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LIVED EXPERIENCES OF TECHNICAL, VOCATIONAL, LIVELIHOOD TRACK (TVL) SENIOR HIGH SCHOOL STUDENTS IN WRITING TECHNICAL PAPERS IN THEIR CHOSEN TRACK: A QUALITATIVE INQUIRY

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ABSTRACT

The purpose of This qualitative inquiry is to explore and understand the lived experiences of technical, vocational, and livelihood (TVL) senior high school students in writing technical papers in their chosen track within the Davao del Norte Division. This study aims to generate findings that will guide teachers in designing appropriate interventions to help students develop the necessary skills for writing technical papers in their chosen track. The participants are 14 TVL students from three different senior high schools in the Davao del Norte Division, selected through purposive sampling. Through in-depth interviews and focused group discussions the study identifies key challenges such as difficulties with grammar, problem in conceptualization, and meeting deadlines, as well as coping mechanisms like utilizing prior knowledge, resourcefulness, and seeking support. The results underscore the significance of considering online tools, English proficiency and awareness about prospective impacts of learning technical writing. The results of the study highlighted that innovative teaching strategies are required to help TVL students, such as digital literacy programs and mentoring procedures for further faculty enhancement on skills in reading technical writing. The implications call for a better understanding of TVL students' struggles, promoting an educational environment that values digital proficiency and effective communication. Future research should quantitatively examine these challenges' impacts and the role of AI tools in writing, aiming to develop targeted interventions for improved technical writing skills.

KEYWORDS: *TVL students, technical papers, qualitative study, lived experiences, writing challenges, teacher interventions. Davao del Norte.*

INTRODUCTION

The Technical, Vocational, and Livelihood (TVL), senior high school students face challenges writing technical papers in the evolving education landscape. The prolonged absence of face-to-face teaching, deficiencies in self-learning modules, and inadequate assessment procedures in distance learning modalities exacerbate the ever-changing educational landscape. This trend reflects a broader shift where education is a privilege rather than a necessity, which is increasingly perceived, leading students to become complacent about English proficiency, especially in technical writing—an essential skill for securing local and international employment. This study intends to explore the students' issues and coping mechanisms in improving their writing skills.

In West Java, Indonesia, acquiring vocabulary is a difficulty. Developing vocabulary is crucial since it is the foundation for effective language acquisition and a prerequisite for language learning (Rosyada-AS & Apoko, 2023). The restricted vocabulary might hinder their comprehension of the importance of English expressions or words within the language; these difficulties arose in various aspects, including the accurate articulation of newly encountered words, correct spelling, appropriate application of word definitions, and efficient retention or memorization of vocabulary. Aside from that, research conducted in Egypt examined the undergraduate engineering students of a private university, and instructors perceived how the shift from traditional face-to-face (FTF) to online learning during the COVID-19 pandemic affects learners. The study found that adapting to online collaborative learning (OCL) required individuals to assess their digital competence. Interestingly, the findings revealed that dimensions such as "Task completion and effectiveness of work" and "Writing Skills" were rated higher in the face-to-face setting than in online learning (Morsi & Assem, 2021). Hence, a study in of King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand, found out that Thai nonnative-English-speaking (NNES) postgraduate students face significant challenges in writing academic research papers in

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English. Students find the research paper writing process to be moderately difficult. Common problems include sentence structure, grammar (tenses), and vocabulary. There's a clear need to provide these students with more guidance and training focused on academic writing and the publication process (Khemanuwong, 2020).

Furthermore, in the Philippines, a study in Negros Occidental indicated that students exhibit a low proficiency in grammar, struggle to compose grammatically correct sentences and demonstrate an average level of proficiency in sequencing skills overall (Quijano & Legaspi, M. J. B., 2020). In Cebu, challenges in teaching academic writing included instructing second language learners, insufficient time for explicit instruction, absence of student strategies, limited parental support, and inadequate teacher essay structure guidance. However, several effective teaching strategies were available for educators to enhance academic essay writing instruction (Lopres, et al., 2023).

Moreover, in local, particularly in the division of Davao del Norte most of TVL SHS English Teachers have encountered some students who cannot write technical papers because they do not have enough foundation in English proficiency. Most students today in Three (3) schools in Davao del Norte struggle with writing and speaking in English because they must work to support their daily necessities rather than learn the language because no one will educate them. Furthermore, the findings indicated that Senior High School students require assistance applying grammatical and writing guidelines in their academic writing. This includes understanding the correct usage of prepositions, addressing omissions and additions of affixations, structuring sentences correctly, and substituting elements within sentences (Gildore, Uka, & Yting, 2023). With the resumption of face-to-face classes across all schools in the division, teachers are tasked with actively bridging the two-year learning gap for students by offering intervention and remedial support to those falling behind.

Additionally, due to a prolonged absence of face-to-face instruction, poor studying independently materials, and inadequate evaluation in distance learning, TVL senior high school students have difficulty with technical writing. Though various studies address the challenges in academic writing proficiency among students in different regions of the country, there is a notable lack of research focusing on the specific experiences and coping mechanisms of Technical-Vocational-Livelihood (TVL) senior high school students in the Philippines. The extended duration of remote learning has brought to light unique shortcomings in self-study materials and evaluation processes that have not been fully examined, particularly regarding their impact on technical writing abilities. In addition, this research highlights and pinpoints the effective teaching methods and approaches to upskill the TVL student's technical paper writing test. It also deepens the encounters of senior high school students in the Technical, Vocational, and Livelihood (TVL) track as they write technical papers in their chosen field. The findings of this study will guide the concerned individuals and groups in enhancing the teaching methods, curriculum development, and student assistance to equip TVL students more effectively for their technical careers.

In conclusion, the difficulties TVL senior high school students encounter when writing technical papers have social significance, as they highlight the gap in essential skills required for both local and international employment. Hence, by addressing these issues, students can improve their English language skills, which are essential for both landing a job and communicating effectively in technical disciplines. Therefore, there is a need to examine the real-life experiences of Technical-Vocational-Livelihood (TVL) students to enhance education and training quality in these fields, preparing students for successful careers. Also, teachers from TVL track would benefit immediately from this study's recommendations for better teaching strategies and resources, which will enhance students' writing abilities. The study will be published in academic publications, shared at education conferences, given in local workshops for teachers, and made available online for wider access and future research use in order to spread the results.

