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Generative AI Use in an EdD Program:

Informal, Independent Student Use and Formalized, Instructor-Directed Use

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ABSTRACT

Generative AI has emerged as a tool to assist doctoral students as they conduct academic research and writing. In this study, we explored two ways AI has been used by students in our EdD program—informally and independently and in a more formalized, guided manner. First, we found students have been engaged in self-directed, informal, independent use of AI tools like Grammarly and Wordtune to aid them with writing. Other students used AI to summarize information from research studies and locate research articles. To be competitive, they believed that they needed to learn more about AI and its use. Second, we obtained data for students' use of AI as they searched for theories to inform their research efforts. They were more confident to try out and utilize AI when instructors introduced it. Results indicated students found this use to be extremely helpful and a necessary tool for students in EdD programs.

KEYWORDS

generative AI, research and writing, EdD Program, EdD students, generative AI and writing and research

The purpose of our research was to explore how students use generative artificial intelligence (AI) in our EdD program. In this article, we describe two ways generative AI has been used in our program. First, we depicted how students have engaged in self-directed, informal, independent use of AI in the program. Second, we discussed a more formalized, instructor-directed use of AI to solve a persistent problem about identifying relevant theories and locating theory-based literature related to students' problems of practice (PoP) and their resolutions. In the first section, we reported data on our students' initial, general use of generative AI in our EdD program. In the second section, we described a faculty-directed effort and students' use of AI to identify theories appropriate to their work. We concluded with implications for continued use and support of generative AI within EdD programs, which may provide some considerations for readers as they reflect on the potential and use of generative AI in their own programs.

Some Initial Research on Students' Use of Generative AI in Our EdD Program

In the research of our students' use of generative AI, we drew upon the technology acceptance model (TAM), a theoretical framework that has been used to assess adoption and use of technology innovations (Davis et al., 1989; Teo, 2009, 2011; Teo et el., 2009). In our case, the technology innovation was generative AI. TAM has substantial appeal as a model of technology adoption because only four to eight variables have usually constituted the model and researchers constructed instruments with limited numbers of items, around 20 for simpler models. In these parsimonious models, the four variables typically have been (a) perceived ease of use of the technology (PEU), (b) perceived usefulness of the technology (PU), (c) attitudes toward the technology (ATT), and (d) intention to use the technology (INT). More complex versions of the TAM have incorporated variables like self-efficacy for using the technology (SEff), normative influences of others, and facilitating conditions such as availability of technology and support. In our work, we chose to use five constructs including ATT, PU, PEU, SEff , and INT. TAM has been used as a causal model framework in which PEU influences PU and ATT, PU influences ATT, ATT influences INT, and finally SEff influences PEU and INT. Given our sample size and the early use of AI by our students, we have only offered information about the correlations among these variables in the results section.

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METHOD

Participants

In all, 45 students completed the online survey and six of those who volunteered were interviewed. Of those who completed the survey, 23 (51.1% of the sample) were second-year students, 18 (40%) were first-year students, 3 (6.7%) had just begun the program and 1 (2.2%) did not identify their status in the program. Students came to the program from various workplace settings including 22 (48.8% of the sample) from PK-12 settings, 21 (46.7%) from higher education settings, and 2 (4.4%) from other settings.

Quantitative Survey Instrument and Procedure

We constructed a survey with four major parts. The first part was a checklist of AI tools in which we asked respondents to check the AI tools they were using. In the second section, we asked respondents to indicate their level of AI tool use (a) for coursework, (b) to aid academic writing, (c) for academic research, and (d) in workplace settings. For these questions, respondents provided ratings using a 5-point scale where 5 = *Always*, 4 = *Often*, 3 = *Sometimes*, 2 = *Rarely*, and 1 = *Never*. The third part consisted of a 20-item Likert scale survey in which four items were used to assess each of the five constructs from the TAM—PEU, PU, ATT, SEff, and INT. Examples of items included "For me, AI tools are easy to use in the Leadership and Innovation (L & I) EdD program," which was an item assessing PEU and "I feel using AI tools to aid my work in the L & I EdD program has great potential," an example of an item assessing ATT. Respondents indicated their level of agreement using a 6-point Likert scale, where 6 = *Strongly Agree*, 5 = *Agree*, 4 = *Slightly Agree*, 3 = *Slightly Disagree*, 2 = *Disagree*, and 1= *Strongly Disagree*. In the fourth part, we asked students to respond to open-ended questions about their (a) use of AI tools in coursework, (b) use of AI tools in academic research or writing, (c) views on how AI should be used in our EdD program, and (d) topics on using AI in research and writing about which they were interested in learning more. We constructed and administered the survey electronically using QuestionPro.

