Predicting the Employability of Senior High School Graduates in Davao del Norte

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ABSTRACT

The purpose of this study was to predict the employability of senior high school graduates in S.Y. 2018-2019 in Davao del Norte Division employing quantitative study design, descriptive-status, and predictive methodologies among the given characteristics, including gender, school type, academics, academic award recipient, skills, values, and strand. The study's respondents were the 33 secondary schools offering senior high school programs found by simple random sampling, resulting in 1,530 cases of secondary data from graduates that were evaluated using frequency, percentage, mean, standard deviation, and binary logistic regression. According to the findings, the majority of senior high school graduates from large schools were girls. Furthermore, just around half of these graduates got any kind of academic honor in any semester. In general, the graduates performed well in academics, talents, and values. Furthermore, just around half of the graduates were unemployed. Those who were working back then were either contractual or casual employees, or part-time laborers dominated by GAS grads. Furthermore, gender and ICT strand were important predictors of employability, whereas the remaining factors did not contribute significantly to the model. The null hypothesis was rejected since the predictor coefficients in the binary logistic regression equation did not equal 0. Using the model, it was determined that TVL graduates, with the exception of ICT, had higher estimations of employability.

Keywords: employability, senior high school graduates, binary logistic regression model, Davao del Norte, Philippines

INTRODUCTION

Education equips individuals with the knowledge and skills necessary to navigate the labor market and reduce unemployment. Globally, higher educational attainment is associated with lower unemployment rates, as individuals with tertiary education are more likely to secure employment compared to those with less education (OECD, 2011). In the Philippines, unemployment remains a significant challenge. In 2019, 20.9% of college graduates and 28.2% of junior high school graduates were unemployed, a situation further exacerbated by the COVID-19 pandemic (Philippine Statistics Authority, 2019; De Vera, 2020).

Several studies have examined the factors influencing unemployment in the country. Urrutia et al. (2017) forecast Philippine unemployment at six to eight percent and identified the labor force, population, gross domestic product (GDP), and gross national income (GNI) as key determinants. Applying Okun's Law, Mojica and Tatlonghari (2017) found that unemployment is inversely related to output, with additional effects from past unemployment, labor force participation, and trade openness. Their study also highlighted structural breaks and time-varying effects, particularly during the late 1990s. Zayed et al. (2018) further discussed how unemployment affects demand, prices, and economic growth, emphasizing its interaction with GDP, wages, and inflation, especially during periods of stagflation. These findings underscore the growing competition for jobs in the Philippines and highlight the critical need to prepare graduates with the skills and competencies that enhance employability.

In response, the K to 12 Basic Education Curriculum aims to produce graduates who are productive and employable for both local and global markets. Senior High School (SHS) students select tracks—academic, technical-vocational, sports, or arts and design—that are designed to develop critical thinking, problem-solving, technical expertise, and creative collaboration (Department of Education, 2016; Orale & Sarmiento, 2016).

Despite these initiatives, many SHS graduates remain underprepared for employment, as employers often prefer college graduates, and graduates themselves report insufficient hard and soft skills (Orbeta et al., 2019; Valencia, 2019; Palafox, Lorenzo & Palafox, 2018). Career choices among students are significantly influenced by sociodemographic factors, family background, strand preference, and personal attitudes, highlighting the role of guidance in aligning abilities and interests with suitable career paths (Braza & Guillo, 2015). Indeed, unemployment among SHS graduates is often driven by a mismatch between their acquired skills and the occupations in demand within the local job market (Pajares et al., 2018).

In Davao del Norte, there is limited research on factors influencing the employability of SHS graduates. This study examines whether gender, school type, academic performance, awards, skills, values, and chosen strand can predict employment outcomes. Findings will inform the development of a Binary Logistic Regression Model to guide school administrators in advising graduates during exit conferences, helping them make informed decisions on whether to seek employment or pursue higher education.

THEORETICAL FRAMEWORK

This study is anchored on Holland's (1959, 1973) Theory of Vocational Choice, which explains how graduates are prepared for the world of work and how career decisions are formed. The theory posits that employability is largely determined by the alignment between an individual's skills, values, personality, and chosen vocation, in interaction with educational experiences, personal competence, and changing work environments. Moreover, Holland emphasized that students' choice of academic track or field of specialization influences the skills, abilities, and competencies they develop, which in turn affects their career opportunities, job satisfaction, and labor market competitiveness (Angle & Wissmann, 1981; Rocconi et al., 2015).

To further contextualize career decision-making and employment outcomes, the study also draws on Parsons' (1909) Trait and Factor Theory and Keynes' (1937) General Theory of Employment, Interest, and Money. Parsons' theory underscores the importance of matching individual traits—such as aptitudes, interests, and abilities—with suitable occupations to achieve optimal productivity and job fit. In contrast, Keynes' theory broadens the perspective by emphasizing that employment levels are influenced by aggregate demand, indicating that labor market opportunities depend not only on individual preparation but also on prevailing economic conditions. Together, these theories highlight the interaction between personal characteristics and macroeconomic forces in shaping employability.

