Generative artificial intelligence (GenAI) is a type of technology that can be used to create new content (e.g., text or images) as if done by humans. Users can also upload documents and ask questions about them, deriving insights from the document. GenAI helps users perform many time-consuming and complex tasks.

Integrating GenAI tools into Mississippi State University Extension Service work will assist Extension professionals in various ways, such as creating educational materials, generating ideas for a new program, summarizing long reports into easy-to-understand summaries, analyzing data from surveys and research to identify county-level program priorities, generating questions for measuring a program's outcomes, and writing a program report.

Examples of GenAI tools that can be used for Extension work include ChatGPT, Perplexity AI, Goblin, Magic School, and Gemini. These GenAI tools can perform the Extension program planning and evaluation tasks listed above, but Magic School can also help users plan lessons, write assessments, and create educational content.

GenAI tools are available as both free and paid versions. The free version offers basic use, such as generating a certain number of outputs per day, writing text-based prompts, uploading documents a few times, and asking questions or generating insights based on the uploaded documents. Users are only required to pay for the professional version, which includes all the basic features plus the options to upload documents multiple times, write and generate an unlimited number of prompts and outputs, and access advanced tool features.

The purpose of this Extension publication is twofold: 1) to share how Extension professionals can integrate AI tools into Extension program planning and evaluation, and 2) to provide guidelines on how to write good prompts to get proper responses.

Before using GenAI tools, you should understand two key terms: **prompt** and **curate**. Prompts are texts or instructions that you write and enter into the GenAI tool's dialogue box, allowing the tool to produce the responses or outputs you want. Prompts are what you tell the GenAI tool to do for you; these are necessary to generate the response or outputs you want from the tool. Without prompts, you will not be able to use GenAI

tools. More information on how to write proper prompts to produce your desired outputs is provided later in the publication. Curate, on the other hand, means to refine or rewrite prompts repeatedly until you get the response or outputs you desire. This means if you write a prompt once, you may not get the desired response right away. Often, you will need to refine or streamline each earlier response to a prompt.

Applications of GenAI Tools in Extension Program Planning and Evaluation

Needs Assessment
AI tools can help you assess community needs. These tools can search through existing data like census data, agricultural and health reports, and survey results to find key issues to plan relevant Extension programs.

Example Prompt: Identify the five most significant challenges faced by farmers in Montgomery County, Mississippi. For each challenge, provide a brief explanation that includes the community members who are most affected and the potential underlying causes of the issue.

Program Design
You can use GenAI to generate a program outline and educational activities for each learning objective.

Example Prompt: Generate a program outline for a youth agricultural education initiative on sustainable farming practices. Include fun games that will sustain the interest of the youth to the end of the program.

Resource Allocation
GenAI tools can help you decide what resources and the amount of such resources to assign to program activities and recommend efficient resource utilization.

Example Prompt: For a program aiming to increase Alcorn County small-scale farmers' access to a vegetable market, find what resources are available to implement the program, develop a plan for using the available

resources effectively, and distribute the resources based on the plan.

Program Management

GenAI can assist you in developing Gantt charts and setting milestones to ensure timely completion of project goals.

Example Prompt: Suggest major milestones and set deadlines for a new community garden initiative program.

Communication

GenAI can generate newsletters, marketing campaigns, and other communication materials about Extension programs tailored to the interests and demographics of the audience.

Example Prompt: Based on this document, draft a two-page newsletter about the Master Gardener program success stories and upcoming events.

Participant Engagement

GenAI can assist with the creation of engaging, interactive content such as videos, quizzes, and discussion to enhance learning and audience participation.

Example Prompt: I want to teach soil health management techniques including soil testing, composting, and cover cropping. Provide important videos, articles, and expert advice about these techniques. Suggest an introduction to important concepts about and steps to follow to perform the techniques. Provide discussion questions and hands-on activities that students can practice at home.

Data Analysis

GenAI can analyze datasets to identify trends to make decisions. It can also simplify scientific knowledge and provide recommendations you desire.

Example Prompt: Analyze pre- and post-program survey data to measure the impact of the agricultural training program on participants' knowledge and practices.

Impact Assessment

GenAI can be used to compile data from various sources, such as participant feedback, crop yields, and economic indicators, to provide a comprehensive impact assessment.

Example Prompt: Generate a five-page report summarizing the long-term impacts of the urban farming initiative on local food security.

