning (Algahtani, 2011).

*E-learning as pedagogy*. These all-inclusive definitions comprised various hardware and software to deliver e-learning and the systems necessary for efficient and cost-effective education. It is an innovation for delivering electronically-mediated, well-designed, learner-centered, and interactive learning environments with instructional design principles (Khan, 2005). Within this trend, Conole and Oliver (2006) described e-learning as the term most used to present the broader domain of development research activities on applying technologies to education.

The tripartite relationships between pedagogy, technology, and educational administration were part of Aldrich's (2003) definition of e-learning as a broad combination of processes, content, and infrastructure using computers and networks to scale and improve one or more significant parts of a learning value chain, including management and delivery.

*The positive aspects of e-learning*. One of the essential benefits of e-learning is its capacity to help manage the explosion of knowledge and meet the growing demand for education. E-learning provides interactive, enjoyable, motivational learning environments with multiple sources that ease the updating content and ease learning and retaining knowledge and meet individuals' needs (Mayes, & De Freitas, 2007). In addition, e-learning compensates for shortages of academic staff, provides administrative support such as registration, classroom management, evaluation, and facilitates communication. And it also enables teaching large numbers of students without the restrictions of time or place (Amer, 2007). E-learning environments also help learners rely on themselves because instructors are no longer the only source of knowledge. Instead, they become guides and advisers (Salem, 2004).

*The negative aspects of e-learning*. Despite the multiple benefits of e-learning, which have made it a popular development, related research suggests some negatives associated with its application (Higgins, Xiao, & Katsipataki, 2012). It has been shown to: focus on cognitive more than physical and affective aspects of learning, be more applicable in social science than in some scientific fields, such as medical science and pharmacology where practical skills need to be developed, limit its input to hearing and vision rather than including all the senses, develop tendencies to unsociability due to lack of face to face communication, depend on efficiency, good infrastructure, quality of design and technical support, require generous budgeting for its establishment and, more significantly, its maintenance, some may be misled into copyright violation (piracy or plagiarism), influenced by lack of selection skills and the apparent ease of copy and paste, congestion or heavy use for some websites may lead to unexpected costs in time and money (Alarifi, 2003; Salem, 2004; Amer, 2007).

*Interaction and communication in e-learning*. E-learning is interactive learning, allowing the learner to interact with the content, with colleagues and the instructor, whether synchronously, through such tools as chat rooms, shared whiteboards, and video conferencing or asynchronously, through email and group news. Thread discussions and forums also provide interactivity. All forms of learning occur as interactions between instructors, learners, and content. Two corners of this triangle, being human, the other non-human, all are essentials for e-learning (Garrison, 2011).

*Autonomy in e-learning*. All the learners' activities are practical actions in personalization and autonomous learning (Abdulaziz, 2008). While autonomy is the goal of effective pedagogy, flexibility and interactivity are two essential components. Flexibility implies that, from the first moment when the learner sits in front of a computer, he/ she becomes a subject who wishes to learn in time that suits him/her, and this autonomy continues until the end moment.

E-learning has contributed to strengthening individualization strategies and designing learning to meet each learner's needs (Salem, 2004). Undoubtedly, the primary objective of education is the composition of the individual in all aspects of personal development. Therefore, education should deal with each learner individually to give him/her opportunities to obtain the maximum in less time with less effort.

*Problems/challenges to e-learning*. Recent literature pointed up a weak infrastructure, connection difficulties, and high fees are challenges to the implementation of e-learning

(Salem, 2004). Educators are unfamiliar with using and navigating sites, and faculty members are not convinced about using them. They fear losing their roles. It has already been made clear that e-learning has some obstacles that have impeded its application or limited its spread.

*Teachers' Attitude and Utilization of e-Learning*. Although there are e-learning resources available in many schools, not all educators are willing to adopt them as much as researchers and school administrators expect. Teachers' adoption and integration have been slow even though there is a tremendous development in computer technology (Arkin, 2003). The attitude of teachers towards e-learning and the underutilization of computers have discouraged researchers in the field and led them to question the actual effectiveness of educational technology.

*Students' Perception towards e-Learning*. Student attitudes and beliefs towards e-learning and their satisfaction with technology and past e-learning experiences are regarded as success determinants of future e-learning initiatives (Rhema & Miliszewska, 2014). Many learners have positive attitudes towards e-learning (Nassoura, 2012). Specifically, e-learning positively influences their motivation as well as self-esteem.

