

Ways of Utilizing Generative AI to Expand Individual Capabilities: Patterns for Academic Writing Translation, Future Vision Visualization, and Video Theme Songwriting

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In this paper, we explore ways to utilize generative AI (Artificial Intelligence) to expand individual capabilities through two creative approaches—academic and artistic outputs—and present their respective patterns. As an academic application, we focus on academic writing translation, presenting the Academic Writing Translation Patterns with Generative AI. This pattern language consists of ten patterns: *Language Support Partner*, *Academic Setting*, *Explicit Describing*, *Output Verification*, *Wording Candidate*, *Language Refinement*, *Meaning Clarification*, *Back-Translation Check*, *Role Change to Proofreader*, and *Second AI Opinion*. For artistic applications, we examine future vision visualization and video theme songwriting, introducing six patterns for each domain. The patterns for visualizing future vision through image generation include *Specific Scene*, *Concrete Description*, *Camera Angle and Composition*, *Image Style Setting*, *Start Over Sometimes*, and *Strengths of Each System*. The patterns for video theme songwriting through music generation include *Mood of the Video*, *Episodes in the Lyrics*, *Sequence of the Story*, *Generating Rhymes*, *Twin Verses*, and *Until it Fits*. Through these applications and their corresponding patterns, this paper explores ways to leverage generative AI as a creative partner.

Categories and Subject Descriptors: **[Human-centered computing]**: Interaction design—*Empirical studies in interaction design*; **[Applied computing]**: Arts and humanities—*Language translation*; **[Applied computing]**: Arts and humanities—*Fine arts*; **[Applied computing]**: Arts and humanities—*Sound and music computing*

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1. INTRODUCTION

In recent years, the technology of generative AI (Artificial Intelligence) has rapidly expanded (Lin 2023). The latest AI systems are competing with humans in various tasks and specific domains (Bubeck et al. 2023). Amidst this, there are concerns that the opportunities for humans to demonstrate their diverse capabilities may be encroached upon. It has been suggested that employment opportunities could be replaced by AI (Hatzius et al. 2023, Wach et al. 2023), and there is a risk that AI could lead to loss of decision-making opportunities (Ahmad et al. 2023). It is important to use generative AI under human supervision, maintaining an awareness of not becoming completely dependent on it while sustaining a solid foundation in generative AI literacy (Annappureddy et al. 2025).

On the other hand, we believe that by effectively utilizing generative AI, individuals can achieve what was previously impossible and engage in further creative activities. Instead of viewing generative AI as a threat to creative activities, we should leverage it as a partner for collaboration. Based on these concerns, this paper explores ways of utilizing generative AI to expand individual capabilities and proposes the patterns of practices to achieve this goal.

In this paper, we discuss two creative approaches—academic and artistic outputs—as methods for utilizing generative AI to expand individual capabilities. First, we present an academic application focusing on academic writing translation, introducing a pattern language called “Academic Writing Translation Patterns with Generative AI” to guide this practice. Subsequently, we examine artistic applications through our case studies

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in future vision visualization and video theme songwriting, presenting specific patterns (pattern seeds) for each application. All patterns presented in this paper have been mined from the authors’ past two years of experience and represent valuable insights we wish to share with readers.

2. ACADEMIC WRITING TRANSLATION

It is well-established that English has become the lingua franca of academic publishing (Gotti 2017). However, for researchers whose native language is not English, this presents significant challenges and can constrain their ability to think and express themselves freely. The natural process of iterating between thinking, writing, reviewing, and revising is hindered by linguistic barriers. While this may be difficult for native English speakers to fully appreciate, it has been an immensely frustrating issue for researchers from other language backgrounds who are required to publish in English.

Recent advancements in generative AI technology have the potential to alleviate this problem. With the assistance of generative AI, researchers can now navigate more fluidly between their native language and English when writing papers. Moreover, generative AI helps in exploring appropriate terminology and diverse expressions, empowering non-native authors to write with greater precision and natural phrasing.

By leveraging generative AI, researchers can now engage in a liberated thinking process: contemplating and expressing those thoughts in their native language, translating them into English, refining the English version, and then, if needed, revisiting the ideas in their native language. Takashi Iba, one of the authors of this paper, describes this new reality as “finally being able to think in my native language and breathe in English.” The ability to finally “breathe” in English underscores just how suffocating the previous situation had been. As a testament to this new reality, in 2023, he was able to write English papers totaling more than 300 pages, demonstrating an unprecedented level of productivity for him (Iba 2023). Note that we primarily use Anthropic’s Claude for translation, supplemented by OpenAI’s ChatGPT.

The impact of generative AI in academia extends beyond the writing process (Panda and Kaur 2024). It has the potential to serve as a powerful partner in various aspects of research, including ideation, reasoning, and acting as a sounding board for creative ideas. However, the focus of this paper is on the practice of academic writing translation, an area in which we, the authors, have extensive experience. Drawing from the insights gained through this experience, we describe and present patterns of practice.

In the following, we present patterns for using generative AI in academic writing translation. We have identified ten patterns for non-native authors to translate their research results and explore appropriate terminology in writing academic papers. We reflected on our experiences using generative AI to translate in writing academic papers. From these, we identified key points that were important and worth sharing, and we formulated these into patterns. The target audience of the patterns is individuals who wish to write academic papers in their non-native language with the help of generative AI. They will likely find these patterns helpful in incorporating them into their own practices to utilize generative AI.

Figure 1 represents an overview of the Academic Writing Translation Patterns with Generative AI presented in this paper. The pattern language begins with Pattern No. 0, *Language Support Partner*, which serves as the overarching pattern for the entire system. The subsequent patterns are organized into three distinct groups.