The theoretical framework is further strengthened by Becker and Mincer's (1975) Human Capital Theory, which views education as an investment that enhances individuals' productivity and job performance through the acquisition of marketable skills. According to this theory, sustained investment in education and skills development increases employability and earning potential, underscoring the importance of aligning educational outcomes with labor market demands (Becker, 1975).

Statement of the Problem

The study was conducted to predict the employability of senior high school graduates in Davao del Norte using binary logistic regression model. Specifically, it aimed to answer the following questions:

1. What was the profile of the senior high school graduates in large, medium, and small schools in Davao del Norte in terms of:
    a. strand;
    b. gender;
    c. academic award recipient;
    d. academics;
    e. skills; and
    f. values?

2. What was the status of employability of the senior high school graduates in Davao del Norte?

3. What were the predictors of employability of the senior high school graduates in Davao del Norte?

4. What was the binary logistic regression model on the employability of senior high school graduates in Davao del Notre?

Hypothesis

The following hypothesis was formulated from the statement of the problem and was tested at 0.05 level of significance.

H_0: All the coefficients of the predictors: gender, school type, academics, academic award recipient, skills, values, and strand in the regression equation took the value of 0.

METHODOLOGY

Research Design

This study employed a quantitative research design using descriptive-status and predictive approaches to examine the employability of senior high school graduates in Davao del Norte based on gender, school type, academics, academic awards, skills, values, and strand. Descriptive research described the characteristics of the population, while predictive modeling anticipated the variation in employability based on these factors. To develop a forecasting model, binary logistic regression was used to estimate the relationship between a dichotomous dependent variable (employed vs. unemployed) and multiple independent variables. The assumptions for logistic regression were checked to ensure validity, and secondary data from various schools in Davao del Norte were analyzed to construct the predictive model.

Research Locale

This quantitative study was conducted in the Division of Davao del Norte, covering 33 secondary schools offering Senior High School across eight municipalities, selected through simple random sampling. The subjects were SHS graduates from S.Y. 2018–2019, and all available records from the selected schools were included, resulting in 1,530 cases with complete data on gender, school type, academics, awards, skills, values, and strand. Sample size was calculated using the standard formula for proportions and adjusted for finite population. Complete enumeration was attempted within the random sample, though some schools did not participate or provided incomplete data, particularly larger schools, limiting full representation. Schools and graduates were allowed to withdraw under a confidentiality agreement. Consequently, while the study provides insights into employability predictors of SHS graduates in Davao del Norte, results cannot be fully generalized to all schools in the division or region.

Data Source

This study utilized secondary data of Senior High School graduates from S.Y. 2018–2019 in the selected schools of Davao del Norte. Graduates were profiled by gender (0 = male, 1 = female), strand (1 = STEM, 2 = ABM, 3 = HUMSS, 4 = GAS, 5 = HE, 6 = AFA, 7 = IA, 8 = ICT), academics (general average from Grades 11–12), academic awards (0 = no, 1 = yes), skills (average grade in specialized subjects), values (average grade in Personality Development and Introduction to Philosophy of the Human Person), and school type (1 = large, 2 = medium, 3 = small). Only these variables were used to predict employability through a binary logistic regression model, and other potential predictors were not included.

Satisfied Assumptions of the Binary Logistic Regression

This study ensured that all assumptions for binary logistic regression were met. The dependent variable, employability of SHS graduates, was binary (0 = not employed, 1 = employed), while seven independent variables included gender, school type, academics, academic award recipient, skills, values, and strand, which were categorical, dichotomous, or continuous. Observations were independent, and a scatter plot showed a

random pattern. Multicollinearity was assessed using Variance Inflation Factor (VIF), with values of gender = 1.156, school type = 1.163, academics = 4.521, academic award recipient = 2.107, skills = 1.054, values = 3.709, and strand = 1.122, indicating no multicollinearity. Outliers were checked using residual analysis and Cook's Distance; standardized residuals were below 2, residuals below 1, and only one Cook's Distance value (row 1310) was considered negligible.

Linearity between continuous independent variables and the logit of the dependent variable was evaluated using the Box-Tidwell procedure. Results showed school type = 0.867, strand = 0.000, academics = 0.100, skills = 0.986, and values = 0.524. Except for strand, all variables demonstrated linearity with the logit. Dichotomous variables (gender and academic award recipient) were exempt from this test. Finally, a large sample size of 1,530 graduates was used, exceeding the minimum requirement of 700 cases based on the rule of at least 10 cases per independent variable, ensuring stable maximum likelihood estimates.

Data Analysis

The data gathered was analyzed and interpreted through the following statistical tools: frequency, percentage, mean, standard deviation, and binary logistic regression.

Ethical Considerations

The researcher took special precautions to guarantee that respect, beneficence, and justice were respected in accordance with the norms outlined by the Davao del Norte State College Ethics Review Committee. Consent, voluntary participation, privacy and secrecy, risk identification and mitigation, and identification of possible benefits were used to accomplish this during the study's data collection and writing process. Throughout the investigation, several ethical difficulties such as plagiarism, fabrication, falsification, conflict of interest, deception, observation authorization from an organization or place, and authorship were noticed.

