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# Students' Perceptions of Chat GPT Use in Vocational and Engineering Education Practicum: A Descriptive Qualitative Study

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**ABSTRACT**

The study is aimed at exploring students' perception of using ChatGPT in the Multimedia and Internet practicum in vocational and engineering education context. The subjects of this study were 28 students of the Multimedia and Internet practicum course in Electronic Engineering Education Study Program of Universitas Negeri Padang. Data were collected through written open-ended responses and analyzed using thematic analysis using MAXQDA. The findings indicate that students viewed ChatGPT as a beneficial and practical learning aid that assisted them in searching for information, generating ideas, clarifying concepts, solving problems, and completing projects. However, students also identified a number of limitations i.e., limited responses, premium access, less accurate answers, confusing explanations and potential dependence on ChatGPT. The word-cloud analysis confirmed the thematic findings, showing dominant terms related to usefulness, ease, speed, project work, multimedia production, limitation, cost, and dependence. These results indicate that the potential of using the ChatGPT in project-based multimedia practicum needs to be accompanied by critical verification, lecturer guidance and integration with other learning resources such as modules, tutorials and hands-on practice.

## 1. Introduction

The digital transformation has shifted the expectations for higher education, particularly in preparing graduates to learn, adapt and solve problems in technology-intensive environments. In vocational and engineering education, this expectation is more concrete where students are not only expected to understand the concepts but also to apply them to practical tasks, technical decision-making and project-based production (Hidayat et al., 2024), (Zheng et al., 2025). The quality of learning in this field is therefore strongly related to students' use of digital tools to explore information, to construct ideas, to solve technical problems and to produce meaningful learning outputs.

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Generative artificial intelligence has provided a new set of digital tools for academic learning. ChatGPT is a conversational AI system that allows students to engage with information through prompts, questions, explanations, examples, and iterative responses (Ooi et al., 2025). This feature is different from traditional search engines or static digital learning resources, as it can provide dialogic assistance in response to students' learning needs (Meşe et al., 2024), (Mikac et al., 2024). Project-based courses can use this to assist students in generating initial ideas, clarifying unclear concepts, comparing different solutions, and improving learning products. However, the same technology can present new challenges when students accept AI-generated responses without adequate verification, critical judgement, or contextual adaptation to the task.

Previous researchs on ChatGPT in education has shown two main trends (Samala et al., 2024), (Zheltukhina et al., 2024). On the one hand, ChatGPT has a potential role for students and educators to assist in learning through rapid feedback, idea generation, personalised support, writing assistance, and explanations . On the other hand, the literature also highlights continuing problems with inaccurate responses, academic misconduct, inequitable access, poor AI literacy and potential over-dependence on AI generated answers. The state of the art, however, suggests that ChatGPT is neutral. Its educational value depends on the context in which it is used, the kind of learning task, and how far students are able to evaluate and convert AI support into meaningful academic work. Therefore, further contextualised evidence is necessary to understand how students actually perceive and use ChatGPT in applied learning settings.

There is still a need for a better contextual understanding of students' experiences with ChatGPT, especially in learning environments where artificial intelligence is applied to support authentic and practice-oriented tasks rather than general academic activities. Research on the use of ChatGPT in education has grown rapidly, yet many prior studies have primarily emphasized students' perspectives on general academic use, perceived opportunities and risks, ethical concerns, and institutional readiness. The research showed that ChatGPT could help students to do academic tasks, generate ideas, access information and learn more efficiently. At the same time, they also raise some issues such as accuracy of AI responses, academic integrity, unequal access, creativity, critical thinking and students' reliance on artificial intelligence (Das & Madhusudan, 2024), (Blahopoulou & Ortiz-Bonnin, 2025). Recent scholarship has also called for more in-depth qualitative inquiry into how students and educators understand the benefits and limits of ChatGPT in relation to learning, creativity, critical thinking, and AI dependence (Rafidi & El Khatib, 2025). Accordingly, there is still a lack of detailed description of students' experiences with ChatGPT in specific practicum-based contexts where AI is utilized to support project development, technical problem solving, and authentic learning tasks in the extant literature.