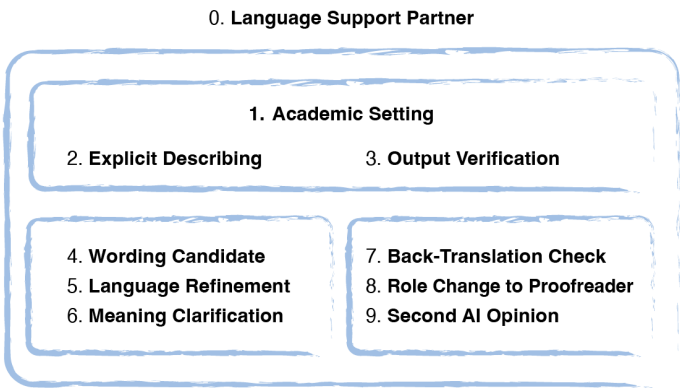


Fig. 1. Overview of the Academic Writing Translation Patterns with Generative AI presented in this paper.

The first group addresses the fundamentals of translation using generative AI and comprises three patterns: *Academic Setting*, *Explicit Describing*, and *Output Verification*. The second group introduces three patterns that facilitate the progression of translation work: *Wording Candidate*, *Language Refinement*, and *Meaning Clarification*. The third group consists of three patterns designed to ensure proper comprehension and enhancement of the translated text: *Back-Translation Check*, *Role Change to Proofreader*, and *Second AI Opinion*. The strategic application of these patterns enables more effective translation with generative AI in academic writing.

In the following, we introduce each of the Academic Writing Translation Patterns with Generative AI in sequence. These patterns adhere to the *concise deep style* proposed by Takashi Iba (Iba 2021), which encompasses a Pattern Name, Introduction, Context, Problem, Forces, Solution, Actions, and Consequences. Each pattern follows a structured format beginning with the Pattern Name, followed by a concise Introduction sentence that establishes the foundation for the pattern's content. The Context of implementation is then outlined, after which the transition phrase 'In this Context' introduces the recurring Problems and their underlying Forces. The transition term 'Therefore' then presents the Solution along with exemplary Actions for implementation. Finally, the phrase 'Consequently' introduces the Consequences that result from implementing the Solution.

2.1 Language Support Partner

No. 0

Language Support Partner

Craft your content on your own,
letting generative AI assist you with the translation aspect.

You are thinking about utilizing generative AI while writing your academic paper.

▼In this context

If you let generative AI write your paper's content, it is no longer truly your paper. Academic papers are meant to report your research findings or discuss your ideas, requiring you to create the content yourself. On the other hand, generative AI systems technically can summarize information they've already learned or researched. Despite this convenient functionality, having generative AI write your entire paper means neglecting your most important responsibility as an academic writer.

▼Therefore

Recognize that generative AI is skilled in language-related tasks and use it primarily for linguistic transformations rather than content generation. First, write your research content in your native language or one you are comfortable with, then have generative AI translate it. Use the **Academic Setting** to put the AI in academic writing mode, focus on **Explicit Describing** in your writing, and verify the translated text through **Output Verification**, making corrections when necessary. Additionally, employ **Wording Candidate** specifications to achieve your desired terminology and style, and apply **Language Refinement** to ensure the translation reads naturally. When you encounter unfamiliar words or expressions in the translation, use **Meaning Clarification** to understand them or perform a **Back-Translation Check** to confirm the meaning. After completing the translation and revisions, have the AI perform a **Role Change to Proofreader** for final editing. Rather than relying on a single system, utilizing multiple systems, such as getting a **Second AI Opinion**, would be even better.

▼Consequently

You can write a clear and effective paper with your own ideas while using generative AI as a reliable partner for writing. Even when working alone, you will feel as if you are collaborating with someone, eliminating feelings of isolation. Moreover, through this interaction, you can learn various words and expressions in the target language, which will help develop your own language skills.

2.2 Academic Setting

No. 1

Academic Setting

Switch explicitly to an appropriate system mode tailored for academic paper writing.

You are utilizing generative AI for academic writing translation.

▼In this context

Simply translating text into English can sometimes result in colloquial and informal expressions that are not suitable for academic papers. Within English, there are certain word choices and expressions appropriate for academic papers, while others include natural expressions or slang used in daily conversations. From the perspective of a non-native speaker, colloquial and informal expressions may still seem like good writing, leading to their adoption because they appear proper. Consequently, the paper may end up with expressions not suitable for academic writing.

▼Therefore

Start by selecting a generative AI system well-suited for academic writing, and request translation in that mode. First, research the strengths, weaknesses, and characteristics of various generative AI systems, then choose your main system. If possible, configure appropriate settings for academic paper writing (such as “Formal” mode) within that system. Then, establish a *persona* in your prompt by stating, “You are a translator for academic papers. Please translate the following text into [target language, e.g., English] suitable for academic papers.” Previous research has shown that setting a persona for generative AI and engaging it in role-play can positively influence the generated results (Kong et al. 2024).

▼Consequently

By specifying the use of academic language, you can obtain translations that are appropriate for academic papers. This kind of specification can also prompt the AI to provide alternatives or explanations regarding their academic suitability. Additionally, you will learn English expressions and word choices appropriate for academic writing, which are different from those used in daily conversation.

2.3 Explicit Describing

No. 2

Explicit Describing

Strive to write in a way that is unambiguous enough for even a computer to understand.

You are trying to use generative AI to translate text.

▼In this context

If you provide generative AI with text that retains ambiguity or polysemy, it might generate text that differs from what you intended. Natural language is different from strictly defined languages like mathematical or programming languages, as it can still function with omissions and implied meanings. However, for this reason, when you input such text into generative AI, it might be interpreted differently. Even though interactive generative AI understands the context of previous interactions, ambiguous and loose text is still insufficient to convey your intentions.

▼Therefore

Be conscious that the recipient is not a human capable of understanding the nuance of your words, and provide logical text that is as clear and unambiguous as possible. When writing in your native language, you might typically omit certain elements or use phrases that feel more natural according to that language's characteristics. However, in this case, even if it makes the text somewhat cumbersome and less elegant in that language, write in a way that is clear in meaning and logically understandable. For example, in Japanese, the difference between singular and plural is not usually explicitly indicated, but deliberately write in a way that makes it clear whether something is singular or plural at the Japanese text stage. Also, when choosing words, use those with specific meanings rather than polysemous words whose meanings depend on context.

