**Chapter 1**

**THE PROBLEM AND ITS SCOPE**

**INTRODUCTION**

**Rationale of the Study**

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). As Jhurree (2005) states, much has been said and reported about the impact of technology, especially computers, in education.

Hepp, Hinostroza, Laval and Rehbein (2004) claim in their paper “Technology in Schools: Education, ICT and the Knowledge Society” that ICTs have been utilized in education ever since their inception, but they have not always been massively present. Although computers have not been fully integrated in the learning of traditional subject matter, the commonly accepted rhetoric that education systems would need to prepare citizens for lifelong learning in an information society boosted interest in ICTs (Pelgrum, W.J., Law, N., 2003).

According to Status of ICT Educational in the Philippines by Diwanie R. Perez, The Medium Term Philippine Development Plan (MTPDP), The Basic Education sector Reform Agenda (BESRA), The Basic Education Curriculum (BEC), Schools First Initiative (SFI) and The National Action Plan to Achieve Education for all (EFA) have stressed the importance of ICT in the improving education in the country. These have resulted in increased adoption of ICT across the education system.

According to Ma. Mercedes T. Rodrigo, Information and communication Technology use in Philippine Public and Private schools Department of Information Systems and Computer Science Ateneo de Manila University, Quezon City. “The Philippines is one of many developing nations that have turned to information and communication technology (ICT) as a tool to improve teaching and learning. Unfortunately, implementation suffers from several shortcomings: the absence of information on how ICT is actually used; a lack of coordination between public and private sector efforts; and insufficient teacher preparation.

This paper begins with a discussion of the pedagogical, social, and economic benefits that developing nations hope to gain by infusing schools with ICT. It cites national policies and programs to infuse schools with ICT, as well as parallel programs initiated by the private sector. The paper then discusses each of the mentioned shortcomings in turn.”

Information and Communications Technology commonly termed as ICT comes from the acronym IT and CT and refers to methods of storing, manipulating and communicating information. Information Technology (IT), as defined by the Smart Computing Dictionary, is

“A general term used to describe any technology that helps to produce, manipulate, store, communicate, or disseminate information. IT refers to the most expensive, complex computers, with devices usually dealing with electronic data in binary format. However, these IT machines are not able to communicate with one another.”

Communication Technology (CT) is “the term used to describe telecommunications equipment through which information can be sought and accessed”. (New Zealand MOE, 1998). Examples include video conferencing, teleconference phones, and modems.

Globally, educational systems are adopting new technologies to integrate ICT in the teaching and learning process, to prepare students with the knowledge and skills they need in their subject matter. In this way, the teaching profession is evolving from teacher-centered to student-centered learning environments. “ICT integration is understood as the usage of technology seamlessly for educational processes like transacting curricular content and students working on technology to do authentic tasks” (Kainth and Kaur).

Nowadays ICT facilitate not only the delivery of lessons but also the learning process itself. This includes computer based technologies, digital imaging, the internet, file servers, data storage devices, network infrastructure, desktops, laptops and broadcasting technologies namely radio and television, and telephone which are used as instructional tools at schools.

Philippine National policy has therefore, been formulated to advance the use of ICT in education. In March 2001, the Senate Committee on Education in cooperation with the DECS launched Project CARES. Project CARES was designed to upgrade the use and application of ICT in public elementary and secondary schools nationwide. The project’s primary concern is school administration and is a response to the need for accurate and timely data that administrators and teachers need to manage their classes.

Rimando former DECS Undersecretary for Administration and Isagani R. Cruz both quoted that CARES will provide public schools and district offices with “computer-based management and operations support tools…and eventually make elementary and high school principals…more efficient and productive in their work”

While to produce a critical mass of ICT professionals and ICT-literate man power, both the Senate and the House of Representatives of the Philippine Legislature contemplated laws directing public and private institutions to incorporate ICT into the curriculum at all levels of education. Congressman Erico B. Aumentado proposed tax incentives to encourage private companies and individuals to donate computer equipment to schools or research institutions. One congressional bill would have mandated the installation of computer equipment in all public schools. Yet another proposed law would have a 7% tax on all cellular phone calls to fund the computerization of public schools and state universities and colleges. Although the Philippine Congress adjourned before passing any of these bills into law, these bills depict the legislature’s determination to provide for ICT in education. The executive arm of the Philippine government has also adopted extensive ICT in education policies.

Department of Education (DepEd) Secretary Leonor Magtolis Briones underscored the importance of integrating Information and Communications Technology (ICT) in both teaching and governance for the delivery of quality, accessible, relevant, and liberating basic education for Filipino learners. The Education chief noted this during the recently concluded National DepEd ICT Summit held from February 27 to 28 at The Blue Leaf Filipinas in Parañaque City, which was attended by around 700 ICT practitioners, leaders, policy-makers, achievers in ICT education, and other stakeholders nationwide.

Briones shared that through ICT, teachers may devise various teaching methods that will instill creativity and critical thinking in learners. She further conveyed her hopes for the time to come that schoolchildren will no longer be burdened to carry books in their backpacks because of ICT innovations.

However, the student scores during their periodical test is still very low. Result from different form XIV of the different subjects. The teachers applied varied strategies to minimize the student’s low performance. With this situation, the study will be conducted in order to provide intervention to the needs of students and increase their score to 75% passing rate. The proposed tutoring tool will serve as the self-paced learning tool by the teachers and students.

While Casay National High school is a recipient of DCP DEPED Computerization Program D.O 78 S. 2010. Batch 33 and 36. The Best tool in the integration of ICT in teaching and learning. This is the time that student will engage on hands in learning using computers. The school computer laboratory will be used by different grade levels from grade 7 to 10. Specifically TLE Computer and Drafting classes but it is open for all subjects due to proper scheduling of time. The students during their vacant period can easily access the computer laboratories with the permission of their adviser and ICT -In-Charge.

This is in line with the purpose of DepEd Computerization Program (DCP) of Deped Order No. 78, s 2010, a personalize interactive media used by the teachers in guiding students it is based on html applications that coded personally by the researcher. This helps student to improve their levels of knowledge in accomplishing their task based on their respective subject lesson.