In this study, students' perceptions of e-learning are operationalized as their views or beliefs about the learning they have experienced. They form an essential part of evaluating the program in general and, for this study, GENYO e-learning in Saint Columban College.

This evaluation aims to highlight the effectiveness of e-learning using teachers' extent of utilization and students' perceptions and their suggestions as to the most powerful indicators for proof of effective e-learning. This research also identifies the major problems/challenges encountered by the teachers and students in the implementation of e-learning. There is a range of factors that affect the effectiveness of e-learning programs and their incorporation into the school curriculum. Identifying the most contributing factors or dimensions in the quality of e-learning integration is a very complex and challenging job. Nevertheless, the literature informs that the study and evaluation of GENYO e-Learning in Saint Columban College- High School Department are asserted.

## III. METHOD

### *Research Design*

This study evaluated the implementation of GENYO e-Learning in Saint Columban College – Secondary Department, Pagadian City, Philippines. The descriptive analysis of the perceptions of the teachers and students towards the implementation of GENYO e-Learning used the survey method. Descriptive research highlights the conditions that exist, practices that prevail, beliefs, trends that are developing, processes that are going on, or the effects that are being observed. Considering the primary purpose of this study was to reveal how effective and efficient is the implementation of an e-learning program, the descriptive survey research design is appropriate.

### *Research Participants*

The participants of this study were the twenty-three (23) teachers and one hundred eighty-nine (189) fourth-year students of Saint Columban College- Secondary Department of the school year 2014-2015. The students answered the questionnaire with pre-determined answers on the perception of the implementation of GENYO e-Learning. At the same time, the teachers responded to the questionnaire about the utilization of the program. In addition, the respondents also answered the open-ended questions on the usual problems/challenges encountered in the integration of GENYO e-Learning and the suggestions for the improvement of the teaching-learning process.

### *Research Instruments*

The first questionnaire was used to assess the teachers' utilization of the GENYO e-Learning regarding the frequency of usage, the usefulness of e-learning, and readiness to teach and learn using e-learning. The second questionnaire was used to evaluate the extent of students' perception of the GENYO e-Learning regarding general attitude towards e-learning, ability to learn autonomously and interact with the content, and connectivity and management of e-learning.

The questionnaires allowed the respondents to express the extent of their agreement or disagreement, showing their perceptions of incorporating the program. Each item offers 4-point Likert-type responses: Strongly Agree (SA) = 4; Agree (A) = 3; Disagree (D) =2; and Strongly Disagree (SD) = 1. The subsequent part of the questionnaires allowed the research participants to specify or itemize the major problems/challenges in the implementation of GENYO e-Learning and their suggestions for improving the teaching-learning process.

## IV. RESULTS AND DISCUSSIONS

### *Teachers' Utilization of GENYO e-Learning*

*Frequency of Usage*. Strikingly, one-half of the teacher-respondents of Saint Columban College- High School Department answered "Sometimes" as to the extent of integrating GENYO e-Learning in their teaching, 42% replied, "Often," and the remaining 8% responded "Always." And more interestingly, nobody gave a "Rarely" response. On average, therefore, the teachers indeed utilized and integrated GENYO e-Learning in their classroom instruction.

From the results, 75% or three-fourths of the teachers carried out their classes inside the GENYO laboratory less than once a week, and 25% or one-fourth of the teachers conducted their classes inside the GENYO laboratory 1 - 2 times a week. These results would support the claim that the teachers averagely utilized GENYO e-Learning in the teaching-learning process.

From the survey conducted, 55.56% of the responses of the teacher-respondents stipulated the availability of the GENYO Laboratory as coordinated and scheduled by the Learning Integration Specialist (LIS) as the main factor describing their average extent of usage of the GENYO e-Learning. And

18.52% of the responses pointed to the enhancement of the teaching-learning process through GENYO e-Learning, 11.11% indicated internet connection difficulties as a limitation of utilizing GENYO e-Learning. The remaining two factors, namely electrical power interruption (brown-out) and school extra-curricular activities with an equal proportion of 7.41%, hamper the maximum integration of GENYO e-Learning in the teaching-learning process.

