

## Tools To Aid In The Construction Of TCCS Using Prompt Engineering

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### Abstract:

The application of prompt engineering in the academic context has revolutionized the way students develop their Course Completion Papers (TCCs). This study investigated, in practice, the effects of the use of optimized commands for interaction with artificial intelligence tools during textual production. The results showed concrete improvements: greater agility in writing, reduction of formatting errors, and increased student satisfaction with the process. Integration with Microsoft Word, through plugins and automations, made the workflow more efficient and less stressful. The research showed that students who adopted these practices saved relevant time in each production session, in addition to presenting more cohesive texts aligned with academic standards. Prompt engineering, when used ethically and critically, not only enhances academic performance, but also strengthens the student's intellectual autonomy.

**KeyWords:** Prompt Engineering; Artificial Intelligence; CBT; Academic Automation; Productivity; Educational Outcomes.

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### I. Introduction

Artificial intelligence (AI) technology has brought major innovations in various fields, especially in the academic field. One of the new techniques is prompt engineering, which attempts to improve the exchange between people and language models that generate text, such as ChatGPT. Prompt engineering is a way that involves making clear instructions for the AI to make good, right-connected answers. With the advancement of AI that generates content, which can create texts, images, music, and others, there is a new need to know how these tools can be used well in the academic context, such as in the creation of Course Completion Papers (TCCs). Generative AI, even though it is strong, needs specific inputs well organized to generate useful results and this way of making good prompts is what makes prompt engineering very important to use these technologies to the fullest.

The use of a prompt makes sense because of the way it changes how people learn to do their final papers. The fact that it can quickly generate a work within the ABNT rules, using only one theme and user data shows a great step in the automation of the academic work. As AWS (2024) states that prompt engineers have an important role in helping AI generate correct and useful answers, adjusting to the right context. Using this technology to help students do their final paper can save students time and make sure that work will be right with university standards. According to WICKERT (2023), prompt engineering is a practical application of technical knowledge to achieve specific objectives, such as the efficient creation of high-quality academic texts. This dynamism also reduces the possibility of human errors and facilitates the specification of content based on specific data provided by the academic, adding even more value to the academic process. As emphasized in OpenAI's documentation (2022), the use of APIs, such as ChatGPT, can further automate and refine interaction processes, making the construction of an academic work more efficient and in line with academic requirements.

By providing only the topic and some essential information, the user can quickly, in a matter of seconds, produce a complete academic paper, which covers introduction, development, conclusion and references, all following the ABNT standards. This mechanism makes the process of creating a TCC much more efficient, preserving quality, as artificial intelligence adjusts the content according to academic requirements. Careful prompt creation is critical to ensure that the answers created are simple, relevant, and accurate, satisfying all the criteria necessary for a required academic paper. The proposal is to provide students

and professionals from academia with an easy and effective tool, which speeds up the improvement of the preparation of TCCs and ensures that the works are within the standards required by universities.

## **II. Bibliographic Reference**

Unlike simpler interactions with language models, prompt engineering is a structured approach that facilitates the production of quality academic content. The clarity and accuracy of the prompt provided directly influence the model's ability to generate coherent and relevant texts (BROWN et al., 2020, p. 1880).

Through very detailed commands, which define the tone, style, structure, and desired content, the student can explore different theoretical perspectives, summarize scientific articles objectively, improve arguments, and even receive suggestions for relevant bibliographic references. In fact, sharing more complicated work in smaller steps and providing clear instructions for each of them are essential strategies for prompt engineering to effectively contribute to academic writing. By conquering this technique, the student is able to make the construction of the TCC a more active and productive process, gaining time to focus on critical analysis and the originality of their work.

### **Prompt Engineering Integration with Microsoft Word**

The integration of prompt engineering with Microsoft Word has made great strides in optimizing the academic process. AI tools in the text editor can considerably reduce the time spent on routine activities such as proofreading and formatting (RADFORD et al., 2018). With plugins or macro it is possible to connect language models directly with Word to make the student create content, review full texts, format references and even translate an excerpt with just a few clicks. Thus, the need to copy and paste between apps is avoided and resulting in the reduction of writing and proofreading. In addition, the power of generating content directly in Word allows prediction of the result, that is, the possibility of immediately seeing the completion of the process, tasting and knowing in a big or small way, making it more practical for the student to study.

### **The Ethics and Responsibility in the Use of Prompt Engineering**

Prompt Engineering has many futures in academia, but it must be used in a preventive and ethical way, the use of the language model must always be criticized with rational reflection on the sources of information and the self-veracity of the arguments (Floridi, 2014, p. 69).