**Theoretical Background**

This study is anchored on David Kolb (1984) Experiential learning stated in abdullah Konak (2014), Lev Vygotsky’s (1896)Theory of Cognitive Development stated in Dankert Vedeler (2015), and Edward Thorndike (1898) The learning theory of connectionism stated in Asu Perihan Karadut (2012). This were strengthened with various Deped Orders such as: DepEd Order No. 78, s 2010 which is entitled “Guidelines on the Implementation of the DepEd Computerization Program (DCP); Deped Order No. 35, s 2016.

David Kolb published his learning styles model in 1984 from which he developed his learning style inventory. Kolb is experiential learning theory works on two levels: a four-stage cycle of learning and four separate learning styles.  Much of Kolb’s theory is concerned with the learner’s internal cognitive processes. Kolb states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations.  In Kolb’s theory, the impetus for the development of new concepts is provided by new experiences.

“Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38).

Kolb (1974) views learning as an integrated process with each stage being mutually supportive of and feeding into the next. It is possible to enter the cycle at any stage and follow it through its logical sequence. However, effective learning only occurs when a learner can execute all four stages of the model.

The cycle is effective as a learning procedure on its own. Kolb's learning theory (1974) sets out four distinct learning styles, which are based on a four-stage learning cycle (see above). Kolb explains that different people naturally prefer a certain single different learning style. Various factors influence a person's preferred style.  For example, social environment, educational experiences, or the basic cognitive structure of the individual.

Whatever influences the choice of style, the learning style preference itself is actually the product of two pairs of variables, or two separate 'choices' that we make, which Kolb presented as lines of an axis, each with 'conflicting' modes at either end. A typical presentation of Kolb's two continuums is that the east-west axis is called the Processing Continuum (how we approach a task), and the north-south axis is called the Perception Continuum (our emotional response, or how we think or feel about it). Kolb believed that we could not perform both variables on a single axis at the same time (e.g., think and feel).

According to the experiencial learning Kolb's learning styles updated by Kendra Cherry (2019) it is one of the best-known and widely used learning style theories. Psychologist David Kolb first outlined his theory of learning styles in 1984. He believed that our individual learning styles emerge due to our genetics, life experiences, and the demands of our current environment. In addition to describing four different learning styles, Kolb also developed a theory of experiential learning and a learning style inventory. In his experiential theory, learning is viewed as a four-stage cycle. First, immediate and concrete experiences serve as a basis for observation. Next, the individual reflects on these observations and begins to build a general theory of what this information might mean.

David Kolb (1984) Experiential Learning stated in Abdullah Konak et al(2014)

Lev Vygotsky’s (1896) Theory of Cognitive Development stated in Dankert Vedeler (2015)

Edward Thorndike (1898) the learning theory of connectionism stated in Asu Perihan Karadut (2012)

DepEd Order No. 78, s 2010

Deped Order No. 35, s 2016

Republic Act No. 10844,

Senate Bill: 1118

**Grade 10 Competencies**

2.1 understand the installation of applications;

2.2 define the disk management software;

2.3 analyzes the device drivers;

2.4 perform the drivers/software procedures; and

2.5 demonstrate the 5S and 3Rs environmental Policies.

**Enhanced ICT Tutoring Tool**

**Fig. 1. A Schema of the Theoretical Background**

Recognizing the 21st Century Skills and ICT Integration is a central figure of the K-12 Basic Education Program; and was supported by **Republic Act No. 10844**,

Republic Act No. 10844, otherwise known as the “Department of Information and Communications Technology Act of 2015”, which was signed into law on 23 May 2016.

In accordance to the law, the Department of Information and Communications Technology (DICT) shall be the primary policy, planning, coordinating, implementing, and administrative entity of the Executive Branch of the government that will plan, develop, and promote the national ICT development agenda.

The DICT shall strengthen its efforts on the following focus areas. First, is the policy and planning and improved public access, second is resource sharing and capacity Building, and third is consumer protection and Industry development.

The Department of Information and Communication Technology (DICT) is expected to spearhead the following endeavors which is makes nation building through ICT, the safeguarding of information and the advancement of ICT in the Philippines. Aligning with the current administration’s ICT agenda, the DICT will prioritize the development of a National Broadband Plan to accelerate the deployment of fiber optic cables and wireless technologies to improve internet speed, and the provision of Wi-Fi access at no charge in selected public places including parks, plazas, public libraries, schools, government hospitals, train stations, airports, and seaports.

Senate Bill 1118 Introduced by Senator Manny Villar an act to integrate a computer education program into the educational system and for other purposes. He emphasize the need of a student to learn computer literacy. Integration of computer education program helps students to be engage in different interactive learning activities and to compete the high demands of competitive world.

**THE PROBLEM**

**Statement of the Problem**

This research assesses the level of effectiveness of using ICT Tutoring Tool in teaching Technology and Livelihood Education Subjects among Grade 10 Students of Casay National High School for school year 2019-2020 as basis for an enhanced ICT Tutoring Tool for TLE instruction.

Specifically, this will answer the following sub-problems:

1. What is the profile of the GRADE 10 Students as to:
   1. age;
   2. gender;
2. What is the pre-test performance of the Grade 10 TLE-ICT competencies in terms of:

2.1 understand the installation of applications;

2.2 define the disk management software;

2.3 analyzes the device drivers;

2.4 perform the drivers/software procedures; and

2.5 demonstrate the 5S and 3Rs environmental Policies.

1. What is the post-test performance levels of Grade 10 students?
2. Is there a significant mean gain of the pre-test and post-test performance of the students in the experimental group?
3. Based on the findings of the study, what enhanced ICT Tutoring Tool can be proposed?

**Null Hypothesis**

In order to guide the researcher in the interpretation and analysis of data, the following hypotheses will be tested in this study:

Ho1: There is no significant mean gain between the pre-test and post-test of the experimental group.

**Significance of the Study**

The never-ending development of technology, which lead to a highly competitive world among students in terms of learning and its status. These may result to the advancement of teaching strategies and improves students study habit. Upgrading the standards of Technology and Livelihood subjects that may help student to achieve the competitive level. Thus, the result of this study could be used for innovating interactive lessons using technology

The findings of this study are of paramount importance of the following people who are concerned of upgrading the instruction of (TLE) Technology and Livelihood Education subjects, as well as the development of student’s interest, and study practices.