▼Consequently

By having the generative AI translate text that is unambiguously and precisely written, you can obtain a translation that conveys your intended meaning. Moreover, writing in a precise and unambiguous manner will lead to more rigorous thinking on your part, tightening the content. Such rigorous thinking will also contribute to your academic writing skills.

2.4 Output Verification

No. 3

Output Verification

Do not leave everything to the system;
take responsibility and verify the text as your own.

You have used generative AI to produce a translated text.

▼In this context

No matter how much you focus on Explicit Describing, the conversion by the generative AI may not perfectly align with your intentions. While the generative AI performs conversions based on the language information it has learned with considerable accuracy, there are still limitations to the system. Moreover, translation itself involves difficulties such as different conceptual scopes and implications for each language. Furthermore, the system cannot perfectly handle specialized terms and expressions in technical fields. As a result, there is a risk of publishing text that does not reflect your intended meaning or desired expression as your own.

▼Therefore

Always verify the generated text yourself to ensure it aligns with your intentions and check for any awkward expressions. First, read the generated text to see if it matches what you want to convey. At this point, confirm that it uses the expressions you intended. If there are any unclear expressions, request alternative expressions or ask for explanations to fully understand the translated text. Pay special attention to technical terms, as they may not be correctly translated without careful checking. Consider the text as your own, taking responsibility for its content, and repeat the process of checking, questioning, and revising until all uncertainties and concerns are resolved.

▼Consequently

The text will unmistakably convey what you want to express, becoming your own writing. Through this process, you will understand which terms and expressions you value. Additionally, you will learn new words and expressions that you might not have thought of, which can enhance your abilities.

2.5 Wording Candidate

No. 4

Wording Candidate

Desired translations won't be conveyed
if they remain only in your thoughts.

Your paper contains technical terms, unique concept names, coined words, personal names, and author-specific wording or phrasing.

▼In this context

You cannot always expect generative AI to translate these words appropriately. While generative AI often translates learned language data well, it typically cannot properly translate technical terms, unique concept names, coined words, or personal names that the AI has not learned. Additionally, author-specific wording and phrasing with particular nuances may be replaced with more standard expressions. Even if you have specific translations in mind, the AI cannot read your thoughts, so there is no point in feeling disappointed or frustrated when it does not translate as expected.

▼Therefore

Identify those specific terms and then request translation candidates for each one. You can explicitly tell the generative AI in your prompt to translate certain words in specific ways. Alternatively, you can include your preferred translations in parentheses next to the words in the text you're submitting for translation. Another effective approach is to use the target language words in your original text from the start. This applies not only to concept names and coined terms but also to general vocabulary - for example, if you prefer to use 'craft' instead of 'create' when referring to the creation of pattern languages, you can specify which word should be used instead of another. Similarly, if you want to use 'manga' instead of 'comic' in a paper about 'Pattern Manga,' be sure to specify this in advance or include 'Pattern Manga' in English within the original text before requesting the translation.

▼Consequently

You can obtain translations expressed with your desired terminology. The generative AI will likely carry over this information in subsequent translations (though it may forget after some time). Becoming conscious of the words you care about might also prompt you to reflect on your thinking patterns and expressive habits.

2.6 Language Refinement

No. 5

Language Refinement

Improve the translated text to sound natural in the target language.

The generative AI has translated your text into the target language based on what you provided.

▼In this context

At the stage where the generative AI has translated content corresponding to the original text, the target language version may not yet feel natural or polished. When generative AI translates, it focuses on replacing expressions from the source language with those of another language. Since different languages have different structures and ways of expression, the conversion between languages doesn't always result in naturally flowing text in the target language. While there may be no mistakes in words or grammar in the translated text (so it is not problematic as is), when viewed as a natural expression in the target language rather than a mere translation, it might still feel awkward or unnatural.

▼Therefore

Request that the translated text be further improved as an expression in the target language to make it more natural. Specifically, in your prompt, ask: "Please improve this text for better expression in this language." This will provide you with suggested revisions for better expression, but sometimes these may slightly deviate from the original content, so be sure to perform thorough **Output Verification**. Also, the suggested revisions, while skillful expressions that would make sense to native speakers, might sometimes be difficult for non-natives like yourself to grasp. In such cases, you can choose to keep the original translation, request alternative suggestions, or search for expressions appropriate to your purpose.

▼Consequently

You can obtain text that expresses what you want to communicate in a more natural form in that language. Through this process, you can learn better expressions in that language for what you want to convey. This way, you can more appropriately communicate your ideas to the world in that language.

2.7 Meaning Clarification

No. 6

Meaning Clarification

Do not hesitate to ask about words or expressions
in the translation that you do not understand.

You encountered words or expressions in the translation that you do not understand.

▼In this context

If you adopt them without understanding their meanings, you may not notice if the content differs from your intention, and you cannot take responsibility as the author. Since you are not a native speaker and are using generative AI for translation assistance, it is inevitable that unfamiliar words or expressions will

appear in the AI-generated text. Relying too much on the AI may result in using words or expressions that do not match your intention or accepting translations that are suboptimal.

▼Therefore

Ask the generative AI about the meanings, nuances, and example sentences of unfamiliar words and expressions to confirm their appropriateness. This is a strength of interactive generative AI. When translating into English, the AI might provide explanations in English. If you want an explanation in your native language, you can request it by saying something like “Please explain in Japanese.” Additionally, verifying these words and expressions through web searches can ensure accuracy. If a word or expression, even if seemingly appropriate, feels unnatural to you, ask for simpler or more general alternatives, or propose your own suggestions and have the translation redone.

▼Consequently

You can avoid publishing your paper with parts you do not understand. This process also provides an opportunity to learn about the words and expressions. By ensuring the words align with your intentions and sensibilities, you can create a more personal and accurate piece of writing.

2.8 Back-Translation Check

No. 7

Back-Translation Check

Translating back to the original language should reveal whether the meaning has been preserved.

