



## Acquisition and Practice of Technical Skills Among Grade 10 TLE Students

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**Abstract** – This study dealt on the strategies in enhancing the acquisition and practice of technical skills among Grade 10 TLE students in public high schools of Mapandan, Pangasinan. The study adopted the descriptive method using survey questionnaire determining the respondents' profile, level of technical skills acquired and practiced in the given specialization, and the factors affecting students' learning the technical skills. Data were analyzed using frequency count, percentage distribution, weighted mean, Chi-square and Pearson's *r*. Majority of the respondents are aged 15-16, female-dominated, taking up Dressmaking, belonging to low-income families and have unemployed parents who graduated high school. Data gathered indicate that ICT is Very Highly Acquired but Highly Practiced; Cookery, Highly Acquired and Highly Practiced; Dressmaking and Welding, Highly Acquired but Fairly Practiced. Moreover, Student and Teacher Factors Very Highly Affected the students' learning the technical skills while School, Facilities and Equipment Factors, Highly Affected. Findings disclose that there is no significant relationship between the respondents' level of technical skills acquired and practiced and the identified profile variables Age, Sex, Mother's Occupation and Educational Attainment; while there is a significant relationship between the respondents' levels of technical skills acquired and practiced across Specialization, Father's Occupation and Parents' Monthly Income. Further, there is no significant relationship between the respondents' level of technical skills acquired and Student, Teacher, School, Facilities and Equipment Factors. On the merit of the findings, the study recommended the actual use of the strategies proposed herein to improve the acquisition and practice of the students' technical skills.

**Keywords** – Technical Skills, Technology and Livelihood Education.

### INTRODUCTION

Education and training is one of the essential driving forces and a necessary condition for a country's economic, social and cultural development. Education plays such a role as it increases and strengthens the creative and productive capacity of human beings. Building on this, education is a tool for generating knowledge, raising living standards, and enriching, as well as transmitting, society's culture to future generations. As an essential and vital component of education, Technology and Livelihood Education (TLE) plays a significant role in the social and economic transformation of society. It equips trainees with the technical skills that position them to contribute their best to technological changes. Technical Education and

Skills Training is designed to prepare the individuals for specialized skills, abilities, trade, industries, agriculture and business for self-reliance. It is generally linked with manual and practical skills and commonly does not include academic abilities. Skills training mostly include education and training that emphasize more on manual work and prepare the individuals to perform for jobs that are related to working in a particular industry (Ayub: 2017). The dilemma of TLE Grade 10 teachers in teaching the technical skills to their students is the nature and nurture of the students' past experiences. Most of them do not appreciate and paid less attention on the learning of the skills that could help them to find job, engage in business, and the like. It is also conditioned by the type and quality of their experiences in their daily lives. With this, the

study aimed to assess the acquisition and practice of technical skills of the Grade 10 Technology and Livelihood Education (TLE) students in the public high schools of Mapandan, Pangasinan.

## **METHODOLOGY**

This research is descriptive in nature because it aimed to collect the information regarding the acquisition and practice of the technical skills of the selected Grade 10 TLE students through a survey questionnaire. The respondents of the study were students enrolled in TLE subject in Grade 10 during the school year 2018-2019. The sample size per technical skills was determined through Slovin formula with 5 percent margin of error. This sample represents the respondents from the four public high schools per technical skill. . The samples per school and per technical skills were identified through a stratified random sampling (Sevilla, et al., 2000). These participating schools are Mapandan National High School, Torres National High School, Primicias National High School and Baloling National High School. To generate the primary data required and information for the study, the researcher analyzed available data obtained from the respondents with permission from authorities concerned. Data gathering device such as observation technique, documents and research analysis was also utilized to attain the objectives of the study. The content validity of the instrument was established through the pool of judgment of the Technology and Livelihood Education experts such as one department head and four master teachers/subject area coordinators. The reliability of the instrument was established through a try-out method which was administered to fifteen (15) Grade 10 TLE students who are not part of the respondents of the study. The researcher followed

the protocol in seeking permission for the different DepEd officials concerned. Statistical treatments such as frequency and percentage distribution, weighted mean, Chi-square and Pearson's r were used in this study. All computations were facilitated by the use of Statistical Package for the Social Sciences (SPSS) software.