**Department of Education.** This study might be the way of innovating interactive self-paced lessons. They are responsible in implementing educational curriculum and policies, which lead into trainings/workshop of the teachers in innovating their own personalize tutoring tool.

**Local Government Unit (LGU).** They are the one of the partners in implementing different activities in particular institution. This study helps the idea of the planning or the budget allocation since the local government could greatly help in this study.

**DepEd Curriculum Planners.** Due to the advent of modern world, the curriculum need to be updated to meet the student’s interests. This study will inspire them to be innovative in crafting curriculum into a fruitful one. Curriculum that focuses not only the knowledge but the whole aspect as well.

**School Administrators**. To the highly educational administrators, they could benchmarked the approach to produce a globally intellectual teaching strategies and well-mannered students. This study is useful to the administrator, as its output is the improvement of the both students and teachers.

**TLE Teachers**. It is a great challenge to explore and get out of the comfort zone. It give additional workloads on the preparation but it evaluates the quality of being a teacher at the same time it gives the students an opportunity to experience the new ways of teaching and learning process

**Junior High School (JHS) Students**. This study gives them a new blend of learning which may help them improve the proper way of studying habits. It helps them to prepare and faced the competitive world. At the end, these students will possibly learn the systematic approaches in learning new topics.

**Parents/Guardians**. The result of this study may help them realize that their child needs their support emotionally and financially. It broaden their minds that they have an important task in nurturing their child.

**Future Researcher**. This serves as a guide for innovating teaching strategies that caters the need of the learners. To meet the demands of the learners they need to step up and go further studies.

**Community/Stakeholders**. The findings of this study makes them realize that they are part of the development of the learners. Their support in this study is highly needed since those students will be part of the community in the future.

**RESEARCH METHODOLOGY**

This part discussed the methodology used in this study, the design of the research and how site of the research being specified and who are the respondents of the study.

**Design**

The suitable method of this study is Quasi-Experimental of research. It focuses on the Pre-test and Post-Test Design. Quasi-Experimental method is describe as tightly controlled investigation in which the researcher innovates a specific factor in a study to determine if there is a change. The factor to be manipulated in this study was the use of enhance tutoring tool in teaching that is coded using combined HTML with ispring suit software in TLE-ICT Subjects among Grade 10 competencies specifically, the least mastered topics and served as a treatment for the experimental group.

The Grade 10 students performance in TLE for the third Grading coverage whether, there is an improvement or after the use of ICT Tutoring Tool with experimental group was measured through pretest and post test scores of the students. After the treatment, it will be subjected to a post-test. The pre-test and Post-test scores is used as statistical control in the analysis and in analyzing gain scores. The success of the treatment is to find out the big difference of learning process of the students. Using the coded tutoring tool, it presents the interactive lesson that a student could freely explore the different activities based on David kolbs experiential learning. The enhanced tutoring tool has automated self-assessment tool that a students could generate there scores automatically right after answering the assessment.

It is user friendly design for students and teachers where a student can answer at their own pace and teachers also could easily modify it into different learning subjects and makes it into interactive and systematic.

**Flow of the study**

As shown in figure 2, the most common flow of the study is the use of system model utilizing the input, process, output approach.

**Input.** This research procedural flow of investigation starts from filling out student’s information of the profile of the Grade 10 students in terms of age and gender. The students will answer the pre-test and interpret the post-test performance levels of Grade 10 students. Find out if there is a significant mean gain of the pre-test and post-test performance of the students. Within 3 weeks, using the enhanced ICT Tutoring Tool post-test will be administered.

The data will be gathered and use confidentially. The research will use these data for the improvement of the tool for future upgrade of the specifications and solve its limitation.

**Process**. The process involved the seeking for a request to conduct from the campus director, school division superintendent, public school district supervisor at school principal. If the request will be granted the gathering of the data. Let the student take pre-test of the given lesson, then conduct a 3 weeks class using the Enhance tutoring tool design by the researcher.

The data of the result of the pre-test will be tabulated. After that, it presents the data treatment where the ICT Tutoring tool is being use and implemented. It follows with the presentation of data where it is evident that there is a difference in the result between the pre-test and posttest. Based on the interpretation of the data, it will be analyze. Lastly, it will form an implications and conclusions.

**Output.** The output of the study is a form of html local web where all the lessons and activities are compressed in one ICT tool. Specifically design for TLE-ICT Class where the students could learn at there own pace, it is very handy, and the activities are interactive. User friendly tool where it is applicable to different learning areas.

INPUT

1. Profile of the Respondents in terms of:

* 1. Age
  2. Gender

2. What is the post-test performance levels of Grade 10 students?

3. Is there a significant mean gain of the pre-test and post-test performance of the students?

1. Seeking for the approval

2. Gathering of Data will be done

3. Tabulation of Data

4. Data Treatment

5. Presentation of the data gathered

6. Analysis of the Data

7. Interpretation of Data based on the results

8. Forming implications and drawing of conclusions.

PROCESS

OUTPUT

**SAMPLES OF ENHANCE ICT TUTORING TOOL FOR GRADE 10 TLE SUBJECTS**

**Fig. 2. Flow of the Study**

**Environment**

This study will be conducted in Casay National High School, located in the heart of Casay, Dalaguete, Cebu, 76 kilometers in the southeastern part of Cebu Province, 8 km away from the Poblacion, Dalaguete. It has an area of eleven thousand two hundred thirty six square meters (11,236 sq.m.).The land was acquired through donation from the community populace. In its beginning, Casay National High School was only Barangay High School of Dalaguete, which was established in the year 1968 with first year and second year level only were opened.

The school is located 8 kilometers away from Poblacion, Dalaguete through riding a bus or tricycle. It is located opposite of Casay Elementary School, which could be a walking distance. The district office is 3 kilometers away from the school through riding a tricycle and the distance from the school to the Division Office Is 98 kilometers by riding a bus from school to South Bus Terminal and from terminal to Division Office Currently, this school year 2019-2020 the school makes many rooms for improvement and one of those is the find (5) outdoor classrooms that should be used as one of the tools for the students to be convinced. The outdoor classroom uses nature as their learning materials. That’s why the school was awarded as one of the TOP 5 of the Ramon Aboitiz Foundation Incorporated in the entire Cebu Province and currently the school won TOP 1 in the Balagtasan Contest in the Regional level and they are going to compete the National Contest at Malolos , Bulacan.