These findings significantly support early studies, which pointed to weak infrastructure and connection difficulties and high fees as challenges to the implementation of e-learning (Salem, 2004). Despite the rapid development in computer technology, teachers' adoption and integration have been slow (Arkin, 2003). Considering that there is only one GENYO Laboratory in Saint Columban College- High School Department, it would be a challenge to the teachers and the Learning Integration Specialist (LIS) to balance the usage of the GENYO facility among the 24 subject teachers and 17 class sections evenly.

*Usefulness of e-Learning*. The result on evaluation of teachers' utilization of GENYO in terms of the usefulness of e-learning posted that 100% “Yes” response on the first question convincingly proved that the teachers of Saint Columban College- High School Department perceived the usefulness of GENYO e-Learning for integrating computer technology resources in their teaching. Furthermore, the 91.67% "Yes" response on the second and third questions about enhancement of teaching-learning process and improvement of student acquisition of knowledge through the integration of GENYO e-Learning reinforced the usefulness of GENYO e-Learning as perceived by the teachers. Noticeably, 8.33% of the teacher-respondents disagreed on the usefulness of GENYO e-Learning in enhancing the teaching-learning process, and 8.33% also gave a "No" response on the capability to increase student acquisition of knowledge through GENYO e-Learning implementation.

The results and discussions above would validate that GENYO e-Learning is undoubtedly helpful for integrating computer technology resources and enhancing the teaching-learning process. The multimedia learning environment of the GENYO e-Learning program arouses students' interest to learn the topic and allows the students to explore the content of the subject through games, interactive activities, and web resources beyond the grasp of a book.

*Readiness to Teach and Learn Using e-Learning*. The readiness of the teachers to teach the subject matter along with the integration of e-learning is a great challenge, especially to the veteran educators who are technologically challenged. Teachers' willingness to change, be trained, and integrate e-learning as a teaching tool will also be challenging.

In terms of utilizing GENYO e-Learning in their teaching, 100% of the teacher-respondents agreed that they are ready for computer-assisted learning and their students. Likewise, 100% agreed that students are more actively engaged with the learning material through GENYO integration. Aside from the respondents’ capability, the 100% positive responses of the teachers would back up the findings that the provision of teacher and student training on basic ICT skills as well as e-teaching and e-learning strategies spearheaded by the Learning Integration of Specialist (LIS) has been instrumental for the readiness for implementation of GENYO e-Learning in Saint Columban College- High School Department.

*Students’ Perception of GENYO e-Learning*

Students’ perceptions of e-learning are operationalized as their views or beliefs about the learning they have experienced but acknowledging the complexity of the idea.

*General Attitude Towards e-Learning*. This dimension is one of the most critical determinants of evaluating the effectiveness of the implementation of e-learning since it reveals students' attitudes and beliefs and their likes and dislikes about the integration of ICT in the teaching-learning process. Students' positive attitude towards utilizing GENYO e-Learning in Saint Columban College- High School Department is very high, with an overall mean of 3.28.

An overall percentage of 39.80% of the students responded, 'Strongly Agree,' and 50.57% answered 'Agree.' On the other hand, a little less than 10% of the respondents expressed disagreement about their statements general attitude towards GENYO e-Learning. Explicitly, the students of Saint Columban College- High School Department generally and predominantly like the implementation of GENYO e-Learning in the school. The fact that 90% of the students retorted positively while only 10% responded negatively. Therefore, the students aspire to learn to use information and communication technologies (ICT).

This research provides a shred of solid evidence that GENYO e-Learning in Saint Columban College- High School Department is a good tool and approach in learning which has ready-made lesson packages and other learning resources that foster efficient, fun, and collaborative learning pursuits through animated tutorials and interactive activities and games. Being embraced by the students who are prepared to use ICT in education, GENYO e-Learning has helped integrate instructional computer technology resources in the school curriculum.

*Ability to Learn Autonomously and Interact with the Content*. Autonomous learning is a school of education that sees learners as individuals who can be independent. Autonomous learning means having independence in learning without continuous supervision and help from instructors. Remarkably, 10 out of 14 items describing the ability of the students to learn autonomously and interact with the content were rated Very High, and the remaining four items were rated as High. The overall mean of 3.27 is also interpreted as Very High.