## **RESULTS AND DISCUSSION**

### **Personal Profile of the Respondents**

Majority of the grade 10 TLE students are aged 15-16 years old (81%) followed by 14 years old and below (28%) which are the actual age of common grade 10 students. In terms of Sex, it was mainly composed of Female students (64.5%) followed by Males (35.5%). These grade 10 TLE students have specialization on Dressmaking (31.2%), Cookery (29.9%), ICT (25.5.%) and welding (13.4%).

On the other hand, in terms of occupation of their parents, results showed that almost one-third of the fathers of the respondents have no work while the rest were employed in different fields where service and sales workers is the most common of all (15.2%). Similar to this is the respondents' mothers where almost two-third of the group have no work (62.3%), for those employed they are mainly composed of technicians or associate professional mothers (9.5%). Further, more than half of the respondents' mothers and fathers are high school graduate (52.3% and 51.1% respectively). Furthermore, majority of the students (50.6%) belong to poor families with a monthly income bracket of below Php7,890.

**Level of Technical Skills Acquired and Practiced by the TLE Grade 10 students**

**Table 1**  
**Level of Technical Skills Acquired and Practiced by**  
**the TLE Grade 10 students**

Specialization	TECHNICAL SKILLS			
	Acquired		Practiced	
	Mean	DE	Mean	DE
Cookery	2.83	HA	2.74	HP
Welding	2.93	HA	2.08	FP
ICT	3.26	VHA	2.60	HP
Dressmaking	2.09	HA	1.89	FP

**Legend:**

<i>1.00-1.75 (LA/LP)</i>	<i>1.76 – 2.50 (FA/FP)</i>	<i>2.51 – 3.25 (HA/HP)</i>	<i>3.26 – 4.00 (VHA/VHP)</i>
<i>Least Acquired</i>	<i>Fairly Acquired</i>	<i>Highly Acquired</i>	<i>Very Highly Acquired</i>
<i>Least Practiced</i>	<i>Fairly Practiced</i>	<i>Highly Practiced</i>	<i>Very Highly Practiced</i>

**Technical Skills Acquired and Practiced in Cookery by the Grade 10 TLE Students**

Generally, results showed that technical skills in the field of Cookery are Highly Acquired with a mean of 2.83 and Highly Practiced with a mean of 2.74 by the grade 10 students. This means that respondent’s teachers have effectively imparted the learning competencies in this area to the students. Further, it also reveals that students were engaged in more hands-on/practical learning experiences in real kitchen setting and are very determined to master the required skills.

Further, the indicator ‘follow directions for cooking’ obtained the highest weighted mean for technical skills as acquired and as practiced with a mean of 3.33 or *Very Highly Acquired* and weighted mean of 3.25 or *Highly Practiced* respectively. This implies that the students have acquired very well the skill on how to follow direction for cooking and it is highly practiced by the students as well.

Furthermore, indicator ‘operate / utilize kitchen tool and equipment: in terms of Microwave Oven’ obtained the lowest weighted

mean for both acquiring and practicing the said skill with a weighted mean of 2.36 (*Fairly Acquired*) and 2.33 (*Fairly Practiced*) respectively. This implies that students struggled to acquire the lesson on microwave operation and also lead them to not be able to practice it by themselves as well.

**Technical Skills Acquired and Practiced in Welding by the Grade 10 TLE Students**

Generally, results showed that technical skills in the field of Welding are Highly Acquired with a mean of 2.93 but Fairly Practiced with a mean of 2.08 by the grade 10 students. This means that though skills in welding are highly acquired by the students it is fairly practiced by them because of probably non-availability of welding machine in their houses.

