

Scantiness of Instructional Materials in Senior High School: Basis for a Proposed Digital Instructional Archive

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Abstract – *Teaching materials is a generic term used to describe the resources teachers utilize to deliver instruction with ease and greater effectiveness. Regardless of their variation, these materials support learning content, allow students to engage in the concepts application and provide an opportunity for evaluation. With the coming of R.A. 10533, the Enhanced Basic Education Curriculum or popularly known as K-12 Curriculum the needs for the instructional materials doubled as the learners stay in the public schools for two (2) additional years. On its initial years, Senior High Schools greatly experienced scantiness of instructional materials in teaching different subjects. Thus, this paper aimed to aid the scantiness of instructional materials in Bauan Technical High School. With this, problems encountered regarding the supply, usability and accessibility of instructional materials by so called facilitators of learning were explicitly manifested through questionnaire guided interviews and Focus Group Discussion. By Content Analysis, momentous inputs were coded, interpreted and validated. Significantly, the study found out that the most outstanding experience of the respondents in the teaching learning process was the accumulation of instructional material tailored fit to the needs of the learners and would suffice the yields of the Department of Education curriculum guides. More than time consuming, instructional materials' supply, usability and accessibility were constraints for the facilitators. In the midst of this, teachers maximized the use of online sources which eased this scantiness. This led to the proposed offline digital instructional archive, Libro ni Bonsai, a Google Play Store free mobile application, oasis of tailor fit curriculum guide based instructional materials that would aid present dilemma.*

Keywords – *digital instructional archive, instructional materials, offline mobile application, scantiness, Senior High School, teaching - learning process*

INTRODUCTION

Teaching materials is a generic term used to describe the resources teachers use to deliver instruction with ease and greater effectiveness [1]. These are the materials which support students learning and leads to increased academic performance. Regardless of their variation, they lie in one common ground. It is the ability to support teachers and students as well in the teaching learning process. Additionally, instructional materials support learning content, allow students to engage in the concepts application and provide an opportunity for evaluation. They are developed to help the teachers facilitate learner's prior knowledge, assist them to process and understand the new learning, and eventually aid them apply newly acquired knowledge to their practical lives.

According to Robles [2], with the coming of R.A. 10533, the Enhanced Basic Education Curriculum or popularly known as K-12 Curriculum, the needs for the instructional materials doubled as the learners stay in the public schools for two (2) additional years. Moreover, 21st century learning yields outcome based education with students who are very much comfortable in the use of internet and technology. With this, Basilan [3] reiterated that as teachers now called as facilitators and distributors of learning, the demand to practice effective facilitation techniques and skills in the proliferation of K-12 curriculum are inevitable. They must provide instructional materials that suit and satisfy the learner's hunger for wisdom with rightful consideration of their technological strengths.

Now, Philippine public schools are eyeing for the graduation of the first batch of Senior High School

students. Yet, the scantiness of instructional materials is now faced by the facilitators and the learners as well. The teachers are troubled by the supply of the materials needed in their teaching so as the usability of the materials available online and from other sources so as the available materials given by the Department of Education. In the midst of this situation, instantaneous solution should be prioritized by the facilitators to address this dilemma and support the learners to the world of work, entrepreneurship and higher education.

This study aimed to concede the impasse of the facilitators of Bauan Technical High School Senior High School Department regarding scantiness of instructional materials, to determine the significant experiences of the SHS teachers in the teaching learning process in the initial years of Grades 11 and 12; to determine the different problems in using the instructional materials in the teaching of SHS; to determine the common problems encountered in the teaching learning process in terms of supply, accessibility and usability of instructional materials and to propose a plan of action to aid the present situation.

Significantly, this study would provide assistance to the facilitators of BTHS Senior High School as they increase and deepen the skills, knowledge and understanding of the learners in various subject areas in the curriculum. As it would be an offline mobile application, its accessibility would hasten student's progress in any subject he wished to study or focus on. More so, this would give the opportunity to explore various ideas and concepts that would enrich their understanding of varied subject matters as they aimed for mastery development of the students.