The overall percentage of 39.21 of the students responded, ‘Strongly Agree', 49.56 responded 'Agree,' 9.11 answered 'Disagree, and 2.11 responded ‘Strongly Disagree.' Looking at the reactions more closely, approximately 89% of the respondents who answered the items positively greatly

outnumbered the 11% of the students who responded negatively. Statistically speaking, the students of Saint Columban College- High School Department perceived the utilization of GENYO e-Learning as a provision for effective instructional endeavor by using computer-aided teaching tools and as a facility for individual learning, which significantly enhances the traditional method of learning to more student-centered and autonomous learning with the teacher as facilitator.

*Connectivity and Management*. Based on the findings, the Learning Integration Specialist (LIS), a full-time GENYO assistant who manages the GENYO Laboratory and helps the teachers and students integrate e-learning in the teaching-learning process, consistently reflected Very High weighted means. Being an integral part of the management of GENYO e-Learning, it is a good sign that students perceived the LIS as helpful, knowledgeable, and dedicated to providing services for the integration of e-learning, as evidenced by the uppermost rating of 3.42 interpreted as Very High.

It can be interpreted that the GENYO e-Learning is successful in providing good infrastructure, stable internet connection, and good performance of the Learning Integration Specialist (LIS). However, it can be pointed out from this evaluation that there is still room for improvement for GENYO e-Learning integration in Saint Columban College-High School Department in terms of upgrading internet connection, workability and maintenance of computers and other related resources, better infrastructure in general, and improved performance of the Learning Integration Specialist (LIS) since they are essential in the progress of learning.

The results will strengthen the claim that the students of Saint Columban College- High School Department generally demonstrated positive attitudes and beliefs towards the implementation of GENYO e-Learning in the school curriculum. Furthermore, they recognized the importance of integrating technology into the teaching-learning process and, more importantly, the successful implementation of GENYO e-Learning, especially in terms of connectivity and management of the e-learning program and paving students to learn autonomously and interact with the content.

*Problems/Challenges Encountered in the Implementation of GENYO*

Along with the successful implementation of GENYO, the respondents encountered some problems or challenges that hamper its integration. The data on the problems/challenges faced in the implementation of GENYO. The overall weighted mean for the student-responses is 2.50 and for the teacher-responses is 2.14, both interpreted as Low. Remarkably, both teachers and students agreed that the network is too slow. This scenario suggested that the slow internet connection is one of the problems that impede GENYO e-Learning in Saint Columban College.

Similarly, the respondents agreed that they do not have adequate access to computers outside the school or home. This outcome implies that many teachers and students had trouble integrating GENYO e-Learning to give assignments, extra activities, or quizzes because of inaccessibility to computers at home. In addition, the teacher-respondents considered that subscribing to GENYO e-Learning is expensive. Still, the student-respondents did not recognize the additional fees charged to the GENYO e-Learning subscription as a problem.

*Major Problems/Challenges in the Implementation of GENYO e-Learning*. Slow internet connection is the major problem/challenge in the implementation of e-learning, with a rating of 47.62%. The teacher-respondents also observe this problem/challenge with a mark of 17.65%. From the survey conducted, some students responded that "Sometimes I can't access GENYO because of slow internet connection" and "I think the major problems/challenges in the implementation of GENYO is sometimes the network is too slow that some students cannot access their assignments or paper works immediately." One student said, "The connection sometimes is very slow, and it can consume the class time." Another student added, "Accessing GENYO can take a long time as it is usually slow, and it can be a problem to people with no internet connections at home since they'll take more time going to an internet café."

Results also signified that the inaccessibility of internet connection at home is also a significant problem/challenge in implementing GENYO e-Learning. The teacher-respondents considered it the number one problem with a rating of 23.53%, and the student-respondents considered it the number two problem with a score of 28.57%. The reactions of the teachers and students manifested the successful and effective implementation of the GENYO e-Learning program in the school. However, the respondents also found that accessibility of the internet or sometimes computer outside the school as a barrier to its implementation. The fact that some learners do not have internet access at their homes, they cannot open and pass the assigned learning activity on time. Sometimes, they cannot perform the performance tasks assigned to their GENYO account due to not having internet access at home.

