STUDENTS' COGNITIVE CHALLENGES IN SELECTED COMPETENCIES IN GRADE 10: AN ANALYSIS

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ABSTRACT

The study investigated how Grade 10 students construct opinion statements and build claims for fact, policy, and value, based on two genres, news articles and comics. Specifically, it explored clausal and phrasal constructions and linguistic markers such as modals, connectives, and stance. Results showed that although students tried to use complex sentences, their output was not accurate, clear, and coherent.
Moreover, comic-based tasks evoked more personal and expressive writing, whereas tasks based on news articles were more formal and less developed. In both genres, it was observed that students lacked vocabulary, academic writing skills, and structural skills, as manifested by their cognitive difficulties such as poor sentence construction skills, short attention span, lack of metacognitive skills, and over-reliance on technology. To cope with the inadequacy in academic writing skills, a new pedagogical tool was realized: Digital Comics Cognitive Support Toolkit. This new pedagogical tool is based on genre-based pedagogy, multimodal learning, and cognitive scaffolding. It is recommended that the toolkit be validated by experts, used as supplementary material in Grade 10 English, and improved to be used in teaching academic writing.

Keyword : - *Academic Writing, Cognitive Challenges, Comics, Linguistic Markers, Multimodal Instruction*

1. INTRODUCTION

1.1 The Evolving Role of Teachers in a Digital Age

Teachers assume a very important role not only in imparting education, but also in the overall language and cognitive development of the learners. The 21st-century teaching-learning scenario with the growing emphasis on multimodal and learner-centered approaches provided additional challenges to the teachers to effectively integrate and respond to the multimodal avenues and use of technologies for learning. Present-day learners who are of Generation Z are characterized as being technology-friendly, visual, and having low attention spans [2][12][14]. In the Philippines, educational landscape is still struggling to address the diverse cognitive needs of its learners. In the 2018 and 2022 PISA results, the Philippines consistently landed at the lowest rank in reading comprehension and critical thinking, respectively [16][5]. Given these challenges, teachers moved from a traditional role of knowledge providers to that of learning designers who meet the students' needs of cognitive and linguistic variety.

1.2 Language Learning and Structural Competence in Writing

Academic writing is an intricate process mandated by syntax, semantics, pragmatics, and discourse-level conventions. The construction of an appropriate ideological claim is premise on three characteristics which include clausal, phrasal structures, and language markers. These characteristics are the avenues of constructing ideological meanings, related ideas, and claims [13][5].Clausal structure involves using dependent and independent clauses to convey relationships between ideas. Students' deficient in clausal structure often produce choppy or run-on sentences which affect overall cohesion in the work and the reader's understanding [7]. In the same lens, phrasal structure increases lexical density and text fluency[11]. Some linguistic markers that suggest modality like might and should; stance indicators such as, I believe, in my opinion, and logical connectives, with samples like because, however, therefore are important in emphasizing positionality in discourse. Beginners in writing had a tendency to overuse emphatic markers and underuse hedging or attitudinal phrases [3].

1.3 Cognitive Challenges in Academic Writing

Cognitive barriers are often used to compound structural limitations. Writing involve planning, organizing, drafting, monitoring, and revising,yet several students approach writing as a linear and shallow task that lead to disorganized outputs. [10] underscores common difficulties in student writing, like limited vocabulary, weak retention of memory, limited pre-writing strategies, and in recent cases, over-reliance on phrasing that are AI-generated. These problems might be due to carelessness, though they also reflect deeper issues particularly on the areas involving cognitive load management, working memory, and meta-cognitive control.

2. METHODOLOGY

This paper utilized descriptive qualitative design to be consistent with the aim of assessing the cognitive difficulties faced by grade 10 students in composing opinion/assertion statements and claims. The participants were 26 Grade 10 English students from Pili National High School in Magallanes, Sorsogon Province, selected through purposive sampling. Data were collected from 156 written outputs based on tasks using news articles and comic strip materials aligned with the Grade 10 English curriculum. Semi-structured interviews with 26 students were also conducted to explore their writing experiences and cognitive challenges.The written outputs were analyzed using structural linguistic analysis based on Payne(2011), while interview data were examined through thematic analysis following Braun and Clarke (2006).