Purpose of the Study

The purpose of this qualitative inquiry study is to explore and understand the lived experiences of technical, vocational, and livelihood (TVL) senior high school students in writing technical papers in their chosen track in the Davao del Norte Division. Furthermore, this study aims to generate findings that may guide teachers in designing appropriate interventions for students to learn to write technical papers in their chosen field.

At this stage in research, lived experiences of technical, vocational, and livelihood (TVL) senior high school students in writing technical papers in their chosen track. Technical writing generally defined as a type of writing that is used to communicate technical information used in scientific and technical fields to describe research findings, explain technical processes or systems, or provide technical instructions.

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Research Questions

1. What are the lived experiences of TVL students in writing technical papers in their chosen track?
2. How do TVL students cope with the challenges they encountered in writing technical papers in their chosen track?
3. What are the insights of TVL students in writing technical papers in their chosen track that can be shared with others?

Theoretical Lens

The theoretical foundation of this study rests upon the genre theory put forth by Swales (1990), and Miller (1984), revisited after 30 years as cited in Miller (2015), offering a critical framework for comprehending and dissecting written texts by examining recurring patterns, conventions, and expectations across different types of writing. Miller's perspective underscores the dynamic nature of genres, portraying them as social constructs shaped by the contextual factors influencing their creation and utilization. She highlights the significance of technical writers grasping the intricacies of their chosen genre to engage with their audience effectively. In contrast, Swales provides a methodical approach to genre analysis, delineating essential rhetorical and structural components that distinguish various genres. These contributions have been pivotal in advancing genre-based pedagogies for technical writing instruction, providing educators with a structured framework to facilitate students' understanding and mastery of writing within specific disciplinary contexts. Hence, both insights contribute to a comprehensive understanding of genre theory and its application in the context of technical writing, informing the theoretical underpinnings of this study.

In the contextualization of the study, integrating genre theory is paramount as it provides a structured framework for knowing the structure and organization of technical documents, which is fundamental in understanding the intricacies of technical writing. By utilizing genre theory, this study can elucidate the communicative objectives inherent in different technical genres, which are particularly relevant to the needs of TVL students. Also, genre theory is the bedrock of technical writing instruction and research, continually evolving alongside societal and technological advancements. Its adaptive nature allows it to offer valuable insights into improving technical communication practices by providing a lens through which to analyze and refine the strategies employed in technical writing. Thus, genre theory facilitates a deeper understanding of technical writing and offers practical guidance for enhancing the efficacy of technical communication within the context of this study.

Secondly, the Social Cognitive Theory (SCT) of Bandura (1970) was incorporated into this study since, in technical writing instructions, students learn effective writing techniques by observing and modeling the writing practices of skilled writers. This theory emphasizes the role of observation, imitation, and modeling in learning, highlighting the importance of cognitive and environmental factors in shaping behavior.

From the perspective of this study, the Social Cognitive Theory (SCT) is highly relevant as it emphasizes providing students with opportunities to observe, engage with, and model exemplary technical writing samples. By incorporating SCT principles into technical writing instruction, educators can create environments that support students in gradually developing their writing skills through guided practice and constructive feedback. This approach enhances students' self-efficacy and motivation and fosters their proficiency in technical communication. By aligning instructional strategies with SCT principles, this study aims to empower students to become more effective technical writers by leveraging observational learning and modeling techniques.

Lastly, the framework of Cognitive Process theory in technical writing, as articulated by Flower and Hayes (1980), forms the foundational basis for this investigation. Flower and Hayes posit that writing involves a series of concurrent and interactive cognitive processes, encompassing activities such as planning, translating ideas into text, editing, revising, and overseeing the entirety of the writing project. Their model emphasizes the interconnected nature of these processes, facilitating ongoing feedback and revision throughout the writing endeavor. In contrast to the linear perspective that views writing as occurring in distinct stages, the process theory presents a more flexible and iterative outlook, recognizing that writing is a dynamic and evolving activity. By embracing this perspective, the study aligns with the understanding that effective technical writing is a complex, non-linear process involving continuous refinement and adjustment throughout development. This framework offers a comprehensive lens for examining the cognitive intricacies inherent in technical writing, providing valuable insights for the investigation.

Incorporating Process theory in technical writing by Flower and Hayes (1980) into this study is highly relevant as it underscores the cognitive dimensions inherent in the writing process. Given that the study focuses on technical paper writing for TVL students, understanding the cognitive processes involved in creating and editing text

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becomes exceptionally crucial. This emphasis is essential because students often must articulate complex technical information effectively within technical papers. By grasping the cognitive aspects of writing, students can approach their writing tasks more deliberately and strategically, thereby enhancing their ability to communicate technical knowledge proficiently. Consequently, this theory improves TVL students' capacity to engage in effective technical communication, aligning closely with the study's objectives.

METHODOLOGY

Research Design

In this inquiry, a qualitative research design was employed, specifically utilizing the phenomenological approach to explore the experiences and coping mechanisms of TVL students and their insights into writing technical papers. Qualitative research is an iterative process extending beyond a systematic investigation into social or human phenomena (Aspers & Corte, 2019). It involves progressively enhancing understanding within the scientific community by uncovering new and meaningful distinctions by closely examining the phenomenon under study. Its objective is to understand and explore rather than to clarify and manipulate variables, encompassing a thorough process of identifying issues, gathering data, analyzing, explaining, evaluating, and interpreting findings (Nassaji, 2020).

The qualitative design of this study was appropriate as it aimed to uncover and comprehend the experiences, coping strategies, and viewpoints of senior high school TVL students as they participate in technical paper writing. Likewise, I aimed to guide future TVL instructors in determining the necessary scope and components to incorporate into their teaching methods to assist TVL students in technical paper writing. Thus, through qualitative research design, I was able to collect and investigate the experiences of the TVL students in their chosen track.

