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Perceptions of AI-Driven Frameworks for English Composition Assessment Strategies: A Comparison of Professional and Student Researchers

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Abstract: In an effort to explore the integration of Artificial Intelligence (AI) in higher education, this project focused on the evaluation of perceptions of AI-related assessment strategies between student researchers and professional researchers. With English composition as a focal point, the AI-driven framework consisted of the policy, guidelines, and rubric that were analyzed through perceptions related to cognition, attitude, and behavior. Through the creation of the Perceptions of AI-Generated Assessments Model, researchers compared and contrasted the insights from these groups and identified trends that served as new approaches to innovation in higher education assessment. Overall, this research project revealed that student researchers were more optimistic yet sensitive toward benefits for their peers, whereas professional researchers were more critical and deeper analyzers related to AI's impact on learning and its benefit to student researchers.

Keywords: *artificial intelligence, assessment, English composition*

Introduction

As an integration of Artificial Intelligence (AI) in higher education increases in popularity, there is an opportunity to explore its impact and role in educational assessments. This project focused on the evaluation of perceptions of AI-related assessment strategies between student researchers and professional researchers. We compared and contrasted the insights from these groups and identified trends that served as new approaches to innovation in higher education assessment. Understanding these perceptions in English composition assessment strategies can be crucial for utilizing AI's power to enhance the creation of new and effective assessment initiatives that can meet the needs of both groups.

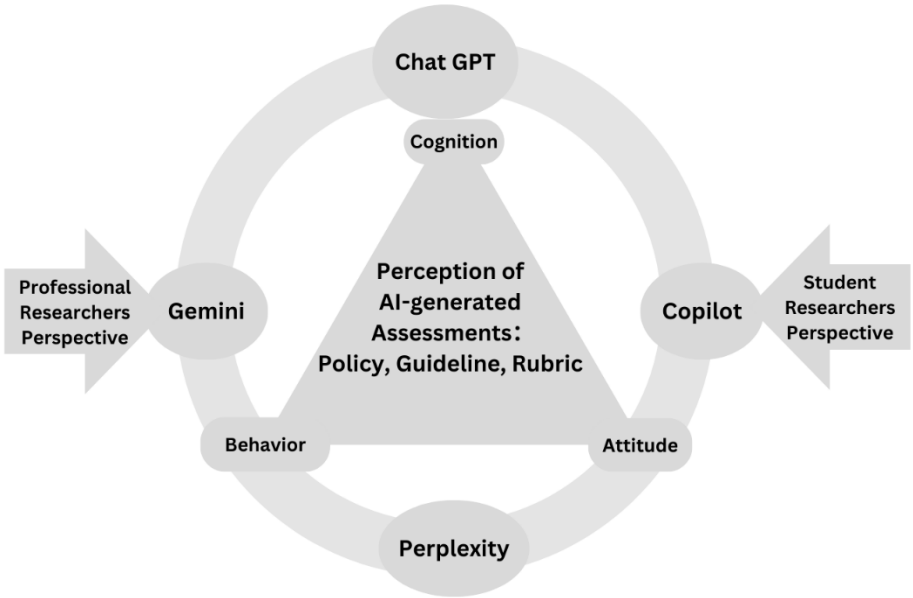
First, the project team identified the research problem through this question: Is there a common similarity or difference in the perceptions of AI-driven assessment strategies when comparing student researchers and professional researchers? Our project focused on AI-generated policies, guidelines, and rubrics to be utilized for implementation for a college syllabus and assisted in the evaluation of a college essay case study. We would like to highlight the two novel areas of assessment innovation: 1) exploring the perspectives of both professional researchers and student researchers related to the insights into AI's application and its effectiveness in education, and 2) attitude toward AI implementation in higher education. The AI tools chosen for this study included ChatGPT, Copilot, Gemini, and Perplexity. We began by creating a specific and uniform prompt that was submitted to

each AI tool. In order to evaluate the perceptions, we applied Bandura's Social Learning Theory as well as the principles of Cognitive Behavioral Theory (Bandura, 1977). More specifically, the perception of emerging technologies, such as AI assessment tools, encompasses not only cognitive processes but also the emotional responses and behavioral reactions associated with these innovations.