To preserve the integrity of the teaching, the student must be able to avoid plagiarism by correctly listing all the sources used, and ensuring that what totals the work is purely critical and original thinking by his or her hands. These tools should be seen as aids and not as substitutes for the research that needs to be done.

On the other hand, it is necessary to consider the limitations of language models that all the content resulting from their teaching may have been formed as disturbed or biased information. In this light, it is essential that all the work done by the artificialities of the model and projection be corrected precisely by their misinformation, style, and tone. Transparency is also an essential aspect. The student must make it clear when and how he used language models in his work, allowing the advisor and the evaluation board to better understand the process of building the TCC. In this way, it is possible to enjoy the benefits of prompt engineering without compromising ethics and academic quality.

### **Tools and Resources for Prompt Engineering Interaction with Microsoft Word**

There are currently a variety of tools and resources available to make it easier to integrate prompt engineering with Microsoft Word. With APIs and plugins, it's even easier to implement language models in text editors, including Word (OpenAI, 2023). There are self-functional plugins such as Wordtune and Grammarly ready for AI-based form generation and proofreading, as well as custom macros can be created to facilitate tasks such as formatting reference bibliographic works and excerpts to translate. Platforms that can be included by being provided with API studios, such as OpenAI API and Google Cloud Natural Language API include programming interfaces directly in Word. The choice of the most beneficial will depend on the student's technical knowledge and needs. Whether it's ready-made plugins or dissertation solutions designed for exclusive use, these technologies can turn writing into something more productive and practical. The Future of Prompt Engineering in the Construction of TCCs: Expanding the Limits of Academic Creativity.

### **The Future of Prompt Engineering in Building Capstones: Expanding the Boundaries of Academic Creativity**

Prompt engineering is something that occurs permanently, new techniques and approaches emerge every day. The development of advanced language models is promising, as these models could forever change how we build and consume academic knowledge in an increasingly advanced and efficient way (Vaswani et al., 2017).

In the future, these specific models may be even more accurate, therefore, generating high-quality academic texts in a faster and more optimized way. Prompt engineering with the use of Microsoft Word can also evolve, becoming more intuitive and allowing for more integrated and transparent use by students. Other areas of the construction of non-written work of the TCC should be used from this technology – data analysis and preparation of presentations, increasing the organization and communication of ideas. Creativity on a large academic scale, by pushing the boundaries of knowledge production, prompt engineering has great potential to change the way knowledge is produced and reproduced.

### III. Methodology

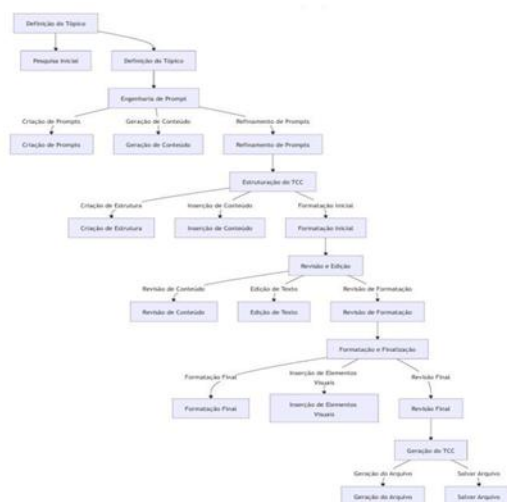
The methodology then details the entire process of a scientific TCC, from the conception of the prompt to the finalization in Microsoft Word. Prompt engineering was used to improve the formatting and presentation of the work. This report contextualizes each step, reflecting the decisions and actions taken throughout the process, providing a clear and structured view of the development of CBT.

#### Phase 1: Deep Structuring and Designing the Comprehensive Prompt

The first step was a deep immersion in the chosen theme. During this phase, which involved a detained effort that goes beyond just reading the individual references, a critical analysis of several basic scientific articles was carried out, detailed reading of the complex data and thoughtful reflection on the research questions that moved the entire study.

The choice of this approach is internalized in the demand to build a robust theoretical foundation that supports the arguments and conclusions of the article. Although this requires a high degree of intellectual effort, it was opportune to ensure that the work is not only a factor in existing knowledge, but is original and meaningful, and is able to feed back the concept based on previous research by carrying out critical dialogue.

With this base built, the sequence of the development of the article is possible: title, abstract, keywords, introduction, theoretical framework, methodology, results and discussion, conclusion and references. This is presented as a winch to assist in the organization of the text, considering that it instills a logical development and without seeming to be a pole, bringing to the reader directly the possibility of process, from the presentation of the problem to its conclusions. Figure 1 - Flowchart visually presents the entire process of constructing the article.