RESULTS AND DISCUSSION

Profile of Senior High School Graduates in Davao del Norte

The following tables and discussions focus on the profile of senior high school graduates in large, medium, and small schools in Davao del Norte for S.Y. 2018-2019 in terms of strand, gender, academic award recipient, academics, skills, and values.

Profile of the Senior High School Graduates in Large Schools

Table 1a shows the profile of the senior high school graduates for S.Y. 2018-2019 who belong to large schools in Davao del Norte in terms of strand, gender, academic award recipient, academics, skills, and values. For the academic track, majority of the graduates are females having a difference of 33.34 percent (33.34%) with respect to males. For both genders, the highest number is noted in GAS while the lowest are ABM and STEM. This also coincides with the study of Orbeta et al. (2019) that the most commonly taken strand among the students is GAS. That is why GAS strand is commonly offered, then followed by TVL strands.

Table 1a: Profile of Senior High School Graduates in Large Schools

	Strand	**Gender**		**Academic Award Recipient**		**Academics**		**Skills**		**Values**	
		Male	**Female**	**Yes**	**No**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
I. Academic Track											
1	Science, Technology,	17	31	39	9	91.04	2.85	89.58	3.40	91.49	3.41
	Engineering & Mathematics (STEM)					**(88-94)**		**(86-93)**		**(88-95)**	
2	Accountancy, Business & Management (ABM)	2	20	7	15	89.29 **(86-93)**	2.83	87.08 **(83-91)**	3.50	92.00 **(87-97)**	4.71

3	Humanities & Social Sciences	53	93	51	95	88.55 **(85-92)**	3.06	88.21 **(80-96)**	7.39	88.88 **(83-94)**	5.05
4	General Academic Strand (GAS)	54	108	46	116	87.69 **(83-91)**	3.96	87.07 **(82-92)**	4.13	87.06 **(82-93)**	5.06
		126	252	143	235						
	Sub-total	**378**		**378**							
	Percentage	33.33%	66.67%	37.83%	62.17%						
	Average					89.14 **(85-93)**	3.18	87.99 **(83-93)**	4.61	89.86 **(85-95)**	4.56
II. Technical-Vocational-Livelihood Track											
5	Home Economics (HE)	19	72	32	59	88.41 **(84-92)**	3.55	89.19 **(85-94)**	3.87	87.82 **(83-93)**	4.77
6	Agri-Fishery Arts (AFA)	15	8	5	18	84.95 **(80-89)**	4.03	90.47 **(86-95)**	3.93	83.61 **(77-90)**	5.84
7	Industrial Arts (IA)	143	9	8	144	85.74 **(83-89)**	2.74	85.19 **(81-90)**	4.16	86.03 **(81-91)**	4.33
8	Information & Communications Technology (ICT)	13	31	6	38	89.42 **(87-92)**	1.89	85.51 **(83-88)**	2.48	83.97 **(78-89)**	5.01
		190	120	51	259						
	Sub-total	**310**		**310**							
	Percentage	61.29%	38.71%	16.45%	83.54%						
	Average					87.13 **(88-94)**	3.05	87.59 **(83-92)**	3.61	85.36 **(80-91)**	4.99
		316	372	194	494						
	Total	**688**		**688**							
	Percentage	45.93%	54.07%	28.20%	71.80%						
	Average					88.13 **(85-92)**	3.11	87.79 **(83-92)**	4.11	87.61 **(82-93)**	4.78

The low number of graduates pursuing STEM fields has been widely documented in the literature. Drew (2011) reported that approximately 40–60% of K–12 and post-secondary students at the University of California, Los Angeles (UCLA) who initially majored in engineering and science either shifted to other fields or failed to complete a degree due to declining interest in STEM. Consistent with this finding, the National Science Board (2012) and Osborne and Dillon (2008) observed that many countries, including the United States and several European nations, are experiencing a sustained decline in student interest in STEM-related subjects.

Despite this global trend, academic performance data reveal notable differences across strands. In terms of academic awards, the STEM strand recorded the highest percentage of awardees at 81.25%, while the General Academic Strand (GAS) posted the lowest. Overall, graduates achieved a mean academic grade of 89.14%, classified as very satisfactory, with grades ranging from 85% to 93%. The STEM strand again obtained the highest mean academic grade, whereas GAS ranked lowest. A similar pattern was observed in skills performance, where graduates posted a mean grade of 87.99%, also described as very satisfactory, with grades ranging from 83% to 93%. STEM students continued to outperform other strands, while GAS consistently recorded the lowest mean scores.

These performance outcomes align with earlier studies emphasizing the academic rigor of STEM education. Mamolo (2019) found that only the STEM strand demonstrated a commendable level of proficiency in Mathematics, with a significant gap compared to other strands. Similarly, Carnevale et al. (2011) emphasized that students in STEM programs are expected to achieve higher levels of educational attainment due to the intensive focus on science and mathematics disciplines. Reflecting this proficiency, the United States

increasingly depends on highly educated foreign-born STEM professionals. Foreign-born workers constitute approximately 17% of the domestic STEM workforce, with representation rising to 18% in computer-related occupations and 25% in life and physical science fields.