3. RESULTS AND DISCUSSION

This section presents and discusses the findings on how Grade 10 students formulated statements of opinion/assertion and claims of fact,policy and value using two genres (news articles and comics). The analysis focuses on (1) clausal construction, (2) phrasal development, and (3) use of linguistic markers, and then links these patterns to the cognitive challenges reported by learners during interviews.

3.1 Students' Use of Structure and Language in Forming Claims and Assertions

The findings indicate that while students were able to make different types of claims, there were a lot of undeveloped clauses, poorly constructed phrases, and unsystematic use of discourse and modal voice in their written texts. These structural challenges were evident across both genres and among students at different performance levels. The discussion below presents a recurrent theme, and experiences that affected students in making claims and assertions through these different structural elements.

3.1.1 Structural Analysis

The structural analysis emphasizes the clausal structures, students' phrases, and use of language markers in the students written work. This includes discussion on the other patterns in grammar, coherence and fluency in students' written outputs, focus on areas where difficulties in form and mechanics are affected the clarity, coherence, and communicative effectiveness of their statements and claims.

3.1.2 Clausal Construction

The students' written outputs revealed challenges in clausal construction. It occurs repeatedly and affected the clarity and coherence of their statements and claims. In both news article–based and comic-based tasks, common errors included run-on sentences, misused conjunctions, and fragmented or structurally unstable clauses. One student wrote, "For me, the dengue is the most problem of disease in the world better than headache." This demonstrates inappropriate clause structuring and unclear phrasing, which resulted to a weakly formed assertion. Clausal difficulties were more frequently observed in news article–based outputs, particularly in sentences containing reporting verbs and attribution structures. Another student wrote, "Vice President Duterte brought up Ninoy in her response to the counter-statement of President Marcos…", a construction that lacks syntactic completion and clear clause linkage. There is the absence of explicit relational markers and complete clause development disrupted coherence and obscured the intended meaning.

The absence of explicit relational markers and incomplete clauses would lead to a distortion of coherence. It blurred out the ultimate purpose of the text and eventually shows that the students had weak syntactic awareness on the use of the independent and the dependent clauses. As [11] put it, it is a clause that serves as the basis for academic writing. The students' difficulty in organizing clause relationships constrained their ability to present

coherent reasoning, especially when constructing claims of fact or policy that require precise attribution and logical structuring.

3.1.3 Phrasal Development

In both genres, it is evident that learners drew ideas in underdeveloped phrasal language constructions which affected the articulation of their claims. High-frequency stance taking resources, such as "for me," "I think," and "I believe," are often used to preface imprecise or loosely related claims. For instance, a learner states: "For me, drugs are not good and people are bad when they use this." This is a rather undeveloped claim that shows limited expression forms and recurring errors in following noun-verb phrases, which together demonstrate poor lexical variation.

Similarly, the use of language patterns, such as "bad effect," continued "addiction of drugs" and "mental health," in learners' responses suggests limited variations in nouns and phrases. Students' phrasing even demonstrates formulaic interpretations of lexicons, which manifests a limited control of varied expanded noun phrases and modulations and has consequences for the construction of academic claims. As [13] explains, effective academic writing requires the ability to construct dense and elaborated noun phrases, a skill that many secondary-level learners have not yet fully developed. [5] likewise notes that restricted phrasal variety constrains writers' capacity to articulate claims and support reasoning clearly.

Comic strip responses were marginally better in phrasal language, but still non-academic and conversational. For instance, one student wrote, "Kindness is better than nonsense attitude," which shows that students are attempting to articulate a value claim; however, it is not yet syntactically accurate or clear, and shows they are still mastering comparative constructions and those associated with nouns. Learners seem not to have acquired the syntactic requirements for formal, argumentative claims. Their high frequency phrase usage may represent a compensatory strategy for poor control of grammar. As [9] emphasize, academic writing proficiency depends on the ability to manipulate a wide range of phrase structures particularly noun, verb, and prepositional phrases in embedded and elaborated forms. The patterns observed in this study reflect ongoing challenges in phrasal development that directly affect students' ability to construct coherent and well-supported claims.

3.1.4 Use of Linguistic Markers

The students' use of linguistic markers such as modals like should and might; conjunctions like as and however; and hedge expressions like perhaps and it seems was absent across both genres. Likewise, several student responses lacked the use of critical cohesive devices that ensure the logical functioning of clauses and clear indication of stance.