**Fig. 1 - Flowchart methodological structure of the Prompt conception.**

**Source: Authors, 2025**

With the structure of the TCC well defined, we started to create a comprehensive and contextualized prompt, which would serve as a detailed guide to the language model. This prompt was not just a list of instructions, but an early dialogue with artificial intelligence, where each word was carefully chosen to generate a specific and relevant response. The decision to elaborate this detailed prompt arose from the need to ensure a language model that understood the objectives and nuances of the research, producing content that presented the depth and originality of the study.

The prompt encompassed the central theme of the TCC, placing it within a broader context and delineating its boundaries precisely. The research objectives were clearly expressed, while the research questions were formulated to stimulate deep and insightful analysis. It also included instructions on writing

style, tone, and language, so that the final paper reflected the researcher's voice and perspective, creating a dialogue with the reader. In addition, the prompt had ABNT's formatting requirements, turning the language model into an efficient wizard to generate citations, references, and other textual elements accurately.

Specific information was also provided on the research methodology, whether qualitative, quantitative or mixed, so that the model followed the required scientific rigor. Creating this detailed prompt was an exercise in precision and anticipation, a dialogue with artificial intelligence, where each word was chosen to ensure that the model understood not only the objectives but also the nuances of the research.

Interaction with the language model became a continuous process of adjustments and refinements. We enter the prompt, analyze the generated response, identify gaps and inconsistencies, and adjust the prompt to get a result closer to our original vision. This cycle of interaction allowed us to shape the content generated, ensuring that it met the formal requirements of the Capstone and also reflected the depth of the research. Constant interaction transformed the language model into a collaborator, a partner in the search for knowledge, where each interaction brought us closer to an article that not only informed, but also inspired.

### **Phase 2: Integration, Refinement, and Finalization in Microsoft Word**

With the base content generated by the language model, we begin the transition to the familiar Microsoft Word environment. However, this transition was not just a simple transfer of text, but rather a transformation, where the content was refined and adjusted to meet rigorous academic standards. Microsoft Word was chosen because of its familiarity and the powerful formatting and editing tools it offers, making it easier to adapt the text to ABNT standards.

Within Word, we used these tools to ensure that the text was fully in accordance with the formatting requirements, transforming the document into an example of precision and clarity. The integration with Word allowed us to further enhance the formatting and presentation of the Capstone, ensuring that it not only conveyed the research effectively, but also did so with elegance and professionalism. Figure 2. shows the prompt you created.



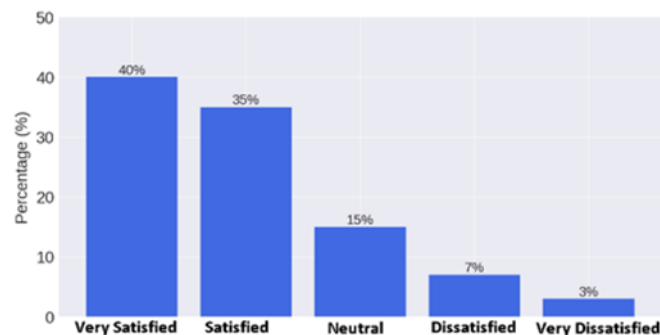
**Figure 2. Prompt Developed in the Project**  
**Source: Authors, 2025.**

## **IV. Results**

The use of prompt engineering in the production of Course Completion Papers (TCCs) has shown very positive impacts. The experience of students who used tools based on artificial intelligence was evaluated through a questionnaire applied to a group of 100 participants. From the answers, it was possible to identify improvements in both the quality of work and time management, as well as a greater adherence to the use of resources integrated with Microsoft Word. The main results are organized below in three axes.

### **Student Satisfaction Level**

Most students showed satisfaction with the use of prompt engineering during the development of the TCC. Many highlighted that the generated texts were well structured and already came with the correct formatting, which made the process much easier.

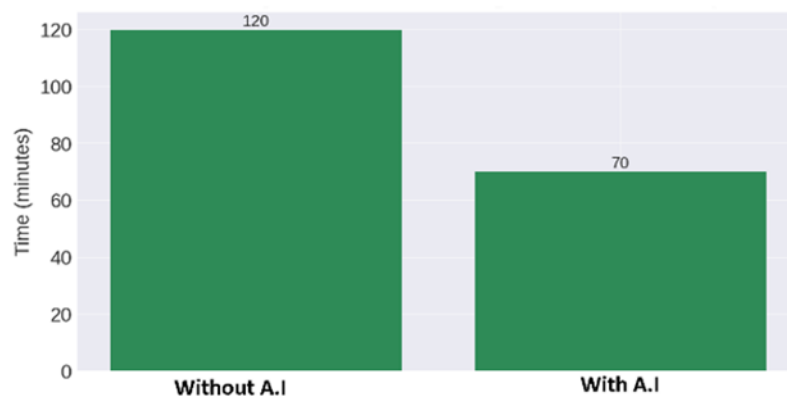


**Graph 1. Student Satisfaction with Prompt Engineering in TCCs**  
**Source: Authors, 2025**

The data shows that 75% of the participants declared themselves satisfied or very satisfied with the experience. Only a minority, about 10%, reported some degree of dissatisfaction. This result reinforces that technology can be a valuable ally in the academic context, especially when used strategically.