This limits the research gap for vocational and engineering practicums, especially for multimedia-based learning, which requires students to combine information searching, technical procedures, creative design, visual production, and project completion. In this sense, students' perceptions cannot be generalized as attitudes towards ChatGPT since the value of AI support is evaluated on how students use it to brainstorm ideas, solve technical problems, verify outputs, and transform AI-generated responses into practical learning products. Thus, the novelty of this research is in meeting the qualitative research needs of previous studies through the study of students' contextual perceptions of the use of ChatGPT in the Multimedia and Internet practicum. The study used a descriptive qualitative design and was supported by thematic code-system analysis and word-cloud mapping to obtain structured perception categories and wider semantic patterns in students' responses. This study's approach provides a more situated understanding of the perceived usefulness, limitations, dependencies, and practical conditions of using ChatGPT as a learning

assistant in vocational and engineering education, revealing not only its perceived usefulness but also its limitations.

## 2. Methodology

### *2.1 Research Design*

This study employed a descriptive qualitative design to explore students' perceptions of ChatGPT use in practicum course. This design was appropriate because the study sought to describe how students experienced, interpreted, and evaluated ChatGPT as a learning assistant in a project-based practicum context, rather than to measure causal effects or test statistical relationships (Caldwell et al., 2024), (Alhazmi & Kaufmann, 2022). The qualitative design enabled the researcher to examine students' responses in relation to perceived difficulties, perceived ease of use, learning experiences, influence on project completion, and future use of ChatGPT. The study was guided by two research questions. The first research question examined students' perceptions of ChatGPT-assisted practicum through five analytical dimensions, i.e., difficulties or challenges, ease of use, learning experiences, influence on project completion, and future use. The second research question mapped students' broader perceptions by identifying dominant terms that appeared in their responses through word-cloud visualization. Therefore, this study combined thematic coding and word-cloud mapping to provide both structured and broad representations of students' perceptions.

### *2.2 Sampling Technique and Participants*

The participants were selected using purposive sampling because the study required students who had direct experience in practicum course and had used ChatGPT during learning activities or project completion (Nyimbili & Nyimbili, 2024), (Jo & Park, 2023). The selection of participants was based on their relevance to the phenomenon being investigated, not on statistical representativeness. This sampling strategy was suitable for the descriptive qualitative orientation of the study, which aimed to obtain context-specific insights into students' perceptions of ChatGPT use in practicum-based learning. A total of 28 students participated in this study. All participants were students enrolled in the multimedia and internet practicum course in the Electronic Engineering Education Study Program at Universitas Negeri Padang. The inclusion criteria were that students had participated in the practicum course, had experience using ChatGPT during learning or project work, and were willing to provide written responses based on their experiences. Students who had not used ChatGPT in the practicum context were not included because they could not provide direct information related to the focus of the study. The number of participants was considered adequate for descriptive qualitative analysis because the purpose of the study was to identify recurring meanings, perception patterns, and dominant expressions within students' responses.

### *2.3 Research Design*

The data were analyzed using thematic analysis supported by MAXQDA software. Thematic analysis was used to identify, organize, and interpret meaningful patterns in students' written open-ended responses. MAXQDA was used to support the coding process, organize categories, visualize the code system, and generate the word cloud (Hartmann et al., 2025). The use of MAXQDA did not replace the researcher's interpretation, but functioned as an analytical tool to manage and visualize qualitative data systematically. The analysis began with repeated reading of students' responses to obtain an overall understanding of the data.

### *2.4 Research Procedure*

The procedure of this study is presented in Fig. 1. The figure provides a clear overview of how the research process was designed, implemented, and organized to ensure that each step supported the achievement of the study objectives.

