Annotated Bibliography

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ENC 2135: Research, Genre, and Context

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Hamilton, I. (2024, March 6). *Artificial Intelligence in Education: Teachers' opinions on AI in the classroom*. Forbes. https://www.forbes.com/advisor/education/it-and-tech/artificial-intelligence-in-school/

This is a Forbes article that gathers the opinion of the group impacted the most from artificial intelligence (AI) being integrated into education: teachers. The article begins by stating a few ways AI could impact the educational sector. Some of these ways are like what was detailed in the scholarly articles, such as learning platforms with AI integration, automated grading with AI feedback and tutoring systems. The article then goes on to detail findings from surveys conducted on teachers and their opinions on AI; the results of these surveys are surprisingly positive regarding AI's applications in classrooms. According to a survey provided to five hundred current teaching practitioners around the U.S., around 55% agree that AI has benefited their classroom to some degree, with only 18% saying it directly hindered it, and 17% stating indifference. However, this doesn't mute the concerns that instructors have about AI. Over 65% of instructors agree that plagiarism and cheating with AI is a noticeable problem, citing that is has risen in recent years. This article, compared with the scholarly ones, provides a more "layman" view on the AI situation, while also offering teachers their direct input on the AI situation. While not an article peer-reviewed by experts in computer science, Forbes isn't commonly regarded as "unreliable" by any means.

Johnson, K. (2024, July 7). *California teachers are using AI to grade papers. Who's grading the AI?* The 74 Million. https://www.the74million.org/article/california-teachers-are-using-ai-to-grade-papers-whos-grading-the-ai/

This article outlines how artificial intelligence (AI) tools are increasingly used in California schools, particularly for grading student work and providing personalized feedback in a "real-time" manner. AI, like automated grading software, helps teachers reduce burnout and offer quicker, more frequent feedback, but there are concerns about the accuracy and fairness of AI-generated assessments and how they are graded. While AI offers opportunities for personalized learning and efficiency, its potential risks, such as biases and reliance on incorrect outputs, are still being debated by professionals in the field, as well as California teachers with first-hand experience using such tools in the classroom. This article will be useful for discussing AI applications and challenges in educational environments, displaying a larger focus on AI in actual use in the classroom.

Pan, M., Wang, J., & Wang, J. (2023, November 24). *Application of Artificial Intelligence in Education: Opportunities, Challenges, and Suggestions.* 2023 13th International Conference on Information Technology in Medicine and Education *(ITME)*, 623–627. https://doi.org/10.1109/ITME60234.2023.00130

In this paper, Pan et al. goes into detail about the possible benefits and difficulties of implementing artificial intelligence (AI) into educational environments. Pan et al. explains the possible benefits of AI in its traditional form, that is, a language model that takes input via a prompt created by a human. However further detail is also given about how AI could be used in more "physical world" applications, such as being used to analyze student's body posture and eye movements to gauge their attention levels. However, all benefits follow a list of difficulties, some we experience right now with current educational technology that uses AI in some fashion. These difficulties range from privacy concerns, or simply the lack of advanced enough technology that would

allow AI to teach more advanced/niche topics. In summary, I found this to be an excellent academic source for my essay as it offers a very convenient birds-eye view of my topic, detailing notable pros and cons as they relate to artificial intelligence applications. This source is credible because it was peer-reviewed and was written by multiple experts in the field.

Qian, S., & Feng, Q. (2020). *Research on the Integration of Artificial Intelligence and Education.* Journal of Physics. Conference Series, 1570(1), 12063-. https://doi.org/10.1088/1742-6596/1570/1/012063

In this paper, Qian, S. and Feng, Q. detail how artificial intelligence (AI) and its integration into education is an inevitable trend, especially in recent times due to the large developments in AI technology. The important subject this paper presents, however, is the idea of "understanding-based learning". Compared to traditional learning, understanding-based learning emphasizes creativity, real-world applications, and creative problem solving to a higher degree by using technologies such as multimedia, online learning, and artificial intelligence language models specifically trained for explaining course material. Qian, S. and Feng, Q. hosted their own empirical experiment to definitively test the impact of such an understanding-based learning environment. The experiment was conducted with two classes (an experimental group and a control group). The experimental group used understanding-based teaching in a network environment, while the control group followed traditional methods. The study measured creativity in four dimensions: adventure, curiosity, imagination, and challenge. Problem-solving abilities were also evaluated through real-world campus surveys. The resulting statistics showed the experimental group outperformed the control group in nearly every aspect,

but most notably in creative problem solving. This paper gives an excellent example of how AI can be used in a classroom environment so that it fosters a creative learning environment, demonstrating a notable benefit from the possible application of AI in the classroom. This paper is credible because it is peer-reviewed and written by two experts in the field of AI.

Roberts, S. (2023, December 12). *Helpful or harmful? How AI shaped education in 2023*. Science Friday. https://www.sciencefriday.com/articles/ai-education/

This is a news article from the popular, non-profit website *Science Friday* that summarizes how artificial intelligence (AI) has impacted education in 2023, as well as highlighting instructor's concerns about how generative AI will change education. While AI tools have a plethora of uses when it comes to assisting students in obtaining a type of personalized tutoring that complements their classroom learning, there are many issues that follow. Besides the fact that AI can generate entire essays for malicious students looking to take shortcuts rather than putting in the work, AI has a persistent issue of generating incorrect or misleading information. Most students wouldn't investigate further if the information provided by a chatbot is incorrect, rather, taking the words as truth. This news article gives a good perspective on the implications of AI in educational settings, highlighting incidents that have occurred in classrooms where AI was detrimental towards student's learning. This website claims that all articles are fact-checked by numerous editors before publication.

Yuskovych-Zhukovska, V., Poplavska, T., Diachenko, O., Mishenina, T., Topolnyk, Y., & Gurevych, R. (2022, March 23). *Application of Artificial Intelligence in Education. Problems and Opportunities for Sustainable Development.* Brain. Broad Research in

Artificial Intelligence and Neuroscience, 13(1Sup1), 339–356.
https://doi.org/10.18662/brain/13.1Sup1/322

This is an academic paper that goes into specific detail of the applications of artificial intelligence (AI) in educational institutions, as well as explaining the possible benefits and consequences. Yuskovych-Zhukovska V., et al. elaborate on specific technologies that would be used as part of an AI learning regime. Specifically, such technologies would be cognitive services, virtual/mixed/augmented reality, the use of "Internet of Things", metacognitive scaffolding as it applies to AI (encouraging learners to self-reflect on their own learning progress), computer vision, and automated grading systems. Such systems, however, are not designed to completely replace teachers in academic environments. Rather, these tools are more tailored towards enhancing the student's understanding of the topic at hand by providing more individualized aid while considering the student's needs. However, the primary concerns that follow are unemployment for educational staff, data privacy concerns, and the issue of narrow specialization for AI models. Despite the earlier described tools being designed as solely for aiding students in their academic endeavors, there is concern that these tools, if developed to be advanced enough, would make academic instructors completely obsolete, leading to the issue of unemployment. This paper is a thorough source for the paper I intend to write as it details both points of view regarding AI in educational environments. This paper is credible because it is peer-reviewed and written by experts in the field of computer science.