On the other hand, the Phenomenological approach involves a methodology that directs the depiction and understanding of the fundamental nature of firsthand experiences. It acknowledges the significance and relevance of these experiences in pedagogy, psychology, and sociology based on the gathered experiences (Fuster Guillen, 2019).

Specifically, the approach was phenomenology; in this research, it allowed me to deeply engage with the perspectives, understandings, and outlooks of individuals encountering the phenomenon, specifically TVL students facing challenges in writing technical papers. This approach facilitated the investigator's thorough comprehension and analysis of the subjects' experiences. Furthermore, this design facilitated the identification of recurring themes and patterns in individuals' experiences, providing valuable insights for potential interventions, initiatives, or regulatory measures. In collecting detailed experiences, I used IDI and FGD to get information on my participants' shared experiences, coping mechanisms, and insights, which was adequate for acquiring the information I wanted for my research.

Therefore, this study comprehensively addressed each stage of the methodological procedure, adhering to the qualitative-phenomenological framework. The selection of research participants involved a purposeful sampling method, ensuring a meticulous selection process. Following this, I collected pertinent data through virtual focus groups and conduct in-depth interviews. After collecting the data, I thoroughly analyzed essential themes derived from participants' experiences through thematic analysis. Finally, I implemented stringent protocols to uphold the ethical integrity and reliability of the study.

Furthermore, this study adhered to its methodology. The utilization of this approach included purposive sampling, In-depth Interviews (IDI), Focus Group Discussion (FGD), thematic analysis, and specific measures to comply with trustworthiness and ethical standards.

Research Participants

The participants for this study were the 14 students enrolled in the TVL track in three (3) different SHS schools in the Divisions of Davao del Norte. Sarfo, Debrah, Gbordzoe, Afful, & Obeng (2021) reference Guetterman (2015), indicating that qualitative phenomenological studies typically involve an average sample size of fifteen participants within the realm of educational research, with numbers varying between eight and thirty-one, and Creswell (2013) five to twenty-five participants are suggested as adequate for phenomenological studies. Therefore, seven (7) students will undergo in-depth interviews, and seven (7) will participate in focused group discussions.

This research used purposive sampling to select and identify the participants equitably. Purposive sampling is a strategy to situate the trustworthiness of data collection and analysis (Campbell, et al., 2020). Moreover, in

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describing the lived experience (descriptive) or meaning of lived experience (interpretive) of a group of people, homogenous sampling -purposeful sampling is used (Kalu, 2019). Therefore, the purposive sampling method was appropriate in this study. Through this, the participants were chosen to gather data and obtain answers based on their knowledge and experience that this research seeks.

Furthermore, in identifying the participants, criteria were set for them. They must be (a) officially enrolled in the Davao del Norte division's Senior High School TVL track for the school year 2023–2024, (b) have taken English subjects, and (c) have prior experience writing technical papers.

Data Analysis

The qualitative data analysis entailed comparing and contrasting transcripts to derive themes and categories. Learning correlations between text-based audio and text-based video involves investigating how textual descriptions within audio and video recordings align to enhance analysis. Also, identifying patterns and relationships between these modalities aims to deepen understanding of the underlying content across various forms of expression, thereby improving the accuracy and robustness of multimodal sentiment analysis and emotion recognition tasks (Sun et al., 2020). Hence, the primary data sources for this study were transcripts of focus group discussions (FGDs) and in-depth interviews (IDIs) with identified participants. Subsequently, transcription and translation into Standard English were conducted based on the received interview recordings to facilitate analysis.

Moreover, coding data involves systematically assigning labels or codes to segments of information within a dataset. These codes categorize and organize data based on specific themes or concepts of interest to the researcher, aiding in identifying patterns, trends, and relationships within the data. The thematic analysis relies on coding, where short descriptive labels capture the researcher's analytic interests, with coding often conducted in multiple phases to ensure thorough analysis (Leste et al., 2020).

Thus, thematic analysis was applied to examine participants' responses, utilizing a technique that involves finding, analyzing, and reporting patterns (themes) in data, commonly known as thematic analysis (Braun and Clark, 2006). To execute this analysis, we followed Braun and Clark's recommended process, involving becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining, and naming themes, and ultimately producing a comprehensive write-up.

Hence, when analyzing the data in my study, the elimination of personal bias involved a thorough examination of the complete interview transcript to properly assess the responses of the TVL students' participants regarding their experiences in writing technical papers. To secure the identity of each TVL student participant, codes were employed to represent them, and these codes were presented in the transcription.

Also, a coding system was employed as a central method for data analysis in this forthcoming study. As defined by Rossman and Rallis (2012), coding serves the purpose of organizing and categorizing the gathered data. It will go beyond simple classification by actively selecting, concentrating, and refining the information to extract the most relevant and insightful aspects related to the research phenomenon.

For this purpose, Coding played a crucial role in my study, involving the use of a term or phrase to encapsulate a summative and notable characteristic for specific information collected from TVL students with rich experience in writing technical papers. Data from interview transcripts, where participants disclosed their experiences, coping mechanisms, and insights, underwent coding. I meticulously organized the data into categories to form a concept and then conducted a systematic analysis.

Furthermore, the study utilized the method of theme analysis. As indicated by Caulfield (2019), this method is typically applied to a group of texts. The researcher scrutinized the data to identify recurring themes and patterns of significance. Additionally, Vaismoradi et al. (2015) emphasize the importance of researchers revisiting the data and the coding process multiple times to ensure credible results throughout the analysis process. According to Maguire and Delahunt (2017), a theme is a pattern that illustrates something noteworthy and captivating about the data and research question in qualitative research.

In this investigation, thematic analysis was undertaken using the inductive approach. Through this method, the themes related to the research questions were established based on the responses of the participants. Patterns of responses from TVL student participants were observed and analyzed. Subsequently, I scrutinized the codes and organized them into general themes relevant to my research question. Following this, I identified emergent themes

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from the recognized core ideas, achieved through the process of thematic analysis. These ideas surfaced from the recurring or similar responses from TVL students who have experience writing technical papers. Additionally, I discerned and grouped the major statements that best highlight each core idea and theme, as presented in the transcribed reference.

Thus, I critically organized the audit trail and field notes, assessing the accuracy of the entries to ensure their correctness. This step aimed to verify that the interpretations are well-supported and validated.