Qualitative Interview Instrument and Procedure

In addition to the survey, we developed an interview protocol consisting of nine questions, which included general questions as well as some questions based on the TAM constructs. Examples of interview questions included "Tell me about your use of AI tools in the L & I EdD program," "From your perspective, how beneficial is using AI tools to you as a doctoral student in the L & I EdD program," and "How confident are you in using AI tools in the L & I EdD program?" Two of the three authors conducted the interviews with students via Zoom. Each interviewed three students for a total of six.

Quantitative Data Analysis and Results

Responses from the first three sections of the survey were analyzed using SPSS 27. For the first two sections, we analyzed frequency data for the use of various AI tools and the frequency of use of AI in four settings. Respondents indicated they were using various AI tools. Of the 45 respondents, 35 used ChatGPT, 28 used Grammarly, and so on. The complete list of AI tools used by these participants and the frequency of their use have been provided in Table 1.

Table 1. Frequency of AI Tool Use by Tool (n = 45)

ChatGPT 35	AI Overviews 4	Semantic Scholar 2
Grammarly 28	Scite 3	Tableau 2
Perplexity.ai 15	Atlasti 2	Insightful 1
Research Rabbit 8	Quillbot 2	LitMaps 1
Wordtune 5		

Data about students' settings for AI use and how frequently AI tools were used in those settings have been summarized in Table 2. For example, with respect to the use of AI tools for coursework, three individuals indicated they "never" used AI, 11 respondents indicated they used AI "rarely," whereas, 21 individuals used AI "sometimes," and eight employed it "often." In general, the levels of AI tool use reflected the emerging use of AI tools by respondents.

Table 2. Frequency of AI Tool Use Across Four Settings (n = 45)

Setting	Never	Rarely	Sometimes	Often	Always
Coursework	3	11	21	8	1
Aid to Academic Writing	3	12	17	12	1
Academic Research	3	8	23	9	1
Workplace	4	6	16	14	4

For the third section of the survey, we determined the reliabilities of the constructs from the TAM portion of the survey, which ranged from .88 to .96, and calculated descriptive statistics for the five constructs. The means and standard deviations for these constructs from the TAM portion of the survey have been provided in Table 3. Generally, the means were in the moderate to moderately high range and varied from 3.82 to 4.81, what would be equivalent to a "low slightly agree" to a "low agree." Of particular interest, the mean for PEU AI was very modest at 3.82 and likely attributable to early use of AI by the respondents. By comparison, means for PU AI, ATT AI, and INT AI were all trending toward the "low agree" levels indicating respondents viewed AI as being useful, had positive attitudes toward AI, and intended to use AI.

Table 3. Means and SDs for the Five Technology Acceptance Model (TAM) Variables for Use of AI (n = 45)

TAM Variable	Mean	SD
Perceived Ease of Use of AI (PEU AI)	3.82	1.21
Perceived Usefulness of AI (PU AI)	4.69	1.04
Attitude toward AI (ATT AI)	4.81	0.85
Self-Efficacy for Using AI (SE AI)	4.45	0.92
Intention to Use AI (INT AI)	4.73	0.98

We also presented information about the correlations among the variables from the TAM in Table 4. These correlations indicated strong relations among the TAM variables and indicated our results were aligned with earlier results on technology acceptance.

Table 4. Correlations among the Five Technology Acceptance Model (TAM) Variables (n = 45)

TAM Variable	PEU AI	PU AI	ATT AI	SE AI	INT AI
Perceived Ease of Use of AI (PEU AI)		.73	.55	.71	.63
Perceived Usefulness of AI (PU AI)			.74	.75	.79
Attitude toward AI (ATT AI)				.84	.86
Self-Efficacy for Using AI (SE AI)					.84

Qualitative Data Analysis and Findings

To ensure trustworthiness of the data, we have described our qualitative data collection and analysis efforts in terms of their credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). For example, neither interviewer interviewed students with whom they were currently working in courses or the dissertation writing process. Moreover, triangulation of the data and the in-depth interviews including follow-up probes provided for rigorous data collection that accurately represented the experiences of participants supporting the credibility of these data. Transferability was supported by the thick description of the findings. Dependability was afforded through well-documented, rigorous data collection and analysis procedures noted throughout the article. Confirmability was supported through triangulation and because two researchers conducted the data analyses by checking and rechecking their data analysis and interpretation processes, employing reflexivity throughout the whole procedure.