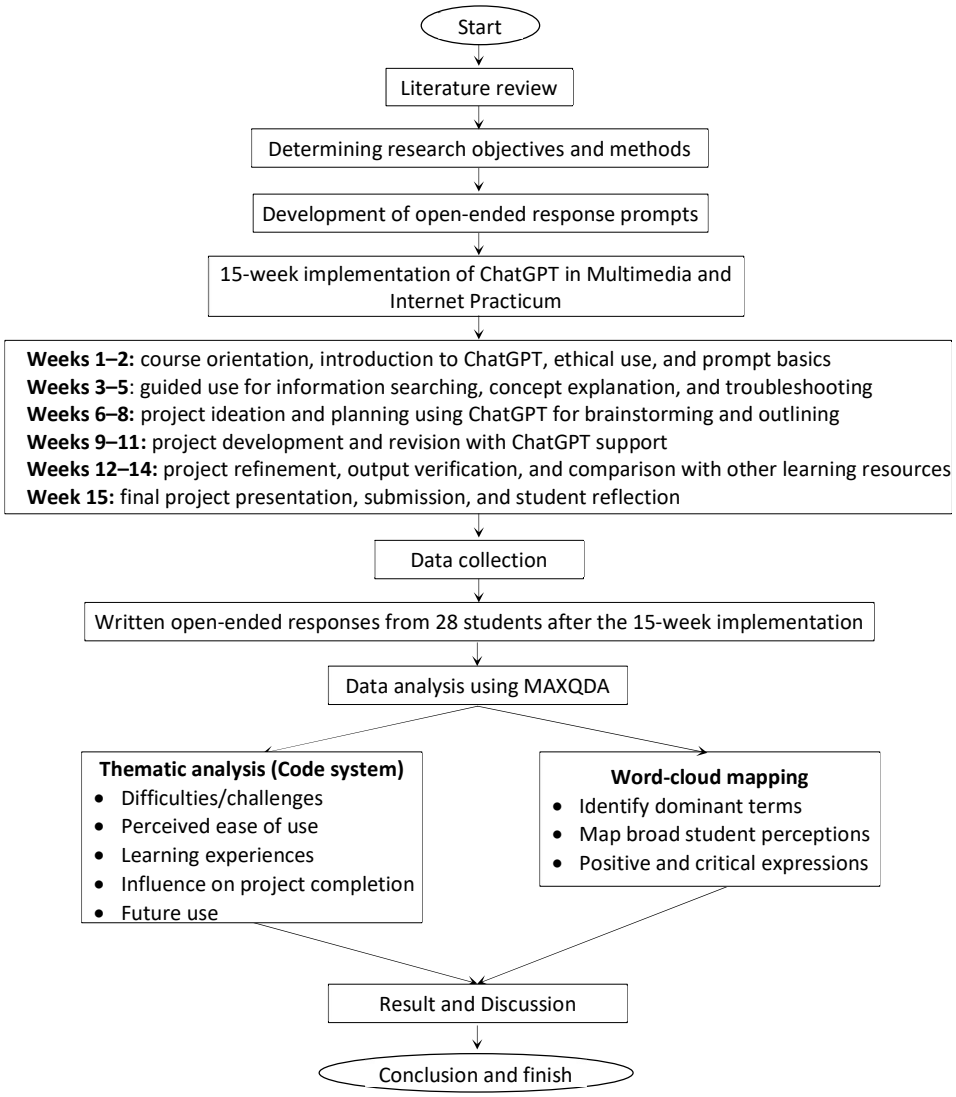


**Fig. 1.** Research procedure

## 3. Results and Discussion

### *3.1 Students' Perceptions of ChatGPT-Assisted Learning in the Multimedia and Internet Practicum*

This section addresses the first research question, which focuses on students' perceptions of the implementation of ChatGPT-assisted learning in the Multimedia and Internet practicum. The analysis was structured around five main aspects: difficulties or challenges, perceived ease of use, learning experiences, influence on project completion, and the feasibility of future ChatGPT use. The results are presented in Figure 2.

