Profile and Academic Performance in Technology and Livelihood Education (TLE) of Grade 8 Learners: Inputs to Learning Recovery in the Philippines

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Abstract

The study investigated the relationship between the profile and academic performance of Grade 8 learners in Technology and Livelihood Education (TLE). It utilized descriptive correlation through survey questionnaires, and data were collected from 41 high school students. For data analysis, descriptive statistics and correlational measures, such as Pearson product-moment correlation coefficient and Eta coefficient test, were employed. Results revealed that the students' preferred perceptual learning style was auditory, while group learning was the least preferred. The students also agreed that they were motivated to learn the different aspects of the subject. The other profile variables showed that most participants were female and mostly received academic learning support from their parents and guardians at home. Lastly, the majority of them were exposed to printed learning delivery modality. The correlation tests identified sex and type of learning delivery modalities as the only two profile variables positively yet weakly correlated with the student's academic performance.

Keywords:

Academic performance; learning recovery; profile; Technology and Livelihood Education.

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Introduction

The Philippine education system has grappled with the unprecedentedness of COVID-19 as a global health crisis. Other countries, too, are not exempted from the serious effects of the pandemic. The education system has also seen its worst in the United States, one of the world's most powerful and technologically advanced countries. Poor student performance and lack of equity made education extremely challenging during the COVID-19 pandemic (Garcia & Weiss, 2020). According to Hough et al. (2021), achievement gaps are expected to grow due to the coronavirus since a public health crisis impacts students in many ways. Although countries worldwide have returned to implementing in-person classes, health risks due to COVID-19 and other diseases are still possible.

Many factors add to the challenges of pushing through education amidst a global health crisis. There is an emphasis on the need to understand that it is not enough to know that students will be behind grade levels when they go back to school physically; all of them will need academic assessments that will determine exactly which skills were acquired or not, including the content needed to be (re)taught. The many pitfalls of remote learning mirror the insistent reality that schools must go back to basics and reconsider the roles that learning styles, learning motivation, and home learning environment play in ironing out the glitches caused by a uniquely different academic situation.

Anderson et al. (2022) underscore the importance of knowing students' preferences, dislikes, habits, and desires. Understanding their specific learning styles could enhance how they would be taught to master their schoolwork and succeed in life. Such an idea of learning styles relates to the current state of education during the COVID-19 pandemic. As supported by Zapalska (2022), students can help themselves succeed by understanding how they learn best and how they would adapt their learning styles for the COVID-19 era. Furthermore, what teachers and parents could do is to help students maximize the use of these learning styles and stay on top of their work. In a recent study conducted in Indonesia, Kusuma and Hamidah (2020) found that learners studying from home would most likely use an auditory learning style during online classes. It is also interesting to note that in the preceding study, it was concluded that there is a significant relationship between students' learning styles and their geometric thinking abilities.

Similarly, distance education is yet to see better days despite the growing trend among educational institutions worldwide. Harnett (2016) believes that online learning, for instance, relies on learners' potential in meaning-making through an agency in their academic standing, sustaining meaningful and varied communications, and developing epistemic and conceptually relevant cognitions through engaging themselves in digital resources. This, therefore, calls for the critical role of motivation and positive learning dispositions to bridge learning gaps (Chiu & Hew, 2018). The adaption of motivation theories to design effective online pedagogies is a decision that may bring about positive changes in how instruction is delivered. Online or modular, the value of boosting students' intrinsic motivation should be fully realized to traverse a pandemic-stricken

academic year smoothly. Attention should be shifted from providing extrinsic motivations to honing learner autonomy, competence, and relatedness. Knowing what motivates learners to study better is another story.

Playing along with the need to consider learning styles and motivations during a pandemic are other factors that may give schools and educators the cognition to strongly address issues in distance education. Sex and home learning environments are also variables that should not be neglected. First, sex should be considered a factor determining students' academic success . Idrizi et al. (2020) argue that there exist gender differences in online learning. The quantitative study Chung and Chang (2017) conducted found a strong relationship between sex, motivation, and student achievement. From such , it is safe to claim that male and female learners achieve academic success at different rates and to varying degrees.