Further, the indicator ‘Identify electrical supplies, materials, and tools needed in welding’ obtained the highest weighted mean in the skills acquired by the students in the field of welding (WM = 3.38). This could be attributed to the exposure of the students to the different materials used in welding activities. While the skill ‘Tack-

weld or weld component and assemblies, using electric, gas, arc, or other welding equipment' obtained the highest weighted mean on the skill practiced by the students with a mean of 2.67.

Furthermore, there are two skills least practiced by the students namely 'Inspect grooves, angles, or gap allowances, using micrometer, caliper, and precision measuring instruments' and 'Evaluate, control hazards and risks, and perform basic preventive maintenance' both with a weighted mean of 1.60 (Fairly Practiced). As commented by the students, they were able to acquire these skills highly, but in the actual practice they still lack the confidence to perform them.

#### **Technical Skills Acquired and Practiced in ICT by the Grade 10 TLE Students**

Generally, results showed that technical skills in the field of ICT are Very Highly Acquired with a mean of 3.36 and Highly Practiced with a mean of 2.60 by the grade 10 students. This means that students not just acquired the skills but they can also confidently apply it in their hands-on activities.

Further, the indicator 'Encode and print documents, files, etc.' obtained the highest weighted mean of 3.68 (*Very Highly Acquired*) among the skills under ICT, which implies that among the skills this is the easiest to be acquired by the respondents. While in terms of skills practiced by the students, results revealed that 'giving the functions of the parts of the computer unit' is the highly practiced by them.

Furthermore, among the technical skills in the field of ICT, 'Identifying a professional

code of ethics in ICT and the social media in general' is the least acquired skill by the students. While, indicators 'Knowledgeable about Microsoft Office: MS Publisher' and 'Perform different shortcut keys while encoding' both obtained the lowest weighted mean among technical skills practiced by the students with both weighted mean of 2.17 (*Fairly Practiced*).

#### **Technical Skills Acquired and Practiced in Dressmaking by the Grade 10 TLE Students**

Generally, results showed that technical skills in the field of Dressmaking are Highly Acquired with a mean of 3.09 but Fairly Practiced with a mean of 1.89 by the grade 10 students. This means that students though acquire the skills in dressmaking highly they can't just practice it as same as how it was taught to them.

Further, there are two indicators/skills that are very highly acquired by the students namely 'Draft and cut the basic and final patter', and 'Identify sewing equipment, materials, and tools needed for specific job' with a weighted mean of 3.53 and 3.26 respectively. While in terms of skills practiced by the students, 'draft and cut the basic and final pattern' obtained the highest weighted mean of 2.25 (but is still interpreted as Fairly Practiced).

Furthermore, among the technical skills in the field of dressmaking, indicator 'operate sewing equipment and assess its performance' obtained the lowest weighted mean of 2.71 (*Highly practiced*). While, the indicators 'identify sewing equipment, materials and tools needed for specific job' and 'perform layout and transfer marking on the cloth' both obtained the lowest weighted mean of both 1.63



**Factors that affect the Students learning the Technical Skills along Student factor, Teacher factor, School factor, and Facilities and equipment**

**Table 2**  
**Factors affecting the Students learning the Technical Skills**

FACTORS	OVERALL MEAN	DE
1. Student factor	3.28	VHA
2. Teacher factor	3.29	VHA
3. School factor	3.18	HA
4. Facilities and Equipment Factor	3.17	HA

**Legend:**

1.0– 1.74 (LA)    1.75 – 2.50 (FA)    2.51 – 3.24 (HA)    3.25 – 4.00 (VHA)  
*Least Affected    Fairly Affected    Highly Affected    Very Highly Affected*

Table 2 shows that the highest factor that influence or affects the acquisition of technical skills in Grade 10 TLE is the Teacher factor (OWM=3.29) followed by the student themselves (OWM=3.28) or both interpreted as *Very Highly Affected*. In addition, the table also shows that School factor and Facilities and equipment factor has an overall weighted average of 3.18 and 3.17 respectively or interpreted as *Highly Affected*. . The highest indicators in each factors are

“Willingness to learn the skills related to the specialization” (WM=3.49) for student factor; “Educational attainment is relevant to TLE instruction” (WM=3.42) for teacher factor; “Guide students in applying technology in launching livelihood programs” (WM=3.33) for school factor and lastly, “Adequate equipment, tools necessary in learning the technical skills” received a (WM= 3.42) for Facilities and Equipment Factor.