For example, one student wrote, "For me, the task is sow meni," which, aside from spelling issues, demonstrates the absence of logical linkage and appropriate clause structuring. Another response, "Taking and paying the reporters," is another response that, among others, exhibits the absence of verbal agreement and the connecting words needed for the logical relationship between the clauses. Similarly, the fragment "Will for me" is another example that exhibits both inappropriate modal expression and an unclear syntactic function. These examples mirror the patterns where the use of linguistic markers is either incorrectly or ineffectively employed, leading to the erroneous construction of clauses and even ambiguity of meaning.

Not just at the level of grammatical casing, the patterns indeed illustrate a certain level of incompetency in the use of cohesive devices for argumentation. [13] correctly asserts, "They are central to the construction of the kinds of logical connections and a certain cohesion across sentences that is needed in academic writing." The dubious and erratic use of linguistic markers in the student responses resulted in fractured reasoning and made the narratives rather hard to follow.

Some students' attempted to formulate claims of fact, opinion, and value were often undermined by weak marker use. Opinion statements frequently lacked justificatory connectors, factual claims were expressed without clear attribution or evidentiary markers, and repetitive phrasing further obscured intended meanings. These difficulties align with the findings of [10], who underscore the importance of explicit attention to grammatical and rhetorical devices in supporting effective writing. [11]likewise highlights that cohesive devices are not merely syntactic features but integral resources for constructing meaning within extended written discourse.

3.2 Cognitive Challenges Encountered by Grade 10 Students

The themes on cognitive challenges experienced by Grade 10 students in formulating statements of opinion or assertion and constructing claims of fact, policy, and value were identified. Based on the students' written outputs and interview responses, the findings indicate six themes that emerged across both news article–based and comic-based tasks. Each theme represents patterns related to motivation, information processing, attention and memory,

language use, reasoning, and self-regulation, all of which influence students' engagement and performance in academic writing tasks.

3.2.1 Low Motivation and Task Engagement

The low motivation and limited task engagement was observed in student responses. They deal particularly in relation to news article–based tasks that highlight the influence of task design and perceived relevance on student engagement. Disengagement, as reflected in blank submissions and minimally developed or copied responses, suggests that many students viewed the tasks as overly demanding or insufficiently meaningful. It is consistent with the Self-Determination Theory, which claims that in the case of intrinsic motivation, the more meaningful and achievable tasks seem, the higher the motivation towards them. The formal tone and abstract character of news articles may serve as a reason for psychological distance, mainly among those with low reading confidence or an inadequate academic background.

This was evident in the result of interviews with the students. One pair of participant revealed, "Napapagalan ako magibo kang activities kaya 'di na ako nagibo kaito, nan ihugakan po ako… [I'm having a hard time doing the activities, so I don't do them anymore, and I feel lazy] (P12), while another admitted, "Di ko tigsasagutan an mga hapot kay minsan nahuhugakan tapos 'di ko po talaga aram kung panu himoon." [I don't answer the activity because sometimes I feel lazy, and I don't know what to do.] (P22). From these responses, they reflect both emotional and cognitive disengagement that point to a sense of helplessness and low self-efficacy in academic writing. Such reasons would imply being aligned in the research of [12], who identified that the main reason for academic detachment is the lack of ability and motivation to work hard.

Some materials, however, like comics, offer familiar and visually engaging format that seemed to reduce students' anxiety and encourage greater participation. One pair of students shared their experience in reading comics. They describe it in the following statements, "gare oras-oras gigiboon ko sya ta an drawing duman sa comics magayon tapos nasasabutan" [It's like I would do it every hour because the drawings in the comics are nice and easy to understand] (P1). This would imply the potential of comics as a multimodal resource to improve motivation by making the reading and writing tasks less intimidating. This claim finds ally in the study of [13]. They found out that the implementation of comic strips in reading activities could significantly boost students' motivation and comprehension skills. In the same way, graphic novels could also promote students' engagement among youth readers, for them to partake in activities such as reading [14]. It should be complemented by specific skills training in reading and writing to see a high-quality rise in students' academic abilities with increased motivation.