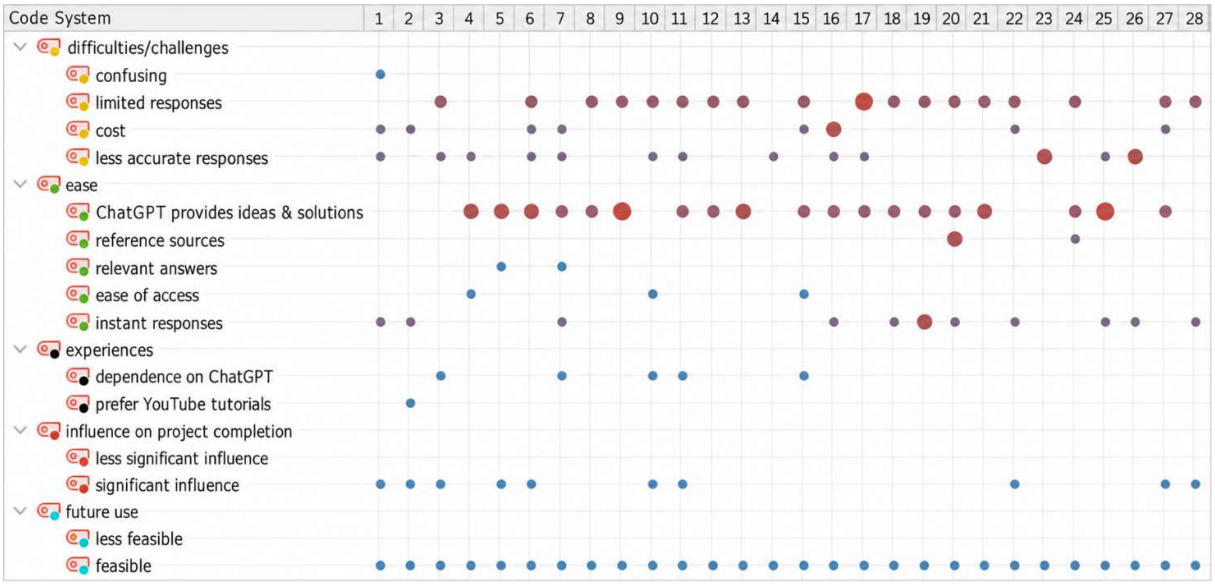


**Fig. 2.** Code-system visualization of students' perceptions

The perceptions of students on ChatGPT-assisted learning in the Multimedia and Internet practicum revealed a nuanced pattern rather than a simple positive or negative perception. The code-system visualization suggested that the 28 students acknowledged the pragmatic significance of ChatGPT especially its ease of use and technological utility, and also displayed a critical consciousness of its limitations including accuracy issues, access restrictions, and the dangers of unguided use (Chan & Hu, 2023), (Almassaad et al., 2024). This dual pattern suggests that students' acceptance of ChatGPT was accompanied by caution, particularly when the tool was used to assist practicum-based learning tasks. The codes under difficulties or challenges clarify this interpretation further. The limited responses, cost, less accurate responses, and confusing experiences suggest that students did not consider ChatGPT as a fully reliable or independent learning source. Rather, they positioned ChatGPT as a supportive learning tool, which still needs to be verified, interpreted and adapted to the learning context. This finding indicates that the pedagogical value of ChatGPT in project-based practicum learning depends not only on its technical capabilities, but also on students' ability to verify, interpret, and critically adapt AI-generated responses with appropriate instructional guidance (Kasneci et al., 2023). These limitations also indicate that premium access, the possibility of unreliable information, and difficulties in interpreting AI-generated outputs within practicum tasks may become important barriers to the integration of ChatGPT in project-based learning. Nevertheless, the strong presence of codes such as ChatGPT provides ideas and solutions, instant responses, ease of access, relevant answers, and reference sources shows that students also experienced ChatGPT as a useful tool for idea exploration, conceptual clarification, and more efficient task completion. Therefore, students' acceptance of ChatGPT was not determined solely by the sophistication of the technology, but also by the extent to which its functions matched task requirements, provided ease of use, and offered direct benefits during the practicum process.

In terms of the students' learning experiences, the development of codes such as dependence on ChatGPT and preference for ChatGPT tutorials indicate that students used ChatGPT selectively but are still using other learning resources that are more visual, procedural, and easier to follow in the context of multimedia practice (Rahman & Watanobe, 2023). This finding indicates that ChatGPT was not an absolute replacement for traditional or video-based learning resources, but a supplementary learning support that enabled students to receive initial direction, hasten their information search, and come up with alternative solutions when encountering technical issues (Sok & Heng, 2024). The

more significant influence of the code than the lesser influence on project completion shows that students view the existence of ChatGPT as helping with quicker work processes, more precise project procedures, and generating creative ideas in multimedia and Internet projects (Kim et al., 2025). Most striking is the pattern in the future use category concerning particularly code feasibility, where students still found ChatGPT relevant for future use despite being aware of several limitations like cost, limited responses and possibility of inaccurate information. Therefore, it is necessary to know that the use of the tool should be critical, intentional and integrated with the guidance of lecturers, visual learning resources and direct practice so that its contribution to student projects does not lead to technological dependence.