**Relationship between the Levels of Technical Skills Acquired and Practiced  
by the Grade 10 Students across Personal Profile**

**Table 3**  
**Relationship between the Level of Technical Skills and Profile of the Grade 10 Students**

Variables		Acquired	Practiced
Age	Spearman's rho	-.080	.037
	Sig. (2-tailed)	.228	.576
Sex	Chi-square	3.164	0.136
	Sig. (2-tailed)	0.075	0.712
Specialization	Likelihood ratio	<b>-20.758*</b>	<b>-27.822*</b>
	Sig. (2-tailed)	0.036	0.003
Occupation of Father	Likelihood ratio	<b>-39.992**</b>	5.100
	Sig. (2-tailed)	0.000	0.165
Occupation of Mother	Likelihood ratio	16.813	23.256
	Sig. (2-tailed)	0.079	0.010
Highest Educational Attainment of Father	Spearman's rho	<b>-.151*</b>	<b>-.201**</b>
	Sig. (2-tailed)	.022	.002
Highest Educational Attainment of Mother	Spearman's rho	.113	.128
	Sig. (2-tailed)	.086	.052
Monthly family income	Spearman's rho	<b>-.157*</b>	-.066
	Sig. (2-tailed)	.017	.321

Table 3 shows that there is no significant relationship between the level of technical skills acquired and practiced by the respondents and the identified profile variables such as age, sex,

mother's occupation and highest educational attainment across the level of technical skills acquired by the respondents.

**Relationship between the Levels of Technical Skills Acquired  
and Practiced across the Factors Affecting the Students**

**Table 4**  
**Relationship between the Levels of Technical Skills Acquired and Practiced across the Factors  
Affecting the Students learning the Technical Skills**

<b>Factors</b>		<b>Acquired</b>	<b>Practiced</b>
Student Factor	Spearman's rho	<b>-.374**</b>	<b>-.341**</b>
	Sig. (2-tailed)	.000	.000
Teacher Factor	Spearman's rho	<b>-.399**</b>	<b>-.443**</b>
	Sig. (2-tailed)	.000	.000
School Factor	Spearman's rho	<b>-.405**</b>	<b>-.298**</b>
	Sig. (2-tailed)	.000	.000
Facilities and Equipment	Spearman's rho	<b>-.461**</b>	<b>-.319**</b>
	Sig. (2-tailed)	.000	.000

Table 4 shows that there is a significant relationship between the levels of technical skills acquired and practiced by the Grade 10 students across specialization and father's occupation and parents' monthly income. In addition, there is no

significant relationship between the level of technical skills acquired by the Grade 10 students and the following factors: student, teacher, school and facilities and equipment.

**PROPOSED STRATEGIES TO IMPROVE THE PRACTICE OF TECHNICAL SKILLS OF THE GRADE 10 TLE STUDENTS**

The table below presented strategies to improve the practice of the aforesaid technical skills:

<b>Specialization</b>	<b>Proposed Strategies</b>
Cookery, Welding, ICT, Dressmaking	<ul style="list-style-type: none"> <li>• <b>Read technical books.</b> Books could lead you to a better way of learning something. It provides you with the information you need, you can choose to outsource the knowledge. They can offer you the right and valuable information you need.</li> <li>• <b>Volunteer and learn for the best.</b> Volunteering is another choice that will facilitate the learning of technical skills. Through it you will come across of a lot of experiences and insights from the experts. Speak to the individual who you believe can help you develop the necessary skills and promise to give you back the help as soon as you get the chance. Your skills will be crafted.</li> <li>• <b>Get hands-on-experience.</b> It is an excellent opportunity to gain hands-on experience that will help you learn the skills and give you a better understanding of that skill.</li> <li>• <b>Talk and share.</b> Talking with people that have a certain set of technical skills that you seek, is a great way to learn the basics of the skills and often the person can offer insights regarding the best way of learning and continuing growth of that specific skill.</li> <li>• <b>Create projects.</b> Creating your own project is an excellent way to test out your skills to make sure that they are up to the standards. This ensures not only that you can do a project correctly but also that you will acquire the confidence needed in order to shine in front your teachers.</li> <li>• <b>Practice, practice, practice.</b> Repetition is the key to success. A lot of knowledge is useless it is not being practically used. Being skill-oriented learner is all about the abilities that you have, and not necessarily the information that you hold.</li> <li>• <b>Practicing things you find difficult.</b> Practice in itself is great, but if you're practicing things you know well, you're doing it wrong. In order to excel at any skill, you need to push yourself out of your comfort zone and practice things.</li> <li>• <b>Find a mentor.</b> Mentorship is perhaps the quickest way to take your skills to the next level. A mentor helps you navigate your field by offering invaluable perspective and experience.</li> <li>• <b>Be curious.</b> Instead of letting a textbook guide your learning, you take the lead. Seek answers from many</li> </ul>





	<p>sources. Don't merely memorize theories and techniques--question them at every step.</p>
Cookery	<ul style="list-style-type: none"><li>• Attend seminar workshop on cooking lessons.</li><li>• Participate in cooking demonstration.</li><li>• Practice using your senses of taste, touch, smell and sight for seasoning foods and determining them when it is done.</li><li>• Stretch yourself by learning a new dish or technique.</li><li>• <b>Get to Know Your Students.</b> Effective teaching begins, most importantly, with a knowledge of your students. By knowing where they're coming from, you can know better how to guide and assist them from there.</li><li>• <b>Explain Material Clearly, Break Down Bigger Concepts.</b> Students learn best when the teacher explains the material well. It's important to have a good grasp yourself on the subject, to teach patiently, to watch for confused looks or questions from students, and to go step by step on the harder material.</li></ul>
Welding	<ul style="list-style-type: none"><li>• <b>Engage students in On-the-Job Training.</b> Learning by doing is proven effective in mastering technical skills in Welding. OJT provides additional learning opportunities, transition from classroom to the work place experience and gives the students confidence in landing a job someday.</li><li>• <b>Invite expert in the field as resource person.</b> Welding expert is a source of first-hand knowledge and skills that prepare students in the world of work. He can update students with the most recent industry standards.</li><li>• <b>Conduct educational tour.</b> Students develop more awareness on a particular field through the visual experience that they will gain in educational trip. Visiting industrial and manufacturing facilities is one way to explore and learn more about welding.</li></ul>
ICT	<ul style="list-style-type: none"><li>• Explore your computer. This provides greater platform to learn on aside from the discussions in class.</li><li>• Promote, establish and support standards and codes of practice for the: handling, storage, acquisition, transmission, processing, protection and display of data relating to computing and the information contained therein.</li><li>• <b>Send students in off-campus training.</b> Teachers must ensure that students specializing in ICT must have more exposures on ICT tasks through engaging them in work immersion to provide them opportunities for the application of knowledge and skills that they have acquired in ICT to fully attain technical mastery. This is a great way to enhance teaching and learning inside the classroom.</li><li>• <b>Bring technology in the classroom.</b> Students must have access to ICT equipment inside the classroom for them to practice their technical skills and improve their performance level. Providing students with ICT tools is one way to actively</li></ul>