Furthermore, Bandura's triadic reciprocal model, which examines the interplay between cognition, behavior, and emotional attitudes, provides a robust framework for analyzing the complex dynamics of human interactions with such tools (Bandura, 1977). Therefore, Bandura's theoretical model has been selected as the foundation for this research. This process allowed us to collect data for each researcher in the following categories: policy-cognition (analysis), policy-emotion (attitude), and policy-behavioral (action). For this project, Bandura's emotional perception will be more specifically focused on attitude and described as such in order to align with our project's vision and goals. The same approach was carried out for the guidelines and rubrics as well as the final analysis, including the overall perception related to the AI's output. This process is illustrated in the Perceptions of AI-Generated Assessment Model in Figure 1.

Figure 1

Perceptions of AI-Generated Assessment Model



Creating the prompt was a collaborative effort, along with data collection through shared Google Docs. This strategy enhanced communication and simplified collaboration between the two universities. The

design of the prompt was considered carefully so as not to include any bias yet provide specific guidance to the chatbot. The prompt is shown below:

> *You are an expert in AI policies for a 100-level English Composition course in higher education and strategies for using AI with ethics within the assignment to uphold academic integrity. Researchers are asking you for help so that they can implement a new AI policy to promote student success. Please create a policy and guidelines for students for a course syllabus in higher education. Next, please create a rubric to evaluate student use of AI in writing a 10-page research paper. For the policy and guidelines, please limit the response to 250 words. Please provide the policy in paragraph form and guidelines in a bullet list. Please use a positive tone to promote the proper use of AI in English Composition for students, encourage its use as a learning tool, and specify that rubric criteria evaluate student work. On this rubric, please provide 6 criteria such as thesis statement, organization and structure, content and development, grammar, ethical uses of AI, and integration of AI feedback. Please create the rubric with a 3, 2, 1, 0 scale. Avoid statements that relate the use of AI to plagiarism.*

Careful thought and consideration were placed on the design of the AI prompt used in this study. First, the professional researchers began with a common vision: the prompt should be specific so that the AI output was effective, beneficial, and relative to today's higher education expectations and processes. Defining the role for the AI served as an important start in the prompt engineering process by including "You are an expert in AI policies…" The English discipline and the level of learner were also clearly stated, as shown above. Moreover, professional researchers added detailed statements in their AI prompt, such as "policy to promote student success", "for a course syllabus for higher education", "English Composition", "provide 6 criteria such as…", and "3, 2, 1, 0 scale."

Next, tone served as an important consideration through "positive tone to promote proper use of AI", "encourage its use as a learning tool", and "avoid statements that relate the use of AI to plagiarism." The student and professional researchers wanted to ensure that all the AI chatbots produced answers that were uplifting and supportive of new pedagogical approaches through AI technologies. Then, the professional researchers suggested that it would be best to require that the AI chatbot avoid any statements that correlate AI use to cheating.

The student and professional researchers wanted to focus on the positive aspects of AI innovation and to advance pedagogical approaches, including today's technological advancements. Limitations to innovation were to be avoided. Overall, the professional researchers wanted to utilize AI to make a positive contribution to learning, particularly serving as the core philosophy of the project. In summary, these were some strategies that proved to be successful for the prompt's architecture. Additionally, these strategies are in alignment with those given by other groups, such as Harvard University's IT department (Harvard University Information Technology, 2023) and Knoth and coworkers from the University of Kassel in Germany (Knoth et al., 2024).