On the other hand, a home learning environment motivates students and young people to have optimism toward learning, curiosity, and develop their self-confidence (Education Scotland, 2023). Home learning has become a buzzword that captures the current set-up of educational delivery globally. The concept itself is a combination of physical and psychological environments. According to Khan et al. (2019), the home learning environment includes rooms, basic facilities, and other physical necessities of people, while the home environment relevant to psychological underpinnings pertains to the reciprocal interactions among family members and high regard towards one another. In light of the COVID-19 pandemic, the crucial role of parents and guardians as sources of academic support at home also characterizes students' home learning environment. However, not all households can provide a good home learning atmosphere for students, which could be challenged by other factors, such as divided attention from parents when they work and tutor their children simultaneously .

As we revisit the status quo in the Philippines, the 'too tired to teach; too tired to learn, discourse persists. The rhetoric of Philippine education during the COVID-19 pandemic highlights more failures than successes. Regarding learning, Tadalan (2021) reported that many Filipino students still struggle to understand complex lessons without a teacher and that it will take days to understand each lesson. Many Filipino students struggle to navigate and comprehend their printed modules and learning activity sheets when studying alone or learning with parents at home. Practically, there are learning areas (e.g., Mathematics, Physics, Research, and even skill-based subjects, such as Technology and Livelihood Education [TLE]) that are too complex to be understood exclusively by the learners. Simply reading lectures and notes and answering exercises from the modules could not compensate for the competencies they should be exposed to when done in an in-person class.

A good example of the barriers brought by the pandemic in teaching skill-based courses is subjects related to medical education. In the study of Baticulon et al. (2021), among 3,670 medical students surveyed, only 1,505 students considered themselves physically and mentally capable of engaging in distance learning. The same holds the basic education level, where

subjects such as TLE become even more difficult to appreciate. Asuncion (2021) argues that teachers struggle to find the easiest way to teach technology and livelihood skills online and via printed modules. He further argues that TLE can be a difficult subject at times because it requires the skills of the students rather than the knowledge they process.

At the educational institution where the study was conducted, a lot has been done to cater to the learning needs of the students. From adopting modular-based learning to launching a radio station on campus to broadcast the essential learning competencies on air, the school is keeping up with the changing times. However, like other educational institutions, interventions and techniques are unsuccessful, especially in delivering instruction for skill-based subjects. Hence, the question of what makes a good lesson for a distance education setup always revolves around what steps to take to bring in students' backgrounds, preferences, and motivations in the pedagogical scene.

The limitations imposed by the COVID-19 pandemic on instructional delivery, particularly in teaching technology and livelihood-related competencies, inspired this study. Essentially, the focus on certain variables, such as students' perceptual learning styles, their motivations in learning TLE, and other profile variables, such as sex, type of academic learning support at home, and alternative learning delivery modalities, denote the researcher's humble attempt at looking for the missing links to fill in gaps and potholes in distance education. Concerning the national learning recovery plan issued by the Department of Education in the Philippines, recovery is viewed as an ongoing process (Department of Education, 2023). The Basic Education Development Plan 2030 enhances policies, programs, and projects in basic education. This educational initiative aims to develop learning remediation and intervention resources, such as creating weekly home learning plans and learning activity sheets that may be provided to learners under the program. The present study leaned towards supporting learning recovery in the Philippines, particularly in teaching Technology and Livelihood Education. A potential public health crisis could still challenge the future of education . Hence, the campaign for proactive thinking from curriculum planners should underscore realistic insights that "online and hybrid learning will be mainstay imperative as the country adjusts and awaits the ebbing of COVID-19" (Estrellado, 2021, p. 1).

