FROM IMAGINATION TO REPRESENTATION: UTILIZING LEONARDO.AI IN THE CONCRETIZATION OF GERMAN-LANGUAGE POETRY TO ENHANCE STUDENT CREATIVITY

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Abstrak

Era transformasi digital membuka peluang baru bagi mahasiswa dalam mengembangkan imajinasi dan daya kreativitas yang mengintegrasikan kecerdasan buatan dalam pembelajaran sastra, khususnya apresiasi karya sastra lintas budaya. Penelitian ini bertujuan untuk mendeskripsikan potensi penggunaan kecerdasan buatan: Leonardo.Ai, dalam memperkaya pengalaman belajar dan memperkuat apresiasi nilai-nilai budaya melalui konkretisasi puisi Jerman menjadi gambar visual. Penelitian menyoroti pemaknaan visualisasi puisi "Abseits" karya Theodor Storm oleh mahasiswa program studi Pendidikan Bahasa Jerman di Universitas Negeri Malang dengan memfokuskan pada tiga dimensi utama: estetika, interpretasi, dan kreativitas. Metode deskriptif kualitatif digunakan dalam penelitian ini. Sumber data berupa mahasiswa aktif penempuh matakuliah Literaturgeschichte angkatan 2020. Data penelitian berupa hasil interpretasi mahasiswa dalam memaknai visualisasi puisi. Data dikumpulkan melalui lembar angket. Analisis data dilakukan dengan tahapan reduksi data, penyajian data, penarikan kesimpulan. Hasil penelitian menunjukkan bahwa dalam dimensi estetika mahasiswa mampu menginterpretasikan makna puisi melalui elemen-elemen visual seperti warna, komposisi, dan harmoni visual. Pada dimensi interpretasi, mahasiswa dapat menghubungkan simbolisme dan tema yang terkandung dalam puisi dengan representasi visual yang dihasilkan. Dimensi kreativitas ditunjukkan oleh mahasiswa melalui variasi pendekatan dan inovasi mahasiswa dalam menggabungkan elemen visual dan tekstual untuk menciptakan interpretasi puisi yang unik dan mendalam. Implikasi hasil penelitian adalah AI dapat digunakan sebagai media pendukung dalam pembelajaran sastra, mendorong kreativitas mahasiswa, yang pada akhirnya memberikan kontribusi signifikan dalam bidang pendidikan

Kata Kunci: *kecerdasan buatan, Leonardo.Ai, Pendidikan Bahasa Jerman, visualisasi puisi*

Abstract

The era of digital transformation presents new opportunities for students to develop their imagination and creative capacity by integrating artificial intelligence into literary learning, particularly in the appreciation of cross-cultural literary works. This study aims to describe the potential use of artificial intelligence: Leonardo.Ai, in enriching the learning experience and strengthening the appreciation of cultural values through the concretization of German poetry into visual images. The research highlights the meaning of the visualization of the poem "Abseits" by Theodor Storm by students of the German Language Education study program at the State University of Malang by focusing on three main dimensions: aesthetics, interpretation, and creativity. Descriptive qualitative method was used in this research. The source of data is active students taking the "Literaturgeschichte course class of 2020. The research data is in the form of student interpretation results in interpreting poetry visualization. The data were collected through a questionnaire sheet. Data analysis was carried out with the stages of data reduction, data presentation, conclusion drawing. The results showed that in the aesthetic dimension, students were able to interpret the meaning of poetry through visual elements such as color, composition, and visual harmony. In the interpretation dimension, students can connect the symbolism and themes contained in the poem with the visual representation produced. The creativity dimension is shown by students through the variety of approaches and innovations in combining visual and textual elements to create unique and in-depth interpretations of poetry. The implication of the research results is that AI can be used as a supporting medium in learning literature, encouraging student creativity, which ultimately provides a significant contribution in the field of education.

Keywords: artificial intelligence, education, German language, Leonardo.Ai, poetry visualization

1. INTRODUCTION

Today artificial intelligence (AI) has developed rapidly and become an integral part of modern life. Research conducted by West & Allen (2018), various aspects of life have changed due to Artificial Intelligence (AI). (Popenici & Kerr, 2017) defines AI as intelligence displayed by a system, machine, or programme. Based on this definition, artificial intelligence is a technology that enables computer systems, software, programmes, and robots that think as intelligently as humans.