The school has its population 1,115 with complete JHS and SHS as of S.Y. 2019-2020 grade 7 has a total of 216,119 males and 97 females. In Grade 7 there are 119 males and 97 females a total of 216. There are 125 males and 102 females in Grade 8 a total of 227 students. The Grade 9 students there are 110 males and 102 females a total of 212 students. In grade 10 there are 92 males and 74 female for a total of 166 students. Lastly in Senior high there are 110 males and 84 females. Over all completing 1,115 students of Casay National High School.

Due to increasing number of students, the school develop and improve the 5 outdoor classroom as student intervention.



**Fig. 3. The Location of Casay National High School**

**Respondents of the study**

Using universal sampling, all Grade 10 students’ who specifically computer major students will be the target respondents of this study.

Table 1 shows the frequency distribution of the respondents of the study. As shown in the table, there were 25 students in all. There were 25 respondents as the experimental group these group of respondents answers pre-test questionnaires then the interventions will be provided for 3 weeks. After the given period for the intervention, all respondents will answer post-test questionnaire to check if there is significant difference of the mean gain from pre-test to post-test. The 25 grade 10 students of Junior high school constituted as universal sample of the research.

Table 1

Distribution of the Respondents

|  |  |  |  |
| --- | --- | --- | --- |
| **Respondents** |  |  | **%** |
| **N** | **n** |
| TLE-ICT | 25 | 25 | 100% |
| Total | 25 | 25 | 100% |

Table I shows the distribution of the population of the study. The universal sampling will be used considering that there is already intact groups of 25 Grade 10 ICT major right at the start of the school year.

**Instruments**

The following are the instrument will be utilized to gather the necessary data needed to answer the problem.

**Performance Test**. This is a 40-Item teacher-made test, which covers adequately the TLE competencies for the Third Grading Period. This instrument is used to measure the pre-test and post-test achievement of the control and experimental groups. The table of specifications for the Third periodical test is shown in Appendix F. The student will answer the test by choosing the letter of the correct answer within one (1) hour. To establish the reliability and validity of the performance test it is pilot-test using Kuder Richardson Formula 20. Then perform the activities given in the ICT Tutoring Tool.

**Enhanced ICT Tutoring Tool Materials.** This is an experimental treatment of investigation of this study used by the students in understanding the TLE concepts and skills. These Enhanced ICT Tutoring Tool materials have specific parts, which served as teaching aid to stimulate the activity of the students and thereby increasing their level of understanding specifically on the least mastered skills and or competencies in TLE 10 for the third Grading Period. It is made from html codes and composes of different applications to produce self-pace learning materials for poor.

**Student Journal**. This is serve as a tool to identify the student’s attitude and feelings toward the use of Enhance Tutoring Tool and to assess how well students are doing. The students were given guide questions related to the activities.

**Data Gathering Procedure**

The researcher first secure a written permission and recommendation from the Dean of the Graduate School of CTU, Argao Campus (Appendix A) which was attached to the letter request asking permission to conduct the study from the School Division Superintendent of the Department of Education, Region VII of the Division of Cebu Province (Appendix B) to guarantee the full support and cooperation of the District Supervisor, School Administrators and TLE Teachers. Likewise, a written permission is secured from the District Office (Appendix C) to administer the said instruments in order to acquire the data of the study.

As soon as the researcher will be granted the permission to conduct the study and after the test questions was approved for its validity and reliability, the activities in the timetable will achieve and carried out.

**Treatment of Data**

The following treatments are going to use in answering the hypothesis of this study.

1. To determine the frequency percentage of the Grade 10 Students. In completing the necessary information of the respondents.

2. To determine the pre-test and post-test performance of the Grade 10 students in the control group and experimental group, the Z-test will be used with formula:

3. To determine the mean difference of the TLE Periodical Test of the experimental group on both the pre-test and the post test of the t-test means difference where the variances of two samples are equal will be applied using the formula:

4. To determine whether there will be a significant mean gain of the pre-test and post-test TLE periodical test of the experimental group, the test for pre-test mean gain will be used, applying the following formula;

**Level of Significance**

A 0.05 level with one-tailed test of statistical significance will be used for the pre-post mean gain and two-tailed test for mean difference will be applied in this study.

**DEFINITION OF TERMS**

To clarify every terms mentioned the following terms used in this study were operationally defined.

**Abstract Conceptualization** (Reﬂection gives rise to a new idea, or a modiﬁcation of an existing abstract concept).

**Active Experimentation** (the learner applies them to the world around them to see what results)

**Enhanced ICT Tutoring Tool**. It is coded through HTML Self paced application that based on Kolb’s Experential Learning theory. The student will experience the new blend of learning using technology. It is considered as an effective instructional material which a student could work individual or by group it depends to their level. It composed of following basic parts, namely;

**Experimental Group**. They are the group of student that will be undergo to the using of Enhanced ICT Tutoring Tool. The students may work in groups or individually in performing the given activities prepared for every lesson.

**Instructional and Learning Materials**. Informative materials that composed of lesson plans, budget of work, apparatus, audio-visual teaching aids, manuals, guides and others. It helps students feel that learning a lesson is not hard with the presence of these instructional materials.

**ICT**. Information Communication Technology

**Lecture-discussion.** The oldest and most effective teaching strategies which a student could learn in a passive way where they are dependent to the teacher.

**Pre-Test**. A teacher made 40-item test which was administered again to the control group and experimental group of Grade 10 TLE Students of Casay National High School.

**Post-Test**. A teacher made 40-item test which was administered again to the control and experimental group of Grade 10 TLE Students of the same school.

**Processes Skill**. The basic skills needed in scientific activities as observing, comparing, classifying, inferring, measuring, predicting, formulating hypothesis and experimenting.