RESULTS

This chapter presents the results of the study on the experiences of TVL (Technical-Vocational-Livelihood) students in writing technical papers. It includes in-depth interviews (IDI) and focus group discussions (FGD), capturing their lived experiences, coping mechanisms, and insights. The findings were derived from the responses of seven (7) participants in the in-depth interview (IDI) and another seven (7) participants in the focus group discussion (FGD), a total of 14 participants participated in the research study. The research participants are senior high school Technical Vocational Livelihood Track (TVL) students, who have experienced writing technical papers in their chosen track. After the extensive transcription process, I analyzed the data identifying core ideas until themes emerged. To enhance understanding of the participants' responses, the results are presented in tables with corresponding themes and core ideas. Hence, these research findings addressed the three questions that were presented in Chapter 1.

Experiences of TVL Students in Writing Technical Papers in their Chosen Track

After analyzing the responses of the senior high school Technical Vocational Livelihood Track (TVL) students regarding their experiences in writing technical papers in their chosen track, three (3) emerging themes have emerged namely (1) Difficulty in Using Correct Grammar; (2) Problem in Choosing Conceptualization; and (3) Having Difficulty Beating the Deadlines.

Table 1 shows the major themes and core ideas generated from the responses of the respondents regarding their experiences in writing technical papers in their chosen track.

Table 1.
Experiences of TVL Students in Writing Technical Papers in their Chosen Track

Major Themes	Core Ideas
Difficulty in Using Correct Grammar	• struggling with English grammar • finding synonyms and constructing sentences • struggling with correct punctuation • difficulty in making writing introductions.
Problem in Choosing Conceptualization	• difficulty in creating titles and introductions. • difficulty in identifying the research problems • lack of experience.
Having Difficulty Beating the Deadlines	• always doing rush works • juggling multiple tasks • pushing their selves to finish the paper immediately

Difficulty in Using Correct Grammar

The respondents shared their difficulty in using English grammar correctly. They have stated that one of the reasons why they found it difficult to write the paper is the fact that they have weaknesses in correct grammar construction. Moreover, they also find difficulties in finding synonyms to be used in constructing sentences. Thus, constructing correct and relevant sentences has been challenging for them. Correct punctuation has also been their problem in writing their research paper. This has been affirmed by FGD-05 which states that: Moreover, they have considered grammar mistakes as a common issue, and they just have to motivate themselves to finish the task quickly to avoid corrections. Furthermore, the respondents acclaimed that they have encountered difficulty in writing introductions for their papers. This has been the result as they have said of their difficulties in translating their thoughts to English. Thus, making it hard for them to organize their ideas

Problem in Choosing Conceptualization

One of the experiences and considered to be one of the challenges faced by the senior high TVL students is the difficulty in writing research. Most of the responses emphasized that they find it difficult to write their chosen

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study specifically on writing its title. In connection to the above statement, students found it difficult also to get the interest of the readers while creating engaging and interesting research titles and introductions. Aside from the challenges, students also experienced the difficulty of lacking experience in writing their research papers. Others had no idea what to do. Another experience related to the lack of experience is due to the pandemic experienced by the respondents. This somehow resulted in a low-quality of research output.

Having Difficulty Beating the Deadlines

Beating the deadlines is one of the emerging themes that came out from the interview conducted. Most of the students answered that deadlines are difficult to handle to the point that they rushed their work just to submit the paper.

They have also stated that juggling multiple tasks with limited time is very challenging and they just have to motivate their selves more by anticipating the rest of the work after completion. Another idea from the interview is that students pushed themselves to finish the task immediately resulting in a mediocre output. That is because aside from research, they also have other subjects that need ample time.

Table 2 shows the themes and core ideas that emerge from the responses of the respondents regarding their coping mechanisms in writing their technical papers in their chosen track.

Table 2
Coping Mechanism of TVL Students in Writing Technical Papers in Their Chosen Track

Major Themes	Core Ideas
Becoming Resourceful	● utilization of online engines ● using online tools such as artificial intelligence ● watching tutorial videos ● using AI tools for guidance ● using online engines to translation and paraphrasing
Seeking Support	● seeking professional help in overcoming academic challenges ● seeking support from family, friends, and teachers ● guidance from English and research teachers ● creating a conducive environment at home
Using Prior Knowledge	● generated ideas from experiences in Grade 11 ● previous essay writing experiences as a foundation ● previous work as a basis ● prior experience is a great help.

Becoming Resourceful

One of the emerging themes discovered in the coping mechanisms of students in writing their research papers is through the use of online engines. These helped them create drafts, organize ideas, and search for citations on Google before writing the whole paper.

They have also confirmed that they used applications like Google Scholar and AI tools such as Quillbot in paraphrasing their ideas and statements. Moreover, when they were uncertain about their ideas, they watched YouTube tutorials and other internet sources to address the uncertainties. AI tools have been a great help for them especially when they are confronted with difficulties in writing their paper. Moreover, using Google Translate is very helpful in expressing thoughts in English when needed.

Seeking Support

The fourth theme that emerged from the interview is students often seek support in writing their research papers. Seeking guidance from knowledgeable teachers, especially the research teacher, helps in navigating academic challenges effectively. Moreover, consulting peers, teachers, and family provide valuable advice and assistance in overcoming difficulties. Relying on peers or teachers for assistance is a common approach to addressing academic challenges. Further, seeking help from friends or advisors, especially during times of urgency or when facing time constraints, aids in completing tasks effectively. Furthermore, seeking advice from family members, especially older siblings, and understanding one's own needs are essential aspects of overcoming challenges. On the other hand, approaching English and research teachers or individuals with expertise for assistance becomes necessary when faced with overwhelming challenges. Therefore, seeking guidance from teachers, particularly

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practical or English teachers, and pooling resources with peers contribute to overcoming academic challenges effectively.

Using Prior Knowledge

Senior high TVL students stated that they use their prior knowledge in their previous grade level. Prior experiences with research papers in Grade 11 made quantitative research easier, though the new aspect of conducting surveys provided additional motivation. Moreover, previous essay writing experiences in AFA provided foundational knowledge in writing the papers. Further, current work is based on their previous research manuscript from the last school year which served as their basis in crafting their paper. On the other hand, their prior knowledge experiences in Grade 11 helped them improve their English grammar and paragraph construction to be used in research writing.

