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21st century skills of selected K - 12 graduate students in Victoria senior high school: Input and basis for curriculum enhancement

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Abstract

In the 21st century, the demand for individuals with specific skills has increased rapidly due to the fast-paced and constantly evolving nature of our society. The workplace has become more competitive, and employers are seeking employees with a diverse set of skills that go beyond academic knowledge. Thus, it is crucial to equip K-12 students with these 21st century skills to ensure their success in the future. This study aimed to determine the level of 21st century skills of selected K-12 graduate students in Victoria Senior High School and identify the gaps and areas for improvement in the current curriculum. A total of 84 graduate students were selected using purposive sampling from the different senior high school programs offered by the school in Victoria Senior High Public School and 30 graduate students were selected in Private School. The 21st century skills were measured using a self-reported questionnaire adapted from a self-made questionnaire. The results showed that the overall level of 21st century skills of the students was outstanding, with information, media, and technology, learning and innovation, communication, and life and career skills being the strong agree for public schools. However, 21st century skills from private school were very good results. Based on the findings, there was a significant difference on the 21st Century Skills among the K to 12 Graduates between public and private schools.

Keywords: 21st Century Skills; K to 12 Graduate; Private and Public School; Information; Media Skills; Technology; Learning and Innovation Skills; Communication Skills; Life and Career Skills

1. Introduction

In today's rapidly evolving world, education plays a pivotal role in preparing students for the challenges and opportunities of the 21st century. As traditional notions of work and society undergo significant transformations, educational institutions are increasingly focusing on equipping students with a set of skills that are crucial for success in the modern era. These skills, commonly known as 21st-century skills, encompass a broad range of abilities, including critical thinking, collaboration, creativity, communication, and digital literacy, among others.

The purpose of this research study is to assess the level of 21st-century skills among selected K-12 graduate students in Victoria Senior High School. Understanding the proficiency of these skills is essential for educators and policymakers to identify areas of improvement and develop effective strategies to enhance students' preparedness for the challenges they will face in the 21st-century workforce.

By evaluating the 21st-century skills of these students, this research aims to provide valuable insights into the current state of education at Victoria Senior High School and shed light on the effectiveness of the existing curriculum and teaching methodologies in fostering these essential skills. The findings of this study will not only benefit the school

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administration but will also contribute to the broader educational community by providing evidence-based recommendations for curriculum development, instructional approaches, and educational policy.

The participants of this research are selected K-12 graduate students from Victoria Senior High School, representing a diverse group of learners from different academic backgrounds. The sample size will be determined through purposive sampling, ensuring representation across various grade levels and subject areas.

Ultimately, this study sought to contribute to the ongoing discourse on 21st century skills in education and provide evidence-based recommendations for improving the educational experiences of students at Victoria Senior High School. By understanding the strengths and areas of improvement in fostering these skills, educators and policymakers can work collaboratively to shape a curriculum that prepares students to thrive in the increasingly complex and interconnected world of the 21st century.

Objectives of the study

This study aims to;

- To determine the demographic profile of K to 12 Graduates Students in Victoria Senior High School in terms of; Year Graduated, Age, and Sex,
- To evaluate and identify the 21st Century Skills implied among the K to 12 Graduate Students in Public and Private Schools in terms of; Information, Media and Technology Skills, Learning and Innovation Skills, Communication Skills, and Life and Career Skills,
- To find out if there is a significant relationship between the demographic profile and the 21st Century Skills of selected K to 12 Graduate Students in Victoria Senior High, and
- To find out if there is a significant difference in the 21st-century skills of the public and private K to 12 graduates.

2. Materials and methods

2.1. Design

The study employed the descriptive survey method to collect the necessary data from the participants or respondents. This method allowed for the assessment of the 21st-century skills implied among K-12 Graduate students and served as input for curriculum enhancement and improvement. Descriptive research involves a purposeful process of gathering, analyzing, classifying, and tabulating data about prevailing conditions, beliefs, processes, trends, and cause-effect relationships. The interpretation of such data will be done with or without the aid of statistical treatment. The results of this research will be based on the answers provided by the participants in response to the questionnaires.

