

Learning through Wikipedia and Generative AI Technologies

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ABSTRACT

This tutorial will examine the use of Wikipedia and generative AI technologies in asynchronous learning environments. Participants will learn about the research on accountable talk and its impact on student learning, as well as the challenges of implementing the learning principles using Wikipedia in an asynchronous setting. The tutorial will also showcase the potential of generative AI technologies, such as chatbots and language models, to facilitate accountable talk and support student-led discussions in asynchronous learning environments.

By the end of the tutorial, participants will have a solid understanding of the potential of generative AI technologies to enhance student learning and scale accountable talk in asynchronous learning environments. This study conducts a comprehensive analysis of three distinct yet interconnected components that shape contemporary learning environments: Accountable Talk, integration of Wikipedia, and the utilization of generative AI technologies. This investigation aims to highlight the immense potential these elements possess in transforming educational landscapes, particularly within asynchronous learning contexts and in the democratization of knowledge. Additionally, the study explores the societal implications of deploying these methodologies within classrooms, underlining their potential contribution towards the creation of an equitable, knowledgeable, and socially aware society.

Keywords

Asynchronous Learning, Accountable Talk, Wikipedia, LLM

1. INTRODUCTION

In response to the swift transformation of the educational sector, pioneering teaching methodologies that can adapt to various learning environments are of the essence. This study endeavors to offer a comprehensive understanding of three core components: Accountable Talk, the educational role of

Wikipedia, and the implementation of generative AI technologies. An exploration of these critical elements facilitates in-depth insights into their influence on learners' communication, social, emotional, and cognitive development, and their capacity to enrich personalized learning experiences.

2. THEORETICAL FOUNDATIONS

This research leans on three primary theoretical foundations: the concept of Accountable Talk, the integration of Wikipedia in academic environments, and the application of generative AI technologies within learning contexts.

Accountable Talk, an instructional approach designed to enhance learning by sparking critical thinking and promoting collaborative discourse, is a cornerstone of the research. [4] This pedagogical methodology centers around students holding themselves responsible for the accurate dissemination of knowledge, sound reasoning, and active community participation, thus boosting their cognitive abilities. The primary objective of Accountable Talk is to refine students' reasoning skills, a competence that is transferable across various academic disciplines. Building upon this conceptual groundwork, the theory of Accountable Talk emphasizes that a community-focused engagement model significantly enhances comprehension and enriches educational outcomes. Implementing this educational strategy requires the creation of a set of ground rules fostering an inclusive learning environment and prompting active intellectual discussions. This context fosters the public exchange of diverse ideas and thoughts, facilitating advanced learning and allowing the identification of misconceptions within the learning community.

2.1 Accountable Talk in Education

1. Maximize Learning Outcomes: Deploying Accountable Talk undoubtedly elevates students' understanding and recall, yielding notable enhancements in their academic performance.
2. Elevate Critical Thinking Skills: Accountable Talk is an exceptional tool for promoting critical thinking. It compels students to delve deeply into subjects, critically dissect assumptions, and construct coherent arguments. Paul and Elder's concept of "strong sense" critical thinking strongly supports this assertion. [2]

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3. **Promote Active Engagement:** By employing Accountable Talk, students are converted from passive absorbers of information into dynamic participants in their learning journey, significantly boosting engagement and comprehension of subjects. This principle aligns with dialogue on the crucial role of classroom dialogue and active participation in improving understanding and engagement. [5]
4. **Strengthen Communication Skills:** Accountable Talk is instrumental in refining students' communication abilities, empowering them to express their thoughts clearly, listen actively, and respond respectfully to diverse viewpoints. Mercer and Littleton's (2007) viewpoint on dialogue's role in refining reasoning, collaboration, and communication skills further endorses this perspective. [3]
5. **Facilitate Collaborative Learning:** Accountable Talk offers a well-structured platform for collaborative learning, directing students to collaborate effectively, honor diversity, and expand upon one another's ideas. Johnson and Johnson's (2009) research emphatically backs up the benefits of collaborative learning. [1]
6. **Boost Social and Emotional Skills:** Accountable Talk plays a crucial role in advancing empathy, respect, and understanding of different viewpoints, hence significantly contributing to the maturation of students' social and emotional capacities.
7. **Build a Learning Community:** Accountable Talk is a potent tool in fostering an inclusive community of learners. It forms a supportive learning environment that significantly enhances engagement and academic results for all students.
8. **Promote Higher-Order Thinking:** Accountable Talk is a powerful medium that stimulates students to partake in higher cognitive processes as detailed in Bloom's taxonomy, including analysis, synthesis, and evaluation, instead of mere information memorization. So, make Accountable Talk your standard teaching approach and watch your students thrive!