You have doubts about certain parts of the text translated by the generative AI.

▼In this context

If the target language of the translation is not one you are fluent in, you cannot intuitively verify if the translation is accurate. Certain expressions may be difficult to fully understand unless you are familiar with that language. When this happens, you may not know whether the meaning in your paper matches what you originally intended. As a result, you can’t be sure if your thoughts are expressed in the text, making it difficult to take responsibility for the content.

▼Therefore

Ask the generative AI to provide a back-translation from the translated language to the original language and review the content for accuracy. Request that the AI translate the translated text back into your original language. If the result matches the meaning you intended, it indicates that the original translation was correct. If the meaning has changed, it suggests that the translation was not successful. In that case, you should modify the original text being translated to ensure the meaning is properly conveyed. When translating back to the original language, it is also a good approach to request a second opinion on translation from a different generative AI system as a **Second AI Opinion**.

▼Consequently

You can confirm that the translated text conveys the meaning you intended. Additionally, you can use the generative AI as a substitute for a general reader to check how the text might be understood. Furthermore, this

process of moving between languages helps you learn about language expression, potentially improving your language skills and refining your sense of expression.

2.9 Role Change to Proofreader

No. 8

Role Change to Proofreader

Have the generative AI take on the role of a proofreader.

You have been progressing with your writing by having the generative AI translate different sections and interacting with it throughout the process.

▼In this context

When you make your own edits or translate parts yourself, you might introduce mistakes, or your expressions may become inconsistent. After having text translated by generative AI, if you add or modify content yourself, you might introduce typos or grammatical errors, or the expressions might become unnatural in that language. Additionally, when connecting sections that were translated separately, even if each part is correct individually, they might use different wording or expressions, potentially resulting in a text that lacks consistency.

▼Therefore

Ask the generative AI to now become a proofreader and check the text you have edited. In your prompt, ask whether there are any issues with the expression in that language or request “please proofread this.” It will then identify typos and errors and correct them, while also suggesting improvements for other parts. While it is worthwhile to have even a single sentence proofread, providing paragraphs or sections of substantial length for proofreading allows the AI to review the flow and consistency, offering better suggestions.

▼Consequently

You can create text that not only contains what you wanted to express but is also properly constructed in the target language. Moreover, it will become a cohesive piece of writing with consistency in terminology and expression. Furthermore, through this process, you can learn expressions in the target language from the AI’s corrections, which will help develop your own language skills.

2.10 Second AI Opinion

No. 9

Second AI Opinion

Consult multiple generative AI systems.

When using generative AI for translation or proofreading, you may sometimes question the responses or feel there could be different opinions or meanings.

▼In this context

Even if the generative AI system you're using says something is correct, you should not include parts with which you are not satisfied in your paper, as it is ultimately your responsibility. Different generative AI systems have different strengths and use various language models and training data, so there may sometimes be biases in the output results. In such cases, asking the same system repeatedly will likely yield similar answers. This can leave you uncertain about whether to accept the translation as is or how to proceed, causing you to feel stuck.

▼Therefore

Seek a second opinion from a different generative AI system and make your decision based on both results. Maintain subscriptions to multiple generative AI systems, and try requesting a translation from a system different from the one you originally used, or ask another system to perform a **Back-Translation Check** on the translated text. It is also helpful to directly ask for explanations of meanings and nuances for unfamiliar words or expressions that concern you. Additionally, you can combine this with web searches to gather more reliable information to inform your judgment.

▼Consequently

Your doubts or discomfort will be resolved, allowing you to be fully confident in your text's expressions or make improvements to them. In some cases, this process may lead to learning expressions in that language that you were not previously familiar with. By interacting with multiple AI partners rather than relying on a single generative AI system, you can produce a better-quality academic paper.

3. VISION VISUALIZATION AND SONGWRITING

Have you ever wished you could draw better or compose beautiful music? Imagine the possibilities that would open up, and the range of creative expression you could achieve. It is a common thought that crosses many people's minds, especially those who do not consider themselves naturally skilled in these areas. Of course, it is never too late to start practicing drawing or learning music composition. However, with the multitude of responsibilities and aspirations in life, it can be challenging to dive in right away.

But what if, instead of having to acquire those skills yourself, you had creative partners who could complement your abilities? Together, you could express your ideas through visuals and songs. Unfortunately, reality is not always so convenient. Finding such collaborators is no easy feat, and even if you are lucky enough to find them, they have their own lives and commitments, which may not align with your creative pursuits.

This is where generative AI comes in – a creative partner that can accommodate these needs. As the authors of this paper, we have come to this realization through over a year of firsthand experience. Today's generative AI is capable of not only processing text but also generating images, composing songs, and even performing music. The true value of these functions may not be immediately apparent until you have a specific goal in mind that generative AI can help bring to life.

Imagine being able to visualize a future that has not yet come to pass, illustrate a groundbreaking concept, or create a captivating title slide with an image that perfectly captures the essence of your presentation. Or perhaps you want to enhance your video with an original soundtrack, express emotions through lyrical composition, create a theme song for a particular concept, or even express a pattern language through music. These are all endeavors we have undertaken in the past year, and the results have been remarkably compelling and well-received by our audiences.

In the following subsections, we introduce two artistic applications of generative AI. For each application, we will first present our practical case studies, followed by the patterns (pattern seeds) that were mined from these experiences.

3.1 Case of Future Vision Visualization

The case study of future vision visualization presented here focuses on our visualization of the future vision of the 'Creative Society' (Iba 2016), which we exhibited at the university's research presentation forum. The exhibition was held at the "SFC Open Research Forum" (ORF) in November 2023. The ORF is an annual event held at Shonan Fujisawa Campus (SFC), Keio University. This forum serves as a platform for presenting the

outcomes of various research activities to industry stakeholders, as well as national and local governments, through exhibitions and sessions.