2.2. Participants

As stated by Allen (2017), a population consists of all the objects or events of a certain type about which researchers seek knowledge or information. The respondents involved in this study were working students selected from Laguna University. Due to the large population (107), the respondents were selected using Slovin's formula, with a margin of error of 0.05, resulting in a total of eighty-four (84) respondents. According to Lewis & Thornhill (2012), purposive sampling is a sampling approach in which the researcher chooses members of the population to participate in the study based on his or her judgment. This sampling technique will be used in this study since it aligns with the purposes of this study and specific inclusion and exclusion criteria.

The target population of the study is composed of 107 K-12 Graduates of Batch 2020 in Victoria Senior High School, Victoria, Laguna. The respondents were selected using Slovin's formula, with a 5% or 0.05 margin of error, resulting in a total of 84 respondents. The chosen respondents consist of 84 individuals, with 41 specializing in Shielded Metal Arc Welding (SMAW), 24 in Information and Communication Technology (ICT), 6 in Dressmaking, and 13 in Beauty Care from the selected K-12 Graduates of Batch 2020 in Victoria Senior High School, Victoria, Laguna, Philippines. These respondents are supposed to answer the questionnaire to determine the "21st Century Skills of Selected K - 12 Graduate Students in Victoria Senior High School: Input and Basis for Curriculum Enhancement."

Table 1 Population and Sampling of Survey Questionnaires

Position	Respondents	Population	Sample
Victoria Senior High School	SMAW	40	41
	ICT	33	24
	Dressmaking	33	6
	Beauty Care	30	13
Total		136	84

2.3. Data Collection and Analysis

After establishing the validity and reliability of the data-gathering instrument and formulating appropriate questions for the study, all necessary modifications were made to ensure the suitability of the chosen respondents. The online survey questionnaires were successfully distributed, completed, and returned. The respondents' answers to the questions are kept in accordance with the agreement between the respondents and the researchers.

The data gathered was organized and tabulated according to the result of the statistical treatment done. In this stage, the service of a statistical consultant was needed.

Table 2 Scoring Range of Likert Scale of the Survey

Range	Value	Interpretation
4.20 – 5.00	5	Strongly Agree
3.40 – 4.19	4	Agree
2.60 – 3.39	3	Neutral
1.80 – 2.59	2	Disagree
1.00 – 1.79	1	Strongly Disagree

3. Results and discussion

3.1. Distribution of Respondents according to their Demographic Profile

Table 3 Demographic Profile of the Respondents in terms of Age

Age	Frequency	Percentage
18-20	23	27.38 %
21-23	59	70.24 %
24-26	2	2.3 %
Total	84	100%

Table 3 Frequency and percentage count were used to present the frequency and percentage distribution of the Demographic Profile of the Respondents in terms of Age. There were 23 or 27.38 percent student respondents within the age range of 18 to 20, followed by 59 or 70.24 percent respondents aged 21 to 23, and 2 or 2.3 percent respondents aged 24-26.

This indicates that 70.24% of Grade 12 Graduate Students from Victoria Senior High School are in the age range of 21-23 years old. It can be concluded that most of the respondents fall within the age range of 21-23 years old.

A study according to Adam Rich (2020), found that demographic profile of the respondents in terms of age range 21-23 can be seen in an academic study of "Best Practices for developing 21st Century Skills."

Table 4 Demographic Profile of the Respondents in terms of Sex

Sex	Frequency	Percentage
Male	58	69.05%
Female	26	30.95%
Total	84	100%

Frequency and percentage count were used to present the frequency and percentage distribution of the Demographic Profile of the Respondents in terms of Sex which has 58 males and 26 females from combined strands. Then the percentage corresponds to the amount of frequency that has 69.05% male and 30.95% female.

It means that out of 84 respondents from K to 12 Graduate Students from Victoria Senior High School, 69.05% are male which indicates that the respondents are mostly male.

According to a survey conducted by The Learning Assembly (2019), found that majority of respondents supporting the idea of integrating 21st century skills into the classroom identified as male (80%) and the remaining respondents identified as female (20%).

Table 5 Demographic Profile of the Respondents in Terms of Curriculum Exit

Curriculum Exit	Frequency	Percentage
Entrepreneurship	2	2.38%
Employment	17	20.24%
Higher Education	40	47.62%
TESDA	18	21.43%
Undergraduate	7	8.33%
Total	84	100%

Frequency and percentage count were used to present the frequency and percentage distribution of the Demographic Profile of the Respondents in terms of Curriculum Exit in respect of Entrepreneurship, Employment, Higher Education, TESDA, and Undergraduate. There are 2 or 2.38 percent student respondents for Entrepreneurship, 17 or 20.24 percent for Employment, 40 or 47.62 percent for Higher Education, 18 or 21.43 percent for student respondents for TESDA, and 7 or 8.33 percent student respondents for Undergraduate, with a total of 84 or 100 percent.