	<p>engage students in learning 21<sup>st</sup> century skills even after class hours.</p> <ul style="list-style-type: none"><li>• <b>Make use of cooperative learning.</b> Plan activities wherein students of mixed abilities can work together so that students needing guidance would be helped by the advanced learners.</li><li>• <b>Try differentiated instruction.</b> Differentiate your teaching by assigning tasks based on students' abilities to make sure that their learning needs are addressed and that no one is left behind.</li></ul>
Dressmaking	<ul style="list-style-type: none"><li>• <b>Demonstrate the tasks.</b> Explaining the tasks (e.g. drafting, layouting, cutting) through demonstration effectively helps students in acquiring the necessary skills since students are required to make use of their different senses as they see the process live and try the steps by themselves.</li><li>• <b>Have concrete examples in delivering the lessons.</b> Retention of terms, designs, etc. in the students' minds is longer when apparent objects are presented to the learners.</li><li>• <b>Use picture-word association.</b> Pairing words to images is an effective way to recall the meaning of technical terms, dressmaking tools and equipment, etc.</li><li>• <b>Engage students in more actual performances.</b> Technical skills in Dressmaking will be mastered through doing more hands-on tasks.</li><li>• <b>Conduct dressmaking competition and trade fair.</b> One way to motivate students to be competitive or bring out their best is through letting them feel that their efforts are appreciated and of use for income generation</li></ul>



## **CONCLUSIONS**

Based on the findings of the study, the following conclusions are hereby derived:

1. Majority of the respondents are aged 15-16, female-dominated, with parents who are high school graduates and engaged in manual labor, and they belong to poor families with relatively low income.
2. ICT is the technical skill Very Highly Acquired but Highly Practiced, Cookery is Highly Acquired and Highly Practiced, while Dressmaking and Welding are both Highly Acquired but Fairly Practiced by the TLE Grade 10 students.
3. Student Factor and Teacher Factor Very Highly Affected the learning of the technical skills, whereas School Factor and Facilities and Equipment Factor Highly Affected the acquisition and practice of technical skills.
4. There is no significant relationship between the level of technical skills acquired and practiced by the respondents and the identified profile variables such as Age, Sex, Occupation of Mother, Highest Educational Attainment of Mother across the level of technical skills acquired by the respondents, while there is a significant relationship between the levels of technical skills acquired and practiced by the Grade 10 students across Specialization and Occupation of the Father and Parents' Monthly Income. Further, there is no significant relationship between the level of technical skills acquired by the Grade 10 students and the following factors: student, teacher, school and facilities and equipment.
5. Several strategies were proposed herein to enhance the performance of Grade 10 students in Welding, Dressmaking, Cookery and ICT.

## **RECOMMENDATIONS**

Based on the findings and conclusions of this study, the following recommendations are hereby offered:

1. Instructional efforts in the given area of specializations must be sensitized to the profile of the students to ensure that their learning needs are addressed. Parents must also be counseled on how they can reinforce their children's learning at home despite economic challenges.
2. The use of effective strategies and interventions and the availability of adequate equipment as well as modern facilities must be ensured to improve the students' acquisition and practice of technical skills especially in Welding and Dressmaking.
3. Improvement on students' attitudes toward learning and their study habits must be given attention. Likewise, TLE teachers with the department head and the school head must collaborate in making the needed facilities and equipment accessible to the students and must also conduct trainings, coaching and mentoring sessions to make learning more relevant and engaging on the part of the students to ensure that they do not only gain knowledge and technical skills but also enjoy the tasks in their respective area of specialization.
4. Orientation or career guidance must be carried out for the students to choose the specialization that suits their interest and capability. Likewise, interventions such as livelihood training, income-generating project, etc. must also be initiated to help the students' parents augment their income to enable them in giving financial assistance to the education of their children especially in their acquisition and practice of technical skills which could also be their source of livelihood in the future.
5. The Grade 10 TLE teachers handling Welding, Dressmaking, Cookery and ICT shall be advised to utilize the proposed strategies herein as interventions to improve the acquisition and practice of the students' technical skills.



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