**Concrete Experience** - (a new experience of situation is encountered, or a reinterpretation of existing experience).

**Reﬂective Observation** (of the new experience. Of particular importance are any inconsistencies between experience and understanding).

**Teaching Method.** The terms refers to the logical procedure employed by the teacher to accomplish the objectives of the lesson.

**Teaching Strategy.** This is the general design of how the teacher delivers the lesson. It can also different styles that a teacher innovates to make the lesson interesting.

**Teaching Technique**. The term refers to the way or the process of a teacher in imparting the lesson.

**Tutoring Tool**. It is an assisted tool that helps students teach their peer to improve ones learning capacity

**TLE.** Technology and Livelihood Education.

**User-Friendly**. Any device that has an application which is very easy to modify, create and easy to use and manipulate.

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**Deped Orders**

DepEd Order No. 78, s 2010 **Guidelines on the implementation of the deped computerization program-dcp**

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Deped Order No. 35, s 2016 DO 35, S. 2016 T**he Learning Action Cell as a k to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the improvement of Teaching and Learning.**

Republic Act No. 10844 **Republic Act No. 10844**, otherwise known as the **“Department of Information and Communications Technology Act of 2015”**, which was signed into law on 23 May 2016.

Senate Bill: 1118. **An Act to integrate acomputer Education Program into the Educational System and for other purposes.**

DepEd Order No. 78, s. 2010. **Implementation of DepED computerization Program**

**APPENDICES**

Appendix A

**TRANSMITTAL LETTER REQUEST TO THE CAMPUS DIRECTOR OF THE CEBU**

**TECHNOLOGICAL UNIVERSITY, ARGAO CAMPUS, ARGAO CAMPUS**

November 11, 2019

**Dr. Juanita P. Pinote**

Campus Director

Cebu Technological University-Argao Campus

Argao Campus

Madam:

Greetings of PEACE

The undersigned is presently enrolled in Research Methodology of the college of Graduate studies in this university. He would like to request permission from your good office to conduct her study entitled “**ENHANCED ICT TUTORING TOOL IN TEACHING TLE SUBJECTS IN GRADE 10 ICT STUDENTS OF CASAY NATIONAL HIGH SCHOOL”** to partially fulfillthe requirements for the Degree of Master of Arts in Vocational Education at Cebu Technological University, Argao, Cebu Campus.

Your Favorable approval regarding this request is highly anticipated with gratitude and appreciation.

Very truly yours,

(SGD) **JOEL P. RODRIGUEZ**

Researcher

Approved:

**(SGD) JUANITA P. PINOTE, Ed.D**

Campus Director, CTU Argao Campus

Appendix B

**TRANSMITTAL LETTER REQUEST TO THE SCHOOL DIVISION SUPERINTENDENT**

**OF THE DEPARTMENT OF EDUCATION DIVISION OF CEBU PROVINCE,**

**SUDLON, LAHUG, CEBU CITY**

November 11, 2019

**MARILYN S. ANDALES**

Schools Division Superintendent

Department of Education-Cebu Province

Sudlon, Lahug, Cebu City

Madam:

Greetings of PEACE

The undersigned is presently enrolled in Research Methodology of the college of Graduate studies in this university. He would like to request permission from your good office to conduct her study entitled “**ENHANCED ICT TUTORING TOOL IN TEACHING TLE SUBJECTS IN GRADE 10 ICT STUDENTS OF CASAY NATIONAL HIGH SCHOOL”** to partially fulfillthe requirements for the Degree of Master of Arts in Vocational Education at Cebu Technological University, Argao, Cebu Campus.

Your Favorable approval regarding this request is highly anticipated with gratitude and appreciation.

Very truly yours,

(SGD) **JOEL P. RODRIGUEZ**

Researcher

Approved:

**(SGD) MARILYN S. ANDALES, Ed.D. CESO V**

Schools Division Superintendent

Appendix C

**TRANSMITTAL LETTER REQUEST TO THE**

**PUBLIC SCHOOLS DISTRICT SUPERVISOR (PSDS)**

November 11, 2019

**Dr. Eduardo Lumayag**

PSDS

Dalaguete 2 District

Cawayan Central School

Sir:

Greetings of PEACE

The researcher would like to ask permission to conduct a study entitled “**ENHANCED ICT TUTORING TOOL IN TEACHING TLE SUBJECTS IN GRADE 10 STUDENTS OF CASAY NATIONAL HIGH SCHOOL ACADEMIC YEAR 2019-2020”** as partial fulfillment of the requirements for the Degree of Master of Arts in Vocational Education at Cebu Technological University, Argao, Cebu Campus.

If approval will be granted, the Grade 10 students of Casay National High School will complete the given questionnaires. Rest assured that the data gathered will be treated with utmost confidentiality.

Thank you very much and more power.

Very truly yours,

(SGD) **JOEL P. RODRIGUEZ**

Researcher

Approved:

**(SGD) DR. EDUARDO LUMAYAG**

Public School District Supervisor

Dalaguete II

Appendix D

**TRANSMITTAL LETTER REQUEST TO THE**

**SCHOOL HEAD OF CASAY NATIONAL HIGH SCHOOL**

November 11, 2019

**Dr. Roberto D. Moran**

Head Teacher III

Casay National High School

Casay, Dalaguete, Cebu

Sir:

Greetings of PEACE

The researcher would like to ask permission to conduct a study entitled “**ENHANCED ICT TUTORING TOOL IN TEACHING TLE SUBJECTS IN GRADE 10 STUDENTS OF CASAY NATIONAL HIGH SCHOOL ACADEMIC YEAR 2019-2020”** as partial fulfillment of the requirements for the Degree of Master of Arts in Vocational Education at Cebu Technological University, Argao, Cebu Campus.

If approval will be granted, the Grade 10 students of Casay National High School will complete the given questionnaires. Rest assured that the data gathered will be treated with utmost confidentiality.

Thank you very much and more power.