It means that 47.62% of K to 12 Graduate Students from Victoria Senior High School pursued Higher Education as their Curriculum Exit. This indicates that most of them chose Higher Education as their path after graduating.

A study conducted by Zamora & Fernandez-Sanz (2019) found that there is an increasing demand by employers for employees who possess 21st-century skills, particularly in the fields of Entrepreneurship, Employment, and Higher Education. In particular, the study found that students in the Philippines performing the best in these sectors had consistently higher levels of 21st Century Skills - with significantly higher scores for Entrepreneurship and Higher Education than for Employment and TESDA. The study concluded that 21st Century Skills should be embedded in the curriculum, regardless of the sector, to ensure students are well-equipped for the future.

As mentioned by El-Hassan (2019), Curriculum-based exit exams play a crucial role in program assessment and measuring student achievement of program learning outcomes (PLOs). This study aims to examine the validity of using an internal exit exam as a direct assessment tool to evaluate student learning and attainment of PLOs. The validation entails evaluating and correlating students' performance in the exit exam to that in corresponding coursework and their perception regarding the attainment of the PLOs.

Table 6 Mean Level of 21st Century Skills implied among K to 12 Graduates

21st Century Skills	Public School			Private School		
	Mean	Frequency	Description	Mean	Frequency	Description
Information, Media, and Technology Skills	4.36	17	Outstanding	3.93	4	Very good
Learning and Innovation Skills	4.43	13	Outstanding	4.14	16	Very good
Communication Skills	4.33	14	Outstanding	3.91	6	Very good
Life and Career Skills	4.48	40	Outstanding	4.03	4	Very good
Total	4.4	84	Outstanding	4	30	Very good

According to Table 6, the mean Level of 21st Century Skills implied among K to 12 Graduates, Information, Media, and Technology Skills of the public obtained a mean of 4.36, with a frequency of 17 and the description of OUTSTANDING. Meanwhile, Information, Media, and Technology Skills of the private group received a mean of 3.93, with a frequency of 4 and the description VERY GOOD. Next, Learning and Innovation Skills of the public group obtained a mean level of 4.43, with a frequency of 13 and the description of OUTSTANDING. On the other hand, Learning and Innovation Skills of the private group received a mean level of 4.14, with a frequency of 16 and the description of VERY GOOD. Communication Skills of the public group had the lowest mean level of 4.33, with a frequency of 14 and the description of OUTSTANDING. Meanwhile, Communication Skills of the private group received a mean level of 3.91, with a frequency of 6 and the description of VERY GOOD. Thus, Life and Career Skills of the public group obtained the highest mean of 4.48, with a frequency of 40 and the description of OUTSTANDING. While Life and Career Skills of the private group received a mean of 4.03, with a frequency of 4 and the description of VERY GOOD.

This finding implies that the mean Level of 21st Century Skills implied among K to 12 Graduates of Public School was Life and Career Skills with an overall weighted mean of 4.4, which received a description of OUTSTANDING. Meanwhile, the mean Level of 21st Century Skills implied among K to 12 Graduates of Private School was Learning and Innovation Skills with an overall weighted mean of 4, which received a description of VERY GOOD. It means that the K to 12 Graduates had attained the 21st-century skills.

According to the Alliance for Excellent Education (2019), life and career skills such as communication, problem-solving, creativity, critical thinking, interpersonal skills, collaboration, and technological literacy are essential for students in the 21st century to succeed. These skills help students not only in the classroom but also in their future work and beyond.

Table 7 Relationship between the Demographic Profile of the Respondents and 21st Century Skills

21st Century Skills	Mean		T-Value	Critical Value	p-value	Analysis
	Public School	Private School				
Information, Media, and Technology Skills	4.36	3.93	2.28	1.98	0.02	Significant
Learning and Innovation Skills	4.43	4.14	1.54	1.98	0.13	Not Significant
Communication Skills	4.33	3.91	2.25	1.98	0.03	Significant
Life and Career Skills	4.48	4.03	2.43	1.98	0.02	Significant

As shown in Table 7, it illustrates the relationship between Age and 21st Century Skills of the K-12 Graduates. Age is observed to have a significant relationship with the 21st Century Skills, with an r-value of -0.24, a critical value of 0.22, and a p-value of 0.03.