Profile of the Senior High School Graduates in Medium Schools

Table 1b shows the profile of the senior high school graduates for S.Y. 2018-2019 who go to medium schools in Davao del Norte in terms of strand, gender, academic award recipient, strand, academics, skills, and values. Noticeably, medium schools do not offer the following strands: STEM, ABM, HUMSS, and ICT. This infers that most of the medium schools are located away from the municipal commercial districts where most of the offerings are dependent on the community, job availability, and school facilities. Some of the strands that are not offered are not in demand in the communities of the medium schools, or the schools have no capacity to provide the laboratories, equipment, and teaching personnel to bravely open the strand for learners to maximize their options in senior high school.

Table 1b: Profile of Senior High School Graduates in Medium Schools

	Strand	**Gender**		**Academic Award Recipient**		**Academics**		**Skills**		**Values**	
		Male	**Female**	**Yes**	**No**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
I. Academic Track											
1	General Academic Strand (GAS)	89	105	63	131	85.72 **(80-91)**	4.99	89.58 **(81-98)**	8.26	86.25 **(80-93)**	5.94
		89	105	63	131						
	Sub-total	**194**		**194**							
	Percentage	45.88%	54.12%	32.47%	67.53%						
	Average					85.72 **(80-91)**	4.99	89.58 **(81-98)**	8.26	86.25 **(80-93)**	5.94
II. Technical-Vocational-Livelihood Track											
2	Home Economics (HE)	20	112	39	93	85.77 **(80-92)**	5.56	87.58 **(81-95)**	6.44	85.57 **(79-92)**	5.79
3	Agri-Fishery Arts (AFA)	56	58	31	83	85.90 **(81-90)**	3.96	87.01 **(82-92)**	4.60	86.37 **(81-91)**	4.43
4	Industrial Arts (IA)	74	12	4	82	81.93 **(78-86)**	3.93	82.44 **(77-87)**	4.52	81.77 **(77-86)**	4.05
		150	182	74	258						
	Sub-total	**332**		**332**							
	Percentage	45.18%	54.82%	22.29%	77.71%						
	Average					84.53 **(80-90)**	4.48	85.68 **(80-91)**	5.19	84.57 **(79-90)**	4.76
		239	287	137	389						
	Total	**526**		**526**							
	Percentage	45.44%	54.56%	26.05%	73.95%						
	Average					85.13 **(80-90)**	4.74	87.63 **(80-93)**	6.73	85.41 **(80-91)**	5.35

Within the academic track, only the General Academic Strand (GAS) is offered by medium-sized schools. The majority of GAS graduates are female, exceeding male graduates by 8.24%. The popularity of GAS among schools may be attributed to its relatively minimal requirement for specialized facilities and equipment, as its subjects primarily focus on core competencies. As noted by Gatpandan et al. (2019) and Espino et al. (2017),

GAS is the most viable strand for many schools because it provides graduates with flexibility, allowing them to decide after senior high school whether to pursue higher education or explore other career options.

However, the limited availability of strands reflects broader implementation challenges in the Senior High School (SHS) program. Orbeta et al. (2019) observed that no public or private school offers all eight SHS strands, suggesting varying levels of readiness across schools nationwide. This limitation constrains students' access to diverse skill sets needed for post-graduation employment. Similarly, Perez (2018) reported that school administrators face significant challenges, including shortages of instructional tools and limited space for additional classes. These findings underscore the need for more training programs and capacity-building seminars for school heads and principals overseeing the SHS program.

In terms of academic performance, approximately three out of ten GAS graduates received academic awards. Their academic grades ranged from 80% to 91%, corresponding to a proficient level. Skills grades showed greater variability, ranging from 81% to 98%, while values grades averaged 86.25%, also described as proficient. Despite these generally satisfactory outcomes, Ramos (2018) argued that the critical thinking skills of GAS students are not yet fully developed. His findings indicate that many GAS learners remain at the beginning thinker level and have not attained the expected proficiency in critical thinking.

Beyond the academic track, the most commonly offered strands in medium-sized schools fall under the Technical-Vocational-Livelihood (TVL) track. Female graduates dominate enrollment in this track, with Home Economics (HE) recording the highest number of graduates and Industrial Arts (IA) the lowest. In contrast, most male graduates enrolled in IA, while only a few opted for HE. Overall, Agriculture and Fisheries Arts (AFA) and IA emerged as popular choices among learners, consistent with Orale and Sarmiento's (2016) observation that the K to 12 curricula in the Philippines and Japan are well-defined, with industry- and fishery-related courses being the most preferred within the TVL track.

Regarding academic recognition under the TVL track, about eight out of ten graduates did not receive any academic awards. The highest proportion of honor students came from the HE strand, while IA recorded the lowest. Academically, TVL graduates obtained an approaching proficiency mean grade, with scores ranging from 80% to 90%. HE posted the highest mean academic grade, whereas IA ranked lowest. A similar pattern was observed in skills performance, with a mean grade of 85.68% (proficient) and a range of 80% to 91%. Consistent with academic results, HE outperformed the other strands, while IA remained at the lowest rank. Finally, values grades under the TVL track were classified as approaching proficiency, with AFA recording the highest mean and IA consistently posting the lowest.