Framework of the Study

The study was anchored on Walberg's theory of academic achievement, which postulates that the psychological characteristics of individual learners and their immediate psychological environments could influence educational outcomes (Reynolds & Walberg, 1992). Furthermore, Walberg's research determined key variables influencing educational outcomes, such as the student's ability and prior achievement, motivation, age or developmental level, quantity and quality of instruction, and home environment. These variables constitute the same profile variables described and correlated with the participants' academic performance in TLE. Hence, the study posits that learner-related data could affect the achievement of Grade 8 students regarding the

remote learning scheme implemented in their school during the height of the COVID-19 pandemic. The results, therefore, could inform the current efforts of the Department of Education regarding learning recovery. The study's implications on devising instructional materials, such as Weekly Home Learning Plans (WHLPs), could support students, parents, and teachers in carrying out alternative learning delivery modalities in the future in case another health crisis challenges the country's educational system.

Purposes of the Research

This study aimed to determine the degree of association between the profile and academic performance in Technology and Livelihood Education (TLE) of Grade 8 students at a public secondary school in the province of Tarlac in the Philippines during the school year 2021-2022. Specifically, this study sought answers to the following research questions:

1. How may the profile of the Grade 8 students be described in terms of the following:

   1.1. perceptual learning styles;
   1.2. motivations in learning TLE;
   1.3. sex;
   1.4. type of academic learning support at home; and
   1.5. type of learning delivery modalities exposed to?

2. What is the academic performance of the Grade 8 students in Technology and Livelihood Educational (TLE)?

3. Are there significant relationships between the profile variables and the academic performance of the Grade 8 students in TLE ?

Research Design

The descriptive-correlation study explored the relationship between or among variables (Sicat, 2009), such as between the participants' profile and their academic performance in TLE. The study results became the basis for crafting weekly home learning plans (WHLPs), with learning activity sheets, for learners who will be alternatively studying at home due to extraordinary circumstances, such as when another pandemic would hinder schools from providing in-person classes.

Participants of the Study

The participants were Grade 8 students enrolled in Technology and Livelihood Education (TLE) when remote learning programs were being implemented in the Philippines. The purposive sampling technique was applied when choosing the participants. The sampling technique

yielded 41 Grade 8 students, which is still a statistically significant value for correlation research (Fraenkel & Wallen, 2009). The purpose was to identify learners studying exploratory TLE at the Grade 8 level and design lessons matching their perceptual learning styles and motivations in learning the subject. The participants were enrolled in the regular program in high school but experienced alternative learning delivery modalities due to the threats of the COVID-19 pandemic.

Data-Gathering Instruments

Respondents' Profile Questionnaire. This questionnaire was included in the second survey questionnaire used. The participants' profiles were composed of two general questions that described their sex, the type of academic learning support available at home, and the alternative learning delivery modalities to which the learners were exposed . These questions were based on the Basic Education-Learning Continuity Plan (BE-LCP) of the Department of Education (DepEd) during the COVID-19 pandemic in the Philippines.

Perceptual Learning Style Preference Questionnaire (PLSPQ). This instrument was developed by Reid (1987). This standardized questionnaire has been used in numerous studies that aimed at describing the perceptual learning style preferences of student participants (Dollah et al., 2023; Ghwela et al., 2023) The PLSPQ consists of 30 statements; each statement corresponds to the six categories of perceptual learning styles. A five-point Likert scale ranging from 1 'Never or rarely true of me' to 5 'Always or almost always true of me' was used for the questionnaire. The reliability coefficient, Cronbach alpha of the PLSPQ, was reported to be .82 (Tabanhoglu, 2003).

Motivations in Learning TLE Questionnaire. This 25-item questionnaire features learners' motivations towards learning TLE, as adopted from Corpuz (2009). Responses were measured using a five-point Likert-type scale, ranging from *Strongly Agree* to *Strongly Disagree.* The questionnaire has four sub-categories, which include (1) improvement of family situations, (2) personal achievement/satisfaction, (3) life skills application, and (4) achievement of skills in particular fields.

Data-Gathering and Analysis

Since the school year 2021-2022 was expected to implement alternative delivery modes still , the researcher distributed the questionnaires via online data collection platforms, such as Google Forms . This means that only those who accessed Google Forms participated in the present research, which was one of the inevitable limitations of conducting research during a pandemic.