Very truly yours,

(SGD) **JOEL P. RODRIGUEZ**

Researcher

Approved:

**(SGD) DR. ROBERTO D. MORAN**

Head Teacher III

Appendix E

**TRANSMITTAL LETTER REQUEST TO THE RESPONDENTS**

November 11, 2019

**Dear Respondent,**

The researcher would like to ask permission to conduct a study entitled “**ENHANCED ICT TUTORING TOOL IN TEACHING TLE SUBJECTS IN GRADE 10 STUDENTS OF CASAY NATIONAL HIGH SCHOOL ACADEMIC YEAR 2019-2020”** as partial fulfillment of the requirements for the Degree of Master of Arts in Vocational Education at Cebu Technological University, Argao, Cebu Campus.

If approval will be granted, the Grade 10 students of Casay National High School will complete the given questionnaires. Rest assured that the data gathered will be treated with utmost confidentiality.

Thank you very much and more power.

Very truly yours,

(SGD) **JOEL P. RODRIGUEZ**

Researcher

Appendix F

Table of Specifications (Adapted from K12 Format)

For Third Quarter in TLE CSS Grade 10

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Learning Competencies** | | **No. of Hours in Teaching** | **% of Teaching** | **No. of Test Items** | **I T E M P L A C E M E N T** | | | | | |
| **KNOWLEDGE** | | **S K I L L S** | | | |
| EASY (60%) | | AVERAGE (30%) | | DIFFICULT (10%) | |
| **Remembering** | **Understanding** | **Analyzing** | **Applying** | **Evaluating** | **Synthezing** |
| 1 | understand the installation of application; | 1.5 | 8% | 4 | **2.25** | | **1.125** | | **0.375** | |
|  | **1,2,3** | **4,5** | **6,7,8,9** | **10** |  |  |
| 2 | define the disk management software | 1 | 5% | 3 | **1.5** | | **0.75** | | **0.25** | |
|  | **11,12,13,20** | **14,15,16,17** | **18,19** |  |  |  |
| 3 | analyzes the device drivers | 1 | 5% | 3 | **1.5** | | **0.75** | | **0.25** | |
|  |  | **28** | **21,22,23,24** | **25,26,27** | **30** |  |
| 4 | perform the drivers/software procedures; and | 2 | 10% | 5 | **3** | | **1.5** | | **0.5** | |
|  |  |  | **31,32,33,34,35** | **36,37,38,39,40** |  |  |
| 5 | demonstrate the 5S and 3Rs environmental Policies. | 1 | 5% | 3 | **1.5** | | **0.75** | | **0.25** | |
|  |  | **41** | **42,43,44,45** | **46,47,48,49,50** |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **TOTAL** | | **20** | **100%** | **50** | **30** | | **15** | | **5** | |

Appendix G

**PRE-TEST IN TLE-CSS GRADE 10 FOR THE 3RD PERIODICAL TEST**

**SY: 2019-2020**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Score:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grade & Section: \_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Age: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Gender: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Directions: Read carefully each question then encircle the letter of the correct answer.**

1. The software that focuses on training of instruction or emphasis the interactive learning.

a. Application software b. System Software c. Educational Software d. None

2. Program that used for encoding document files.

a. Ms Word b. Ms Excel c. Ms Power Point d. Outlook

3. It manages individual tracks, generates playlist and burn music.

a. System Software b. Educational apps c. Media management d. Application

4. Types of Programs that completes the task being instructed by the user.

a. System Software b. Educational apps c. Media management d. Application

5. Programs that create slide shows for reporting and business proposal.

a. Adobe Photoshop b. Ms Powerpoint c. Ms Word d. business apps

6. A software that designed to provide users enjoyment and happiness.

a. happiness apps b. educational c. Reference d. Entertainment

7. the following are example of ms offices except one

a. Ms Word b. Ms Powerpoint c. Ms Excel d. Photoshop

8. Used to perform calculation and numerical analyses.

a. Ms Word b. Ms Powerpoint c. Ms Excel d. Photoshop

9. a set of instruction that tells the computer what to do

a. Application b. Software c. Photoshop d. Ms Word

10. Used to replace the management tools found on a traditional desk

a. PIM b. Software c. Photoshop d. Ms Word

11. It is a system utility in windows that enables you to perform advanced storage task

a. Ms Config b. Disk Management c. Operating System d. Anti-Virus

12. The \_\_\_\_\_\_\_\_\_\_\_\_ shows you a list of your volumes.

a. Disk Management b. Side Pane c. Top Pane d. Bottom Pane

13. The bottom pane shows a graphical representation of your disks and the volumes that exist on each disk.

a. Disk Management b. Side Pane c. Top Pane d. Bottom Pane

14. You can only shrink a volume if it has \_\_\_\_\_\_\_\_ space

a. enough free space b. Unlimited Space c.Limited space d. available

15. What is the quickest way to launch the Disk Management tool?

a. is by hitting Start, typing “partition” into the search box, and then clicking the “Create and format hard disk partitions” option that comes up

b. is by hitting open button, typing “partition” into the search box, and then clicking the “Create and format hard disk partitions” option that comes up

c. is by hitting Start, typing “Disk management” into the search box, and then clicking the “Create and format hard disk partitions” option that comes up

d. is by hitting Start, typing “Disk Management” into the search box, and then clicking the “format hard disk partitions” option that comes up

16. A \_\_\_\_\_\_\_\_\_\_\_ is space that’s set aside on a disk separate from the other space on that disk..

a. Disk Management b. Device Manager c. Partition d. Volume

17. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a partition that’s been formatted with a file system

a. Disk Management b. Device Manager c. Partition d. Volume

18. Right-click a volume in either pane and select the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_option.

a. “Shrink Volume” b. Extend Volume c. Mark the partition d. Change the drive

***Create a New Volume***

\_\_\_\_\_ Just right-click inside the unallocated space and select the “New Simple Volume” option.

\_\_\_\_\_ when it’s done, you’ll see your new partition listed in the Disk Management tool and you should see it if you pop open File Explorer, as well.

\_\_\_\_\_ Specify the size of the volume you want to create and then click the “Next” button. Here, we’re creating a new volume that uses all the available unallocated space on the disk.

\_\_\_\_\_ In the “New Simple Volume Wizard” window, click “Next” to get started.

\_\_\_\_\_ And then click the “Finish” button to have Windows get started creating the volume and—if you chose to—formatting it.

\_\_\_\_\_ Assign a drive letter (or accept the default assignation) and then click the “Next” button.