Another goal was to ensure alignment of the AI output toward learning and learner achievement in a positive way. The professional researchers felt this was essential to promote AI for a good purpose - a learning tool to aid in student success. This key consideration allowed the student and professional researchers to obtain data for evaluation through three different lenses: policy-cognition (analysis), policy-attitude (feeling), and policy-behavioral (action). The professional researchers sought to discover if the data would show significant similarities or differences between professional researchers and student researchers. After the data collection and individual analyses were completed, the next step in the research plan was to evaluate the contributions from all four researchers and identify trends within these perceptions. Applying Bandura's theory, the team found that this approach provided a wide range of information to establish conclusions. Additionally, these strategies aligned well with the approach given by the cognitive triangle (Bandura, 1977). The cognitive triangle provides a visual representation of the relationship between three key areas of study: thoughts, attitudes, and behaviors. This diagram shows how thoughts can impact attitudes that can then pave the way for actions. Those factors can impact thoughts, thereby initiating a constant cyclic pathway. Unless there is an interruption or intervention to disturb its series, this pathway will continue to cycle in a constant sequence (Bandura, 1977).

Data Collection

A study was created to explore English composition in order to connect with a vision of increasing student success in this ever-changing world of educational technology. This study focused on data collection through collaboration involving two higher education institutions of different sizes, thereby helping students from a wide range of backgrounds. Not only were the professional researchers part of the vision, but this collaboration also included the voices of student researchers. This partnership with student researchers was essential in gaining valuable insights beyond what the professional researchers could provide and, therefore, served as a critical theme for this work. The research team consisted of one professional researcher and one student researcher from a large public institution and one professional researcher and one student researcher from a mid-sized liberal arts institution. The student researchers were both at the undergraduate level. Therefore, there were a total of four researchers that made up the team, and all researchers were invited and participated in this project.

The team created a stepwise research procedure with a table that ensured that the perceptions were organized, and variables were reduced. The procedure included these steps: 1) Please go to each AI site given below, see #7 below. 2) Type your name, date & time, and the name of the AI tool at the top of the 1st column on the far-left side of the table below. 3) Copy the prompt below and paste it into the AI tool. Click the arrow to activate the AI to address your prompt and get an answer. 4) Copy and paste each AI response above each table. 5) Based on the AI-generated response, please complete the table below by answering the questions in the 2nd, 3rd, and 4th columns. 6) Complete a separate table for each AI tool. 7) Links to AI tool for this project: ChatGPT 3.5, Copilot, Gemini, and Perplexity 8) Complete all four tables by July 1, 2024. If your table exceeds more than one page, then that is fine. Next, data was collected by each researcher and organized into several categories in a table format. One example, focusing on perceptions related to policy, is shown in Figure 2. Data collected pertaining to the guidelines and rubric was collected in the same manner.

Figure 2

Example of the Table Used to Collect Data Related to Policy

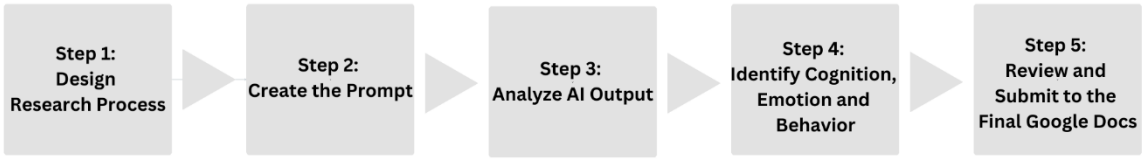
DATA TABLE:

Researcher's Name: __ Date: ____ Time: ___ AI Tool: ___	**Questions**	**Type of Response**	**Notes/Rationale**
Policy-cognitive	Identify the 1-2 most important parts of this policy, and explain why these are important.	Identify (list)	Explain why each item you identified is the most important parts of the policy by writing at least 3-5 sentences.
Policy-emotional	Do you think this policy is reasonable? Please rate and write the reason why you feel this way.	Rate 1-5: 1= not reasonable 2= slightly reasonable 3= fairly reasonable 4= mostly reasonable 5= completely reasonable	Explain your rationale for this decision (rating) by writing at least 3-5 sentences.
Policy-behavior	Do you think you will use this or encourage your instructor/peer to adopt the AI policy? Despite your choice of yes or no, please explain why you feel this way.	Choose Yes/No	Explain why you chose yes or no by writing at least 3-5 sentences.

Moreover, the data collection process was summarized and shown in Figure 3. One important detail that the group established at the beginning was a timeframe for completing the AI tasks. Therefore, a reasonable deadline was established for the submission of the data. Another effective strategy of this collaborative effort included editing drafts and creating the final written publication.