To analyze the qualitative interview data, we used a collaborative, inductive, thematic analysis process (Braun & Clark, 2006; Richards & Hemfill, 2018). First, we familiarized ourselves with the interview and open-ended survey question data by cleaning up and reading through the interview transcripts and reading through the open-ended survey responses. Next, we divided the transcripts and independently coded transcripts using open and axial coding. After this first coding round, we met to discuss our codes. At this point in the process, we reached a consensus on the codes and developed a shared code book with codes such as menial tasks, confident for now, activation barrier, ethics, not if but when, decrease scholarly skills, and student use.

Next, we uploaded all the data into Dedoose, a software package for conducting qualitative analysis, and used these initial codes to collaboratively code the data. As we coded the data, we created sub-codes (for example, sub-codes for activation barrier included comprehension check and gathering resources) and new codes (e.g., help with theories) as needed. After coding all six interview transcripts and the open-ended survey responses, we collectively reviewed the coded data and grouped codes into three themes to illustrate how and what students thought about using and potentially using AI tools during their doctoral studies.

Our first theme, Students using AI tools in the program was robust. We found that they were using them in a variety of ways. Some used it to save time on menial tasks like outlining and copyediting and others used it to activate their thinking and to help them understand or check their understanding of challenging and complex topics or texts.

The second theme, *Not if, but when*, chronicled students' belief that AI was here to stay. Moreover, to stay competitive and influence the next level of their scholarship, they felt that they must learn about it and use it. They voiced concern about how AI may have affected the development of scholarly skills of a doctoral student. Respondents were confident in using the tools they knew how to use and wanted to learn more about how to engage with them ethically. They were more confident using AI after being introduced to it or as they tried it out. Students revealed that when their instructors introduced them to an AI tool, they were more apt to try it out.

In the third theme, *AI, an invitation to try*, we highlighted how students reacted when faculty members introduced them to different AI tools, suggested ways to use them, and guided their ethical use of them. In the example offered here, integration of AI tools into coursework enabled students to efficiently explore and apply relevant theories to their research projects, enhancing their abilities to articulate theoretical foundations in their scholarly endeavors.

Theme 1: Students Using AI Tools In the Program

AI as a Time Saver

"It's taking care of kind of the thoughtless menial stuff that's kind of superficial. That's a huge time-saving tool. And then we can use that time on more important things."

As full-time students who were also working professionals, students discussed the benefits of using AI tools to save time on "less important" tasks. Students used Grammarly to edit their work before submitting papers or posting to discussion boards and to check for passive voice and verb tense agreement across their writings. They used AI tools to help with APA formatting for references and in-text citations. Students also used tools, like ChatGPT and Perplexity, to save time as they looked for research and resources connected to their PoPs. For example, one student shared, "I think that AI can take some of the grunt work out of research, the hours spent going down rabbit holes with little or no relevant research found." Although students were happy for help with tasks that they felt were not as important as others, they added a caveat to the time-saving value, noting they still "have to check it," referring to APA and edits suggested by AI. In reference to AI-suggested research and resources, students noted the need to "read the articles to determine their relevance."

AI for 'Getting Over the Activation Barrier'

"I think, the way I mostly use it, is it gets me over that activation barrier … it just kind of makes me go, 'Oh, yeah, yeah, okay, fine. Okay. I can calm down and just do it myself now. So, I use it as this kind of overcoming the activation barrier and then get started."

By *activation barrier*, we meant students used AI to start a task when they were stuck or not sure how to start a task or needed help with remembering or reviewing a concept. Whether they needed information or clarification on what they already knew, using AI tools, such as ChatGPT, as a thought partner allowed students to get unstuck and move forward in their thinking, planning, or writing. One student shared how AI helped when she needed reminders or help to move forward:

… when I am looking at something, and I just think, just give me a quick overview. So, I'll say to AI something like, 'Remind me again, what is grounded theory?' or something like that. Or

sometimes … you know, I skim through things quickly, and I'm just like, 'Hey, quickly remind me, what's the difference between self-efficacy and self-determination?'

