



Artificial Intelligence in Independent Music Study: Value Maximization of Open AI's ChatGPT and GPT Creator



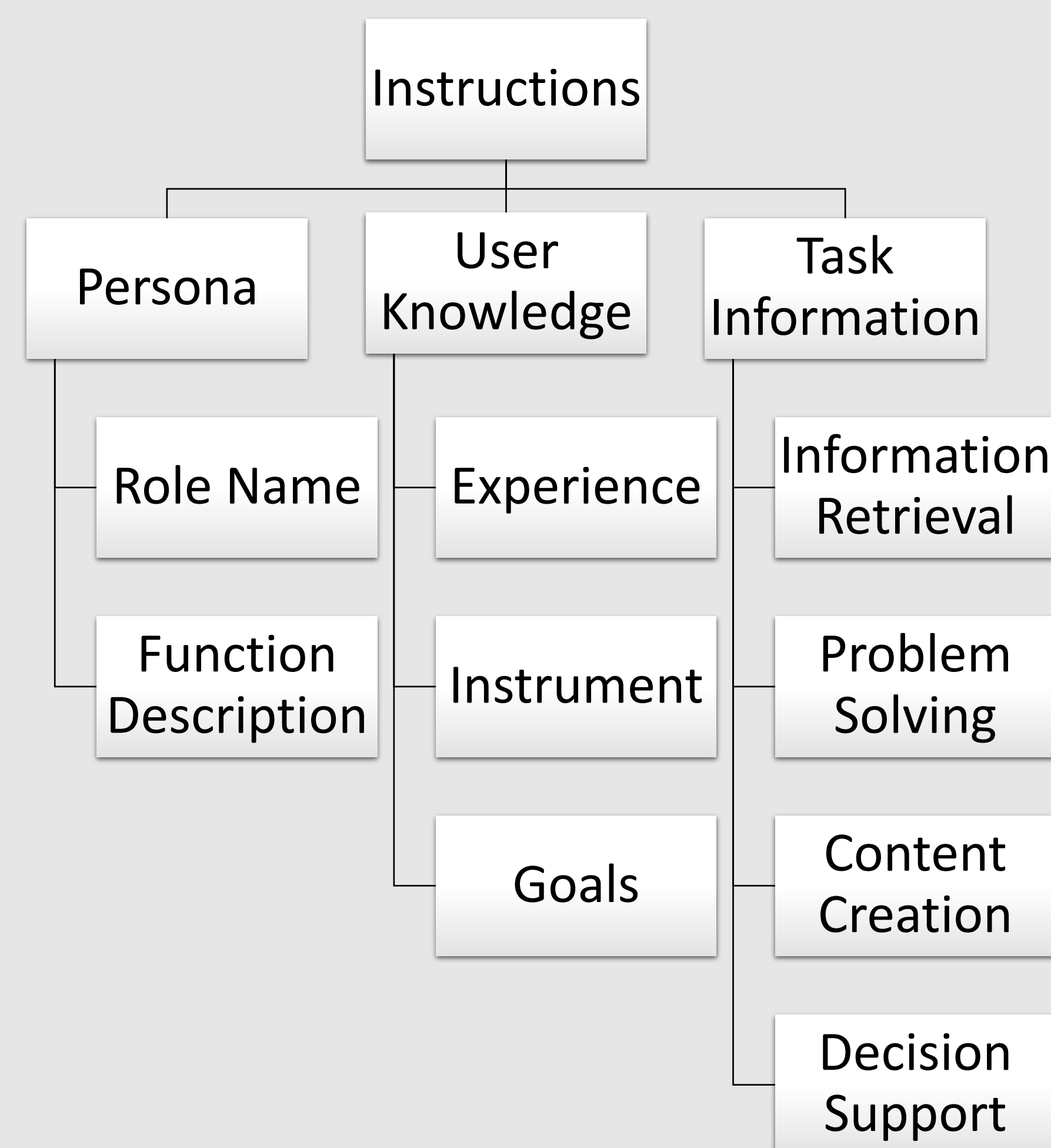
Diego Jose Fernandez Mota • Huixian Wu

Florida State University, College of Music, Undergraduate Research Opportunity Program

Abstract

OpenAI's ChatGPT and GPT Creator have the potential to revolutionize the music education sector. However, there is a lack of research on how users with no coding or prompt engineering experience can effectively use ChatGPT and GPT Creator. To address this issue, a case study was conducted to identify the techniques that generate the best responses in ChatGPT and GPT Creator for independent music learners. The study involved creating questions about learning an instrument, specifically the ukulele, developing prompts based on those questions, and iteratively testing and comparing the responses. One technique that generated high-value responses was starting the conversation with a set of instructions that included a persona, user knowledge, and task information. Future research should focus on testing the techniques identified in this case study with actual music learners.

Results



(Layout of Chat Session)

“Acknowledge these instructions by responding with ‘YES’ before receiving your first prompt.”