Profile of the Senior High School Graduates in Small Schools

Table 1c shows the profile of the senior high school graduates for S.Y. 2018-2019 from small schools in Davao del Norte in terms of strand, gender, academic award recipient, academics, skills, and values. It can be observed that small schools do not offer STEM, ABM, and IA. Aside from the leading strand which is GAS, only a few graduates are products of other strands. As it is almost consistent with medium schools, small schools located in far-flung areas with limited number of students and scarce resources including classroom and laboratories opt to offer strands which require less equipment and workshop buildings.

Table 1c: Profile of Senior High School Graduates in Small Schools

	Strand	**Gender**		**Academic Award Recipient**		**Academics**		**Skills**		**Values**	
		Male	**Female**	**Yes**	**No**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
I. Academic Track											
1	Humanities & Social Sciences	5	4	2	7	83.00 **(78-88)**	4.61	83.58 **(80-87)**	3.38	83.44 **(79-88)**	4.69
2	General Academic Strand (GAS)	108	130	82	156	85.34 **(79-91)**	5.48	85.36 **(79-91)**	5.42	85.20 **(79-91)**	5.74
		113	134	84	163						

	Sub-total	**247**		**247**							
	Percentage	45.75%	54.25%	34.01%	65.99%						
	Average					84.17 **(79-90)**	5.05	84.47 **(80-89)**	4.40	84.32 **(79-90)**	5.22
II. Technical-Vocational-Livelihood Track											
3	Home Economics (HE)	9	11	1	19	82.00 **(7985)**	2.75	83.00 **(78-88)**	4.34	77.55 **(75-80)**	2.19
4	Agri-Fishery Arts (AFA)	10	16	7	19	85.08 **(79-91)**	5.77	86.95 **(81-93)**	5.92	86.5 **(80-93)**	5.56
5	Information & Communications Technology (ICT)	11	12	11	12	87.74 **(83-92)**	3.93	86.68 **(82-92)**	4.58	87.93 **(84-92)**	3.73
		30	39	19	50						
	Sub-total	**69**		**69**							
	Percentage	43.48%	56.52%	27.54%	72.46%						
	Average					84.94 **(80-90)**	4.15	85.54 **(80-91)**	4.95	83.99 **(80-88)**	3.83
		143	173	103	213						
	Total	**316**		**316**							
	Percentage	45.25%	54.75%	32.59%	67.41%						
	Average					84.56 **(79-90)**	4.60	85.01 **(80-90)**	4.68	84.16 **(79-89)**	4.53

In small schools, a persistent challenge is the limited number of teachers, which constrains the range of strands that can be offered. Schools often struggle to provide highly technical subjects because many teachers do not specialize in the required areas, particularly in the Technical-Vocational-Livelihood (TVL) track, where most strands require instructors with National Certificate II (NC II) qualifications. As a result, learners are frequently unable to pursue their preferred interests due to the limited tracks and strands available in small schools, regardless of their career aspirations.

Consistent with this reality, while a majority of stakeholders remain optimistic about the success of the K to 12 program (Acosta, 2016; Perez, 2018), not all schools are adequately prepared to implement the Senior High School (SHS) curriculum (Acosta, 2016). Specifically, Acosta (2016) reported that 18.6% of schools indicated they were not ready, 2.8% were uncertain or only partially ready, and 4.3% provided no response regarding their readiness. These findings highlight uneven implementation capacity across schools.

Further evidence from school administrators reinforces these concerns. Perez (2018) noted that despite the availability of some facilities for SHS tracks, many schools still require substantial improvements. In some cases, space limitations have forced SHS classes to be housed in neighboring elementary school buildings rather than in dedicated facilities. This situation aligns with Magpayo's (2018) findings, which identified insufficient funding as a major constraint, leading to shortages in equipment, facilities, and instructional materials. Moreover, school leaders reported challenges in managing and implementing the SHS program due to limited supervision and inadequate managerial skills.

Within the academic track, female graduates outnumber males by 8.5%. Of the total enrollment, approximately 5% are from the Humanities and Social Sciences (HUMSS) strand, while the remaining majority belong to the General Academic Strand (GAS). This distribution supports earlier findings that learners predominantly prefer the GAS due to its flexibility and broader post-secondary options (Orbeta et al., 2019; Newhouse & Suryadarma, 2009; Orale & Sarmiento, 2016).

In terms of academic recognition, more than half of academic track graduates did not receive awards in any semester, with GAS accounting for the largest share of non-awardees. The overall mean academic grade was classified as approaching proficiency, ranging from 79% to 90%, with GAS obtaining the highest mean grade. Skills performance similarly reflected an approaching proficiency level, with mean grades ranging from 80% to 89%, while HUMSS recorded the lowest mean score. Values grades followed the same pattern, remaining at an approaching proficiency level, with GAS consistently leading among the academic strands.

In the TVL track, female graduates again constituted the majority, with the highest enrollment observed in Agriculture and Fisheries Arts (AFA) and the lowest in Home Economics (HE). Among male graduates, Information and Communications Technology (ICT) recorded the highest enrollment, while HE remained the least chosen strand. This pattern corroborates the findings of Ankoma-Sey et al. (2019) and Ode et al. (2013), who reported a steady decline in HE enrollment, partly due to the negative perception associated with the program. Ovute (2001) further attributed this decline to the lack of equipment and facilities for practical work, as well as the high cost of specialization across educational levels.