This would also supply intervention measures which highly prop up differentiation and diversity of learners. As teachers understand that these digital natives actively involve themselves into computer assisted learning, this study would maximize the use of technology as tailored fit online source of information.

With its scope and limitation, this research aimed to determine the different significant experiences of the pioneer Senior High School facilitators of Grades 11 and 12 in the K-12 Curriculum and to find out the different instructional materials used in the SHS so as the problems encountered in terms of supply, accessibility and usability in using them. More so, this research tended to mend the scantiness of the instructional materials which support the needs of the teachers in the teaching learning process by an offline

mobile digital instructional archive which is curriculum guide based and tailor fit to the needs of the students.

As it was emphasized by Howard Gardner's famous quote [4], "Anything that is worth teaching can be presented in different ways." These diverse measures acknowledge individuality of the learners, as 21st century learners, digital natives in this modern age of education.

OBJECTIVES OF THE STUDY

The researcher aspired to develop an offline mobile application wherein instructional materials would be accessible for the teachers to be used in the teaching learning process. With that, the researcher aimed to achieve the following objectives: to significant experiences of the SHS teachers in the teaching learning process in the initial years of Grades 11 and 12; to determine different instructional materials in use, in the teaching of Senior High School subjects and to determine the different problems encountered upon using the instructional materials in the teaching of Senior High School in terms of supply; accessibility; and usability. Furthermore, the research aimed to propose instructional material for the SHS high School Teachers as remedy in the scantiness of SHS instructional materials.

MATERIALS AND METHODS

Participants

Purposive sampling was used to determine the participants of the study. They were the 24 faculty members of BTHS Senior High School Department hired on June 2016 who are full time permanent teachers in the said school and had full experience of the initial implementation of SHS.

Procedure

The researcher used focus group discussion, survey method and interview as data gathering procedures. Also, open ended questionnaire, focus group discussion and interview guide were the tools in the data gathering to satisfy the objectives of this study. These were prepared, coded, validated and interpreted to identify the extent of the scantiness of the instructional materials in the Senior High School. More so, related literature was established, settled on the suited research design and methodology.

The Focus Group Discussion let the researcher gather momentous input about the experiences the faculty had during the initial years about the scantiness of the instructional materials. FGD explicitly conveyed

the problems encountered by the teachers which led to the substantial coding of the said inputs.

Ethical Considerations

The researcher asked the permission from the school head of Bauan Technical High School for the distribution of instruments used and in collecting the needed data for the study. The participating faculty members were provided the approved letter of permission to distribute the questionnaires. The respondents had been consented and consulted before they participated in the study. As to the ethics observed, the researcher observed cordiality and politeness in asking data from the respondents and Deped Office.

Lastly, the researcher presented the results, formulated the conclusions and the recommendations to prepare the foresighted research output.

The researcher made sure to seek the approval of the principal to execute the data gathering procedures to achieve the aim of this study. The researcher then asked for the permission of the respondents and explained to them the systematic implementation of the research procedure as well as the output that will bring ease to

the teaching learning process in the Senior High Department.

Proposed Innovation, Intervention and Strategy

This study offers a development of offline mobile application that will serve as an oasis of instructional materials, PowerPoint presentations, hand-outs, video clips among Respect to their answers was highly observed and the identity was kept with utmost cordiality. The ethical manner is likewise shown in the preliminary part of the questionnaire that specified the responsibility of the researcher to handle with great care and professionalism.

Data analysis

This is a descriptive qualitative research which aimed to acknowledge the experiences on the teaching learning process and develop a reservoir of instructional materials called *Libro ni Bonsai* primarily for the benefit of Senior High School teachers and of the students in the long run.