Students used AI tools to support their understanding of concepts or ideas, to "provide direction and an extra resource for understanding …. when an instructor or classmate is not available." Or, when students were engaging with a complex text such as an article, passage, etc., they used AI tools as a prereading strategy or comprehension checks as they read. They may have asked AI, "explain this to me in like 3 to 5 sentences," or to explain a term or concept "in a way that a high school or undergrad student would be able to understand."

Wondering where to start and what to include in their writings has also been an activation barrier for students. Using AI tools helped students get ideas for what to include and how to organize written texts. One student suggested, "I've said to it (Bing) things like, 'Can you generate an outline for me? I'm interested in you know, writing about the stay interview and using self-determination theory. What do you suggest for an outline?'" Students noted they may have deviated from the outline or key points suggested but working with AI in this way gave them ideas and helped with the brainstorming process.

Overall, students have been leveraging AI to expedite their learning processes, from summarizing complex theories to brainstorming and searching for relevant academic resources. Although AI offered efficiency and convenience, students still combined these tools with traditional research exploration methods and expert consultations to ensure accuracy and relevance to their work.

Theme 2: Not If, But When

AI as "The Future is Now"

"I think it's [AI] so inevitable that I just want to learn how to use it now to see what's possible, and also see what the drawbacks are."

Students in the program told us they realized generative AI was here to stay. Although there were concerns about engaging with AI tools, they told us they must learn to use AI to remain competitive in the program and beyond. As one student remarked,

I think we have to use it. We have to learn how to use it in both [the] real world, the outside world, and in the program and other programs around the country. Other grad students are using it all the time now. And so, in order to remain competitive in the program, to be able to compete with anybody else out there. Everybody's going to be using AI.

This student continued by explaining that you had to use it,

So, you could be more efficient, learn more … go to the next level of learning … which I don't know what that is right now, but you go to the next level, where you do faster, better, higher, whatever it is.

Such comments underscored the perceptions among students to embrace AI as an integral tool for their doctoral student journeys and their futures as practitioner scholars.

Although students acknowledged AI's utility, they expressed reservations regarding its potential to overshadow their developing scholarly skills. One participant was not sure, "... where that line is between like [being] helpful … you know and inhibiting or preventing that true-like learning process." Likewise, another suggested that AI might take away "… from some of the learning like … developing your analytical skills and your skill set for interpreting and analyzing things." And another participant wondered,

I think that one of the skills we are trying to cultivate in higher education is the ability to examine a variety of documents and see, with your own eyes, patterns that exist between them. And if we're using AI to write papers and such, then you've robbed yourself of the experience of being exposed to different resources and coming up with original ideas because it's never going to include any nuances. It can only be factual, I guess.

These introspections reflected their concerns about the balance between AI's assistance and its influence on their critical thinking and analytical skills as well as their identities as developing scholars and practitioner researchers.

AI and Students' Concerns: Confidence and Ethics

"I think I'm confident in using it to the extent that I want to use it right now. And I think it's pretty user-friendly. But again, if you don't know how to use it, that might be a different [matter]. So, I don't know what I don't know, but I'm confident [in using it now]."

Participants reflected on their confidence as AI users, but voiced uncertainties about their proficiencies using it and for what purposes. For instance, they were confident in using the tools with which they had already engaged, such as Grammarly and Wordtune and recognized the need for subject-matter expertise when using AI for higher level tasks like locating references, summarizing, and synthesizing. For example, one participant claimed, "... if you don't have that true content expertise or subject-matter expertise, it's really dangerous. Because I think then you're kind of floating along with this inflated sense of like understanding."

Still others were less confident when factoring in ethical concerns, especially in more complex academic tasks such as gathering references, checking for understandings, and writing the dissertation. As one participant explained,

Like, I feel very confident about the organization of the research I have. Very confident in areas of, like, where to look for things. But to organize my writing processes, I've used the outline feature on smaller papers to just kind of get it going. But on something as big as, like, the dissertation that just concerns me, of like, how much I'm willing to trust it. Or once again, in the ethics of how much of it can I use before it's a thing [an ethical issue]? I just don't feel as confident in that part.