19. Which is the correct process flow in creating new volume.

a. a 1 b 2 c 3 d 2 e 5 f 6

b. a 1 b 6 c 4 d 5 e 3 f 4

c. a 1 b 5 c 3 d 2 e 6 f 4

d. a 1 b 6 c 3 d 2 e 5 f 4

20. The only real reason you might want to not format it right away is if you need to let \_\_\_\_\_ do the formatting.

a. it be done automatically b. No need to format c. let it be d. another tool

21. is a nifty little program that scans your system for its internal hardware configuration.

a. CPU-Z b. Performance Monitor. c. Reliability Monitor d. Angry Ip Scanner

22. It is a hidden tool that’s been around since Windows Vista, yet so many people have never even heard of it

a. CPU-Z b. Performance Monitor. c. Reliability Monitor d. Angry Ip Scanner

23. It is a free tool that does exactly what its name says: it analyzes your Wi-Fi network’s setup to see whether your wireless channel

a. CPU-Z b. Performance Monitor. c. Reliability Monitor d. Wifi Analyzer

24. It is a nice tool to have. In a nutshell, it scans your network to see which IP addresses and ports are being used by which devices.

a. CPU-Z b. Performance Monitor. c. Reliability Monitor d. Angry Ip Scanner

25. This simple program gives you a complete overview of the state of your data drives, including HDDs, SSDs, and USB drives. Details include temperature, spin-up time, uptime, error rates, and more. It also calculates an overall Health Status.

a. Crystal Disk Info b. Windows Directory c. Resource Monitor

d. Windows Memory Diagnostic

26. It scans your data drives and tells you how much space is used up by various folders and files, all displayed in a neat tree-based hierarchy and a detailed graph view.

a. Crystal Disk Info b. Windows Directory Diagnostics c. Resource Monitor

d. Windows Memory Diagnostic

27. It is an advanced way to view real-time data about your system and is usually used in conjunction with the Performance Monitor. However, I mainly use it for viewing process details and memory usage.

a. Crystal Disk Info b. Windows Directory Diagnostics c. Resource Monitor

d. Windows Memory Diagnostics

28. Did you know Windows actually has a built-in tool that can physically test your RAM modules to check if they’re free of errors? An app called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it will restart your computer. On boot up, the tool will run several tests on your RAM, and if it encounters any errors or failures, it will do its best to let you know which module is the culprit.

a. Crystal Disk Info b. Windows Directory Diagnostics c. Resource Monitor

d. Windows Memory Diagnostic

29. It is a web tool that can help. All it does is flash the area of the screen with the stuck pixel with hundreds of different colors every second. This should unstick the pixel after about ten minutes.

a. Windows Memory Diagnostics b. JScreenFix c AdwCleaner d None

30. It’s just a simple malware scanner, but it’s fast, efficient, and free, which is all anyone can ask for. It has mainly designed to target malware that comes bundled with installer files, so it detects adware, toolbars, unwanted programs, browser hijackers, etc. Scan results are sorted as services, files, DLLs, scheduled tasks, registry entries, and more.

a. Windows Memory Diagnostics b. JScreenFix c AdwCleaner d None

31. It is a computer program allowing higher-level computer programs to interact with a hardware device

a. Device Driver b. Driver c. Os Kernel d.Multiple Task

32. A \_\_\_\_\_\_\_\_ typically communicates with the device through the computer bus or communications subsystem to which the hardware connects

a. Device Driver b. Driver c. Os Kernel d.Multiple Task

33. \_\_\_\_\_\_\_\_ are hardware-dependent and operatingsystem-specific. They usually provide the interrupt handling required for any necessary asynchronous time-dependent hardware interface.

a. Device Driver b. Drivers c. Os Kernel d.Multiple Task

34. A device driver is usually part of the\_\_\_\_\_\_\_\_; Compiled with the OS and Dynamically loaded into the OS during execution

a. Device Driver b. Drivers c. Os Kernel d.Multiple Task

35. Each device driver handles, Except one.

a. one device type (e.g., mouse)

b. one class of closely related devices

c. SCSI disk driver to handle multiple disks of different sizes and different speeds.).

d. one device and operating system.

36. A device driver simplifies programming by acting as \_\_\_\_\_\_\_\_\_\_\_ between a hardware device and the applications or operating systems that use it.

a. Moderator b. Partner c. Translator d. Recipient

37.\_\_\_\_\_\_\_\_\_\_ can write the higher-level application code independently.

a. User b. Individual c. administrator d. Programmers

38. Functions in Device Drivers, Except one.

a. Accept abstract read and write requests from the device-independent layer above.

b. Initialize the device.

c. Manage power requirements and log events.

d. Runs the boot process

39. Because of the diversity of modern hardware and operating systems, drivers operate in many different environments. Drivers may interface with:

a. Printers • video adapters • network cards • sound cards • local buses of various sorts

b. in particular, for bus mastering on modern systems • low-bandwidth I/O buses of various sorts (for pointing devices such as mice, keyboards, USB, etc.)

c. computer storage devices such as hard disk, CD-ROM and floppy disk buses (ATA, SATA, SCSI) • implementing support for different file systems

d. All of the above mention

40. Which of the following is the correct process flow in installing device driver.

a. check the capacity of the device, install agreement then turn off your pc

b. check if the driver is compatible with the device version, click install and agree all the agreement

c. install directly ang don’t agree with the license agreement

d. a and b are both correct

41. \_\_\_\_\_\_  Distinguishing between necessary and unnecessary things, and getting rid of what you do not need

a. Sort b. Straighten c. Shine d. Standardize

42. \_\_\_\_\_\_\_ The practice of orderly storage so the right item can be picked efficiently (without [waste](http://www.leansixsigmadefinition.com/glossary/waste/)) at the right time, easy to access for everyone. A place for everything and everything in its place.