Integrating Wikipedia assignments into curricula illustrates the practical application of knowledge, thereby refining diverse learner skills. Student contributions to Wikipedia, under instructor guidance, foster research skills and sophisticated understanding of writing for a broad, international readership. The utilization of generative AI technologies, specifically Large Language Models (LLMs), represents a transformative approach to education. With their ability to customize learning experiences and mimic human-like interactions, LLMs hold considerable potential in deepening learning and enhancing teaching methodologies.

3. PRACTICAL IMPLEMENTATION

In leveraging the capabilities of advanced artificial intelligence (AI) systems, this study introduces an innovative pedagogical methodology incorporating Language Learning Models (LLMs), such as GPT-4. The primary purpose is to foster accountable talk and promote information literacy skills among students. Furthermore, this study explores the

applicability of such learning models in a practical task: the creation of content for Wikipedia.

The study presents a distinct delineation of roles for both the LLM and the students. The LLM is positioned as a facilitator of knowledge, delivering subject matter expertise, and also as an evaluator of student work. This AI model adheres to protocols of accountable talk, promoting an environment that encourages respectful and evidence-based dialogue. On the other hand, students engage as active participants in the learning process, synthesizing the knowledge provided by the LLM and other reliable sources, and eventually producing content suitable for Wikipedia. A noteworthy aspect of the methodology is the emphasis on the development of information literacy skills.

The pedagogical framework encourages students to conduct their own research, augmenting the knowledge provided by the LLM. In this process, students learn to differentiate between reliable facts and misinformation, and identify potential biases, enhancing their capacity to critically evaluate information. The LLM also plays a crucial role in the content creation process.

Using the information gained through interactions with the LLM and their independent research, students draft Wikipedia articles. The LLM offers support during this process, providing suggestions, refining language and style, and ensuring compliance with Wikipedia's content guidelines. The AI model also evaluates the students' drafts, providing evidence-based feedback in line with accountable talk principles.

This study proposes an educational approach that effectively blends AI technology with pedagogical practices. By integrating LLMs in the learning process, there is potential for enhanced accountable talk and information literacy skills, ultimately fostering an environment conducive to active learning and knowledge synthesis. Future research could further explore the integration of AI in educational settings and evaluate the impacts on student learning outcomes.

4. CONCLUSIONS

By examining Accountable Talk, Wikipedia integration, and the deployment of AI in educational contexts, the study sheds light on potential societal transformations. Implementing these strategies could significantly influence asynchronous learning environments and the democratization of knowledge, ultimately affecting societal outcomes. Promotion of Accountable Talk encourages learners to partake in intellectual dialogues, enhancing critical thinking and collaboration skills. The integration of Wikipedia in educational settings democratizes learning by empowering students worldwide to contribute to a communal knowledge base. Finally, the deployment of generative AI technologies provides individualized learning support, thereby enhancing inclusivity and minimizing educational disparities.

The societal impacts of these strategies reach beyond individual classrooms, signaling towards a future where learning is universally accessible. By optimizing asynchronous learning environments and democratizing education, this study contributes to the cultivation of a society in which equity, digital citizenship, and mutual respect are emphasized.

5. REFERENCES

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