Concerns about the ethical use of AI, particularly in the context of trustworthiness and reliance on AI-generated content, underscored participants reservations, confidence, and highlighted the need for greater ethical guidance in AI utilization.

AI Use and Program Responsibility

"I believe AI will be an important tool for use in almost all present and future careers. I think it would be helpful to teach EdD program students how to use the tools ethically and appropriately to support their work."

In their responses, participants asked that program faculty members and leaders integrate AI usage into coursework and guide students on how to use it ethically. This call for additional education underscored the importance of equipping students with the necessary tools and frameworks to navigate the ethical complexities

of AI utilization and gain more confidence in the use of AI. In addition, when professors recommended and integrated the use of AI tools in courses, students viewed it as a license to explore and experiment with the tools and were, then, more inclined to investigate and utilize ChatGPT for their projects. For example, one student reported, "If the professors say, 'Hey, like, check this out. You should use it for this, but not for this.' Then, that's like a tentative license to try something out."

Their requests for the integration of ethical AI usage into coursework had the potential to not only foster confidence in AI utilization but also ensured that students would remain vigilant in adhering to ethical principles, ultimately guiding them towards responsible and effective scholarly practice. Students were less tentative after being introduced to AI by the faculty with the recommendation to integrate it into their work.

Theme 3: AI as An Invitation to Try …

Finding Theories to Inform Students' Research Work

"… Someone had suggested I use counter narrative ... And I was like, okay, counter narrative. That's an interesting thought. And then I started looking at counter narrative. I was like, Ooh, wait a second counter narrative seems to come out of critical race theory, and that doesn't at all fit with my demographic. And so then, then I asked AI, I said, 'do you know, are there any applications of counter narrative that don't involve critical race theory?"

In a three-year program, students have limited time to explore theories to inform their research. Historically, students have gravitated towards theories presented in courses or theories program faculty members used in their own research. Sometimes, this resulted in students finding a theory that was a good fit for their research, while other times, students have chosen theories to which they were exposed in the program that might not necessarily be the best fit for their personal epistemologies and research. In these cases, some students have gotten to their proposal defense semester and struggled to articulate how and why those theories informed their research. In response to this and coupled with a desire to see how AI tools had the potential to support our students in their coursework and scholarly practitioner endeavors, in the spring of 2024, program faculty members, in three courses, started integrating learning experiences for students to use AI tools to explore theories connected to their research ideas.

Not surprisingly, students referenced those course-level experiences when discussing using AI in their coursework and research. Students shared that they used AI to summarize theories, which allowed them to grasp the core concepts quickly without having to spend excessive time reading extensive materials. One student commented,

> *I used AI to summarize theories. It was helpful in that I could get a basic understanding of the theory … in a short amount of time. If not, I would spend hours doing reading for theories that I may not use. It helped me narrow down the theories I wanted to use. It is efficient.*

They also used AI tools to brainstorm possible learning theories for their projects or innovations. For example, one respondent maintained,

> *Professors … provided instructions on how to use ChatGPT to assist with finding applicable theories to apply to our problem of practice and action research project. I followed these instructions and was led to many useful, relevant theories to research further. ChatGPT also assisted me with generating introductory explanations of the relevant theories, and provided suggestions on how these theories might apply to my problem of practice.*

Although the use of AI had the potential to generate a good list of theories, students still relied on consultations with professors and peers to refine their choices. Students learned that although AI suggested research articles on specific topics or theories, AI had the potential to hallucinate and provide false or misinformation as fact. Nevertheless, even when this occurred, students still found value in the fake ideas AI provided as suggested by one student who said,

> *I entered this prompt in ChatGTP: Provide research articles that used psychosocial theory with respect to community college success in STEM, including author's name, title of article, and doi. One of the articles seemed particularly interesting so I searched for it in the ASU database. No luck. Turns out the article does not exist, but I did use the fake title to search for related articles in ERIC and Google Scholar and found some great papers related to my topic.*

Students have been using AI tools to find and apply relevant theories to their problems of practice and action research projects. The course-level experiences helped students explore and research various applicable theories and generate introductory explanations and suggestions on how the theories might apply to their specific issues. These course-level efforts to guide students in their use of AI have been exemplified in faculty members' efforts to support students as they searched for theories relevant to their efforts.