The researcher scheduled the sending of the two survey questionnaires about the participant's perceptual learning styles and motivations in learning TLE, respectively. The questions to determine the profile of the respondents were also attached to the two main research instruments. Moreover, to ensure the comprehensibility and interpretability of the questions

contained in the survey questionnaires , the assistance of a Filipino teacher was sought. Data gathering was done during one of the participants' online classes.

Descriptive statistics such as frequency counts, percentages, and mean scores were utilized to describe the respondents based on their profile and academic performance in learning TLE. The correlations between similar scale variables were determined using the Pearson product moment correlation coefficient. For non-similar variables (i.e., scale and categorical variables), the Eta Coefficient Test was used. All statistical computations in the present study were done using the Microsoft Excel Program and the IBM Statistical Package for the Social Sciences (SPSS).

Results and Discussion

Profile of the Respondents

On Perceptual Learning Styles

Table 1

Summary of the Grade 8 Students' Profile as to their Perceptual Learning Styles

Perceptual Learning Style	Mean	Verbal Description
Visual	3.73	Very Inclined
Auditory	3.90	Very Inclined
Kinesthetic	3.86	Very Inclined
Tactile	3.71	Very Inclined
Group	3.31	Moderately Inclined
Individual	3.80	Very Inclined

Table 1 presents the preferences for the perceptual learning style of Grade 8 students. The data further show the specific learning styles, where the students have moderate to strong inclination.

The strong inclination of the students towards the auditory learning style could underscore the significance of teacher talk in nurturing students' listening and aural skills. In fact, in the study of Ameiratrini and Kurniawan (2021), it was concluded that students had positive perceptions and attitudes toward teacher talk because it enabled them to listen to teachers' questions, receive feedback and praises, motivations, and verbal clarifications. Teacher talk relates to the strong agreement of the Grade 8 students on how their teachers' verbal instructions help them understand things better. On the other hand, their moderate inclination towards group learning style may connect to the inapplicability of group-oriented activities in distance education, such as what the participants had experienced during the COVID-19 pandemic. As such, Ekblaw (2016) avers that

group learning experiences are rarely used in distance education compared to conventional, in-person learning.

On Motivations in Learning Technology and Livelihood Education (TLE),

Table 2

Summary of the Grade 8 Students' Profile as to their Motivations in Learning TLE

Motivations in Learning TLE	Mean	Verbal Description
Family Situations	2.92	Motivated
Personal Achievement/ Satisfaction	2.96	Motivated
Life Skills Application	2.97	Motivated
Achievement of Skills in Particular Fields	3.03	Motivated

Table 2 presents the participants' levels of motivation in terms of learning TLE. The Grade 8 students were generally motivated to acquire skills in particular fields, learn about life skills application, achieve personal satisfaction, and expand their learning on family situations. The type of motivation that received the highest mean score was the achievement of skills in particular fields. They include skills in handicrafts, entrepreneurship, fish production, masonry, carpentry, plumbing, accounting, food preparation, home care services, and agriculture. Achieving skill sets in technology and livelihood education requires exposure to practical skills that students can apply in different occupation fields . For instance, Taghibaygi et al. (2015) found that students' motivations in pursuing agriculture and vocational education in Iran were associated with the promotion of relevant information and on the acquisition of skills in technology for future occupation. Moreover, achieving practical skills benefits students and the world of work. Important practical skills also positively impact students' academic achievement (Shana & Abulibdeh, 2020).

On Other Profile Variables

Table 3

Other Profile Variables of the Grade 8 Students

Profile Variables		f	P
Sex	female	33	80.49%
Type of Academic Learning Support at Home	academic support from parents/guardians and other family members	23	56.10%
Alternative Learning Delivery Modalities Exposed To	printed modular distance learning	18	43.90%

Table 3 presents the central data about the remaining profile variables identified in this study. In terms of sex, it shows that the majority of the participants were female. The more dominant source of academic learning support at home was reported to be the support that the participants got from their parents/guardians and other members of the family. The printed modular distance learning option was also prevalent among the students.