One teacher complimented, "Those students who don't have internet connections at their home can't access their accounts and can't submit their homework." One of the participants responded, "Not everyone can access GENYO e-Learning because they have no internet connection at home." One more cited "Not all students have easy access to the internet and a computer, and most parents won't let their son or daughter go to an internet café because they can't keep an eye on them. Also, not all homes have a fast internet connection, and loading may take a long time." Indeed, internet connection at home, an extension of the classroom for student learning, posed a significant problem/challenge in implementing GENYO e-Learning.

The data also revealed that time constraints in making the lesson packages for teachers and studying and answering the learning activities through GENYO e-Learning for students, inadequacy or malfunctioning of computers, schedule or non-availability of GENYO Laboratory, unavailable links or attached files in the assigned lessons, broken laboratory

materials such as the headset, keyboard and mouse, and electrical power interruption (brown-out) are also a hassle in the teaching-learning process. Moreover, according to the teachers, the subscription fee for GENYO e-Learning is a burden to the parents. Surprisingly, the students did not recognize this financial difficulty in the implementation of GENYO e-Learning.

*Suggestions for the Improvement of Teaching-Learning Process Using e-Learning*

Based on the suggestions for improving the teaching-learning process, 20% of the student-respondents recommended repairing and maintaining the computers inside the GENYO Laboratory and other technology-related resources like the headset and keyboard, and mouse. One student opined, "I think they need to replace, or they need to repair the computers in the GENYO Lab that are not working well." One more student proposed, "Headsets must be fixed so students can hear videos," and another suggested, "Repair or replace the headsets that don't function and put a mouse pad." Overall, the need for maintenance activities should not be overlooked to sustain the successful implementation of GENYO e-Learning in Saint Columban College- High School Department. Maintenance of the GENYO Laboratory resources is crucial for avoiding problems with the technology and keeping everything working correctly.

The second important suggestion given by the student-respondents is the upgrade of network or faster internet connection speed with a rating of 17.14%. The students proposed to make more servers so the internet connection won't be slow and further wished that the internet connection must be stable all the time. Following closely with a proportion of 14.86% each are enhancing e-learning activities or lesson packages that are more informative and thought-provoking to the students and improvement of social aspects in e-learning like more fun-filled and exciting activities and more lively and challenging games. This result means that if GENYO e-Learning does not enhance the program amid quick changes and upgrades of the e-learning activities and lesson packages, internet, and all software and hardware in the world today, then their equipment and e-learning resources will eventually become inefficient. As a result, the integration of e-learning in Saint Columban College- High School Department will become ineffective.

More suggestions forwarded included the following: polish the scheduling of GENYO Laboratory, intensify the assistance and training offered by the LIS on using GENYO e-Learning, and correct order of the schedule in using GENYO should be implemented. It means that proper scheduling of GENYO Laboratory usage and the full-time training and assistance on e-learning integration of the Learning Integration Specialist (LIS) are significant factors to the success of integrating e-learning in the school.

The teacher-respondents emphasized the need to improve GENYO Laboratory infrastructure with 23.53%, alongside the need to polish the schedule of using the GENYO Laboratory. The Learning Integration Specialist (LIS), according to the teachers, must manage the schedule of utilizing the GENYO Laboratory well. They further advised the need to add another laboratory to intensify GENYO e-Learning in the teaching-learning process.

Another key suggestion forwarded by the teachers is the utilization of frontal instruction, which brings GENYO e-Learning resources inside the classrooms through the installation and provision of DLP Projector, computer, and speaker. This suggestion garnered 11.76% of the teacher responses and the need to upgrade the network or speed up internet connection and the call to intensify the assistance and training offered by the LIS. These proposals will capitalize on the integration of e-learning in the teaching-learning process.

These suggestions forwarded by the teachers and students will set the table to establish the solid and improved implementation of GENYO e-Learning in Saint Columban College- High School Department. All these insights are beneficial and practical for the successful integration of e-learning. These recommendations and understandings are formed through the firsthand experiences of the respondents. Thus, these will contribute directly to the efficiency of teaching and learning and strengthen the impact of integrating e-learning in the teaching-learning process.

