# A Topic that Needs Discussion: Integrating Artificial Intelligence into Agricultural Leadership, Education, and Communications Scholarship

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## Introduction

The relationship between technology and agricultural education is dynamic and changing, mainly due to the tremendous technological advances to which educational systems must adapt. Since the first documented use of computers in agriculture in 1983 (Baker et al., 1983), many technical innovations have been integrated into agricultural education instruction and curricula. One of the most recent innovations is Artificial Intelligence (AI), which has been described as a more robust and accurate tool to generate solutions in less time and with fewer resources (Bannerjee et al., 2018). AI's limitations do not allow it to generate new ideas but can organize and help researchers develop evidence-based output (Salvagno et al., 2023). Although AI is advancing quickly in its integration into new social and productive sectors, the debates on its uses and implications are intensifying as it relates to the integrity and originality of the arguments it produces as well as the process of acquiring knowledge, authorship, and the reliability of the information (Salvagno et al., 2023). For example, a constant criticism of using AI is the inability to differentiate between an artifact written by a chatbot or a human being (Else, 2023), even though characteristics such as the lack of style, nuances, and originality may indicate that an AI software wrote the document (Gao et al., 2022). Others, however, advocate for integrating AI as a tool with the potential to improve educational processes and prepare more competitive professionals (Golan et al., 2023). In terms of the peer review process, with the increase in manuscript submissions, many platforms have already implemented screening technology to save time on the initial review. In an experiment conducted by Checco et al. (2021), the findings indicated that AI technology successfully predicted the peer review result. This innovative poster aims to demonstrate the potential use of AI in agricultural leadership, education, and communications (ALEC) scholarship.

## How it works/Methodology/Program Phases/Steps

Among the available AI tools for academics, we selected InfraNodus based on its various features. InfraNodus (2011–2023) is considered a text network visualization tool powered by AI to accomplish the following: Get an overview of any text, discover the gaps in ideas, and generate insight. InfraNodus supports multiple languages, is fully sharable and multifunctional, and protects data. Additionally, through its features like multiple import sources, text mining, interactive text visualization, and GPT enhanced workflow and its 45 applications, the platform provides infinite opportunities for research and a unique opportunity to enhance the research writing process for ALEC scholars (InfraNodus, 2011–2023).

Three InfraNodus applications to enhance the literature review and the literature search are *Google keywords*, *explore a topic* and *innovative trends*. *Google Keywords* is considered an advanced discourse analysis search engine optimization tool where researchers can search for keywords relative to a specific topic. The results are organized in a graph to visualize the main topics and missing subject areas (InfraNodus, 2011–2023). Researchers interested in investigating a particular concern may consider using *explore a topic* where GPT3 AI is used to generate information about a selected subject matter. Innovative trends would provide a starting place for determining a research area, as it finds the structural gaps within the scientific discourse around a specific topic (InfraNodus, 2011–2023).

Furthermore, InfraNodus has many applications that can assist with collecting, analyzing, and visualizing data; however, three that stood out in our research were *contextual supply*, *qualitative analysis*, and *creating a mindmap*. To collect data for content analysis, *contextual supply* provides an opportunity for researchers to identify their query of interest to visualize Google search results. InfraNodus provides a graphic element along with links to sources related to the search (InfraNodus, 2011–2023). Researchers interested in qualitative analysis may use the *qualitative analysis* application to reveal recurrent themes or hidden connections in open-ended survey questions, interviews, questionnaires, or other texts. Visualization is a major component of InfraNodus; therefore, most applications provide a graphical representation. *Creating a mindmap* allows researchers to convert any text manually or automatically to a mindmap. With network analysis research becoming more prominent in the agricultural, education, and communication field, this could be incredibly useful.

## Results/ Implications

Scholars in ALEC departments across the United States are using AI applications in their scholarships. For example, in research, we have investigated agricultural innovation priorities for a developing country, comparing the results of a qualitative methodology (Delphi study) and the effects of AI analysis. Preliminary results showed a disconnect in the areas where investments and actions must be taken to improve agricultural innovation in the following five years. On the other hand, we have implemented AI to analyze qualitative data and visualize quantitative and qualitative data. Currently, we have explored InfraNodus in network research for water-related issues, particularly on consumers' information source preferences. In teaching, AI was incorporated as a tool to search for gaps in the literature, especially as an initial step to identifying potential research problems. Other applications include audio and video transcription to assist ALEC scholars in developing and delivering course materials for students with disabilities in online and face-to-face courses.

## Future Plans/Advice to Others

AI software should be used as a tool to assist researchers and not to replace expertise, personality, or judgment (Salvagno et al., 2023). For scholars interested in using AI for academic research and writing, it is recommended that they understand the ethical concerns associated with AI. It is necessary that scholars begin integrating AI into the classroom and develop a preventative strategy for use in coursework because technology, including AI, will only continue to become more advanced and widely known, and accepted. ALEC scholars should explore InfraNodus and consider using the various applications to analyze gaps in the literature and visualize data because there are various media analysis tools useful for scholars at all levels.

## Cost/ Resources Needed

Many free AI tools are available, including ChatGPT, Google AI, Boot.ai, Jasper, Synthesia, and Murf.ai. However, InfraNodus requires a monthly membership fee of nine euros (US $9.81), which includes access to 45 AI applications that provide more exploration opportunities compared to the free AI software available. However, free AI tools could serve for initial integration into ALEC programs.

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