Table 3 shows the emerging themes and core ideas regarding the insights of TVL students in writing their technical papers in their chosen track. Three (3) emerging themes have been analyzed in the discussions below.

Table 3
Insights Of TVL Students in Writing Technical Papers in Their Chosen Track

Major Themes	Core Ideas
Importance of Utilizing Online Tools	• utilization of artificial intelligence and social media platforms • using paraphrasing and grammar tools • using search engines for sources • acknowledging the importance of internet
Need for English Proficiency	• proficiency in English comprehension and writing skills is necessary • diligence in reading • proficiency in paragraph and grammar construction • developing proper pronunciation
Valuing the Future Benefits	• learning to write technical papers is beneficial for future use • conducting research now facilitates easier thesis writing • acquiring skills in writing enhances knowledge. • enhancing writing skills for future endeavors

Importance of Utilizing Online Tools

Utilizing artificial intelligence tools like ChatGPT and seeking advice from academic writing tips on social media platforms like TikTok streamlines paper writing processes. Moreover, leveraging tools such as Quillbot for paraphrasing and Grammarly for grammar checking enhances the quality of written work. Further, primarily rely on internet resources like Google Scholar and paraphrasing tools like Quillbot for academic tasks. Despite some criticisms, ChatGPT is valued for its efficiency in completing tasks quickly, particularly for grammar correction purposes.

Need for English Proficiency

The interview revealed a notable level of expertise in the use of the English language as the fourth prominent theme. A high level of proficiency in English comprehension and writing abilities is essential for completing research efficiently and avoiding difficulties. Moreover, diligence in reading and seeking support from professionals ensures the quality of research papers and prevents uncertainties. Further, focusing on proficiency in paragraph construction and practicing grammar ensures clarity and correctness in writing. In addition to this, they have stated that developing proficiency in English, including proper pronunciation, is vital for a smooth transition into college-level studies.

Valuing the Future Benefits

The first emerging theme that came out from the interview conducted regarding the insights of students in writing their technical papers is the recognition of the benefits of future use. Learning to write technical papers as a TVL student is beneficial for future use even though it has not been extensively applied yet. Moreover, mastering research paper writing is essential for college and future tasks, simplifying technical, research, or reaction paper assignments. Moreover, conducting research now facilitates easier thesis writing in college, emphasizing the importance of developing research skills. Further, the skills acquired in creating theses and essays remain valuable for future endeavors, preventing struggles in similar tasks. Acquiring skills for technical paper writing is crucial for future applications and enhances stock knowledge in the field.

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DISCUSSIONS

This chapter presents the findings and discussions that emerged from the study's utilization of the phenomenological method of inquiry. This section entails an analysis of the prevailing themes that have emerged from the relevant literature found in the existing body of knowledge, authored by various writers. This chapter also contains the researcher's suggestions for teaching methods and recommendations for future research, which are based on the findings.

Experiences of TVL Students in Writing Technical Papers in their Chosen Track

The senior high school Technical-Vocational and Livelihood major students shared their relevant experiences and challenges in writing technical papers on their chosen track. Three (3) emerging themes were collected from their responses namely: (1) difficulty in using correct grammar; (2) difficulty in choosing conceptualization; (3) having difficulty in beating the deadlines.

Difficulty in Using Correct Grammar

The interview narratives illustrate students' technical paper and research challenges. Lack of constant internet connectivity can make reading books difficult, but it's admirable to persevere. Students also struggle to find synonyms and write clear, concise sentences, which motivates them to seek help and grow. People who use internet technologies to maintain consistency struggle with English grammar. Although linguistic understanding has increased, concept encoding is simpler, talent growth is still possible. Writing strong introductions requires organizational abilities to reduce errors. Teachers' feedback on grammar, transitional words, paragraph order, and citations inspires and improves students' technical writing. Overall, these encounters demonstrate students' resilience as they navigate research and academic writing.

The difficulties students have using proper English grammar in technical articles are several and call for a mix of linguistic education, experience, and criticism. One of the main difficulties is learning difficult grammatical structures and ideas. Many times, students struggle with problems such as pronoun usage, subject-verb agreement, verb tense consistency, and proper article placement, which greatly limits their capacity to properly and successfully present technical information (Santana, 2019).

Getting grammar knowledge from the classroom to practical academic writing presents even another significant challenge. In their technical writing, even experienced students could show flaws in applying appropriate language, punctuation, and sentence structure. One frequent complaint is the gap between grammatical education and useful application (Ajaj, 2022).

Students' technical writing suffers ongoing grammatical mistakes in part from factors including poor English ability, first language interference, and carelessness. Improving grammar over time requires addressing the underlying causes—that is, inadequate vocabulary, translation problems, and lack of proofreading (Montle, 2022).

Problem in Choosing Conceptualization

Many students seem to struggle with research and technical writing, including grabbing readers' attention, finding significant aspects and titles, writing in English, and punctuation. Due to modular learning and inexperience, some students fail to choose a title, while others struggle with the move to research. Some students struggled to compose research papers, especially during the pandemic when they had less practice. Starting technical writing like essays can be difficult when early concepts do not connect, and uncertainty arises mid-way. Some students found quantitative research easier with Google and groupmates. These issues show that students need more resources, practice, and collaborative learning opportunities for research and technical writing.

Relating to results, Fauzan et al. (2022) found that students had trouble writing paragraphs due to too specific and general topic sentences, poor supporting sentences, no concluding sentences, inconsistent topic discussion, and inharmonic sentences. While implementing writing elements, students struggled with organization (the failure to run sentences smoothly), vocabulary (informal phrases, redundancy, unclear words), grammar (singular and plural errors, wrong word choice errors, missing word errors, article errors, subject-verb agreement errors, fragment errors, conjunction errors, wrong word form errors, wrong word order errors, and preposition errors), and mechanics. These issues stemmed from pupils' native language and a lack of awareness regarding paragraph and writing element development.