Additionally, Sex is observed to have a significant relationship with the 21st Century Skills, with an r-value of -0.25, a critical value of 0.22, and a p-value of 0.02. Thus, the relationship between Curriculum Exits and 21st Century Skills is observed to be not significant, with an r-value of 0.03, a critical value of 0.22, and a p-value of 0.79.

A study by Helo and Kontkanen (2019) found that there is a significant relationship between the demographic profile of the respondents and 21st-century skills. The study found that gender, parental education, and paternal occupation all had significant impacts on their ability to demonstrate 21st-century competencies, and those from more privileged backgrounds were more likely to possess the desired 21st-century skills.

Table 8 Difference on the 21st Century Skills of the Respondents between public and private school

Statements	r-value	Critical Value	p-value	Analysis
Age vs 21st Century Skills	-0.24	0.22	0.03	Significant
Sex vs 21st Century Skills	-0.25	0.22	0.02	Significant
Curriculum Exits vs 21st Century Skills	0.03	0.22	0.79	Not Significant

Table 8 shows the difference in the 21st Century Skills of the respondents between public and private schools. Information, Media, and Technology Skills of public schools obtained an overall weighted mean of 4.36, while private schools obtained an overall weighted mean of 3.93. The t-value is 2.28, the critical value is 1.98, and the p-value is 0.02, indicating a significant difference.

Learning and Innovation Skills of public schools obtained an overall weighted mean of 4.43, while private schools obtained an overall weighted mean of 4.14. The t-value is 1.54, the critical value is 1.98, and the p-value is 0.13, indicating that the difference is not significant.

Communication Skills of public schools obtained an overall weighted mean of 4.33, while private schools obtained an overall weighted mean of 3.91. The t-value is 2.25, the critical value is 1.98, and the p-value is 0.03, indicating a significant difference.

Life and Career Skills of public schools obtained an overall weighted mean of 4.48, while private schools obtained an overall weighted mean of 4.03. The t-value is 2.43, the critical value is 1.98, and the p-value is 0.02, indicating a significant difference.

According to the study by Gault (2018), the 21st-century skillset differs markedly from the demographic profile traditionally associated with education. While previous generations sought mainly to impart technical knowledge related to a particular field of study, today's skillset goes much further. 21st-century skills emphasize the development of critical thinking, creativity, collaboration, communication, and digital literacy.

4. Conclusion and recommendation

The study has concluded the following based on the aforementioned findings:

- There was a significant relationship between the demographic profile and the 21st Century Skills of selected K to 12 Graduate Students in Victoria Senior High School, and
- There was a significant difference on the 21st Century Skills among the K to 12 Graduate between public and private.

In light of the above findings and conclusion, the following recommendations are respectfully endorsed:

- Victoria Senior High School should develop a strong 21st century skills curriculum to ensure all K-12 graduate students are adequately prepared for both higher education and the workplace,
- Victoria Senior High School should develop a program or activity that encourages and enhance students' communication skills. Make communication skills training an ongoing initiative within the institution. Offer workshops, seminars, or online courses that focus on various aspects of communication, ensuring that students and teachers have opportunities to continually develop and refine their skills.,
- Based on the results, it can be recommended that future research should identify other factors that may affect the development of 21st Century Skills among K to 12 graduates. It is also essential to consider other

demographic variables such as socio-economic status and educational background to further explore and understand the possible influences on 21st Century Skills of K to 12 graduates. Furthermore, the respondents' level of participation in extra-curricular activities should also be considered to surface further understanding of the influence of those activities on 21st Century Skills, and

- The school should develop more programs and initiatives that can help the K to 12 graduates in Victoria Senior High School acquire the necessary 21st Century Skills. Teachers and administrators should collaborate to create a school environment that encourages and supports the development of 21st Century Skills. The school should also provide students with adequate access to technology and other tools that can help them gain 21st Century Skills and increase their employability. Additionally, the school should invest in professional learning for its teachers to ensure they have the skills, competencies, and resources needed to effectively help students acquire 21st Century Skills.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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