The Iba Laboratory's exhibition at ORF 2023 (Figures 2 and 3) was themed 'Living in a Creative Society.' To effectively communicate this vision, we employed the image generation function of generative AI to create visual representations of the envisioned future within a creative society, which were then exhibited. The exhibition featured a total of 19 AI-generated images illustrating the future vision of the Creative Society (Iba et al. 2024).



Fig. 2: Exhibition of generated images of our future vision of the Creative Society at ORF 2023.



Fig. 3: Visitors intently viewing the generated images of the future vision.

Let us first examine the symbolic image positioned at the entrance of the Creative Society future vision exhibition, which served as the initial visual encounter for visitors upon their arrival. Figure 4 depicts a creative society with a town populated by artisans who craft, sell, and repair their own goods. The image portrays a vibrant community centered around a large tree, which serves as a gathering place where townspeople collaborate on repairs and socialize.



Fig. 4. Symbolic Image of the town in the Creative Society (generated by ChatGPT Plus DALL-E 3).

Here, we illustrate the interactions with ChatGPT during the image generation process. To create this image, the following interactions took place:

Prompt for ChatGPT

You:

A scene of a rural town with many self-employed people. Please also provide the prompt. [in Japanese]

ChatGPT:



Here are the images depicting a rural town bustling with self-employment, accompanied by the prompt that was used to generate them.

You:

I'd like the town to be a bit more lively. [in Japanese]

ChatGPT:



Here's the prompt that was used to generate the images with more vibrancy and activity in the rural town:

"A lively and bustling rural town that has become a hub for self-employed individuals, radiating a vibrant entrepreneurial spirit. The town center is active with people, where a local farmer sets up a fresh produce stand, a self-employed craftsman sells handmade goods, and a web developer discusses a project with a client at an outdoor café. There's a diverse mix of people, including a Hispanic man painting a mural on his storefront, a Black woman arranging organic products in her shop, and a White man giving a woodworking demonstration. The scene is full of energy, with residents and visitors mingling and supporting the local economy, showcasing a thriving community where traditional meets contemporary self-employment."

You:

Please make the image more realistic. [in Japanese]

ChatGPT:



Here are the images based on a more photo-realistic depiction of a rural town thriving with self-employed individuals. The prompt focused on creating an image that would capture the dynamism and entrepreneurial energy of the town.

You:

Please send me the prompt. [in Japanese]

ChatGPT:

Certainly, here is the detailed prompt that was used for the latest images:

"A photo-realistic image of a bustling rural town thriving with self-employed individuals. The town square is alive with activity; a South Asian man is setting up a tech repair stand under the shade of an oak

tree, a Caucasian woman showcases her pottery on tables outside her studio, and a Middle-Eastern chef is serving street food to locals. Children are playing near a fountain, while a Black photographer captures the essence of the town's spirit. The architecture is a mix of traditional country homes and converted modern workspaces, and the streets are filled with a mix of pedestrians and cyclists, reflecting the town's energetic and self-sustaining economy."

We also generated images depicting more specific scenes within the creative society. We will now examine several of these examples. Figure 5 shows an image depicting a Creative Society in which children are building cabins as part of a school activity in a forest, illustrating that such activities are not limited to the classroom. The prompt provided to ChatGPT Plus DALL-E 3 for generating this image is "A scene in a forest where two children are nurturing trees in the background, and in the foreground, one adult with three children are building their own cabin. The forest setting creates a sense of depth between the two groups."

While the previously introduced images were generated using ChatGPT, we also created visualizations using other AI systems. Figure 6 illustrates an aspect of the creative society where a child crafts their own pencil case rather than purchasing one. The image was generated using Bing Image Creator with the prompt: 'A boy making a pencil case at home, using a sewing machine to create a design he likes.'



Fig. 5. A creative educational scene related to nature (generated by ChatGPT Plus DALL-E 3).



Fig. 6. A scene of a child crafting his own pencil case (generated by Bing Image Creator).

Figure 7 shows the image that depicts an aspect of the creative society where a 3D printer is present in the home, and elderly individuals are adept at using it. The prompt provided to Adobe Firefly for generating this image is “Grandmother using a 3D printer in a Japanese-style room.”

By leveraging generative AI in this manner, we have been able to more concretely convey the vision of the creative society we advocate to the visitors. Visitor responses were overwhelmingly positive, with comments such as: “These truly appear to represent the future,” “They look remarkably realistic,” and “The images make it easier to conceptualize your creative society vision.”

The image generation process often required multiple iterations before achieving satisfactory results. For example, Figure 8 required nine attempts before successfully depicting a man cooking while remotely connecting with his mother via tablet. Earlier attempts produced unrealistic elements, such as incorrectly oriented tablet screens or misplaced characters (Figure 9).



Fig. 7. A scene of a grandmother masterfully using a 3D printer at home (generated by Adobe Firefly).



Fig. 8. A scene of a man enjoying cooking with family in a distant location (generated by ChatGPT Plus DALL-E 3).



Fig. 9. Trial and error process of image generation.

3.2 Patterns for Future Vision Visualization Utilizing Generative AI

We introduce the following six patterns, or to be more precise, pattern seeds, derived from our image creation process to generate more effective visualizations: **Specific Scene**, **Concrete Description**, **Camera Angle and Composition**, **Image Style Setting**, **Start Over Sometimes**, and **Strengths of Each System** (Figure 10).

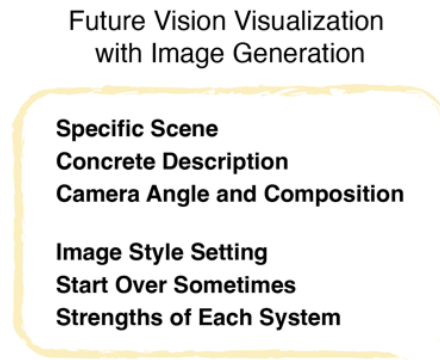


Fig. 10. Overview of the patterns for future vision visualization.

Specific Scene. You want to use generative AI to depict a future vision. In this context, it is challenging to output images that match your imagination when specifying with your own concepts, as the system may not understand these concepts. Therefore, specify a scene that embodies the future you envision to achieve more accurate representations.