Moreover, Puspita (2021) found three reasons undergraduate English students struggle with writing. Results showed that English students struggle most with language. Interviews revealed personality aspects as the first factor. They lacked confidence in choosing a thesis topic and performing a literature review. Second, sociocultural

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issues that affect the thesis writing format in the university culture department. Language is the third factor. They struggled to paraphrase source sentences for the thesis.
Finally, students find great difficulty with the actual writing process, including developing succinct research titles, introductions, and other important portions. Common problems are grammar, language use, and the capacity to link ideas. Giving students focused writing training and feedback has been proven to aid them over time in raising their technical writing ability (Roxas, 2020).

Having Difficulty in Beating the Deadlines
The shared experiences show students' tenacity and self-motivation to overcome research and technical paper hurdles. Research difficulties are difficult, but the desire to finish for good grades and pride motivates the students. Even if the comprehension is imperfect, starting and making the job cohesive gives the student a sense of satisfaction that encourages them forward. Meeting tight deadlines is challenging, but the student's desire to pass and get a grade motivates them. Juggling several jobs with limited time is another common problem, but students rush through it because they want to relax afterward. Faced with multiple challenges and deadlines, the overall feeling is to submit something, even if it's not perfect. These examples demonstrate students' resilience and self-motivation as they manage academic research and writing.

Students often struggle to meet the deadlines for their technical papers, which is one of the most significant obstacles they encounter. Based on the findings of the search, it appears that students frequently have difficulty efficiently managing their time, which results in hurried submissions at the last minute and poor quality. This may be due to several causes, including procrastination, a lack of planning, and unanticipated hurdles that arise throughout the process of conducting research (Adams & Blair, 2019).

The pressure to finish the paper within the allotted amount of time is another significant obstacle that must be overcome. Students frequently experience feelings of being overwhelmed because of the necessity to deal with numerous duties at once, including completing research, writing, and proofreading, in addition to managing their personal and academic commitments. The strain that they are under can cause them to experience tension, worry, and a sense of urgency, which makes it difficult for them to keep the quality of their work at a high level (Tran, 2022).

Finally, among the challenges that students confront is the difficulty of keeping a steady pace during the entire process of writing. According to the findings of the study, a variety of pupils tend to get off to a solid start but then lose steam as the deadline draws near. This may cause a rush to finish the paper at the very last minute, which may result in errors and a decrease in the document's overall quality. When it comes to meeting deadlines and generating high-quality work, it is essential to have effective time management, to check on progress frequently, and to keep a constant writing plan established (Baharudin et al., 2023).

Coping Mechanism of TVL Students in Writing Technical Papers in Their Chosen Track
After citing their challenges and experiences the students stated their coping mechanisms in handling those challenges in writing their technical paper. From their responses, three (3) emerging themes came out from the analysis namely: (1) becoming resourceful; (2) seeking support; and (3) using prior knowledge.

Becoming Resourceful
Students can use several tools and technologies to write research papers today. Many research paper writers draft, organize, and Google for citations. They use Google Scholar and Quillbot for paraphrasing and editing. AI assistants like ChatGPT can help students when they are struggling, but overuse might have harmful effects. Many students use Google or ChatGPT to brainstorm essay topics without copying. Some use Google Translate to speak English as needed. Using a range of digital tools can be helpful, but students must avoid becoming too dependent on them and value their work. Gaming and video-watching are good, but students should utilize AI sparingly when writing.

Numerous studies indicate that students, on the whole, have favorable attitudes toward the utilization of writing tools driven by artificial intelligence; yet, it is important to exercise caution. Many students have expressed that they take pleasure in using artificial intelligence (AI) applications in their writing classes and that they believe these tools assist them with their writing process, grammar, and vocabulary. In addition, there is evidence that artificial intelligence tools can have a beneficial effect on the academic performance and comprehension of one's students (Salido, 2023).

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However, several studies draw attention to the possible dangers that may arise if it is not provided with adequate guidance and assistance by teachers. Plagiarism, whether intentional or inadvertent and the unreflective adoption of recommendations from AI writing tools are three potential outcomes that could occur in the absence of suitable education. Teachers should endeavor to enable students to utilize these technologies deliberately, according to the recommendations of experts. This can be accomplished by encouraging students who are hesitant to use them or by cultivating healthy skepticism in students who may be overly on the technology available to them (Burkhard, 2022).

In general, the findings of the research suggest that writing tools powered by artificial intelligence may be advantageous for students; nevertheless, the incorporation of these tools into the curriculum ought to be done with caution and under the direction of teachers. It is essential to employ teaching tactics that are both thoughtful and tailored to assist students in properly utilizing these technologies while also retaining academic integrity (Sumakul et.al, 2022).

Seeking Support

Academic issues are often solved by seeking help from knowledgeable professors, peers, and specialists. This involves asking peers, research instructors, topic teachers, and professional English teachers for advice. Prioritizing instructor guidance for assignment completion, using online tutorials, asking support from individual teachers, and pooling resources with colleagues help overcome academic problems. In urgent or time-sensitive situations, asking friends, advisors, and family for support helps complete tasks. Create a home atmosphere for focused work and rely on parents and teachers for direction and assistance to overcome academic challenges.

Teachers and peers are the most powerful sources of social support available to pupils for their academic performance and school involvement. Students' cognitive, behavioral, and sense of school belonging is favorably predicted by perceived support from peers and teachers—but not necessarily from parents. In the classroom, peer support enables kids to engage, work with one another, and deepen connections. Teacher support—including both instructional and emotional aspects—helps to lower behavioral disengagement and advance academic success (Pocaan & Pocaan, 2023).

Peer review is an advantageous method for teaching writing that offers students thorough and prompt feedback from several sources. Students derive greater advantages from receiving input from their peers as opposed to feedback alone from a single teacher. Participating in the reciprocal process of peer review enhances students' understanding, expertise, and awareness of their audience, while also promoting social skills such as giving and receiving constructive feedback. Issues regarding peer review, such as potential damage to relationships or the provision of inaccurate input, can be resolved by using anonymous peer review and well-defined rubrics (Wu & Schunn, 2020).