The blank outputs, copied responses, and statements of emotional fatigue suggests that learners might not experience tasks as accessible or meaningful. As supported by Self Determination Theory, motivation increases when learners perceive tasks as relevant, achievable, and aligned with their interests [4]. Therefore, educators must thoughtfully select materials and task types that not only align with curricular goals but also resonate with students' backgrounds and cognitive readiness. The positive engagement with comics observed in this study would suggests that multimodal texts could serve as effective motivational tools. When visual narratives are incorporated, students appear more willing to participate and engage with content, as evidenced by their increased enthusiasm and sense of understanding.

Educators should perform careful and thorough selection of materials and task types that meet the students' social life and cognitive level. The positive interaction with comics that was documented during the course would imply that multimodal materials can provide motivational support. The students become more enthusiastic and interested in the lessons when narrative visuals are added to the curriculum. This would mean that they are more likely to get involved and interact with the context. Such kind motivation should be coupled with deliberate teaching of academic writing, analytical skills, and textual comprehension if engagement is to lead to learning on a deeper level. Even so, teachers are advocated to embrace comics as a way of easing students into the main story. They should follow scaffolding activities that build higher-level thinking and progressively increase cognitive demand. This way, teachers can support sustained motivation, lessen writing anxiety, and promote a more inclusive and responsive classroom environment.

3.2.2 Cognitive Overload and Information Processing Difficulty

Students often experienced cognitive overload when writing based on news articles that contained a lot of information to be processed. Out of this, they suffered for a whole chunk of time, like producing structurally unstable sentences, fused clauses, and also having a hard time organizing information in a written response correctly. Such results suggest that students had difficulty attending to the multiple demands of understanding the source material and importing the information into their writing, as well as communicating in English. Such findings support the idea of [15] as reflected in Cognitive Load Theory, which suggested that learners have limited working memory capacity, and high demands on working memory make it challenging for them to perform a task due to the lack of instructional support.

Moreover, [7] point out that, “even skilled readers cannot efficiently process all the information available,” as [18] observed, and information overload might present more difficulties for adolescents. Furthermore, student interviews provided evidence to confirm that such tasks cognitively overload students. Evidence from student interviews further illustrates the cognitive strain associated with such tasks. One student (P12) shared; “Nagbablock-out ang utak ko ‘pag essay na lalo pa kung 45 minutes lang an oras kaya ‘di na ako nakagibo” [My mind goes blank when it's time to write an essay, especially when there’s only 45 minutes, so I end up not being able to do it], highlighting the paralyzing effect of time-pressured writing demands. Similarly, Pair 7 explained: “Minsan napapagal ako ta masakit an mga tigpapagibo, napapagal ako kun arin an uunahon” [Sometimes I get confused because the activities are heavy; I get confused as to which one I should do first]” These all reflect difficulty in managing multiple cognitive demands without clear strategic guidance.

The use of comics in tasks seemed to alleviate information overload through the presence of an image that aided in processing information. In the shared statements of P12, “Sa comics, maski ‘di ko nasasabutan ang words, may picture man duman kaya nakabulig ito sa pagsabot ko” [In comics even if I don’t understand the words, the pictures help me understand]. Another set of participant commented, “Sa comics itoon na po su pictures, tapos na-iimagine ko po su nangyayari” [In the comics, the pictures are already there and I can imagine what’s happening], this suggests that the presence of pictures allows them to process information easier.

The mentioned verbatim statements find ally to the Cognitive Theory of Multimedia Learning [6]. It claimed that the verbal channel must be supported by visual representations. Comic strips, being a form of a multimodal text, might lessen extraneous cognitive load through visual representations that can help the learners make connections. In general, findings suggest limited students’ ability in planning, organizing, and articulating written arguments due to cognitive overload, especially for high-information-density writing tasks. Although the use of visual aids is not predictable for writing tasks, they appear to lower the comprehension demands and make students more available to writing tasks! These patterns emphasize the importance of cognitive load awareness in designing writing tasks that are writing-demanding, requiring focus, synthesis, and order arguments.

3.2.3 Limited Attention Span and Working Memory Control

One of the significant cognitive problems that occurred was the incapability of the students to retain important concepts for a prolonged period of time. In the response of the students to the news articles, a lot of the eloquent outputs exemplified that the students encompass difficult languages with arbitrary phrases with obvious and unexpected closures and obscure connections of concepts. Typically, there was an absence of a smooth flow of ideas, if not a cutoff, but then the entire direction of the ideas was altered with a dramatic shift in topics entailed somewhere in between. Another important point on the time pressure aspect from the interview transcripts is the students’ focusing at fault interference. Pair 7 shared, "Nagrarambrang man po ako lalo na pag kadaralian na po" (I get confused, especially when it’s rushed), meaning the time pressure resulted in cognitive overload and breaks one’s train of thought.