Concrete Description. You want to depict people or objects in the image. In this context, simply specifying the people or objects with vague adjectives might not result in the desired appearance. Therefore, specify the concrete expressions or actions of the people, and the distinct features or shapes of the objects to accurately convey the desired image.

Camera Angle and Composition. You may have a somewhat vague or distinctly clear image of the scene composition for the picture you want to create. In this context, merely describing what you want to depict might not convey how to frame it in an image, making it difficult to generate the desired image. Therefore, specify the camera angle, composition, and lighting for the image you want to generate.

Image Style Setting. You have a clear idea of what you want to depict in a particular style. In this context, if generative AI selects a style without understanding your vision, it is unlikely that you will get the image you desire. Therefore, specify styles such as 'photo-realistic' or 'Manga style,' or provide a reference image that closely matches your envisioned idea to guide the generation process.

Start Over Sometimes. You have repeatedly requested modifications to the generated images to achieve the intended result, but have struggled to obtain the desired outcomes. In this context, even if you continue to make modifications based on previous interactions, there is still a possibility that the desired image may not be achieved. Therefore, consider resetting once and rewriting the prompt with the instructions that have proven effective at this stage, and then regenerate the image.

Strengths of Each System. Generative AI systems have different strengths and weaknesses. In this context, using only one system may result in suboptimal images, as each system has its weaknesses—such as struggling with close-ups of individuals or depicting multiple people in wide shots. Therefore, use multiple systems to understand their respective strengths and employ the system that excels at producing the desired image.

3.3 Case of Video Theme Songwriting

The second application of generative AI for artistic outputs is the creation of theme songs for original videos. The first example is the creation of a song for a university course reflection video. One of the authors of this paper, Takashi Iba, is responsible for a university course called 'Workshop Design.' In this course, students form groups to design and facilitate their original workshops during class sessions. Iba wanted to create a reflection video summarizing the workshops conducted throughout the course for the final session. Instead of using existing songs or free audio sources, he decided to compose original music using Suno AI. By doing so, he was able to incorporate the content of each workshop session into lyrics, making the video feel more special and resonant with the students.

Figures 11 and 12 illustrate the correspondence between the video's visual content and its accompanying lyrics (originally in Japanese) for the 'Workshop Design 2023 Reflection Movie.' This video was edited by Elly Shimamura and Takashi Iba, with lyrics and song generation by Takashi Iba. The video with its accompanying song can be accessed at <https://www.youtube.com/watch?v=r7fofqDSj44>.

Workshop Design 2023 Reflection Movie

Lyrics by Takashi Iba



<https://www.youtube.com/watch?v=r7fofqDSj44>



自分たちがつくった世界のなかで みんなが動き出す
(In the world we've created, everyone starts to move)

どんなことが起きるのかは設定次第だ
(What happens next depends on the settings)

何が好き?自分ってどんな色?
(What do you like? What color are you?)

写真並べてストーリーつくるよ
(Arrange the photos to create a story)

うまくいくこともあれば 想定外のこともある
(Sometimes things go well, sometimes they don't)

ドキドキしたけど なんとかなるもんだね。
(It was thrilling, but we made it through somehow.)

仲間とつくって みんなでふりかえる
(Design with team members, reflect together as a class,)

やってみてつかむ それが僕らのWorkshop Design
(Try it and grasp it; that's our Workshop Design class.)

自分たちのつくった世界にみんなの心が動く
(In the world we've made, everyone's hearts are moved)

Fig. 11. The video's visual content and the related lyrics of a reflection video on Workshop Design course #1



Fig. 12. The video's visual content and the related lyrics of a reflection video on Workshop Design course #2

The second example demonstrates theme songwriting for a reflection video created for the AsianPLoP 2024 conference in Japan. As Conference Co-Chair, Takashi Iba developed a compelling video to be screened at the conclusion of the conference, enabling participants to collectively reflect on their shared experiences.

Recognizing the need to rebuild connections and strengthen community cohesion, the team compiled chronological footage of various conference moments and enhanced it with custom-written lyrics and music to complement the visual narrative. The collaborative work was accomplished during early mornings and late evenings throughout the conference. When screened on the final day, the video generated surprise and enthusiasm among attendees, receiving an overwhelmingly positive response.

Figures 13-15 show the correspondence between the visual content of the video and the related lyrics for the reflection video of the AsianPLoP 2024 conference, titled 'AsianPLoP 2024 – Conference.' Takashi Iba

composed the lyrics and generated the song, while Kiyoka Hayashi and Takashi Iba conducted the video editing. We utilized ChatGPT to translate the song lyrics from their original Japanese into English. The video with its accompanying song can be accessed at <https://www.youtube.com/watch?v=4TV9NQcNtt8>.

AsianPLoP 2024 - Conference

Lyrics by Takashi Iba



<https://www.youtube.com/watch?v=4TV9NQcNtt8>



Hopped on the bus, reached the campus scene,



Creativity's breath, found in places in between,



From today, "People & Practices" are part of the view,



A journey many have walked through.



In every style we hold,
Expressing structure and essence, bold.



Pattern writing,
Weaving words where feelings are told.



Gathered once again, AsianPLoP 2024.



Sheep soar high and on walls they perch,
Ideas flow as we seek and search.

Fig. 13. The video's visual content and the related lyrics of a reflection video of the AsianPLoP 2024 conference #1



Fig. 14. The video's visual content and the related lyrics of a reflection video of the AsianPLoP 2024 conference #2



events. These entertaining scenarios were designed as part of our hospitality initiatives to ensure international visitors could experience authentic Japanese culture during their stay in Japan.

Figures 16-19 show the correspondence between the visual content of the video and the related lyrics for the reflection video on exchanges outside the AsianPLoP 2024 conference, titled 'More AsianPLoP 2024: Memorable Moments of Shared Experiences Beyond Conference Hours.' This video was edited by Erika Inoue and Takashi Iba, and the lyrics were written by Takashi Iba and the Iba Lab members. The video with its accompanying song can be accessed at <https://www.youtube.com/watch?v=7xfu9Nzqvps>.