Also, Content Analysis strengthened the invaluable inputs of this study. The researcher went through the

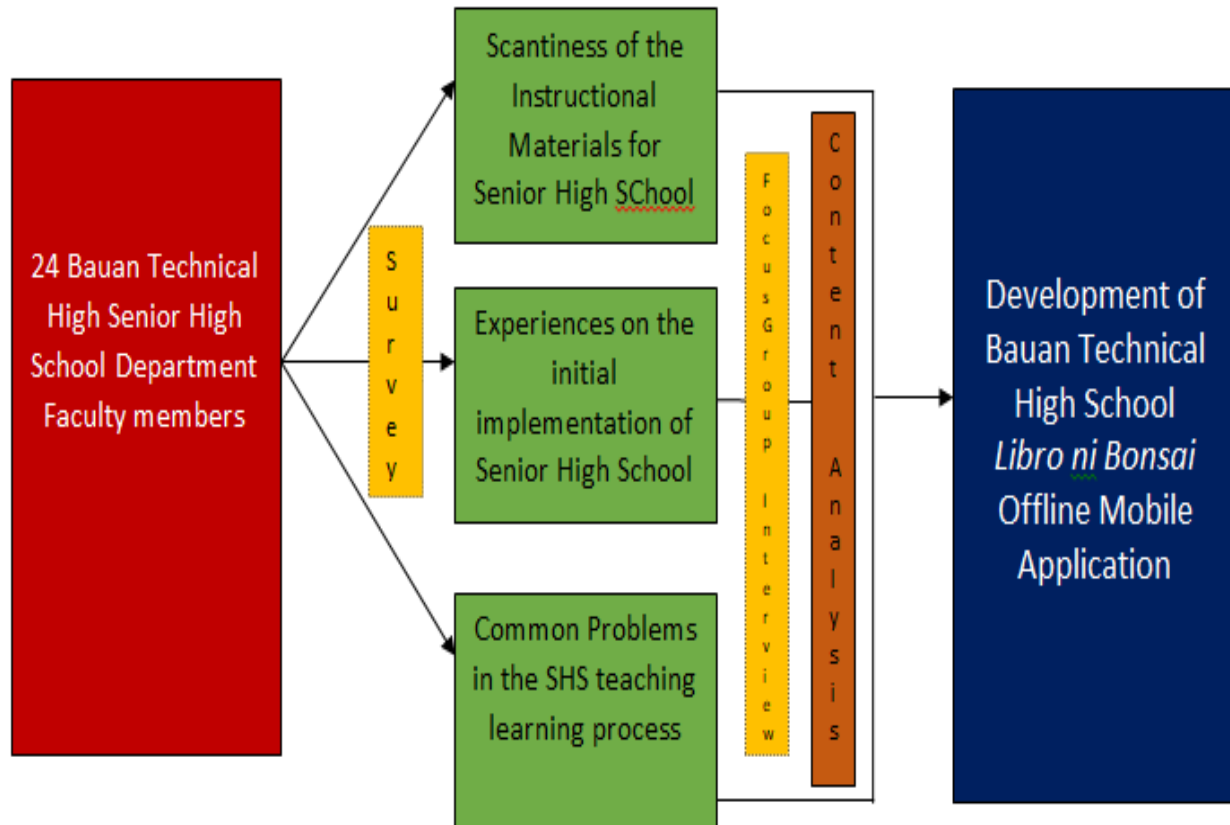


Figure 1 Data Analysis

notes made and made a list of different types of information found. Various major and minor categories were put into compare and contrast. This process was keenly observed for several times to ensure that important details were collected and categorized and given proper relevance.

Additionally, since this is a full qualitative descriptive research, the research managed to manipulate spontaneous Likert Scale so that the participants of the study naturally express their lived experiences about the said phenomenon.

This *Libro ni Bonsai* mobile application was conceptualized and designed to aid the teachers to provide the learners needed support which maximized the integration of technology as teachers deal with the digital natives or the 21st Century Learners. Furthermore, this would be indirectly beneficial to the parents so as the school as this would lessen the expenditures for photocopies, research and computer rental fees would be minimized and take full advantage of on hand technologies of each learner.