One of the most essential things that can be done to encourage student's participation in school activities is to seek support from professionals, such as teachers and other members of the educational staff. Teachers and other members of the school community can establish or strengthen social support networks to promote a positive environment for students' academic engagement, particularly for students who come from underprivileged homes. Experts can contribute to the reduction of stress among students and the enhancement of their academic performance by working toward the development of supportive relationships that are defined by care, esteem, and assistance when required (Hoferichter et al., 2022).

Using Prior Knowledge

The students' experiences show how they use their academic background to write technical articles. One student noted that studying papers in Grade 11 made the quantitative research process easier, but the new surveying part still motivated him. Another student used their AFA essay writing experience to enhance academic paper writing skills. To build on a framework, the student may directly use a research publication from the previous school year. In addition, writing essays and creating ideas from experiences in Grade 11 has improved students' English, grammar, and paragraph structure. These students use their academic success to overcome technical writing hurdles and progress.

Students can successfully manage the complexity of technical writing by drawing upon their previous academic experiences. This is one of the primary ways that students can do so. According to several studies, children who have participated in research and essay writing activities during earlier grades or classes tend to have a more solid foundation in areas such as the collection of information, the arrangement of ideas, and the coherent

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communication of those thoughts. When it comes to handling more sophisticated technical articles, having this prior knowledge and skill set can provide a major advantage (Barry, 2020).

Furthermore, studies show that students who have the chance to work on related or iterative projects are more suited to meet the demands of technical writing. A student building on a research paper from the previous school year, for instance, can use the existing framework, data, and writing style to expedite the present writing process. This continuity lets them concentrate on improving and extending their work instead of beginning from nothing (Adriana et al., 2019).

Lastly, it has been demonstrated that students' general English competency, grammar, and paragraph-building skills have improved by employing essay writing and idea generation from past experiences. Clearly and orderly presenting technical knowledge depends on strong basic writing skills. Drawing on their past achievements can help students develop confidence and ability to meet the challenges of technical paper writing (Lopres et al., 2023).

Insights of TVL Students in Writing Technical Papers in Their Chosen Track

In the interview conducted with the senior high TVL students regarding their insights into writing technical papers in their chosen track, three (3) emerging themes came out. The following themes are: (1) importance of valuing online tools; (2) need for English proficiency; (3) valuing the future benefits.

Valuing the Importance of Online Tools

AI systems like ChatGPT and Quillbot, together with Google Scholar and social media, are increasingly used to streamline academic writing. These tools and resources improve writing quality and efficiency by paraphrasing, grammar checking, researching, and translating. These technologies are prized for their speed, especially for grammatical correction, despite concerns about misuse. Academic research benefits from the internet's numerous information sources and supplementing traditional approaches. AI tools and online resources have improved academic research, knowledge gaps, and writing quality.

Even though there have been some concerns raised regarding the possible exploitation of these technologies, they are widely regarded for their capacity to finish jobs in a short amount of time, notably to correct grammar. There has been a considerable improvement in the general quality of written work as a result of the incorporation of AI tools and internet resources, which has made it easier to conduct research, fill in knowledge gaps, and overall facilitate academic endeavors (Hind, 2024).

Despite this, it is essential to emphasize that artificial intelligence is not yet capable of taking the place of university writing classes. These classes teach fundamental skills such as critical thinking, research, citation, argumentation, creativity, originality, and ethics, all of which are currently lacking in AI. When it comes to preparing students for a wide variety of writing issues, it seems that the most effective method is a well-rounded strategy that incorporates AI support while maintaining the fundamental components of academic writing education (Bukhard, 2022).

QuillBot improved students' writing by reducing grammatical errors, improving content and argument, and improving language. Syahnaz and Fithriani (2023) found that AI-based technologies like QuillBot can help EFL students enhance their academic writing. However, the study shows that more research is needed to evaluate each element's proportional value in students' AI-based paraphrase tool utilization.

Need for English Proficiency

Researching effectively and overcoming obstacles linked to time restrictions and language proficiency depend on developing mastery of English including comprehension, writing, and grammar. For students in Technical-Vocational-Livelihood (TVL) tracks especially those who must grasp technical papers and enhance their writing ability, this is very crucial. Whatever the academic strand, efficient writing of academic papers depends on keeping proper language and punctuation. Good grammar guarantees unambiguous communication and helps to avoid message confusion. Language abilities can also be much improved by encouraging reading English books as a hobby and sensible use of the internet for learning. Key to reaching academic achievement in writing papers is stressing the need for practice for success and the need to learn English for correct grammar and sentence construction.

Effective research and avoiding problems require English comprehension and writing skills. Research shows that good reading comprehension improves writing skills. Students' writing skills improve with increased reading

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comprehension. Reading improves critical thinking, vocabulary, syntax, and sentence structure, which are necessary for writing academic papers and disseminating research findings. Prioritizing English language competency, especially reading and writing skills, can improve a student's research and academic writing skills (Atayeva, et al. 2019).

A smooth transition into college requires English proficiency, particularly accurate pronunciation. Research shows that students with great English language skills—fluent reading, writing, and speaking—are better prepared for college study. College classes often demand substantial reading of complex books, well-written essays and research papers, and active participation in discussions and presentations. Students with poor English, especially pronunciation, may struggle to understand lectures, communicate with professors and peers, and fully engage with course material. Thus, establishing English language competency, from grammar and vocabulary to pronunciation, is essential for preparing pupils for college and assuring academic success (Budiman et al., 2023).

Student performance in Technical-Vocational-Livelihood (TVL) tracks depends on technical paper comprehension and writing. According to research, vocational students need to understand and interpret technical texts to understand complicated concepts, follow instructions, and communicate effectively in their industries. Strong writing abilities are also needed to write clear, succinct reports, proposals, and other technical documents. By emphasizing these abilities, TVL programs can better prepare students for the workplace and boost their job prospects after graduation. Understanding technical literature and writing well is essential to a well-rounded vocational education (Ferrer, 2022).