Figure 3

Data Collection Process



Results

This study, based on the investigation of cognition, attitude, and behavior, revealed that there were a variety of factors that affected perceptions related to AI-generated policies. Student and professional researchers generally expressed a positive attitude toward the AI-driven content. The specific AI chatbot utilized in a particular trial significantly impacted the overall perceptions and opinions. For example, Gemini, in particular, acquired the highest approval ratings. More specifically, regarding user demographics, the student researchers shared a more positive outlook on AI policies compared to the professional researchers. This generational difference in perception suggested that there were defined feelings with regard to the use and integration of AI technology in the higher education classroom. This was a logical conclusion due to the experience level of the professional researchers compared to the student researchers. In addition, the data showed that there was a common theme among student researchers and professional researchers, a need for greater specificity and clarity of the AI policy. These findings expressed the potential of AI as a tool for policy generation while highlighting the need for human refinement to address specific user requirements and how these align with each institutional expectation or requirement.

Future research efforts could dive deeper into the factors influencing user perception, particularly considering cognition as the main focus. Another meaningful project could focus on the development of AI prompts that assist in writing very specific and customized policies that are appropriate for higher education.

The students and professional researchers' insights into the AI-generated guidelines revealed distinct and varying perspectives. Student researchers primarily focused on the compelling benefits and practical applications of the guidelines, seeking clear explanations of how AI can be used effectively. In contrast, professional researchers prioritized the overall clarity, coherence, and effectiveness of the guidelines, emphasizing their potential impact on student learning and academic integrity. However, both student and professional researchers shared an appreciation for the AI-created guidelines by stating that they were clear, beneficial, and offered practical strategies. Overall, the results are summarized through the data given below in Table 1. Average scores were calculated for each AI tool.

Table 1

Emotional Data on AI-generated Policy, Guidelines, and Rubric

AI Tools	Research Groups	Policies		Guidelines		Rubrics		Total Average Scores
Gemini	*Student Researchers*	5	5	4.5	4.75	4.5	4.75	4.83
	Professional Researchers	5		5		5		
ChatGPT	*Student Researchers*	4	4.25	5	4.75	5	4.5	4.5
	Professional Researchers	4.5		4.5		4		
Copilot	*Student Researchers*	4.5	3.75	5	4.25	4	3	3.67
	Professional Researchers	3		3.5		2		
Perplexity	*Student Researchers*	5	4.75	5	4.25	4.5	3.75	4.25
	Professional Researchers	4.5		3.5		3		

Both student researchers and professional researchers clearly showed a positive attitude in their responses pertaining to the guidelines. Most of the favorable statements mentioned ChatGPT and Gemini. Professional researchers, while generally positive, wrote more detailed suggestions for improvement. These suggestions indicated a higher level of critical analysis. On the other hand, the student researchers focused on writing suggestions for the guidelines that could benefit their peers and other student researchers. Moreover, both student and professional researchers expressed support for the implementation of the guidelines with minor modifications that suggested a common perception related to the policy's overall value to higher education.

Overall, researchers found that AI-generated rubrics were generally well-received, with some variations in quality and specific features. Student and professional researchers focused on the clarity, structure, and measurability of the rubrics. They sought rubrics that were easy to understand, well-organized, and provided clear criteria for student assessment. They were interested in how the rubrics could motivate students and provide them with a sense of accomplishment. Both student and professional researchers were concerned with the practicality and usability of the rubrics. The data showed that they wanted rubrics that were easy to implement and could be integrated into existing teaching practices.

A key difference emerged between the student researchers and professional researchers. Professional researchers tended to focus on the format of the rubric as well as the ethics and overall adaptability to the course structure. They also sought more critical analysis of the guidelines, including their transparency, tone, uniqueness, and rationale. In contrast, the data showed that student researchers' perceptions were focused in a slightly different direction. The student researchers were more concerned with the integration of AI output and the rubric's effectiveness as a tool for fellow classmates.