RESULTS AND DISCUSSION

SHS Facilitators' Significant Experiences on its Initial Years

It is a struggle for the Senior High School facilitators to face the challenging tasks to be the pioneer faculty members for Grades 11 and 12. In Bauan Technical High School, there are significant teaching experiences that transpired as they facilitate the learning of the students.

According to Kwarteng [5], the use of instructional resources makes teaching and learning less arduous. It enhances learners' ability to grasp what is taught with ease.

Significantly, this study reveals the outstanding experiences in the teaching-learning process: time consuming accumulation of the materials, inadequacy of the available materials and unavailability and incongruence of instructional materials toward the DepEd curriculum guides.

One significant experience of the SHS is the time consuming accumulation of the materials. To get the most suited materials in different sources from different modes led time into scarcity. It is notable that the participants devote their time in looking for the most comprehensive yet complete sets of materials for the week. Regardless of the daily lesson logs to be accomplished, they tediously do innovative techniques

regarding instructional materials to meet the competencies divulged by the curriculum guides. The missing link is how to fit instruction to appeal to students' understanding to promote instructional success [5].

A survey completed by Smith [6], Department of Psychology, Elon University called the "Student Perceptions of Technology in the Classroom: The Good, the Bad, and the Ugly" found that in a classroom that teachers sometimes went too fast using technology, such as when using a PowerPoint presentation. Students sometimes need time to process the information and this is difficult when teachers fly through a slide presentations. In addition, some students felt that their instructors "hid behind the technology" and the classrooms became less personal.

Allitt [7] argued in his chronicle that teaching technologies make teaching worse and distract professor and students from actual education like technical problems and personal relationship. He argues that softwares encourages a lazy approach to editing and teachers should revert back to blackboards and lecturing without technology.

It is Cordes [8] on his article, *Fool's Gold: A Critical Look at Computers in Childhood*, looks at the hazards of computer on the child development and has the overall approach that technology is bad for education.

As technology evolves, the importance of technology in education will grow too. Teachers not only need training on how to take their students into the future with the next technological invention, but also need to stay abreast and use this technology in their own lives in order to effectively use it in the classroom.

Additionally, inadequacy of the available materials hinders the teaching learning process. There are some cases that the books being supplied as the prime references are not aligned to the curriculum guides of the Department of Education. As scanned, there are topics included in the said materials which are irrelevant to the subject or information is incomplete to master the said competency.

A new emerging technology in the classroom is using the multi-media 3-D projector. Students can be engaged with 3-D presentation in any subject area, such as seeds emerging from the ground and growing into a full plant to an event in history. Teachers can engage students while they wear their 3-D glasses and watch objects zoom throughout the classroom.

For example, teacher can use Skype to allow a foreign language student speak with a person from that foreign country. On the contrary, teachers can show students places through "virtual field trips" through Skype when field trip budgets are very tight.

If teachers are somewhat unsure about using the Internet in the classroom, a web quest is an easy way to wade into using technology in the classroom or computer lab. A web quest teaches students to navigate the Internet and find good sources to learn more about content being studied. For instance, Web quests can be used in almost any content area and BrightHub has many example lessons.

Another Internet application is allowing students to work on a project simultaneously through Google Apps. Google Apps are currently free for public schools. There is no software to install and no ads. In addition, there is a virtual teacher training site. Also, there are security and privacy safeguards.

The cost and room to house a computer lab is definitely a deterrent as school districts across the nations struggle to keep in the black. One option is wireless technology such as netbooks or iPads.

These smaller electronic devices can do much of what a personal computer can do with less space and cost. A teacher who has a class set of either the netbooks or iPads never has to go to the computer lab or waste time going there. The iPad has many educational apps for the preschool learner all the way to high school students. The downside is that these items are smaller, and some students may try to take them without permission.