A closer examination of academic performance under the TVL track shows that nearly three out of ten graduates received academic awards, with ICT having the highest proportion of awardees and HE the lowest. Academically, TVL graduates achieved an average grade approaching proficiency, with scores ranging from 80% to 90%. ICT recorded the highest mean grade, ranging from 79% to 85%, while HE posted the lowest. This performance advantage among ICT students may be attributed to their stronger inclination toward mathematics, creative arts, information technology, and office-related competencies, as noted by Mamolo (2019).

Status of Employability of Senior High School Graduates in Davao del Norte

The employability rate of the graduates indicates that only 18.10% of them were employed, with males comprising the majority and exceeding females by 4.51% (Table 2). This pattern aligns with Meng's (2012) study in China, which documented higher employment rates among men between 2002 and 2009. Supporting this observation in the Philippine context, Montalvo (2006) reported that male labor force participation in the country was among the highest in the Asian region. In 2019, for instance, three out of five employed Filipinos (61.3% of an estimated 41.4 million) were males (Philippine Statistics Authority, 2019), while women's participation rate remained below the regional average (Cifre et al., 2018; Montalvo, 2006).

Further analysis of employment characteristics shows that two in every ten graduates were employed, with the majority working as contractual or casual employees, followed by part-time workers. This trend is consistent with Allen's (2012) findings in Indonesia, where part-time employment has been rising and contributing to broader employment opportunities, although casual work still predominates among men. In the Philippines, however, Morada and Manzala (2001) argue that the high proportion of young part-time workers—especially those who have not pursued college education—reflects a significant skills mismatch, highlighting challenges in aligning graduates' competencies with labor market demands.

Table 2: Status of Employability of Senior High School Graduates in Davao del Norte

	Strand	**Status of Employability**										
		Employed								**Not Employed**		
		Male				**Female**				**Male**	**Female**	**Total**
		PT	**CN**	**RE**	**Total**	**PT**	**CN**	**RE**	**Total**			
I. Academic Track												
1	Science, Technology, Engineering & Mathematics (STEM)	0	0	0	0	0	0	0	0	17	31	48
2	Accountancy, Business & Management (ABM)	0	0	0	0	0	3	0	3	2	17	19

3	Humanities & Social Sciences	3	1	0	4	1	2	0	3	54	94	148
4	General Academic Strand (GAS)	17	41	0	58	21	29	0	50	191	295	484
II. Technical-Vocational-Livelihood Track												
5	Home Economics (HE)	11	7	0	18	9	16	0	25	30	170	200
6	Agri-Fishery Arts (AFA)	1	21	0	22	0	13	0	13	59	69	128
7	Industrial Arts (IA)	26	39	1	66	3	2	0	5	153	14	169
8	Information & Communications Technology (ICT)	3	1	0	4	2	2	0	4	20	39	59
	Total	**61**	**110**	**1**	**172**	**36**	**67**	**0**	**103**	**526**	**7729**	**1255**
	Percentage				11.24%				6.73%			82.03%

*PT is Part-Time

*CN is Contractual or Casual

*RE is Regular or Permanent

Furthermore, among the graduates who secured employment, top performers were primarily from the GAS strand, followed by Industrial Arts (IA). While TVL graduates possess specific technical skills that allow them to enter the workforce immediately at a market wage, graduates from general education strands often require additional preparation and on-the-job training provided by employers to develop the competencies needed to meet labor market demands (Newhouse & Suryadarma, 2009). In both cases, vocational schooling offers an initial advantage, although its impact may diminish over the course of a career.

More than half of the graduates chose to pursue college or university, start a business, or forgo immediate employment, particularly among STEM strand graduates. This indicates that many senior high school graduates do not view immediate employment as their primary post-graduation path, instead favoring further education or alternative opportunities. A similar trend has been observed among senior high school graduates in Indonesia, where unemployment is relatively high (Allen, 2012). Newhouse and Suryadarma (2009) further explain that high university enrollment may contribute to temporary unemployment, as graduates from general education strands are more likely to attend university, resulting in periods of job searching before securing positions that match their qualifications.

Predictors of Employability of the Senior High School Graduates in Davao del Norte

Table 3 displays the determinants of employment for S.Y. senior high school graduates. Davao del Norte, 20182019. The Wald test was used to calculate the statistical significance of each independent variable included in the "Sig." column. From these results, it can be noted that gender (p=.000) and ICT strand (p=.007) added significantly to the model/ prediction, but academic award recipient (p=.717), large school type (p=.306), medium school type (p=.572), small school type (p=.154), STEM strand (p=.997), ABM strand (p=.471), HUMSS strand (p=.079), GAS strand (p=.255), HE strand (p=.141), AFA strand (p=.113), IA strand (p=.084), academics (p=.387), skills (p=.947), values (p=.374), and constant (p=.190) did not add significantly to the model.