The result on the sex profile supports the 2020 Global Gender Report of the World Economic Forum (WEF), where 71.3 percent of females were enrolled in secondary schools in the Philippines compared to the documented 60.2 percent of male enrollees. The data on parents or guardians and other family members as primary sources of learning support during students' remote learning bolsters the critical role of the family in children's home learning experiences. The guidance the parents specifically provide to their children plays a pivotal role in their holistic development, especially those knowledge, skills, and values beyond the bounds of academic orientation (Hernando-Malipot, 2020).

Lastly, alternative learning delivery modalities were tried and tested alternatives for education delivery within the confines of the formal education system (Department of Education, 2020). Most participants' choice of printed learning delivery modalities reveals the lack of alternative options to support the continuity of education amidst a health-related crisis. One of the things that challenged the Philippine education system was the lack of online facilities, such as strong Internet connectivity among Filipino households, including schools.

Academic Performance of the Grade 8 Students in TLE

Table 4

Academic Performance of Grade 8 Students in TLE

Academic Performance	f	P
Outstanding (90-100)	16	39.02 %
Very Satisfactory (85-89)	18	43.90 %
Satisfactory (80-84)	6	14.63 %
Fairly Satisfactory (75-79)	1	2.44 %
Did Not Meet Expectations (74 below)	0	0 %
TOTAL	41	100 %

Table 4 summarizes the average grades of the participants from the first and second grading periods of the aforementioned school year. The data show that many grades are classified under "very satisfactory" academic performance.

The average academic performance of the Grade 8 students in TLE was generally satisfactory, although the ideal scenario was for all students to achieve an outstanding academic performance.

To improve academic achievement, especially during the pandemic, many public school teachers conducted action research studies and proposed innovation projects across various disciplines. For instance, Rabano (2019) did action research on the effect of a specific strategy on remedial instructions in TLE. The results proved the effectiveness of immediately giving feedback and remediation to learners who were studying TLE at that time.

Relationship between Profile Variables and Academic Performance of Grade 8 Students in TLE

Table 5

Relationship between Grade 8 Students' Profile Variables and Academic Performance in TLE

Correlational and Directional Measures	Profile Variables	Academic Performance in TLE
Pearson Correlation	Perceptual Learning Styles	-0.17
Pearson Correlation	Motivations in Learning TLE	-1.98
Nominal by Interval (Eta)	Sex	.210
Nominal by Interval (Eta)	Type of Academic Learning Support at Home	.018
Nominal by Interval (Eta)	Alternative Learning Delivery Modalities Exposed to	.211

Table 5 shows the correlation values between the students' profile variables and their academic performance in TLE. It can be gleaned that from among the five profile variables, only sex and alternative learning delivery modalities were positively yet weakly correlated with the student's academic performance in TLE. The weak correlation between sex and academic performance is in concert with the study of Kupczynski et al. (2014) on the relationship between gender and the academic success of Education majors at a regional university, following the implementation of an online learning program. It was found that there were differences in the academic achievements of male and female students, with the former having a higher level of academic success in an online learning environment. The data could explain why a positive, weak correlation exists between students' sex and academic performance in TLE. From the numerical grades themselves, the majority of the students who got very satisfactory to outstanding academic performance were from the group of the female students. In terms of the research population, the male students were also outnumbered.

Inputs to Learning Recovery in the Philippines

The post-pandemic landscape in Philippine education is not far from the challenges experienced by other countries. In pursuit of learning recovery, the Department of Education had officially implemented Department Order No. 013, series of 2023, otherwise known as "Adoption of the National Learning Recovery Plan in the Department of Education." One of the primary goals of this plan is to strengthen the Department's learning recovery and continuity program , to which the present study proposes to contribute.

In terms of supporting learning recovery and continuity, the compelling need to anchor instruction and programs to meet students' needs must be emphasized. Creating learning materials is one way to bolster learning recovery in a post-pandemic era. Magno (2022) contends that learning recovery is best supported by accelerating learning. Each school district needs to ensure the provision of high-quality curriculum and instructional materials and ongoing individual learning intervention for learners. The creation of weekly home learning plans and learning activity sheets in TLE based on learners' perceptual learning style preferences and motivations in learning the subject corresponds to the preparedness that Philippine schools must foster in response to the changing learning modalities and the continuous threats of the pandemic that could cause possible school closures. Chipamaunga et al. (2023) aver that the global disruption caused by COVID-19 necessitates the continuity of delivering quality education, even in implementing emergency remote teaching. Once again, knowing that quality learning materials are readily available during an extraordinary school year i s the kind of preparedness schools must consider.