Moreover, unavailability and incongruence of the needed instructional materials are duly recognized by the respondents. Moreover, it is evident that the various types of instructional resources are used but the extent to which they are put to use is not encouraging. The more these instructional resources are put to good use the better the enhancement of teaching processes of the teachers during the instructional period [5]. This in no less way impart positively on the confidence as well as the motivation of the teacher. The teacher's ability to combine the various instructional resources and use them effectively and efficiently makes teaching easy and interesting to students.

It is being emphasized by the respondents that the materials acquired during the trainings were just hardcopies of the presentation but not the full discussion needed in the teaching of each subject.

There are also cases that even hardcopies were not supplied with respect to the issue of copyright.

Yet, it is appreciated by the respondent faculty that DepEd was able to produce materials for the SHS. Unfortunately, materials delivered were not utilized for the following reasons: the books are not for the strands offered by the school; the books are for not for that semester; and the book available are not sufficient to meet the competencies and the standards declared in the curriculum guide for a certain subject.

The quest was to determine whether these instructional resources were available, available but not adequate, available and adequate or not available at all [5].

Different instructional materials in use in SHS

In the past, learning and education simply meant face-to-face lectures, reading books or printed handouts, taking notes and completing assignments generally in the form of answering questions or writing essays. In short, education, learning and teaching were considered impossible without a teacher, books and chalkboards. Today, education and training have taken on a whole new meaning. Computers are an essential part of every classroom and teachers are using DVDs, CD-ROMs and videos to show students how things work and operate. Students can interact with the subject matters through the use of such web based tools and CD-ROMs. Moreover, each student can progress at his/her own pace [6].

Furthermore, Camarda [9] emphasized how educators can use new technology and how internet can be used to improve teaching. It is a forecast that internet centered devices will help teachers in the assessment, collaboration, and the data collection and analysis to support student research.

Moreover, resourcefulness and the teaching profession are inseparable. In the present situation, online sources, printed materials from the previous institutions and DepEd Supplied materials are the prime forms of instructional materials.

Online sources include website surfing like academia, slideshare, Wikipedia, among others; facebook group chat and group activations; online resource membership, pdf downloads; worksheets subscriptions and alike. Moreover, printed materials from the previous institutions take a big part in the instructional process for the subjects being taught in the SHS are basically preliminary subjects in the higher education. The role of technology in the field of education is four-fold: it is included as a part of the

curriculum, as an instructional delivery system, as a means of aiding instructions and also as a tool to enhance the entire learning process. Education has gone from passive and reactive to interactive and aggressive.

Perhaps the greatest impact of technology in the field of learning is its ability to help several people learn simultaneously from different locations. Learners are not required to gather at a predetermined time or place in order to learn and receive instructions and information. All one needs is a computer connected to a modem (or with a CD drive); these tools can literally deliver a 'classroom' in the homes and offices of people.

Another benefit of using technology to reach many students in shorter time is lowering training costs. Corporate and academic Institutions can reduce their costs of delivering lessons to students on a per-student basis. Moreover, technology produces quantifiable results and allows students to put into practice this information quickly and with better results. Through the use of technology, students can considerably save time and increase their productivity. Both these points justify the higher costs of advanced technological tools.

Naturally, for education technology to have a positive impact on students, it should be designed and prepared well. Tools used for disseminating information must be developed with students in mind. There are also factors like lack of computer/technology literacy to be considered. Schools and businesses must bear in mind that education technology is simply a tool and its success depends largely on the amount of planning that goes into it. Using education technology can be a right choice as long as all such factors are considered.

The importance of technology in schools is so evident in the 21st Century. Students who are not computer savvy will struggle in their future professions, as most jobs require some type of computer work.