DISCUSSION

In this section, we discuss our results, present implications for research, and suggest implications for practice. First, with respect to the results, the quantitative and qualitative data demonstrate a high degree of complementarity (Greene, 2007), that is, they point to the same conclusions. The lower scores on the perceived ease of use (PEU) and self-efficacy (SEff) variables on the TAM are consistent with concerns respondents raised in the interviews. For example, one participant claimed, "So, it's been a pretty big learning curve, so that would detract from the ease of use. .... You gotta *[sic]* figure out how to talk to it, and that's been an ongoing journey." Consistent with the modest quantitative SEff scores, which reflected their limited confidence in using AI, during the interviews, one student maintains,

> *I mean fairly confident [in using AI]. I'm kind of learning as I go. ... I'd feel more confident if from the very beginning I knew what the tools were, and I could build them into my research, and how I do things.*

And another participant shares, "if there was a confident scale of 1 to 10, I think I would be like around a 6 or 7."

Moreover, the lower scores on all the quantitative TAM variables are likely to be due to respondents' emerging use of AI that is not yet fully developed, which is also illustrated in the qualitative data. For example, one participant indicates, "I've ... just started looking into those [various AI tools]. I haven't really started using them." Another states, "I have only started using it [AI] recently." This was also apparent in interview responses when students asked for clarity and direction in using AI effectively and ethically. As one

participant states, “how much of it [AI] can I use before it’s a thing [ethically improper use]?

Second, with respect to implications for research, we offer three implications. The results of this study indicate the newness of AI use by our students. This suggests continuing to closely examine AI use by students is warranted, for example, by gathering longitudinal data. Further, as program faculty members increase requirements for student use of AI, programs will want to monitor those efforts to ensure optimal, ethical use. Finally, case studies of students who are very high users of AI, i.e., early adopters, may offer insights about specific AI tools and uses that would benefit others.

Third, there are several implications for practice. For example, students indicate a high degree of interest in using AI. Moreover, they want to use it appropriately and ethically. So, faculty members should work to embed the use of AI, and in doing so, they should clearly specify how and when it can be used. Specifically, providing guidelines about ethical use of AI is of the utmost importance to ensure students do not hesitate in using AI and that they do not use it inappropriately. To us, this is the most important matter to resolve so that students are empowered to use AI in appropriate and beneficial ways. In the example we provide about having students search for relevant theories to guide their work, we offer one concrete way in which we show students how to use AI to benefit their efforts, while using AI in an ethical manner.

USING GENERATIVE AI IN COURSEWORK TO AID STUDENTS’ IDENTIFICATION OF RELEVANT THEORIES

In this next section, we provide a detailed description of one course-level experience for using AI that was facilitated by faculty members. We explain our efforts to use generative AI to assist students in identifying and writing about theories appropriate to their PoPs, their contexts, and mitigating the PoPs through an intervention/innovation. We have illustrated our efforts to use ChatGPT and Perplexity, two generative AI approaches by providing examples including prompts that we and our students have used. Additionally, we have described strategies such as using ChatGPT first to identify theories and then using ChatGPT output in Perplexity to conduct more extensive, refined searches in which students have been able to identify research studies employing those theories, which they have used as they crafted their written work.

The ChatGPT Prompt to Initiate the Search for Relevant Theories

We have provided the prompt we used to initiate our ChatGPT search for relevant theories in Figure 1. We are indebted to and thank Dr. Jim Dunnigan for allowing us to use the prompt he developed. Notably, the specificity of this prompt, and for that matter any prompt, has been critical to effectively obtaining relevant information. Specifically, note that the prompt indicated both a specification of the PoP and required a precise articulation of the context by the students. Students used ChatGPT 3.5, a free version of the product.

Following the input of the prompt in Figure 1, ChatGTP continued the conversation by asking for a description of the student’s PoP, which was specified in the initial ChatGPT prompt.