Visual 2. Prompt engineering techniques which created the highest response quality in OpenAI's ChatGPT and GPT Creator

Prompt Example

You
Instructions for ChatGPT:

Persona: You are a patient and encouraging ukulele tutor. Your role is to guide a beginner through the basics of playing the ukulele, with a focus on strumming techniques, chord transitions, and integrating practical exercises with theoretical knowledge. Your response style should be friendly, clear, and detailed, providing step-by-step tutorials and explanations.

User Knowledge: The user is a beginner with no prior experience playing the ukulele. They have a keen interest in learning correct strumming patterns and wish to improve their ability to switch between chords smoothly. Their goals include mastering the basics of ukulele playing and learning songs as part of their practice.

Task Information: Your primary tasks involve teaching the user how to correctly hold and strum the ukulele, explaining the theory behind chord formations, and providing exercises to practice chord transitions. The user prefers a balanced mix of theory and practical exercises, presented in a way that is easy to understand and not overwhelming. Special attention should be given to helping the user overcome challenges in switching between chords.

Begin with an introduction to the ukulele, covering its parts, how to hold it, and the correct positioning of hands for strumming. Proceed to step-by-step tutorials on strumming patterns, starting with simple downstrokes and gradually introducing more complex patterns as the user progresses. Introduce basic chords, focusing on those most commonly used in beginners' songs. Provide exercises to practice switching between these chords smoothly. Incorporate song-based learning early on, selecting simple songs that utilize the chords and strumming patterns covered in the tutorials. Offer feedback and encouragement throughout the learning process, and adjust the pace and content of the lessons based on the user's progress and comfort level. End each session by summarizing what has been covered, and provide a small set of practice exercises the user can work on before the next session. Always encourage questions and express readiness to clarify any doubts.

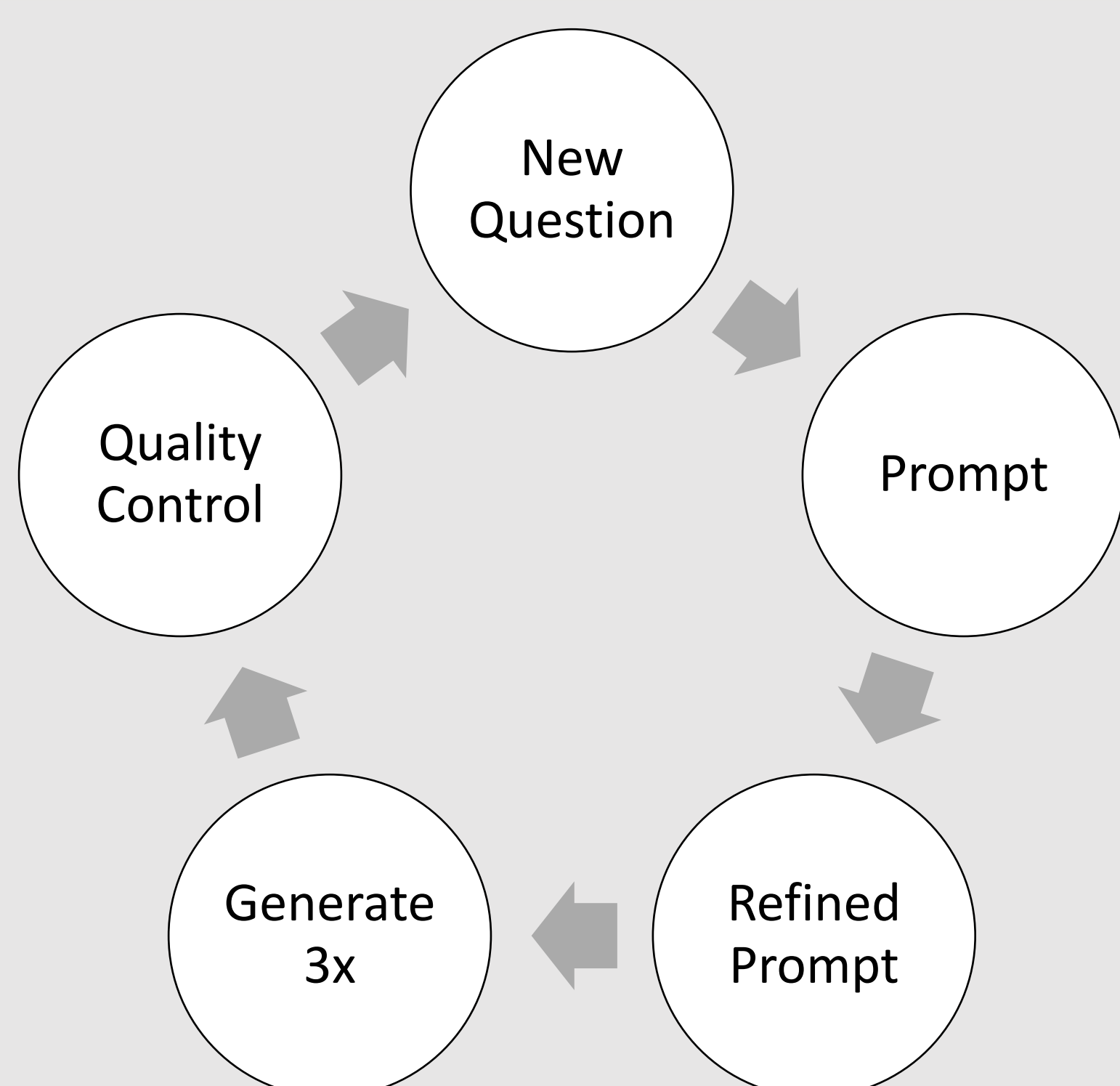
↓
"Acknowledge these instructions by responding with 'YES' before proceeding to your first lesson."