In the "Overview of Technology and Education Reform" on the *Ed.gov* website, researchers [4] reported that "to be effective, technology and teachers must work together to provide challenging learning opportunities." Technology can become the catalyst for change to help students to use higher order thinking skills. Some are describing teachers as "digital immigrants" while their students are "digital natives." The reason being, teachers (the immigrants) need to learn the technological environment that the kids

(digital natives) already "live in" and use to acquire knowledge on a daily basis [10].

Sufficient support must be available to bring about change with technology. In the No Child Left Behind Act of 2008 [11] Enhancing Education Through Technology, there were provisions for technology to enhance learning because the current job market needs skilled workers in technology.

Teacher preparation in technology and access to technology for students in poverty continually lags behind. Funds have been set aside for Educational Technology State Grants Program so that states can award low poverty schools money. Teachers who are not adequately trained in technology may not use the technology properly or may not use it at all.

Valdez [12] wrote in the article "Technology: A Catalyst for Teaching and Learning in the Classroom," which is on the *North Central Regional Educational Laboratory* website that students who do not have access to technology are at a disadvantage. Access to the Internet seems to be available to both poor and wealthy school districts. However, the children from poverty do not have much access to technology outside of school.

In addition, teachers need to have adequate training to teach students to use technology in the classroom. The teachers who are trained to teach students using technology can offer engaging lessons beyond completing research assignments on the Internet or presenting information in a Powerpoint slide presentation. Beyond the students' future, learning that is fun, hands-on and challenging will engage the student. The Internet has opened up so many avenues for teachers to teach content.

There are traditional people who argue that distance learning of this sort cannot help students receive the support of traditional group-based learning. For proving this theory wrong, technology has helped provide distance learners with online communities, live chat rooms and bulletin boards. All these allow students to collaborate and communicate even though they are isolated in their own space [13].

Multimedia tools, on-line and CD-ROM based training have helped eliminate the need for an instructor-based lesson plans. Students who grasp concepts faster proceed and move along, without being held back by ones who need more time and help for learning. Such individual pacing is beneficial to all. Lastly, the participants use the DepEd materials in the LRMS and the supplied books for each track.

Different problems in using the instructional materials in SHS

It is only the teachers who will guarantee effective and adequate usage of instructional materials and thereby facilitate success. Consequently, a teacher who makes use of appropriate instructional materials to supplement his teaching will help enhance students' innovative and creative thinking as well as help them become plausibly spontaneous and enthusiastic [14].

Yet, there are several problems encountered by the respondent faculty members in terms of supply, accessibility and usability.

As reiterated, the curriculum guides yield several competencies which are not tackled in the books given by the department. More so, those books oftenest are not enough to support such numbers of learners in the specific track. Timeliness goes with the supply too. Delay delivery of the said materials slows down the process of mobilized instructional materials.

Furthermore, accessibility is another major concern of the respondent faculty. As the primary resource of materials depend on the online sources, internet connection cuts the spontaneity of the supply. In addition to that, suited materials sometimes solicit certain amount of money. On the other hand, with the use of LRMDS, the teachers find it cumbersome for they have to wait until the site supply for the needed materials. In the end, they go back to other online sources which supply prepared modules, powerpoint presentations, videos, worksheets and others. Though these materials yield modification, they resort to what materials are accessible at the moment.

Here comes the issue of usability. With the categories mentioned, how useful these materials are comes to be the greatest concern. Usually, whether these materials come from the department, from online sources or acquired from previous institutions, they discuss vast amount of information. Also, they give higher level of information which are not asked by the curriculum guides. They need to modify them to suit into the needs of the senior high school students. Lastly, the respondent faculty opted to make their own presentations from the collaborated information of the most available resources.

For the respondent faculty, although it is difficult to assess the effectiveness of the use of instructional resources, some studies have reported that the use of instructional resources is successful in raising examination scores, improving students' attitude and

lowering the amount of the time required to master certain materials [14].