In the field of education, generative AI is used to improve the quality of student learning and instil values and characters while adapting to AI systems (Hermann, 2023). The application of AI in education began to be very visible during the COVID-19 pandemic (Tjahyanti et al., 2022). AI became a solution to the educational problems that arose during the pandemic, helping students and teachers get more out of the educational experience so that artificial intelligence became one of the learning media trends and new breakthroughs for the world of education. In their research (Tjahyanti et al., 2022) mentioned that in the future learning activities will apply more artificial intelligence in their activities.

Amidst the global AI movement, *AI art generators* have become a topic of interest. New AIs based on Generative Adversarial Networks (GAN) continue to be introduced, such as DALL-E, Midjourney, and Leonardo.ai. Despite the ability to compute graphics and applications, not all AIs have an intuitive control interface, so the threshold for use is still high for beginners. Compared to other *AI art generators*, Leonardo.ai is based on open-source stable diffusion, which is relatively easy to use. In addition, Leonardo.ai also has various types of templates that can be used as the basis for creating visual content. Leonardo.ai also provides image editing and colour setting features, so that users can adjust the visual content as desired. In her paper, Rahmawati (2023) outlines the role and function of learning media in the learning and teaching process. Through learning media, abstract things can become more concrete. One concrete example is the use of Leonardo.ai in making the creative video "Frau Holle". With the help of Leonardo.ai, visual elements and animations in this folktale can be made interesting, making it easier to learn German language and literature.

German Department State University of Malang, contributes significantly to improving students' critical and creative thinking skills. Through an approach that places students at the centre of education, this learning coordinates oral communication, literary exploration, and the development of personal and collective experiences (Aini et al., 2024). However, based on the results of interviews with German Language Education students at the State University of Malang who have taken the Literaturgeschichte course, it appears that the use of AI in literature learning is still less applied. A study written by Huang (2022) supports this finding, stating that although AI has great potential, many educational institutions are still in the early stages of adopting this technology, especially in the humanities and arts. However, the application of AI in literature learning has great potential in analysing literary texts, providing automatic feedback on students' assignments, and helping to concretise literary works, including poetry, into a visual form. In the context of poetry, which is a form of literary expression that uses language aesthetically to convey deep emotions, images, and ideas, the concretisation of poetry becomes particularly relevant. The process of concretising poetry transforms abstract words into a more tangible visual or physical form that helps readers understand and feel the meaning of the poem more deeply. Multimodality theory is particularly relevant in this context, as AI enables the incorporation of different modes of communication such as text, images, and sound

to create a richer and more comprehensive learning experience (Benzemer & Kress, 2016).

Recent empirical studies have shown that AI-generated poetry can affect readers' emotions. Preliminary results show that AI poetry can evoke emotions similar to poems written by humans, especially if the reader does not know who the author is (Köbis & Mossink, 2021). However, poems written by humans, based on authentic experiences, often contain complex emotional depth. In comparison, AI compositions, while adept at reflecting tones of happiness or fear, sometimes miss these complex emotional nuances (Oksanen et al., 2023). The two opinions above show that AI can help create new poems that use unique words and phrases, even without directly involving aspects of human feelings. In this context, AI opens up opportunities to create poems with unprecedented styles and structures.

The application of AI in literature learning can be a breakthrough that helps maintain cultural values and enrich students' learning experience. However, it should be noted that the rapid development of technology can also threaten the preservation of rooted culture. School-age children, as the group most likely to be influenced by foreign cultures, need to be encouraged and equipped so that the noble values of the nation are maintained. Literary appreciation is an interaction between humans and literature (Saryono, 2009). However, with the rapid development of technology, the interaction between humans, literature, and AI is increasingly possible, opening up more ways to appreciate literature. The presence of AI allows for a more interactive and immersive learning experience in understanding and appreciating literary works, in line with multimodality theory that combines various modalities to convey richer and more complex meanings (Benzemer & Kress, 2016).

One form of innovation in appreciating literature that can be supported by AI technology is the concretisation of poetry by visualising it.

Poetry visualisation is an interpretation of a poem in which the meaning of the poem is reinterpreted in the form of visual artworks (pictures/paintings) or audio artworks (music). Visualisation of poetry can help readers understand and experience poetry more deeply, thus increasing interest in poetry.