Discussion

Perceptions of professional researchers compared to student researchers

It was expected, as hypothesized earlier, that there would be differences between professional researchers and student researchers related to their attitudes towards the application of AI tools in educational assessment. This is a key aspect that this study explored. When concentrating on the adoption of AI tools, how should professional researchers consider the feelings and acceptance levels of the younger generation? Additionally, this study explored the differences in attitudes and usage tendencies toward AI tools between different age groups.

An analysis of the data from the student researchers and professional researchers' data indicated that there were differences in terms of their use of AI tools, their willingness to accept potential risks associated with AI, and how they apply AI technology. More specifically, in terms of using AI tools, professional researchers placed a greater emphasis on the ethical and responsible use of AI tools compared to student researchers. While student researchers also acknowledge this issue, they voiced more emphasis on the benefits that can be derived from using AI tools, such as improving learning efficiency and generating creativity. Regarding risk perception, professional researchers were more cautious about the potential negative impacts of AI tools, while student researchers expressed a more positive perception related to the future development of AI. When looking closely at applying AI technology to assessments, professional researchers followed a systematic and standardized approach. The data showed that their perceptions emphasized the importance of ethical guidelines and the use of AI as a supplementary tool. In contrast, student researchers highlighted a more flexible and personalized approach that can be considered as the promotion of exploration and experimentation.

Attitudes towards different AI tools

Whether in the context of rubrics, outlines, or policy development, both student and professional researchers expressed that all four tools performed well. Overall, both student and professional researchers held relatively consistent views and feelings toward the four tools. Gemini received the highest ratings, with both groups noting its versatility, clarity, and effectiveness in supporting student success. ChatGPT and Perplexity exhibited similar patterns but with some differences. While student researchers were generally satisfied with ChatGPT, professional researchers were more critical, noting its limited depth and need for improvement. However, both groups had mixed feelings about Copilot. Student researchers found it helpful for learning, while professional researchers were concerned about its breadth and specificity. In addition, there was concern related to the effectiveness of the rubric created by Perplexity. This raised concern about Perplexity's ability to align the overall assignment with the rubric explanations. Based on the overall trends found in the data, it can be concluded that all the AI tools performed the tasks required in the prompt, but the outputs showed some variations in effectiveness and potential for direct implementation for higher education.

Further research must be explored to discover the in-depth distinctions between these AI tools. Future projects could be envisioned, such as the investigation of student researcher perceptions from the implementation of the AI-created policy, guidelines, and rubric. The research inquiry for this new study could focus on the student researchers' perceptions when the AI-driven content was included as part of a live course. Exploring this research question at both the large public institution and mid-sized liberal arts institution could allow for a wide range of insights from student researchers in northeast Ohio as well as out-of-state students and international students that currently attend these institutions. Consequently, this could lead to a movement to adopt these AI-created usage policies, guidelines, and rubrics thereby aligning well with best practices of student voice and choice in education (Matthews et al., 2023). As a result, this academic innovation in assessment would support student researchers' needs from both larger and smaller universities. This strategic vision supports an increase in student academic success for written communication, which is a common course learning outcome at both institutions. This assessment data can also positively impact integrated institutional effectiveness (IIE) through the pathway of evidence and improvement of student achievement (Hoshaw et al., 2021). These steps align well with the intentional integration of new strategies that lead to student success as suggested by other research groups that, in turn, have discovered its connection to enhancing institutional results (Kuh et al., 2015; Hoshaw et al., 2021; Hutchings et al., 2012). Collectively, this initiative would be aligned with the mission statements of both universities.

Conclusion

This study highlighted two novel areas of assessment innovation: 1) exploring perceptions related to AI's application and its effectiveness in education through two different voices, professional researchers and student researchers, and 2) evaluating attitudes toward implementation in higher education. Overall, this research project showed that the student researchers were more optimistic yet

sensitive toward benefits for their peers, whereas professional researchers were more critical and deeper analyzers related to AI's impact on learning and its benefit for students in higher education. Future steps in this project include the exploration of the in-depth distinctions between ChatGPT, Gemini, Copilot, and Perplexity to support student achievement in written communication skills.

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