*Implications on the Utilization of e-Learning in the Public School System*

The researcher in this study used a private school that was exceptional in integrating computer technology resources through GENYO e-Learning. The information and insights learned in this research may help the public school system integrate technology successfully. Genuine commitment to the successful and proper implementation of e-learning should be exercised to help teachers change their attitudes and beliefs towards e-learning (Arkin, 2003). Computer-assisted learning is a valuable approach in educating the global population today (Amer, 2007). Public schools must provide various opportunities for the entire learning community to gain access to technology integration.

The successful integration of computer technology and other related resources in public schools allows e-learning to be used for instructional purposes, especially in supplementing traditional teaching methods. However, utilizing e-learning in the public school system efficiently implies a great deal of change. Therefore, the schools need to develop the framework to pave the way for this adaptation process. Based on the results and implications of this study, the researcher presents a framework of components of e-learning integration plan for the public schools to integrate e-learning successfully and benefit the learning community inclusively.

Research studies identified several barriers to the successful and proper integration of technology in schools. These factors are as follows: 1. the lack of resources including technology, access to available technology, time, and technical support, 2. the lack of knowledge and skills, 3. institutional barriers including leadership, school timetabling structure, and school

planning, 4. teacher attitudes and beliefs, and 5. assessment of e-learning (Arkin, 2003; Salem, 2004; Higgins, Xiao, & Katsipataki, 2012). Therefore, these factors that impede the integration of e-learning in the public school system should be approached solidly and systematically, as implied by the Components of the e-Learning Integration Plan Framework.


Figure 1. Components of e-Learning Integration Plan Framework

The six components of e-learning integration plan such as (a) Administrators' Technology and Leadership Management, (b) Shared Commitment and Planning to e-Learning Program, (c) Installation and Maintenance of e-Learning Laboratory with Internet Access, (d) Proper Scheduling of the e-Learning Laboratory Utilization, (e) Professional Development and Technology Training for Teachers, and (f) PTA and Community Support are considered as the significant factors that will contribute to the success of utilizing e-learning in the public school system. However, all these steps must be done simultaneously with committed leadership and collective responsibility among the education stakeholders to improve and attain excellence.

*(a) Administrators' Technology and Leadership Management*. It refers to administrators' significant role in steering the implementation of e-learning in the public school system. Administrative leadership and support are the key factors in the success of implementing technology in today's classrooms (Aytaç, 2009). First, public school administrators must develop the leadership and vision that will allow the proper and successful integration of e-learning to be used as a powerful tool by its learning community. Now, they must examine what e-learning practices are already in place, consider what needs to be done, and what areas need to be developed. After assessing the status quo, they can design and enforce a comprehensive plan to intensify the integration and management of e-learning across the curriculum. Considerably, administrators also need the training to take the lead and integrate technology possible in the public school system. Thus, the influence of administrators' technology training affects the integration of technology in schools.

*(b) Shared Commitment and Planning to e-Learning Program*. The shared commitment to e-learning programs should help administrators, teachers, and other stakeholders change their attitudes and beliefs towards e-learning and embrace ICT to use it as a valuable tool for enhancing the teaching-learning process. The importance of planning the assimilation of e-learning programs in the teaching-learning process should also be addressed. The entire educational institution must be involved with the planning process, and shared commitment must be a part of this process for the e-learning program to succeed (Barron, 2006). The public school must set a clear vision of ICT strategies, and all members of the school community must share this vision. Plan training sessions for the teachers and students to use technology and set ICT competency standards. The plans are critical to helping the school move forward in the right direction. Technology keeps changing very quickly, and planning is one way that will allow them to anticipate the changes ahead of time. Indeed, it is imperative to commit and plan, especially for the future in e-learning, to integrate e-learning in the teaching-learning process in an effective manner.

*(c) Installation and Maintenance of e-Learning Laboratory with Internet Access*. Installation and maintenance of an e-learning laboratory with internet access are some of the biggest challenges in the effective and efficient integration of e-learning because it entails a lot of funding or expenses (Alarifi, 2003; Salem, 2004; Amer, 2007). The total cost of installing and maintaining an e-learning laboratory involves the following components: hardware, software, computer/network setups, ongoing maintenance and support, staff development, and networking. Public schools are advised to employ or assign a full-time facilitator, trainer, and maintenance personnel of the e-learning program. The e-learning integration specialist will take charge of the laboratory and instruct the students and teachers with technology and e-learning integration through in-service training and individual lessons. This will allow the enhancement of students' ICT skills and the improvement of teachers in integrating e-learning by having more training and opportunities to learn how to incorporate technology and align it to the curriculum. Maintenance is an ongoing and never-ending routine that the e-learning integration specialist will do to keep the technology in good working order to be used as a valuable tool for the entire learning community. Public school administrators must plan how to effectively maintain and sustain the computer systems in the school if they want to avoid problems with the technology and keep everything working correctly. Many schools simply purchase the technology, install a computer laboratory, mount an internet connection, and expect everything to run smoothly, and they often overlook this maintenance component.