a. Sort b. Straighten c. Shine d. Standardize

43. \_\_\_\_\_\_\_ Create a clean worksite without garbage, dirt and dust, so problems can be more easily identified (leaks, spills, excess, damage, etc)

a. Sort b. Straighten c. Shine d. Standardize

44. \_\_\_\_\_\_\_ Setting up standards for a neat, clean, workplace

a. Sort b. Straighten c. Shine d. Standardize

45. \_\_\_\_\_\_\_\_\_ Implementing behaviors and habits to maintain the established standards over the long term, and making the workplace organization the key to managing the process for success

a. Safety b. Spirit c. Sustain d. Standardize

46. \_\_\_\_\_\_ is often said that it is implied within 5S that everything should be done with, as the number one priority, but to ensure that is the case.

a. Safety b. Spirit c. Sustain d. Standardize

47. To ensure that the focus of 5S is to make it easier for the workers, this is to remind people that it should be fun, and that creativity is key to coming up with new ideas and better ways to implement 5S. Without engaged workers, the 5S approach will not last or be successful.

a. Safety b. Spirit c. Sustain d. Standardize

48. \_\_\_\_\_\_ - using less, or decreasing the level of waste created;

a. Recycle b. Spirit c. Reduce d. Reuse

49. \_\_\_\_\_\_\_ as many times as possible to increase the life of a product and maximize its benefit;

a. Recycle b. Spirit c. Reduce d. Reuse

50. \_\_\_\_\_\_\_ supporting the recycling and upcycling process of waste such as glass, paper, metal and plastic into new products.

a. Recycle b. Spirit c. Reduce d. Reuse

**CURRICULUM VITAE**

**Personal Information**

Name : Joel Pagdato Rodriguez

Address : Carpo Tuba, Dalaguete, Cebu

Date of Birth : September 19, 1989

Age : 30 years old

Place of Birth : Gines Vejo, Passi, Ilo ilo

Citizenship : Filipino

Religion : Roman Catholic

Civil Status : Married

Gender : Male

Height : 5’ 6’’

Weight : 81 klg.

Parents Father: Romeo Miranda Rodriguez

Mother: Monina Pagdato Rodriguez

**Educational Background**

School Degree Year

*Tertiary*

Cebu Technological University, Bachelor in Secondary Education 2006-2010

Argao Campus Major - TLE, Minor - Mathematics

*Secondary*

Casay National High School 1st year to 4th year High School 2002-2006

*Elementary*

Casay Elementary School Grades 4-6 1995-2000

Casay Elementary School Grade 1-3 1994-1995

**Eligibility**

Rating Year

Licensure Examination for Teachers 75.0 2011

University of Cebu

Computer System Servicing NC 2 Passed 2016-2020

2d Animation NC 3 Passed 2016-2020

Trainers Methodology Level 1 Passed 2016-2020

**Professional Experiences**

Senior High School Teacher III October 2016 – At Present

Casay National High School

Casay, Dalaguete, Cebu

Teacher I July 2012 – October 8 2016

Casay National High School

Casay, Dalaguete, Cebu

Office: English Fella Educational Corp March 28, 2011 - 2013

Address: Tigbao, Talamban, Cebu

Responsibilities: ESL Teacher

Office: Cebu International Academy (winter-Camp) December 26, 2010

Address:Upper Pakigne, Minglanilla, Cebu City February 19, 2011 Responsibilities: ESL Teacher

**Speakerships**

**School Level**

Implementation of Career Guidance Program for the School year 2019-2020

On August 19-22, 2019

Campus Journalism Workshop on October 13, 2018

**District Level**

Three-Day Seminar Workshop on District Mass Training of Teachers on Philippine Professional Standards for teachers and Result based Management system (PPST-RPMS) Roll Out

May 16-18 2019

5-day Live out Refresher Training-Workshop in Computer System Servicing

February 20-24, 2018

**Division Level**

Live out Training of Trainers (TOT) Seminar/Workshop for the roll out of the Student Information System and Teacher Friendly Electronic Learning Tool

January 10-12, 2018

Live Out Training/Workshop In e-HRIS (Enhanced Human Resource Information System)

September 6-7, 2018 and September 27-28, 2018

3rd Quarterly Meeting for District ICT(ICT Coordinator)& Municipal ITO

July 17, 2018

Three-Day Live Out Training Workshop in Basic Troubleshooting and Networking for the District ICT Coordinators and Elementary School ICT Coordinators

July 13-15, 2017; July 20-22, 2017; August 3-5, 2017 and August 17-19, 2017

**Seminars and Trainings**

CAG EDUCATORS 2D ANIMATION WORKSHOP April 22, 2017

TRAINING WORKSHOP

OF ICT COORDINATORS March 24, 2017 to April 1, 2017

& LAC LEADERS IN THE SCHOOL

WEBSITE DEVELOPMENT FOR LAC

CONVENTION ON ANIMATION EXPERIENCE March 25, 2017

NATIONAL SCHOOL BUILDING INVENTORY February 13, 2017

ORIENTATION WORKSHOP ON January 25, 2017

THE ON-LINE MONITORING AND

EVALUATION TOOL FOR ALL

SOUTHEAST SCHOOL HEADS AND

DISTRICT MONITORING AND EVALUATION COORDINATORS.

2D ANIMATION NC 111 TRAINING PROGRAM July 15, 2016 to November 20, 2016

SCHOOL ICT COORDINATORS September 22, 2016 to September 26, 2019

TO THE DIVISION ICT LITERACY

SCHOOL ICT COORDINATORS

TO THE DIVISION ICT LITERACY

TRAINING OF TRAINERS ON ICT LITERACY WORKSHOP FOR ALL ELEMENTARY & SECONDARY SCHOOL ICT COORDINATOR

September 13, 2015 to September 15, 2016

SENIOR HIGH SCHOOL(SHS) MASS TRAINING OF TEACHERS (MTOT) FOR TECHNICAL-VOCATIONAL AND LIVELIHOOD (TVL) July 16, 2019 to July 24, 2016

SENIOR HIGH SCHOOL(SHS) MASS TRAINING OF TEACHERS (MTOT) FOR COMMON/GENERAL TOPICS June 28, 2016 to July 1, 2016

DIVISION ORIENTATION-WORKSHOP ON THE SENIOR HIGH SCHOOL(SHS) STAFFING E-TOOL AND OTHER GRADE 11 OPENING RELATED PREPARATIONS

May 12, 2016 to May 14, 2016