Steps for Using GenAI Tools

When uploading a document into a GenAI tool and writing prompts based on the document, follow these steps:

1. Open the GenAI tool and look for a paperclip icon or a plus sign inside a circle with "attach" next to it. The paperclip icon or the encircled plus sign is usually located on the right or left of the dialogue box in the GenAI tool where you write a prompt.
2. Click on the paperclip or the encircled plus sign icon, and it will prompt you to locate your document. When you find your document, click on the file, and then click "open" or "upload" to upload it. The process is similar to attaching a document to an email.
3. Once the document is uploaded into the GenAI tool, write a prompt about the document based on what you want from it.
4. Begin the prompt with phrases like, "Based on the document, …" Note that typically only the paid versions of the Gen AI tools allow you to upload documents multiple times.

Alternatively, if you are using a free version of a GenAI tool and the document is one to three pages long:

1. Copy all the information in the document and paste it into the GenAI tool's dialogue box, adding a colon at the end of the text instead of a period.
2. Write your prompt after the colon, beginning with phrases like, "Based on this information, …"

Guidelines for Writing Effective Prompts

To ensure that you get proper responses from GenAI tools to your prompt, you can follow the **SPACE** framework:

- **S**et the direction. Provide sufficient information about your project or program (e.g., target audience, purpose, and specific requirements or constraints).
- **P**rompt the AI tool. Be specific about the response format. For example, choose an organizational style (getting responses as bullet points, tables, step-by-step processes, takeaways, etc.) and a conversational tone (professional, informal, more emotional; use metaphors, analogies).
- **A**ssess the AI's answer. Question and verify AI results using critical thinking.

- **C**urat**E**. Rewrite proper prompts for changes and modifications when necessary and organize the information until the desired responses are achieved.

Use Your Own Judgment

Remember that AI tools should complement human judgment rather than replace it entirely. Never accept outputs without questioning them. AI tools are extremely useful but not always accurate. Additionally, you should be mindful of their biases and limitations; not all content generated by AI is true. Lastly, use AI tools as a helper, not a replacement for your own thinking. Work with AI to achieve the best results, but make the final decisions yourself.

Conclusion

Integrating GenAI tools has immense potential in assisting Extension professionals in their day-to-day tasks. AI tools can help with several tasks, such as assessing community needs, planning program activities, writing program objectives and outcomes, allocating resources to program activities, generating evaluation questions, and analyzing evaluation data. Following the **SPACE** framework will help in crafting effective prompts to achieve reasonable results.

Resources

For more information, check out the following resources:

- Prompt engineering principles for Generative AI use in Extension
- 100 creative ideas to use AI in Education
- Stanford Social Innovation Review

For more details on the GenAI tools mentioned in this publication, visit:

- Magic School
- Gemini
- Perplexity
- ChatGPT

References

Anderson, M., & Rainie, L. (2018). *Artificial intelligence and the future of humans*. Pew Research Center. https://www.pewresearch.org/internet/2018/12/10/artificial-intelligence-and-the-future-of-humans/

Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). *Notes from the AI frontier: Applications and value of deep learning*. McKinsey Global Institute. https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-applications-and-value-of-deep-learning

Hill, P. A., & Narine, L. K. (2023). Ensuring responsible and transparent use of generative AI in Extension. *The Journal of Extension, 61*(2). https://doi.org/10.34068/joe.61.02.13

Kleiman, G. (2023, April 21). Teaching students to write with AI: The SPACE framework. *The Generator*. https://medium.com/the-generator/teaching-students-to-write-with-ai-the-space-framework-f10003ec48bc

Kritikos, M. (2020). *The impact of artificial intelligence on learning, teaching, and education*. European Parliamentary Research Service. https://op.europa.eu/en/publication-detail/-/publication/5cb8eee3-e888-11e8-b690-01aa75ed71a1/language-en

Osman, N., Peterson, D. J., & Gregory, T. (2024, June). MSU Extension Program and Staff Development office hours: Harnessing GenAI tools for Extension success. In-service training for MSU Extension professionals.

Wang, Y., & Cram, J. (2019). Leveraging AI for program evaluation: A guide for nonprofits. *Stanford Social Innovation Review*. https://ssir.org

MISSISSIPPI STATE UNIVERSITY™

EXTENSION