AI can enable humans to create works of art more easily and quickly than ever before. However, the capabilities of text-to-image analysis using AI are constantly evolving, and the results may vary depending on the model and data used (Huang, 2022). The focus of this paper is on text-to-image analysis using artificial intelligence (AI), specifically the process of converting text into visual form in the form of images. AI is utilised as a visual attraction, a source of inspiration and unlimited creativity in assessing literary works. There are advantages and disadvantages to the use of AI, but this paper will focus more on the various dimensions that can be processed in the transformation of poetry to images through the use of AI, namely the aesthetic dimension (use of colour, composition, and visual harmony), the interpretation dimension (comprehension between art, themes, and symbols), and the creativity dimension (combination of images and narrative/text). The poem "Abseits" by Theodor Storm was chosen for this study because it is a powerful representation of the psychological condition of man and his relationship with nature at that time. One of the stanzas of the poem "Abseits" is from (https://lyrik.antikoerperchen.de/theodor-storm-abseits,textbearbeitung,645.html) :

<div align="center">

ABSEITS (1847)
Theodor Storm
" Es ist so still; die Heide liegt
Im warmen Mittagssonnenstrahle,
Ein rosenroter Schimmer Fliegt
Um ihre alten Gräbermale
Die Kräuter blühnö der Heideduft
Steigt in die blaue Sommerluft."

</div>

In the context of the spirit of the age of realism, the poem reflects the values and cultural atmosphere of the 19th century German realism period. Realism in literature at that time aimed to depict everyday life in accurate detail and present an honest picture of the human condition and society. In "Abseits", Storm describes rural life with touching honesty, the peace and harmony that can be found amidst the soothing silence of nature. This poem captures the essence of realism by showing the real life of people, without the frills of romanticisation or idealisation. The spirit of the realism era is reflected in the sincerity of the presentation, the focus on everyday life, and the concern for human social and psychological conditions that characterised the realism movement of the time.

This research refers to several relevant studies, including Rohimah (2017) which illustrates poetry symbolically using metaphor and personification through Vignette illustrations with a pure surrealism approach, and Khairi & Purwanto (2022) which produces non-representative paintings as a response to poetry about the dimensions of life. This research is different because it is used as a reference in learning Literaturgeschichte to help students understand poetry visually by using AI as the main media, while the similarity is to visualise poetry into images or paintings. In addition, this study also refers to research by (Aini, 2023) which uses AI to visualise poetry. Although both use AI, Aini's research emphasises more on the potential and problems posed by artificial intelligence in literary works. In contrast to these studies, this research focuses on the use of AI as a means to create meaning and creativity among university students. This research also refers to the study (Huang, 2022), which analyses text-to-image AI generators. Figure 2 below is an example of Huang's AI generator visualisation.

Figure 1. Example of Dall-E 2 Visualisation
Source: (Huang, 2022)

Huang emphasises on the technical aspects of AI technology and how different models produce visualisations from texts with varying degrees of success. Huang's study focuses on evaluating the technology's capabilities and its impact in generating images from texts, whereas this study focuses more on the practical application of AI in literary education, particularly in helping students interpret and understand poetry visually.

Figure 2. Example of Nachtzauber Poem Visualization Using Hotpot.AI

Source: (Aini, 2023)

In her research Aini (2023) focuses on incorporating elements of nature and everyday life, while Huang (2022) places more emphasis on visualising more abstract and futuristic concepts. Both approaches demonstrate the potential of AI in a variety of literary and visual art contexts, providing a deeper and more varied understanding for learners and audiences. In addition to highlighting the positive impacts, the

research also emphasises the negative impacts of using artificial intelligence in converting text into images. One of these is the risk of reducing the human aspect of creativity and uniqueness in art, where although AI is efficient in creating images based on text, the end result may lack emotional depth and meaning compared to human works. In addition, there is the potential for bias in AI-generated visualisations, as algorithms tend to reflect biases from the training data, such as gender, race, or certain undesirable views (Aini, 2023).

This research uses an evaluative approach with the CIPP model (Context, Input, Process, Product). According to Stufflebeam (2007), the CIPP model can strengthen literary learning and appreciation of cultural values through the concretisation of German-language poetry into visual images. This approach is implemented to validate and analyse the visualisation of German-language poetry using Leonardo.AI, as well as to evaluate the interpretations of the students who have taken the Literaturgeschichte course. The students were chosen as the subject of this study because they have reached the more advanced stages of learning in the curriculum, ensuring that they have a strong foundation in German literature and language. The selection of the cohort is also supported by educational evaluation theory which emphasises the importance of using subjects who have an adequate knowledge base and experience to provide a valid assessment of a new programme or technology (Stufflebeam, 2007). The uniform knowledge and experience base of students provides a more stable evaluation context than a more recent cohort. This evaluative approach is grounded in educational evaluation theory which emphasises the importance of assessing the impact of a new programme or technology in a learning context (Stufflebeam, 2007).
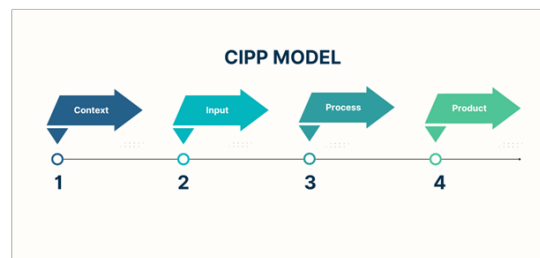