*3.2 General Mapping of Students' Perceptions Based on Word-Cloud Analysis*

This section presents a broader mapping of students' perceptions based on the dominant words that emerged from the qualitative data. The mapping helps identify the general tendencies of students' responses, including positive expressions related to ease of use, speed, and feasibility, as well as critical expressions related to limitations, cost, and the risk of dependence. The results are presented in Figure 3.


**Fig. 3.** Word-cloud visualization of students' perceptions

The word-cloud visualization demonstrates that the most common words are the key factors to motivate students' positive perceptions regarding the perceived usefulness, response speed, accessibility and relevance to multimedia practicum learning. The words chat, GPT, information, application, project, feasible, easy, limited, premium, image, video, AI, fast and suitable imply that students did not perceive ChatGPT as a simple conversational technology, but rather as a useful learning tool to support them in searching for information, brainstorming ideas, and completing projects (Grassini, 2023), (Michel-Villarreal et al., 2023). Words such as information, idea, fast, easy, effective, and appropriate are also prominent, supporting this interpretation. Students found ChatGPT as a source of fast knowledge gaining, quick answers and first assistance in understanding instructions or academic problems (Kohnke et al., 2023), (Hasanein & Sobaih, 2023). This is also reflected in the presence of terms such as project, image, video, animation, module, circuit etc in the context of Multimedia and Internet practicum that are related to the project and multimedia aspects. These terms imply the close relationship between ChatGPT use and learning conceptual understanding, technical skills, and digital products making (Dai et al., 2025), (Garzón et al., 2025).

The patterns supported the findings of RQ1 that students perceived the relevance of ChatGPT in project-based learning as it helped them to organize information, explore alternative solutions, and improve work efficiency in creative and applied learning activities.

However, word-cloud visualization also revealed several critical words such as limited, premium, limit, paid, wrong, difficulty, error, difficult, and expensive. These terms reveal that students experienced access restrictions, technical difficulties, and epistemic hazards while using ChatGPT for academic purposes. This finding supports the RQ1 results by showing that students' acceptance of ChatGPT was not unconditional. Students noted benefits such as ease of use and response speed but also flagged concerns about answer accuracy, limitations of features, and risk of losing learning independence when AI use is not pedagogically managed. The positive and critical words in the word cloud imply that ChatGPT was seen by the students as a handy and useful tool, but not as a sole learning tool that could substitute for academic validation, guidance from the lecturer, and experiential practicum (Hasanein & Sobaih, 2023). The relationship between the code-system results and the word-cloud mapping also suggests that the integration of ChatGPT in the multimedia and Internet practicum has the potential to support project-based learning. But it is effective only if students can verify the information, compare the learning resources, and use AI as a companion in the process of thinking. As such, ChatGPT should be treated as a learning assistant that can help students generate ideas, retrieve information faster and complete projects, rather than a replacement for students' creativity, critical thinking, and technical skills in the Multimedia and Internet practicum.

## 4. Conclusions

The results of this study suggest that ChatGPT can be a helpful learning assistant for Multimedia and Internet practicum when used in a guided, critical, and project-based learning environment. The results suggest that generative artificial intelligence should not be seen as a tool for rapid answers, but as a pedagogical support system that can help students to explore ideas, clarify technical issues and improve the development of projects, with verification and guidance from the lecturers. This indicates the need for explicit instructional strategies for future practicum learning on the use of ChatGPT, such as prompt guidance, validation of sources, ethical use, and reflection on AI outputs. Strategies like these are important to ensure that students use ChatGPT to enhance their creativity, independence and problem-solving skills, rather than to replace their own thinking and practical competence.

The study also indicates that the use of the chatbot in vocational and engineering education requires a balanced learning ecosystem which combines artificial intelligence, visual learning resources, modules, direct practice and lecturer supervision. This has important implications for curriculum development as AI literacy should be embedded into practicum-based courses, especially those that involve digital production and multimedia projects. The future implementation should focus not only on whether students can use ChatGPT, but also on how they evaluate, adapt and transform AI-generated responses into original learning products. This study provides therefore a foundation to develop more responsible and context-sensitive AI-assisted learning models for vocational and engineering education, especially in courses that integrate technical skills, creativity and project-based learning.

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