With higher Wald statistic for gender and ICT, it derived a significant contribution to the model (Bruin, 2006). Furthermore, this meant that the independent variables which were not significant may had no impact on the

model (Bewick et al., 2005; Bruin, 2006; Park, 2013). Significantly, lowest Wald results observed at skills, STEM strand, and academic award recipient produce less significance values.

Table 3: Predictors of Employability of the Senior High School Graduates

Predictor		****Wald**		***Sig.**
Gender		12.559		.000
School Type				
Large		0.32000		.306
Medium		2.030		.572
Small		2.371		.154
Academics		0.747		.387
Academic Award Recipient		0.131		.717
Skills		0.004		.947
Values		0.791		.374
Strand				
STEM		0.000		.997
ABM		0.519		.471
HUMSS		3.086		.079
GAS		1.297		.255
HE		2.172		.141
AFA		2.515		.113
IA		2.991		.084
ICT		19.514		.007
Constant		1.720		.190

*$(p < .05 = significant, p \geq .05 = not\ significant)$

**The higher the Wald, the greater the significance value.

This finding aligns with See and See (2016), who observed that gender among graduates can influence their choice of course, current employment, and occupation. Similarly, Cifre et al. (2018) and Karli (2016) confirmed that perceived employability is often associated with sex and gender, with females frequently considering themselves less employable than males (Karli, 2016). However, Johnson (2018) found that gender did not significantly affect the employability of African American engineering graduates, suggesting that the influence of gender may vary depending on context and field of study.

School type also plays a role in shaping employability outcomes. Learning institutions must align their programs with global labor market demands, focusing on the skills required for graduate employability (Ciriaci & Muscio, 2014). In the United States, graduates from higher education institutions that receive state support were perceived as better prepared for the workforce, particularly in technological, advanced, problem-solving, interpersonal, communication, decision-making, and management skills (Alston et al., 2009; Johnson, 2018). Nonetheless, Johnson (2018) also argued that the type of institution alone does not reliably predict employability. In the context of public schools in the region, few institutions have reported facilities or government support comparable to international standards.

In addition to gender and school type, specific competencies strongly influence employability. Mishra et al. (2017) found that students' non-technical skills—such as reasoning, logical ability, and soft skills—were stronger predictors of employability than technical or academic performance. Greiman (2018) similarly reported that extracurricular activities, emotional intelligence, and academic achievements were not significant predictors of

employability. These findings support the present study's results, which indicate that graduates' academics, skills, and values, including recognition as academic award recipients, are closely related to their employability outcomes.

Binary Logistic Regression Model on the Employability of Senior High School Graduates in Davao del Norte

Hierarchal binary logistic regression model was used to test the contributions of gender, school type, academics, academic award recipient, skills, values, and strand in predicting the likelihood that the graduates be employed. Table 4 shows the results of the hierarchal binary logistic regression where the variables gender, school type, academics, academic award recipient, skills, values, and strand were entered into the model. The values for the logistic regression equation for predicting the dependent variable from the independent variable are represented in Column B. They were measured in log-odds units. These estimates describe the association between predictors and senior high school graduates' employability, where the dependent variable is on a logit scale. These estimates indicate the amount of increase (or drop, if the coefficient's sign is negative) in the expected log chances when all other predictors are held constant. Gender, school type, academics, values, STEM strand, and HUMSS strand all have a negative coefficient.

Table 4: Binary Logistic Regression Model on the Employability of Senior High School Graduates in Davao del Norte

Predictor	**B**	**S.E.**	****Wald**	**df**	***Sig.**	**Odds ratio Exp (B)**
Gender	-.574	.162	12.559	1	.000	.563
School Type						
Large	-.124	.220	0.320	1	.306	.883
Medium	-.303	.212	2.030	1	.572	.739
Small			2.371	2	.154	
Academics	-.028	.032	0.747	1	.387	.973
Academic Award Recipient	.089	.244	0.131	1	.717	1.093
Skills	.000	.004	0.004	1	.947	1.000
Values	-.022	.025	0.791	1	.374	.978
Strand						
STEM	-18.909	5741.819	0.000	1	.997	.000
ABM	.542	.753	0.519	1	.471	1.720
HUMSS	-.977	.556	3.086	1	.079	.376
GAS	.469	.412	1.297	1	.255	1.598
HE	.640	.434	2.172	1	.141	1.897
AFA	.718	.452	2.515	1	.113	2.049
IA	.754	.436	2.991	1	.084	2.125
ICT			19.514	7	.007	
Constant	2.675	2.040	1.720	1	.190	14.518

*$(p < .05 = significant, p \geq .05 = not\ significant)$

**The higher the Wald, the greater the significance value.

Furthermore, the coefficients in the logistic regression model were reported along with their standard errors (S.E.), which indicate the precision of the estimated parameters. Statistical significance was determined by

dividing each estimated parameter by its standard error to obtain the t-value. Coefficients with p-values smaller than the alpha level were considered statistically significant, and higher Wald values indicated stronger significance. As shown in the table, the p-value for gender was 0.000, while the p-value for the ICT strand was 0.007, leading to the rejection of the study's null hypothesis. This indicates that gender and the ICT strand uniquely contributed to predicting employability, whereas the remaining predictor variables did not.