Aside from attention difficulties, a small number of students exhibited working memory problems as a result of writing in high-demand situations. Pair 6 stated that "nalilingawan ko magkaag sin base from, according to" [I forget to use phrases like "based from" or "according to"], a reflection that they were having difficulties accessing and using academic language forms when constantly under cognitive demand. Likewise, [12] showed that those students with low-capacity working memory often have problems applying academic language conventionally in cognitively more demanding situations. Some students dealt with cognitive overload by not reading directly and using different approaches to learning. P7 indicated this adaptation when stating: “Pag inhatagan ako sin mga halabaon na basahon, nagsesearch ako sa YouTube para mas lalo ko maintindihan kesa sa magbasa” [When I'm given long readings, I search on YouTube so I can understand better than reading]. The choice for multimodal engagement with content exemplifies attempts to manage attention load and decrease the demands of processing information. Supporting this finding, previous research on dual coding indicates that exposing students to visual and verbal information improves comprehension and memory performance for students with short stamina for long deciphering of text [18].

In comparison, comic tasks yielded a better attention level and amount of information. The series of images and well-defined stories contributed to the students’ attention levels and content organization. As expressed by P2, “Kaya po ako nakasimbag sa comics ta ang iba po duman may kinalaman san experiences ko” [I was able to answer the comics because some of them relate to my experiences]. This statement highlights the effects of personal attachment and stimuli in our strategy to raise attention level and harness prior knowledge in the retention of information [17].

The findings indicate that constraints in cognitive resources and working memory capacities limited students’ chances for coherence, academic vocabulary and further development during the writing process. Although the comic materials per se did not contribute towards students achieving greater depth of analysis, their visual characters and format were perceived by the participants as lessening cognitive load and facilitating cognition with reference to the students who considered the academic reading materials too demanding and time-pressured.

3.2.4 Weak Linguistic and Structural Writing Control

One of the most significant linguistic issues that could be noticed across the genres was students' failures to generate acceptable and grammatical sentences. In their replies to the news articles, most students faced run-on sentences, fragments and poorly attached clauses, which hinted at their issues with constructing syntactic clauses/sentences. There were also multiple instances of errors with subject-verb agreement, conjunctions, and punctuations, which once again proved that students did not have an appropriate mastery of common grammatical phenomena.

One student (P4) stated, "Sa paggamit ki punctuation mapagalon po aramon kung sain mapundo" [When it comes to using punctuations, it's really hard to know where to pause] and according to another student (P1), Minsan 'di ko aram kung sain ko ikakaag an mga punctuation parehas san comma [Sometimes I don't know where to put punctuation like commas]. These are manifestations of apprehension in mastering the fundamentals of sentence structures, which may cause unstable, indefinite or probably indefinite sentences. Interview data supports the same evidence. P6 said that, "Nahirapan ako sa pagpili right words na gagamiton minsan ulit-ulit na sana po ang aram ko na words," [I find it difficult to choose the right words because I keep using the same words repeatedly], that relays a difficulty in choosing the right words because of repetition. This can be attributed to a small vocabulary engaged in elaborating this claim, which also affects the elongation of sentences, which diminishes the quality of students' written response.

These phenomena testify to the absence of awareness and automatization of syntactic structures. The control of sentence structures is needed for cohesion in academic writing and those who have not acquired this control cannot formulate the relationships between the ideas expressed. The problem of sentence construction can curtail the students' ability to formulate and support claims [7]. Some structural mistakes can still be found in comic format responses, but they are more in line than in the character style. Problems such as elliptical and informal structures also existed because many students used conversational syntax that was influenced by speech and visual cues, resulting in incomprehensible and very simple sentences. While this can symbolize an ease of verbalization, it also consists of a difficulty in being able to switch from the informal to the formal academic level of writing.

