COMPARISON OF MANUALLY CREATED AND AI-GENERATED MIND MAPS:
INSIGHTS FROM PRESERVICE TEACHERS

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Objective:

Explore preservice teachers' perceptions of manually created versus AI-generated mind maps in educational contexts.
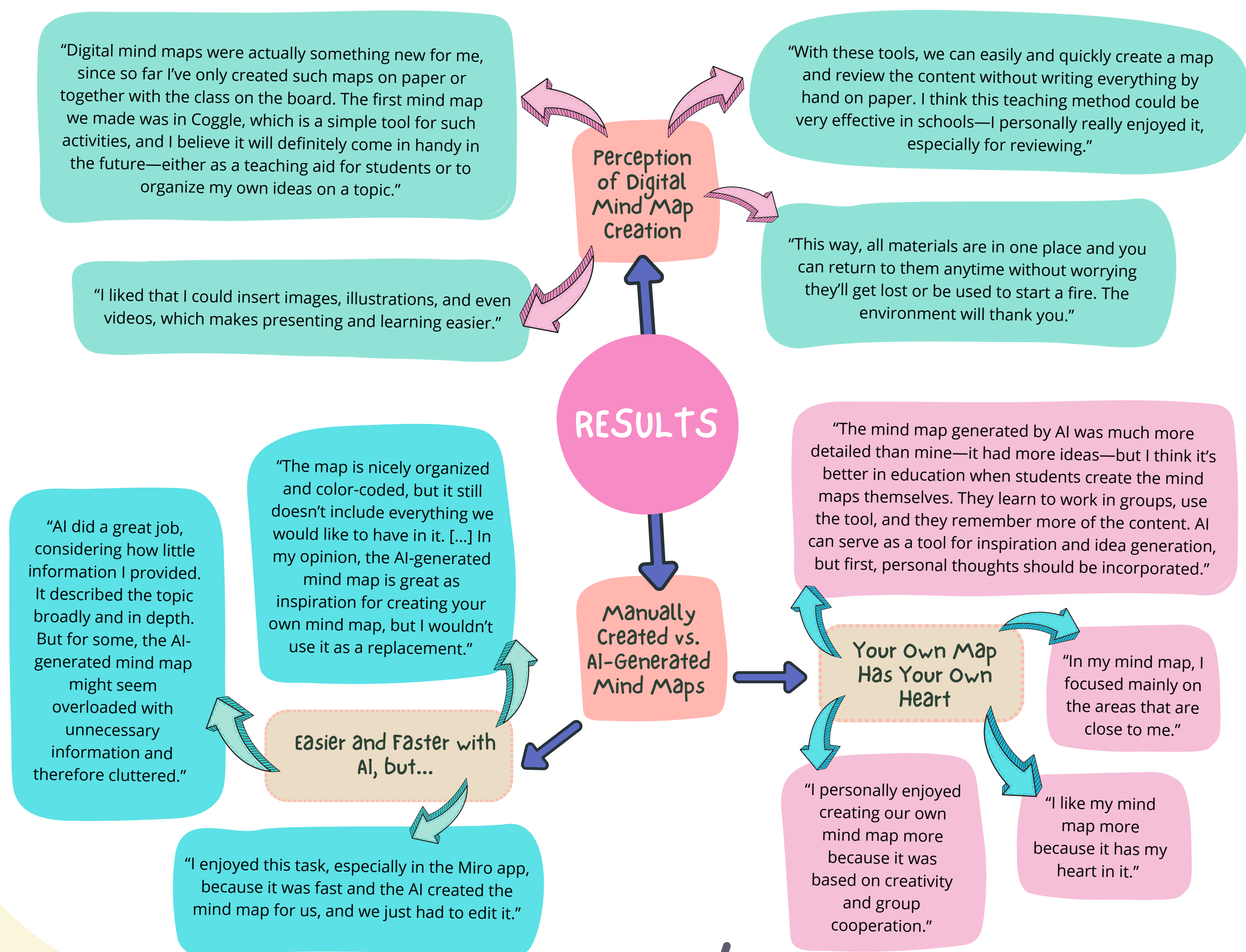
Method:

Participants: 34 preservice teachers
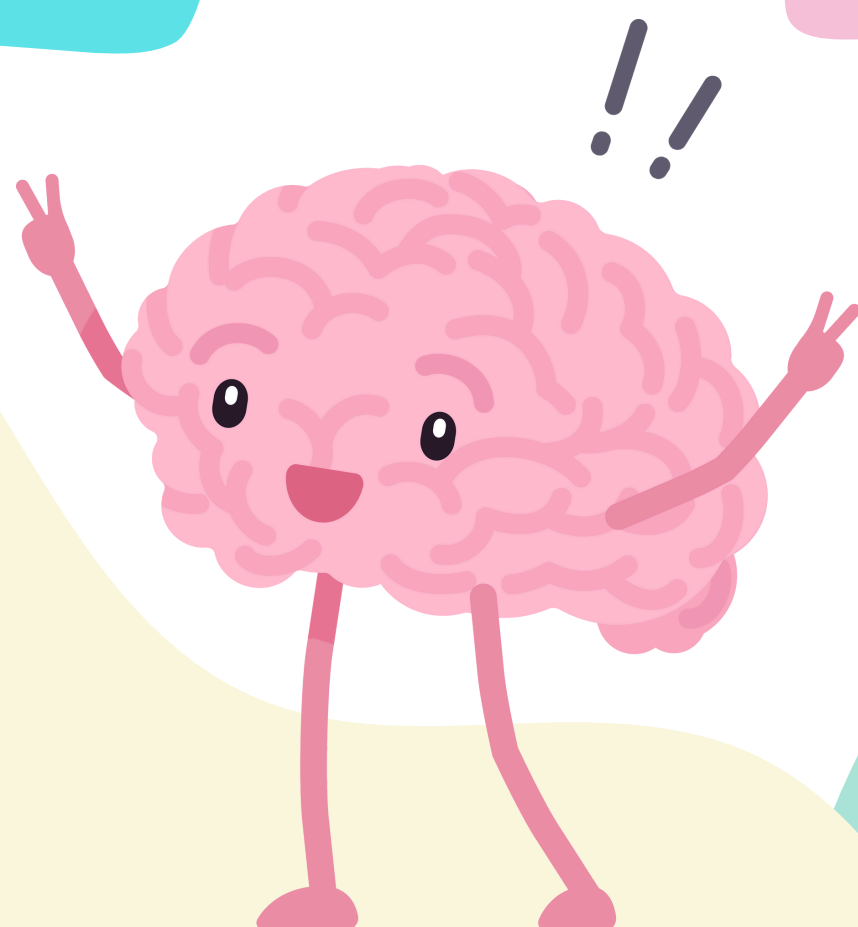**Tools:** Coggle (manual mind maps), Miro (AI-generated mind maps)
Data: student reflections
Analysis: qualitative content analysis

RESULTS

Perception of Digital Mind Map Creation

"Digital mind maps were actually something new for me, since so far I've only created such maps on paper or together with the class on the board. The first mind map we made was in Coggle, which is a simple tool for such activities, and I believe it will definitely come in handy in the future—either as a teaching aid for students or to organize my own ideas on a topic."

"With these tools, we can easily and quickly create a map and review the content without writing everything by hand on paper. I think this teaching method could be very effective in schools—I personally really enjoyed it, especially for reviewing."

"I liked that I could insert images, illustrations, and even videos, which makes presenting and learning easier."

"This way, all materials are in one place and you can return to them anytime without worrying they'll get lost or be used to start a fire. The environment will thank you."

Manually Created vs. AI-Generated Mind Maps

"The map is nicely organized and color-coded, but it still doesn't include everything we would like to have in it. [...] In my opinion, the AI-generated mind map is great as inspiration for creating your own mind map, but I wouldn't use it as a replacement."

"AI did a great job, considering how little information I provided. It described the topic broadly and in depth. But for some, the AI-generated mind map might seem overloaded with unnecessary information and therefore cluttered."

Easier and Faster with AI, but...

"I enjoyed this task, especially in the Miro app, because it was fast and the AI created the mind map for us, and we just had to edit it."

"The mind map generated by AI was much more detailed than mine—it had more ideas—but I think it's better in education when students create the mind maps themselves. They learn to work in groups, use the tool, and they remember more of the content. AI can serve as a tool for inspiration and idea generation, but first, personal thoughts should be incorporated."

Your Own Map Has Your Own Heart

"In my mind map, I focused mainly on the areas that are close to me."

"I personally enjoyed creating our own mind map more because it was based on creativity and group cooperation."

"I like my mind map more because it has my heart in it."

Conclusion:

- Manual Maps (Coggle): Preferred for personal creativity, authenticity, and precise content structuring.

- AI-Generated Maps (Miro): Appreciated for speed, richer content, and as inspiration, though sometimes considered overly detailed or impersonal.

- Combination of both approaches considered most effective for educational practice.