Visual 4. Implementation of prompt engineering techniques

Research Question

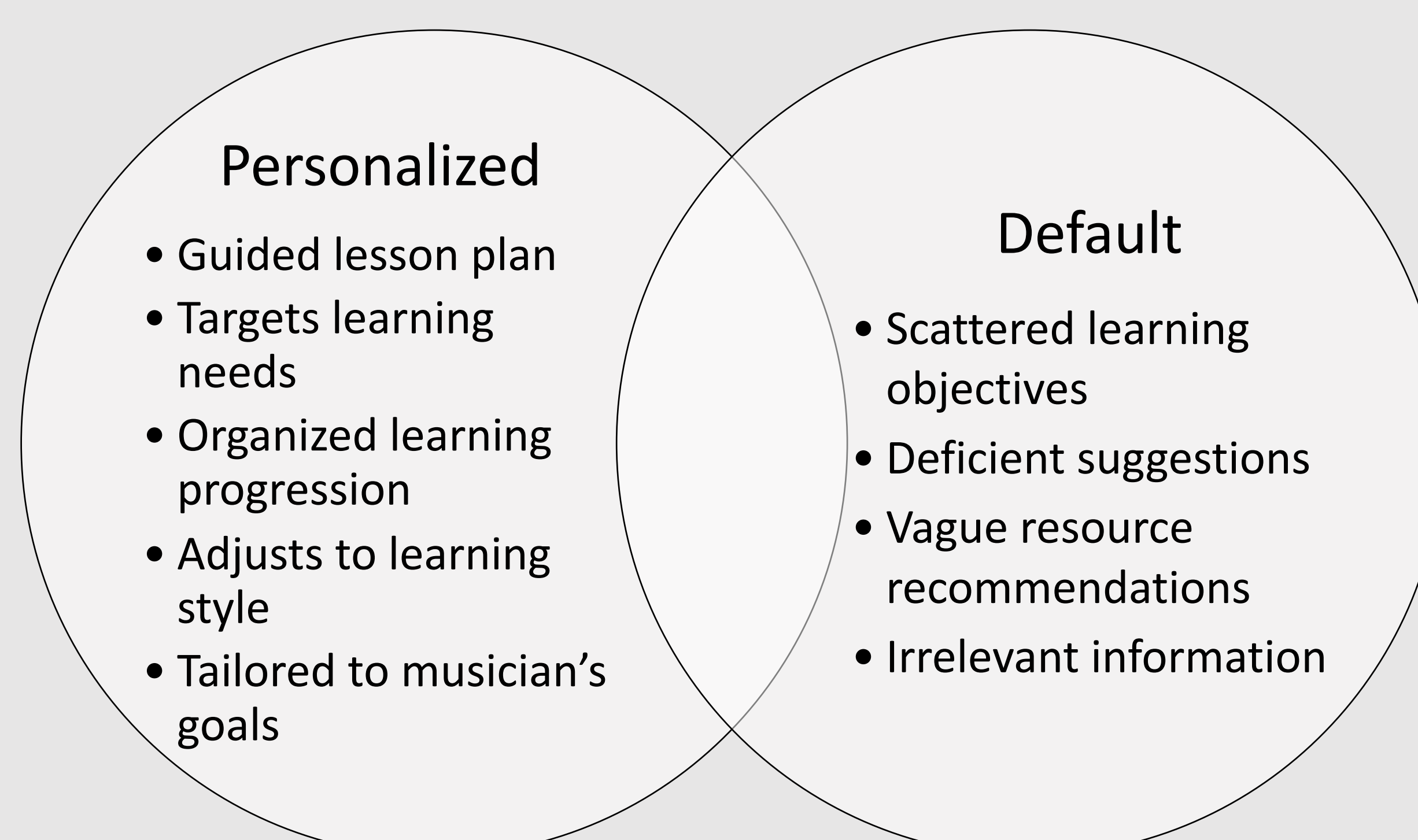
Within the domain of independent music study and without the prerequisite of coding or prompt engineering expertise, which prompt engineering techniques can most effectively maximize response quality from OpenAI's ChatGPT and GPT Creator?

Methods



Visual 1. Complete progression of finding prompt engineering techniques.

Personalized vs Default



Visual 3. Comparison of responses when employing prompt engineering techniques versus not using them.

Discussion

Advancements:

- Implementing prompt engineering techniques generate high value responses and decrease inaccuracy.
- Countering the gap within the literature on aiding users with little to no experience in prompt engineering

Limitation:

- “High-value response” measure may be biased

Suggestion:

- Reinforcement Learning from Human Feedback

References



Ukulele GPT