The findings indicate that low-level linguistic and structural control issues hindered students' abilities to articulate clear claims and construct coherent arguments across various genres. These surface-level sentence-level issues were reflective of more deep-seated concerns regarding the control of grammatical form and content elaboration, especially in cognitively demanding writing tasks.

3.2.5 Limited Metacognitive and Self-Regulation Strategies

Both categories of essays revealed deficiencies in the use of metacognitive strategies in students, specifically in planning, monitoring, and revising, which are important processes for organizing ideas, evaluating clarity, and improving coherence in writing. A lot of the time, students would just write their response to news articles without doing any pre-writing or reviewing of them. This would lead to some of them having fragmented arguments, independent paragraphs, and lacking logical progression. This trend may indicate that writing was usually accomplished as a one-off task rather than writing with reviewing and modifying in mind, thus making it a recursive process.

This student's comment, coded as P3 says, "Minsan lang ako magreview san sagot ko," [I only review my answers sometimes] which denotes poor monitoring. Likewise, P7 notes, "Dae po ako nag-checheck kung tama an simbag ko". [I don't check if my answer is correct, as long as I write something that I feel is right] which means very limited checking of their written work. Students who have low self-regulation skills often have incoherent writing due to their irregularities and inconsistencies in planning and revising their writing work.

Further data suggest a preferring of skipping difficult areas than attempts of making repairs. "Pag arug po kaan na aram ko… tigbabayaan ko nalang po" [When I don't understand a word, I just leave it] as told by P1, showing how she gave up without rereading or paraphrasing or asking for clarification. This claim strengthens the argument of [5], where underdeveloped metacognitive control restricts the reset that the learners could have done. The writing of the students reflected recklessness and lack of proofreading. This is observed since they seemed to be more relaxed and established when answering the comics. It does not show any sign of revision. In P5's words, "Madali su comics para sako" [Comics are easy for me], meaning that it has low cognitive demands, was used to highlight reduced cognitive demand. Although further visual support may act as a cue for surface-level fluency if it consists only of well-thought-out planning and monitoring strategies.

The analysis revealed that restricted metacognitive and self-regulation processes hampered students in planning, monitoring, and revising their writing across genres. Without such processes, students have difficulty arranging their ideas in a coherent manner, assessing the effectiveness of arguments, and undergoing revision and editing processes, which considerably hampers their performance in academic writing.

3.2.6 Dependence on External Supports and Digital Tools

The research study started to expose a cognitive barrier that manifested itself in the form of reliance on AI-assisted help and tools for task completions such as writing in English and approaching questions related to news articles. Many student reports mentioned that they used ChatGPT and translation services to aid them when reading or dealing with an unfamiliar word was an issue or a deadline was tight. Now, although it did help them for the time being, they were quite often caught relying on AI-enabled help rather than practicing the reading and planning.
Data from the interview reflected that AI is being used for cognitive overload, not for education. In this interview data, P1 clearly said that, “Nagagamit po ako ChatGPT ‘pag ‘di na po kaya kang isip ko, kayan nisip ko po na mag AI nalang para mas mapadali su tigpapagibo sako” [I use ChatGPT when I cannot handle it anymore, so I use AI for some ease to the task being made], which aligns for efficiency in cognitive overload. Similarly, P8 shared, “Minsan nag AI ako para lang may maipasa ako” [Sometimes I use AI just to have something to submit], reflecting a compliance-oriented approach focused on task completion rather than comprehension. On the contrary, other learners pointed out that they pasted the AI responses verbatim, especially in settings where they anticipated that the tutors would oversee them less. P2 asserted that,“Minsan tigkokopya ko lang ang sagot base sa sagot san AI, kaya ‘di na ako kikulbaan” [At times, I just copy the AI response since I’m sure that it can’t be audited] This implies that the already low instance of instructional responsibility was reinforced through the use of AI.
On the contrary, the comic tasks seem to support the employee's autonomy. The respondents claimed they used their knowledge to accomplish the comic task because the comic and the context were the mediating material resources of the learning materials. An employee claimed, “Naiintindihan ko po an comics kaya nakasimbag ako sin sadiri kok na ideya nagcocopy lang” [I understand the comics so I was able to answer using my own ideas without copying]. With the presence of this discrepancy, the task and learning materials have an effect on the material resource.
It can be implied that there is a reliance on AI assistance because of problems with cognification, confidence, and strategy. Since task cognitively favors outsourcing of cognition rather than writing, people will be more likely to outsource cognition. Although AI has benefits in the academic realm, unchecked usage impairs the individual’s writing, cognition, and self-regulation.