More AsianPLoP 2024: Memorable Moments of Shared Experiences Beyond Conference Hours

Lyrics by Takashi Iba with Iba Lab members



<https://www.youtube.com/watch?v=7xfu9Nzqvps>

			Hopped off the bus, no bar in view,
			"Let's rock karaoke!" lead, we flew,
			Snacks and beers, for the crew.
			First night, high spirits, sing our songs,
			Different languages, Talent shines.
			Singing, dancing, in a trance,
			"We are family," our stance.
			So glad we met on this ground,
			Together, joyfully, our hearts pound,
			Joyful, lively moments with QWAN, (Quality Without A Name)
			Days of memories, forever profound.

Fig. 16. The video's visual content and the related lyrics of a reflection video on exchanges outside the AsianPLoP 2024 conference #1

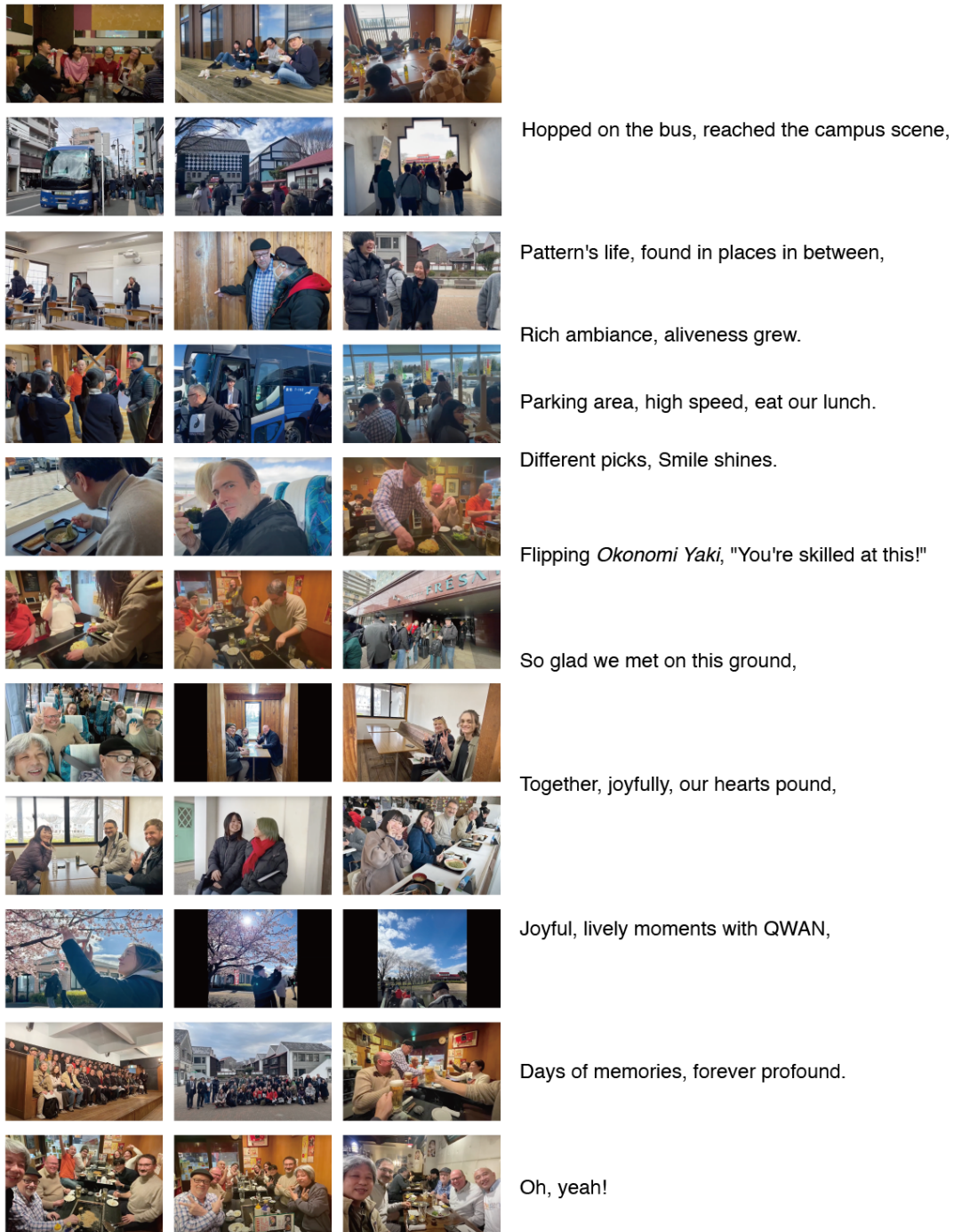


Fig. 17. The video's visual content and the related lyrics of a reflection video on exchanges outside the AsianPloP 2024 conference #2



Fig. 18. The video's visual content and the related lyrics of a reflection video on exchanges outside the AsianPLoP 2024 conference #3