The odds ratio further clarified these effects. Females had an odds of employability of 0.563 relative to males. Graduates from the AFA and IA strands had greater odds of employability, with values of 2.049 and 2.125, respectively, compared to other strands. In contrast, STEM graduates had an odds ratio of 0.000, consistent with the data showing that none of the STEM graduates were employed. After controlling for gender and the ICT strand, the other predictors no longer contributed significantly to employability outcomes.

These findings are consistent with broader labor market observations. The Pathways to Prosperity Project (2011) reported that many companies experience a shortage of candidates with STEM-related skills and competencies, leaving numerous job opportunities unfilled. Similarly, UNESCO (2015) highlighted that the existing education system does not adequately equip students with the science and technology skills required for 21st-century employment.

The logistic regression model was utilized to estimate the probability that an individual was in a particular outcome category. In this model, there were seven predictors: $X_1 = Gender$, $X_2 = School\ Type$, $X_3 =$

$Academics$, $X_4 = Academic\ Award\ Recipient$, $X_5 = Skills$, $X_6 = Values$, and $X_7 = Strand$. In calculating,

$$\boldsymbol{U^i = Constant + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_6 + B_7X_7.}$$

In estimating the probability of employability, the formula $\hat{Y}_i = {}_{1}\_\_\_\_\_+{}^{eUi}{}_{eUi}$, where $\hat{Y}_i$ was the probability of employability, e was the base of the natural log (2.71828…) was utilized.

CONCLUSION

The majority of graduates were females, indicating that more females enrolled in and completed senior high school. This trend was particularly evident in the GAS strand, where large schools had a higher female enrollment due to the strand's wide range of post-graduation options. Many graduates performed at an average level, which meant that a significant number did not receive academic awards, as their grades in academics, skills, and values did not reach advanced levels. Small and medium-sized schools also faced challenges in offering all SHS tracks and strands due to limited funding, resources, equipment, facilities, and teaching personnel.

Regarding employability, less than half of the graduates were employed, largely because their academic training did not align with the demands of the labor market. Those who were employed were primarily engaged in contractual, casual, or short-term work, with most coming from the GAS strand.

Analysis of the predictors of employability showed that gender was a significant factor, with females having a higher likelihood of employment in this cohort. Among the different strands, ICT graduates had the highest employability. The logistic regression results further indicated that the coefficients for all predictors—including gender, school type, academics, academic award recipient, skills, values, and strand—were non-zero, highlighting their potential influence on employability.

RECOMMENDATIONS

The researcher recommends encouraging female students to enroll in the GAS strand. It is also advised that schools, particularly large ones, continue offering the GAS strand, as the study revealed that most senior high school graduates preferred this track. Teachers are encouraged to help students achieve higher academic performance by enhancing instructional delivery, utilizing audio-visual materials effectively, and providing more hands-on learning opportunities, since many graduates did not receive academic awards.

Small and medium-sized schools are also encouraged to advocate for additional funding and support to fully equip their institutions, enabling them to offer a wider range of tracks and strands. This would provide learners with more options, as these schools currently have limited offerings. The administration is further advised to conduct feasibility studies for small schools (considering STEM, ABM, and IA) and medium schools (STEM, ABM, HUMSS, and ICT) to determine the viability of expanding strand offerings.

In alignment with industry requirements, the Department of Education and other stakeholders should ensure that the curriculum equips graduates with the skills needed to meet labor market demands. Many graduates have not yet achieved the goal of becoming job-ready. Therefore, senior high school students, especially those in the GAS strand, should be supported through targeted instruction to better prepare them for employment after graduation.

The school administration is also advised to closely monitor the impact of gender on employability. DepEd officials may track whether ICT strand performance continues to influence employability in future cohorts. Although other strands did not show significant effects in the current model, it is recommended that their outcomes also be monitored. Additional factors not included in the binary logistic regression model—such as age, work-related experience, national certifications, and family income—should also be considered for their potential influence on employability.

Parents, guidance counselors, and Youth Formation Program coordinators are encouraged to guide female students toward the ICT strand, as graduates from this strand demonstrated a higher likelihood of employment. The binary logistic regression model can be applied to predict employability in subsequent cohorts, and followup studies across other schools in the region may provide further insights into strand-specific employability trends.

Limitations of the Study

This study is subject to several limitations that should be considered when interpreting the findings. First, the use of secondary data limited the variables included in the analysis to those available in school records, excluding other potentially important predictors of employability such as age, work experience, national certifications, family income, motivation, and employer perceptions. Second, although the sample included 1,530 graduates, data were drawn only from selected schools in Davao del Norte, and incomplete participation from some large schools constrained full representation, limiting the generalizability of the results to other divisions or regions. Third, employability was measured as a binary outcome (employed or unemployed) at a specific point in time, which did not capture job quality, job stability, income level, or transitions into employment over time. Finally, while binary logistic regression identified significant predictors, the model explained employability only within the scope of individual and school-related factors and did not account for broader labor market conditions, industry demand, or macroeconomic influences that may also shape employment outcomes of senior high school graduates.

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