3.3 Digital Comics Cognitive Support Toolkit

The development of the Digital Comics Cognitive Support Toolkit is directly based on the linguistic and cognitive challenges identified in the findings of this study. The structural analysis of students’ written outputs revealed persistent difficulties in clausal construction, particularly the prevalence of run-on sentences, sentence fragments, and unstable clause boundaries across both news article–based and comic-based tasks. To address these challenges, the toolkit incorporates sentence frames, clause-combining activities, and guided sentence-building exercises that explicitly model complete and well-structured academic sentences. In addition, findings showed that students relied heavily on repetitive and underdeveloped noun phrases (e.g., “bad effect,” “illegal drugs”) and demonstrated limited control over phrasal expansion and academic vocabulary. In response, the toolkit includes phrase expansion tasks and vocabulary scaffolds that guide learners in refining vague expressions into more precise and context-appropriate academic language.
Furthermore, based on the results of the interview, it can be deemed that students had experienced cognitive overload, limited attention span, and difficulty organizing ideas, especially when engaging with dense informational texts such as news articles. To reduce these cognitive demands, the toolkit employs short, visually segmented comic panels paired with step-by-step writing tasks, allowing learners to process information incrementally while maintaining engagement.
The findings also indicated a lack of metacognitive and self-regulation strategies, as many students wrote without necessary plan, did not monitor, or revised their work. To address this, the toolkit aimed to integrate graphic organizers, guided prompts, and self-check questions that would encourage students to plan their responses, evaluate sentence clarity, and revise their writing before submission.
Finally, the students’ over-reliance on external digital tools, particularly AI-generated responses, was used as a coping mechanism when tasks became cognitively demanding. The toolkit would be used to guide, scaffolded in writing activities that promote independent idea construction, supported by visual cues and structured prompts rather than automated text generation. These features would ensure that the Digital Comics Cognitive Support Toolkit is a research-informed instructional intervention that directly responds to the cognitive and linguistic needs identified in this study.
The use of comics as the primary instructional medium is both strategic and pedagogically supported. The studies of [8] and [9] demonstrate that comics can enhance learner engagement, visual processing, and comprehension.

These benefits are further supported by Mayer's Cognitive Theory of Multimedia Learning [6] and [15]. They emphasize the value of multimodal input to support learners with diverse cognitive profiles. In the present study, comic-based tasks were associated with greater engagement and improved coherence at the sentence level, indicating their potential to bridge students' informal meaning-making practices and the demands of academic writing.

In addition, the Digital Comics Cognitive Support Toolkit is primarily designed for flexible classroom integration. It may be used in writing workshops, reading-response activities, or formative assessments. Its modular and visual structure would allow teachers to differentiate instruction across varying levels of language proficiency, while keeping the activities aligned with the K to 12 curriculum's emphasis on critical thinking, communication, and multimodal literacy.

3. CONCLUSION AND RECOMMENDATION

The study found that although students exhibit surface awareness of claims, the students' constructs were generally marred by deficient clausal and phrasal development and use of linguistic markers, thus affecting coherency and argumentation in both newsgroup and comic. Several interconnected cognitive difficulties, such as low motivation, cognitive overload, and lack of focus and self-control of information and working memory, insufficient linguistic management and metacognition, and dependence on external technological applications, constrained Grade 10 students' ability to plan, organize, and present ideas competently in academic writing tasks. In response to these findings, the Digital Comics Cognitive Support Toolkit was developed as a contextualized instructional material that takes into consideration designed to support students' construction of academic claims and arguments.

It is recommended that English writing classes incorporate a consistent focus on explicit teaching of academic clausal development, phrasal construction, and application of linguistic features using genre-based instructional models and scaffolding writing tasks. Writing pedagogies should infuse cognitive scaffolding and students' processing and attention focus activities, such as chunking and space writing, graphic organizers, guided questions, and brainstorming, to facilitate students' information process, self-control, and metacognitive reflection on writing. It is further recommended that the proposed Digital Comics Cognitive Support Toolkit be validated by experts and piloted by teachers before its classroom deployment for its efficacy, functions, and students' needs.

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