Aside from filling in the learning gaps caused by the recent pandemic, Magno (2022) notes that another priority area relates to academic support for learning at home and in the community. This means teaching teachers how to best involve other stakeholders in implementing home-based learning programs, not to mention monitoring learners' performance with the help of other community volunteers. Strengthening the ties between teachers and stakeholders, which could help in learning continuity amidst unexpected situations, could underscore proactive actions from both partners. For parents who could teach learners at home, communicating learning outcomes and easy-to-facilitate activities could be incorporated into standalone learning modules and home-based learning plans. The present study addresses this by ensuring that the proposed Weekly Home Learning Plans (WHLPs) and Learning Activity Sheets (LASs) in TLE are comprehensible enough for parents and other stakeholders to productively guide students and effectively monitor their academic performance at home.

Conclusion

This study focused on determining the relationship between the Grade 8 students' profile and academic performance in Technology and Livelihood Education. The findings of this study significantly address the need to explore and revisit the variables that could influence the academic achievement of the participants in a subject area that has been investigated in educational research in the Philippines to a lesser degree. This study occupies an important research space in empirically describing the status of education in the country through learner-relevant variables, such as perceptual learning style preferences, motivations in learning TLE, sex, and those that relate to alternative education during the pandemic, namely, the types of academic learning support at home and the alternative learning delivery modalities where students are subjected in.

First, identifying the perceptual learning style preferences of the Grade 8 students would help their TLE teachers design lessons and instructional materials geared towards instructional

accommodation and purpose-driven teaching. In the present study, the learners' most preferred perceptual learning styles were auditory, kinesthetic, and individual learning styles. For a TLE teacher, considering these learning style preferences in the lesson preparation could make a huge difference once they are taught either through modular or in-person teaching.

Motivations in learning TLE are also valuable in designing instruction. For this research variable, the findings underline the students' general motivation or academic drive to learn the subject. Once sources of motivation are successfully identified and nurtured, learning can easily follow. Consequently, using research data from students' sources of motivation ensures the design and implementation of a lesson that they perceive as interesting and relevant to their learning.

In correlating profile variables to academic performance, the purpose was to determine the factors that would positively contribute to the academic success of the Grade 8 students in the aforesaid learning area. Establishing the relationship between academic performance and perceptual learning styles, motivations in learning TLE, sex, type of academic learning support at home, and alternative learning delivery modalities could provide a look into what constitutes effective instruction in Technology and Livelihood Education.

Lastly, the study pushes forward the creation of relevant materials anchored on students' preferences and motivation in learning. As such, the weekly home learning plans could be designed based on students' perceptual learning style preferences and motivations in learning TLE. These are examples of materials that the Department of Education (DepEd) currently needs to evaluate. Provisions for effective instructional materials further reinforce the goals of the country's basic education learning continuity plan during a pandemic. Given that the modular-based approach and weekly home learning plans are entirely new mechanisms for learners and teachers alike, creating contextualized teaching-learning materials anchored on empirical results is deemed necessary.

One of the limitations of this study is the number of students who participated in the research process. Future researchers could address this by having a bigger research population to arrive at stronger and more reliable results. Furthermore, using more robust statistical methods, such as regression analysis, to identify the relationships among the variables could better strengthen the study's findings. Looking at the difference between the perceptual learning style preferences and learning motivations of students exposed to printed and digital modular distance learning modalities could serve as a research focus worthy of investigation. Other research prospects concerning the present study include developing more detailed research instruments to describe the academic learning support that students received during the pandemic. Another one would be a study that will deal with students' experiences in navigating education through the alternative learning delivery modalities implemented in their schools.

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Statements and Declarations

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