*(d) Proper Scheduling of the e-Learning Laboratory Utilization*. The proper schedule of utilizing an e-learning laboratory to cater to all the teachers and students in the learning community is a significant factor in integrating e-learning in the school (Li, Esche, & Chassapis, 2008). There should be proper coordination and correct order of the

schedule using the laboratory to avoid conflict of usage. For teachers and students to have enough time at the computers, there should be a balance on e-learning facilities. Proper scheduling of the laboratory utilization will impede the application or limit the integration of e-learning in the teaching-learning process if this is not adequately coordinated.

*(e) Professional Development and Technology Training for Teachers*. Professional development and teacher education is another critical factor to successfully integrate technology in the public school system. This component will provide the teachers necessary training to become comfortable and competent in the implementation of e-learning (Gumbo, Makgato, & Muller, 2012). How the teachers utilize the e-learning resources is far more important than just having computers, internet connection, and software in the public schools. Most teachers cite why they do not utilize technology in the teaching-learning process aside from a shortage of computers and slow internet access due to their lack of training and computer intimidation. To enhance teachers' ICT skills, there should be regular sessions for demonstrations of suitable ICT-mediated lessons by teachers, mentors, or seasoned practitioners. Integrating e-learning is an approach that is used to enhance instruction. However, it dramatically requires an understanding of pedagogical principles and beliefs specific to the use of technology in instructional settings for teachers. Therefore, it is vital to provide in-service and professional development opportunities for the teachers if they are expected to implement modern technologies.

*(f) PTA and Community Support*. The support of the Parents and Teachers Association (PTA) and the community is also pivotal for implementing e-learning in the public school system. The PTA and the community could help address the financial and other needs in the successful integration of e-learning (Ayob, & Mohamed, 2004). They could also help create a school climate that could benchmark quality education coupled with enhanced coordination and supervision.

All these insights are beneficial and practical for the successful integration process of e-learning in the public school system. With the framework of components of the e-learning integration plan being laid down as the foundation, it would be easy for the public schools to implement some good techniques on engaging and differentiated education and high-quality opportunities for e-learning.

*Recommendations*

Based on the findings, the following recommendations are forwarded:

1. The implementing school and the GENYO e-Learning management are greatly encouraged to conduct repair and maintenance of the computers inside the GENYO Laboratory and other technology-related resources.
2. The GENYO e-Learning management is advised to upgrade their network or enhance internet connection speed for it to be stable all the time. They are also requested to provide or upgrade some GENYO applications.
3. The teachers of Saint Columban College- High School Department are requested to enhance their e-learning activities or lesson packages to become more informative and thought-provoking to the students, fun-filled and exciting, and more challenging activities. They also urged the need to add another GENYO Laboratory and the utilization of frontal instruction, which brings GENYO e-Learning resources inside the classrooms.
4. School administrators are urged to constantly support and supervise their teachers and students in their utilization of GENYO e-Learning to ensure excellent program implementation.
5. The Learning Integration Specialist (LIS) is urged to polish and manage the scheduling of GENYO Laboratory efficiently and intensify the assistance and training provisions to utilize GENYO e-Learning.
6. Further advancement and continuous teachers' training on computer-based techniques and computer-assisted instruction programs should be undertaken to update the teachers on the most recent trends and build on what has been laid down on the foundations.
7. The DIWA Learning Systems, which provides the GENYO e-Learning Program could improve and expand their services by attracting more partner schools and subscribers of the e-learning program nationwide.
8. This study further recommends additional areas for research to strengthen the conclusions presented.
9. Conducting a similar study using many teachers and students and numerous implementing schools on a national level.
10. Designing a pre-posttest quantitative study to investigate the effect of integrating GENYO e-Learning on students' performance compared to using traditional teaching methods to students' performance.

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