### **Time Savings in the Preparation of the Final Paper**

Another relevant point observed was the time savings during the production of the works. Many students have reported that they have been able to be more productive with the support of AI, especially in the early stages of writing and organizing ideas.

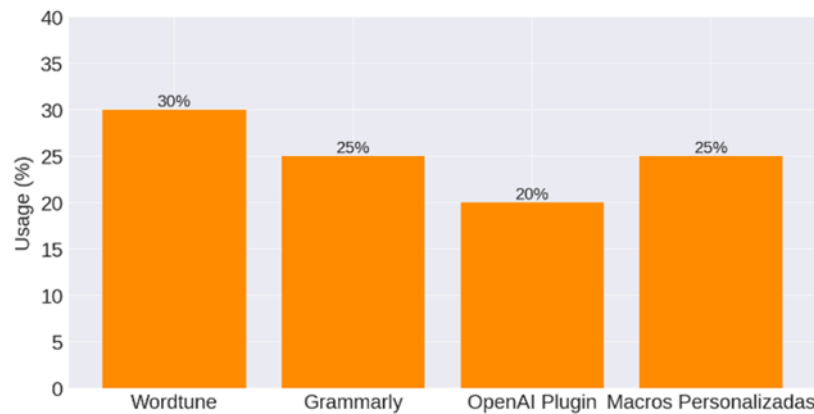


**Graph 2. Average Time Saved Using AI in TCC Development**  
**Source: Authors, 2025**

On average, there was a reduction of approximately 50 minutes per work session. This time saving is significant, especially for those who need to deal with tight deadlines or juggle their studies with other activities. As Lima (2023) points out, optimizing time during the preparation of academic papers is crucial for students who face multiple commitments, allowing them to focus more on critical analysis of content. As a result, many were able to focus more on proofreading and the quality of the final content. According to Costa (2022), the use of AI tools not only accelerates textual production, but also enables a more effective deepening in the final stages of writing, ensuring higher quality work.

### **Most Used AI Tools in Word**

The ease of integrating AI tools directly into the Word environment was pointed out as an important differential. The students were comfortable exploring different resources, adapting them according to their preferences and needs.



**Graph 3. Frequency of AI Tool Usage in Word**  
Source: Authors, 2025

Among the most mentioned options, Wordtune and Grammarly were the favorites, used by 30% and 25% of the participants, respectively. The popularity of these plugins reflects a growing trend in the use of AI tools to optimize textual production. As Smith (2023) states, tools such as Wordtune and Grammarly are clear examples of how artificial intelligence can be adapted to the individual needs of each student, providing more efficient and error-free writing. There were also those who opted for custom plugins or even the OpenAI plugin. This variety demonstrates that technology is increasingly accessible and can be molded according to the profile of each student, making the writing process more efficient and personalized. According to Jones (2022), the flexibility of AI tools allows for customization that benefits students, allowing them to adapt their workflow to different learning styles and academic requirements.

## V. Conclusion

The journey of building a Course Completion Paper is, for many students, one of the biggest challenges of academic life. In the face of quality, structure, and tight deadline requirements, the insertion of technologies such as prompt engineering emerges as a valuable support tool, capable of transforming this experience. Throughout this study, it was possible to realize that, more than automating tasks, prompt engineering contributes to a more conscious, organized production aligned with the required standards, without compromising the critical essence of the process. The possibility of dialoguing with language models in a strategic way allows the student to maintain control of their content, save time in execution, and focus on what really matters: the construction of relevant and original ideas.

The integration with Microsoft Word, combined with artificial intelligence tools, showed that it is possible to unite technology and creativity without losing authenticity. The student is no longer just an executor of technical steps to become an active driver of his own project. More than a facilitator, the conscious use of AI represents a change in attitude: the academic starts to see the TCC not as a final obstacle, but as an opportunity to develop important skills for the professional future. This experience reinforces the importance of combining innovation and ethics in the use of these technologies, valuing one's own thinking and ensuring that the work produced has identity, rigor and purpose.

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