Valuing the Future Benefits

Acquiring proficiency in technical paper writing as a TVL student, while not yet fully utilized, offers substantial advantages for the future. Proficiency in research paper writing is crucial for college and future endeavors, streamlining complex jobs such as technical, research, or reaction paper assignments. The process of conducting research now enables more streamlined thesis writing in college, highlighting the significance of cultivating research abilities. Engaging in the process of creating theses and essays is advantageous for future attempts, as it helps to avoid difficulties in comparable activities. Gaining proficiency in technical paper writing is essential for future applications and enriches one's understanding of the topic. Improving technical paper writing skills as a TVL student has several benefits, including developing competence and preparing for future efforts.

Students will gain greatly in the long run from learning how to write good research papers. Employers respect skills like critical thinking, information literacy, and good communication that students learn through writing research papers. These skills can help students succeed in school and their careers. When students know how important these skills will be in the future, they are more likely to put more effort into writing their study papers and get better at the skills they need (Ayish & Deveci, 2019).

The process of conducting research, analyzing data, and integrating information to compose a research paper enables students to develop crucial critical thinking skills that are vital for achieving success in further education and beyond. Moreover, the acquisition of information literacy skills, such as proficiently conducting research, critically assessing sources, and accurately referencing them, provides students with valuable resources that will have long-lasting advantages in their academic and professional endeavors (Gamage et al., 2021).

Writing study papers also help students improve their written communication skills, which are very important for getting jobs. Writing a research paper on your own also helps students learn skills that will help them throughout their lives. They learn to be responsible for their learning and get better at finding knowledge gaps and finding new information on their own. These skills help students be successful in the long run and be able to adapt to a world that is always changing (Fitria, 2024).

Implications for Teaching Practice

The result of this study captured and explained well the positive and negative experiences of senior high school TVL students so as their coping mechanisms and insights in writing technical papers related to their track. Nowadays, research writing has been part of the senior high school curriculum in DepEd wherein students face tedious processes in accomplishing it. Despite all the indicative learning they have been through from Grade 11 to Grade 12, there are still several issues that need to be addressed and understood by the teachers and the school respectively.

The result of this study specifically on the challenges faced by the students will be beneficial for the teachers and institutions to understand more the struggles faced by the TVL students in writing their research paper. Given that their major is more inclined to skills and application of learning, writing research has been one of their agonies in

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senior high school year. This situation led them to use technological and online tools that they found helpful in doing their paper. Though there are a lot of issues inclined to it they were left with no choice just to comply with the pre-requisite of their grade level. However, through the help of their teachers, peers, and some research experts, they were able to complete the paper on time. Through innovative tools like AI, their research paper was put into reality but with utmost diligence to paraphrase everything. In this scenario, it was found that students nowadays rely more on these online tools just to deliver the expected output from them.

This result implied that research writing is one of the difficult subjects faced by senior high school TVL students. With their abilities that are more inclined in skills, they wanted to have more time to write their research paper. This also implied that teachers must consider some innovative approaches that will make these students craft research more easily. Moreover, results also implied that the use of AI and other online tools have already been part of the education system nowadays, thus, teachers must be more inclined to it than students for them to guide their learners on its proper use and limitations. By this, AI will not be considered as a way of cheating but rather a useful tool for innovation and education development.

Therefore, one suggestion to promote the use of internet technologies, strengthen English skills, and highlight the advantages of technical writing is to introduce comprehensive digital literacy programs in educational institutions. These programs should prioritize teaching students in the competent utilization of digital tools for learning and evaluation, guaranteeing their ability to proficiently access and engage with online resources. Incorporating English language learning modules that correspond to technical writing abilities might assist students in cultivating the essential communication competencies required for their future professional endeavors. Institutions may also create mentorship programs wherein seasoned experts provide guidance to students in the practical application of technical writing, therefore showcasing the enduring significance of these abilities in the employment sphere. By cultivating a setting that prioritizes digital expertise and effective technical communication, educational institutions can more effectively equip students with the skills needed to meet the requirements of their future jobs.

Recommendations for Further Research

This study only tackled the experiences, coping mechanisms, and insights of the senior high school TVL students in writing their research paper. This only unveiled personal experiences that can be used as a basis for further research. Results as to how these experiences greatly affect their ability to write a technical paper are not reflected in this study thus, quantitative research on this area can be done by future researchers.

Moreover, most of the respondents stated that they use AI tools in making their research papers. They have also expounded that they can maximize and save time in writing research papers through the use of these online tools. Therefore, future research on how AI tools affect the writings of students is a good topic to be discovered in the future.

Further, this study can also be a basis for future research on the interventions to be done in school that will focus mainly on the improvement of student's ability to write research papers. This can also be an avenue for the institution to craft activities that will highlight the research outputs of not just the TVL students but also on the other tracks.

Lastly, future research can also be done to unveil the lived experiences of students in other senior high school tracks. By this, a wide array of information can be gathered to formulate appropriate activities and interventions related to the development of research in the institution.

Concluding Remarks

In conclusion, this research endeavor has brought me a roller coaster ride with lots of memorable and knowledgeable experiences. Through this study, I was able to understand well the challenges faced by the students in research writing specifically among the TVL students. It brought enlightenment to me as a teacher to be more understanding and considerate of the situations of my students for writing research is not easy to anybody.

Moreover, through this study, I was able to understand more how innovative and creative in some ways the senior high school students. Though AI tools were prevalent in their responses, it helped me appreciate these tools as a way of helping the students get the information they need easily. True enough that we are all now in a digital age wherein information is very accessible.

Further, this study unveiled a lot of struggles faced by the students. This could serve as an enlightenment for the teachers to better understand the situation of their students. Research or any technical paper is not that easy to write thus, proper guidance and teaching approaches are hereby necessary.

This study also unveiled to me that even though students reach the senior high level, difficulty in English grammar is still prevalent. One of the reasons for their hardship in writing their papers is their inability to explain their ideas using English as the medium of instruction. This made me realize that for a research paper to be good, English skills must be established first.

Lastly, I am very happy and grateful to the TVL students who have imparted their experiences and shared some innovative ideas with me. I am honored to be an instrument for their voices to be heard in times of them being unheard. I, as a teacher, will surely do my best to elevate the quality of research in our country. I will also make sure that in the process of elevating that quality, our young learners will not be any more unheard of and will develop the skills that will embrace the love of writing research.

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