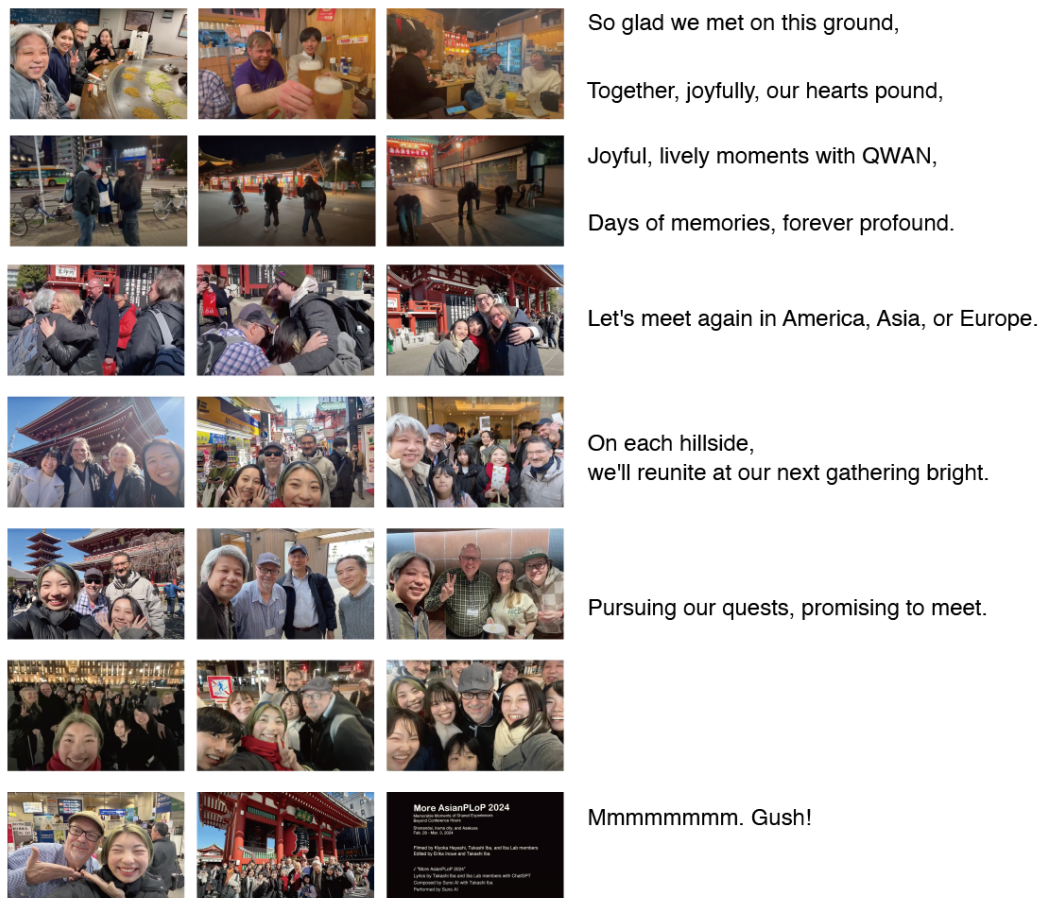


Fig. 19. The video's visual content and the related lyrics of a reflection video on exchanges outside the AsianPLOP 2024 conference #4

3.4 Patterns for Video Theme Songwriting Utilizing Generative AI

Based on our case studies presented above, we have identified the following six patterns (pattern seeds) that optimize the process of composing theme songs for original videos using generative AI: **Mood of the Video**, **Episodes in the Lyrics**, **Sequence of the Story**, **Generating Rhymes**, **Twin Verses**, and **Until it Fits** (Figure 20).

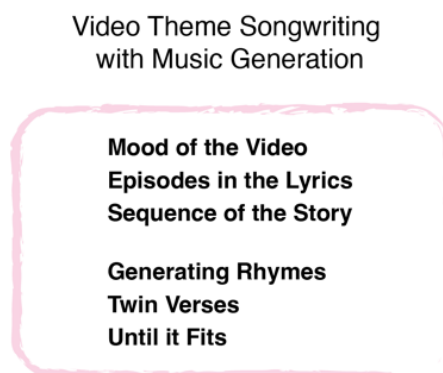


Fig. 20. Overview of the patterns for video theme songwriting.

Mood of the Video. You want to create a theme song using generative AI to match a video. In this context, focusing solely on completing a single piece of music might result in a good track that doesn't match the desired

atmosphere of the video. Therefore, choose a musical genre based on the desired atmosphere of the video you are creating.

Episodes in the Lyrics. You are writing lyrics for a song to be used as the theme song for a video. In this context, simply converting the theme and message you want to convey into lyrics might not fully utilize the benefits of creating an original song. Therefore, incorporate events and episodes from the video into the lyrics to create a special song that matches the scenes in the video.

Sequence of the Story. You are structuring the lyrics for the theme song. In this context, if you base the lyrics solely on the video's theme, the sequence might feel unnatural when combined with the video. Therefore, envision how the scenes in the video will connect and unfold, and structure the lyrics to align with the video's story.

Generating Rhymes. You are not accustomed to writing lyrics, or you are trying to write lyrics in a language that is not your native language. In this context, simply writing down the content you want to include in the lyrics might not result in lyrics with a smooth flow. Therefore, improve the lyrics while interacting with generative AI, ensuring that, for example, you match the syllable counts and incorporate rhyming at the end of phrases.

Twin Verses. You are trying to write the second verse of the lyrics. In this context, if the syllable count and rhythm of the first and second verses differ significantly, it becomes difficult to fit them to the same melody. Therefore, specify to the generative AI that you want the second verse to have the same syllable count and rhythm as the first verse, and have it adjusted accordingly.

Until it Fits. You are using generative AI to create a melody for your lyrics. In this context, generating the melody only once may result in a mismatch between the lyrics and the melody progression. Therefore, repeat the melody generation process and the lyrics adjustment until you find a satisfactory match.

4. CONCLUSION

In this paper, we introduced two creative approaches—academic and artistic outputs—and their respective patterns. One key insight we gained through our use of generative AI is that it is not merely a replacement for human creativity, but rather a collaborative partner.

The fundamental concept is to realize what one desires to accomplish beyond the limitations of one's own capabilities by enlisting the assistance of generative AI. This demonstrates the power of collaboration with AI – much like working with a human partner – to expand an individual's creative capabilities. It seems that we are entering an era where humans and generative AI work together as a team to create something. This perspective aligns with the argument of Amankwah-Amoah et al. (2024), who state that the creative industry must recognize generative AI not merely as a substitute for human creativity but as an invaluable creative collaborator.

The patterns introduced in this paper offer practical guidance for leveraging generative AI. By utilizing these patterns, we hope that people will be able to leverage generative AI in their creative activities and live more creatively. Although we have introduced only a few ways of generative AI here, there are undoubtedly many other creative applications. We will continue to explore new uses and uncover patterns for effective implementation.

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