Figure 1. The Original ChatGPT Prompt

> You will provide guidance for helping graduate students at a university develop an awareness of educational learning theories. The students are writing an action research dissertation. You will assist a student in discovering what educational learning theories are appropriate to use given a specific problem of practice. You will respond in a conversational, helpful tone. Do not guess. Only provide answers that you are sure are based on facts and research. First, ask the student to submit their Problem of Practice before you attempt to answer any questions. Wait for a response.
>
> After the student has provided you with their problem of practice, ask them to provide a short paragraph that describes the context of their environment where they want to create their intervention. Be sure the context is specific and describes the demographics of the participants, the environment, and other relevant information. If you find their context is insufficient, politely ask for more details using the criteria I just outlined. In your response, summarize what you have learned. Respond: “Thank you for this information, I will now research applicable educational theories related to your problem of practice and your specific context.”
>
> Produce a list of the educational learning theories that might be applicable to this problem of practice and this particular context. For each theory listed provide at least two researchers who are most commonly associated with being the expert on this theory. For each theory, name the specific aspect of their problem of practice that relates to this theory.
>
> After you have provided this list ask: “Do any theories on this list look like a particularly good match to your problem of practice? If so, please tell me which one so I can provide you with more details.” Wait for a response. If they provide a specific name research, using Bing if necessary, more details about the theory. If they answer no then generate another list of potential theories based on their problem of practice. Respond to a no answer with: “Ok, no problem, let me give you a few more theories to consider. Then repeat the same question about if the theories are a good match.

The student responded by stating the PoP. Here is an example, “My problem of practice is mediating roommate conflict by residence assistants.”

Next, ChatGPT asked for a description of their context. Here is an example of context, “My context is a four-year university. First-year students who are 18 years of age are roommates with one another living in dormitories. Sometimes these first-year students have conflicts with one another. These students are overseen by residence assistants who are several years older, about 21-22 years of age. The primary concern is how these residence assistants can mediate the conflicts that occur among the first-year students.”

Following the student inputs of the PoP and the context information, the output from one of the ChatGPT searches included the following text as illustrated in Figure 2.

Given this output, the instructor told students to eliminate the first four theories because they did not deal directly with roommate conflict. Then, students were asked to *play* with this output in ChatGPT a bit by making statements like, “Tell me more about conflict resolution theory” and they may have continued the dialog with other statements. Nevertheless, given the limitations of ChatGPT including not being linked to the internet, generating references that did not exist, and so on, the instructor asked students to take the ChatGPT output and input it into Perplexity.ai.

Students input information into Perplexity by offering a statement like, “Tell me about conflict resolution theory.” The output from Perplexity was very helpful and included five models of conflict resolution with a brief explanation such as the cooperative model, conflict transformation model, human needs model, interests-based model, and dual model. Notably, output from Perplexity included a “Related Section,” which provided additional information such as, for example, “what are the main theories of conflict resolution,” and when students expanded that section by simply clicking on the “+” sign more information on conflict resolution theories became

Figure 2. Output from ChatGPT

1. Social Learning Theory:

Key researchers: Albert Bandura and Julian Rotter.

…. a brief description of the theory was provided ….

2. Zone of Proximal Development (ZPD):

Key researcher: Lev Vygotsky.

…. a brief description of the theory was provided ….

3. Constructivism:

Key researcher: Jean Piaget.

…. a brief description of the theory was provided ….

4. Behaviorism:

Key researcher: B. F. Skinner.

…. a brief description of the theory was provided ….

5. Conflict Resolution Theory:

Key researchers: Kenneth Thomas and Ralph Kilmann.

In relation to your problem of practice: This theory provides a framework for understanding and managing conflicts constructively. Residence assistants can use this theory by familiarizing themselves with different conflict resolution strategies (e.g., collaboration, compromise, avoidance) and helping first-year students choose the most appropriate strategy for their specific situation.

6. Interpersonal Relations Theory:

Key researcher: Harry Stack Sullivan

…. a brief description of the theory was provided ….

available, which was beneficial to students as they explored more details related to their theory(ies). Perplexity has served as one AI tool that was used as a follow-up tool to ChatGPT, but others like Semantic Scholar, Scite, and so on could have been used.

CONCLUSION

In conclusion, we offer several questions to consider about how you might use AI in your EdD programs. What are some of the perplexing and continuing problems in your program and how might generative AI be used to deal with them? For example, is the development of a problem of practice a concern? Or is the development of research questions something that could be sharpened? Alternatively, do students struggle with identifying theories relevant to their work? Or do students need help with various aspects of their writing? As we demonstrate in various sections of this article, using AI tools offers solutions to these and other on-going concerns arising in EdD programs.

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