Proposed Offline Mobile Digital Instructional Archive

Libro ni Bonsai Offline Mobile Application

SUMMARY	Based on the finding of the study entitled Scantiness of Instructional Materials in Bauan Technical Senior High School: Basis for a Proposed Digital Instructional Archive, Libro ni Bonsai offline mobile application was developed to aid the scantiness of the instructional materials in Bauan Technical High School. This digital instructional archive contains materials tailor fit for the needs of the teachers and students as well. This DepEd Curriculum guide based material is downloadable online in any search engines and more accessible on Google Play.
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PROPOSED PROGRAM TITLE	Libro ni Bonsai Offline Mobile Digital Instructional Archive
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OBJECTIVES	<ul style="list-style-type: none"> ▪ To aid the scantiness of instructional materials in the Senior High School Department of Bauan Technical High School ▪ To supply curriculum guide based instructional materials which are accessible and usable for the facilitators of learning ▪ To disseminate timely, tailored fit and congruent instructional materials for different senior high school tracks and stands.
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CONTENT	This offline mobile digital archive is a collection of instructional materials for Senior High School. To mention, there are powerpoints, handouts, prepared modules and exercises that will help the facilitators of learning to maximize their time in the accumulation of instructional materials aligned in the curriculum guide. This archive moreover ensures content's usability, accessibility and supply of tailored fit SHS materials for core, specialized and applied subjects.
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Oremeji [15] supportively asserts that any teacher who takes advantage of the available resources and learns to use them correctly will find that they make almost an incalculable contribution to instruction. He further says that instructional materials are of high value in importing information, clarifying difficult and abstract concepts, stimulating thought, sharpening observation, creating interest and satisfying individual difference.

With the findings gained by the researchers, it has been found that there several situations in the initial years of Senior High School that needs immediate solutions. The teaching and learning process must not be sabotaged by wick support of the government. Yet, with the advancement of the 21st Century Learning and Technology, with the initiative of the facilitators of learnings, this scantiness of the instructional materials should be address.

The study showed that on the primary years of Senior High School, scantiness of instructional materials was significantly experienced by the respondent faculty. Notably, time consuming accumulation of instructional materials, inadequacy of available materials and unavailability and incongruence of the instructional materials needed in the teaching-learning process.

Moreover, the different instructional materials utilized were instructional materials from the online resources, printed materials from the previous institutions they worked for, DepEd supplied materials and self-made instructional materials. Untimely delivery of supply, paid access and frail internet connection and vast and higher leveled information were the problems encountered upon using the instructional materials in the Senior High School.

Thus, this study aimed to develop a digital instructional archive to support the facilitators of learning in the teaching learning process. This is an offline mobile application which will supply the tailored fit instructional materials for the Senior High students from different tracks.

CONCLUSION AND RECOMMENDATION

On the initial years of Senior High School, scantiness of instructional materials was significantly experienced by the respondent faculty. Notably, time consuming accumulation of instructional materials, inadequacy of available materials and unavailability and incongruence of the instructional materials needed in the teaching-learning process.

The different instructional materials utilized were instructional materials from the online resources, printed materials from the previous institutions they worked for, DepEd supplied materials and self-made instructional materials.

Untimely delivery of supply, paid access and frail internet connection and vast and higher leveled information were the problems encountered upon using the instructional materials in the Senior High School.

A digital instructional archive to aid the scantiness of instructional materials is proposed.

It is recommended that the administration of Bauan Technical High School Senior High department might allot members of the SS Faculty to devote time on the development of Senior High School instructional materials on LAC sessions, semestral break insets among others to produce a wide pool of tailored fit teaching tools and materials.

Bauan Technical High School facilitators of Learnings can maximize the innovation of instructional materials to elevate the quality of the instructional materials in the teaching learning process and ensure that the needs of the learners will be met.

The respondent faculty can compile the different instructional materials accumulated during the initial years of the implementation of Senior High School. Moreover, they can modify them to suit the needs of their learners from the different tracks and strands.

Libro ni Bonsai offline mobile digital instructional archive maybe implemented, utilized, evaluated and modified thereafter.

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