Figure 3. CIPP Model by Stufflebeam & Shinkfield

The Context Evaluation stage in Figure 3. aims to identify needs, problems, and opportunities in a particular context. This research identifies needs and problems in literature learning, namely the limited use of AI in a certain period among the students at the State University of Malang. The input evaluation stage, which focuses on assessing the strategies, plans, and resources that will be used to achieve the goal, involves designing a prompt for the visualisation of poetry text to image using Leonardo.AI. Process Evaluation or process evaluates the implementation and activities of the process to ensure that the plan is implemented in accordance with the design, the results of the visualisation were interpreted by the researcher to understand the use of colour, composition, visual harmony, and themes and symbols in the images, and based on these interpretations, the researcher developed a rubric covering three main dimensions: aesthetics, interpretation, and creativity which were then validated by experts. The next step was to distribute questionnaires containing poetry visualisations to the students for interpretation. The collected data was analysed using a rubric that had been created and then the results of student interpretations were compiled into tables and systematic descriptions. Finally, the Product Evaluation stage, which focuses on assessing the end result or product of the programme to determine its effectiveness, involves content analysis to explore the meaning and themes of students' visual interpretations, as well as understanding how the dimensions of aesthetics, interpretation, and creativity are reflected in the results. Conclusions were drawn

by comparing the results of the researchers' and students' interpretations, and the results of the analyses were reported descriptively to show how AI can be used as a supportive medium in learning literature and developing appreciation and deep understanding of literary works (Stufflebeam, 2007).

This study aims to generally reveal the potential of AI in enriching learning experiences and strengthening appreciation of cultural values with poetry concretisation. Specifically, the appreciation of literature through poetry visualisation is seen from how students can interpret three dimensions. First, the aesthetic dimension related to the use of colour, composition, and visual harmony in the visualisation of poetry, which allows students to interpret the meaning of poetry through visual elements . Second, the interpretation dimension that relates to the in-depth understanding between art, themes, and symbols contained in the poem, which is expected to develop students' critical abilities in linking these elements holistically. Thirdly, the creativity dimension that involves the combination of images and narrative/textual, which encourages students to innovate and express their understanding of poetry through different media, thus creating new works that combine visual and textual elements harmoniously. Thus, this research is expected to show how AI can be used as a supporting medium in literature learning to develop appreciation and deep understanding of literary works.

2. METHOD

This study uses a qualitative research type with descriptive qualitative methods and a CIPP model evaluative approach to explore the use of AI, especially Leonardo.AI as a supporting medium for literature learning that can strengthen appreciation of cultural values through the concretisation of German-language poetry into visual image works. The instruments used in this study include the researcher himself with ankget

as support. According to (Bogdan, 1975), qualitative methodology is a research procedure that produces descriptive data in the form of written or spoken words from people and observable behaviour. In addition, (Flick, 2014) argues that in general, qualitative methods are research that focuses on an in-depth understanding of phenomena through the collection and analysis of non-numerical data, without relying on statistical procedures.

The evaluative approach in the research was used to understand the impact of using Leonardo.Ai on students' understanding and creativity. This approach also allows for an assessment of the results of the poetry visualisations created by the students, covering aspects of aesthetics, interpretation and creativity, thus providing a clear picture of the quality and benefits of this technology. The results of this evaluation not only identify successes and shortcomings, but also provide practical recommendations for improving the use of AI in literature learning. The systematic evaluative approach and the use of data triangulation ensure that the research findings are accurate and reliable. This enhances the credibility of the research and provides a solid basis for future decision-making.

This study aims generally to reveal the potential of AI in enriching learning experiences and strengthening appreciation of cultural values with poetry concretisation. The research data ources used are active students class of 2020 who have taken the Literaturgeschichte course at the State University of Malang. The data collected includes the results of visualisation of poetry created using Leonardo.AI as well as students' understanding and interpretation of the visual results of poetry which are then measured using a validated rubric. Validation was conducted to ensure that the research findings were accurate and reliable, providing a comprehensive picture of the use of Leonardo.AI as a supporting medium in learning German literature.

The data of the research subjects included personal information. Given the ethical and privacy issues in data collection and use among university students, the researcher coded the respondents' data in the form of initials. This step was taken to ensure the confidentiality of privacy data. The respondent code is given in initials format as follows:

Table 1. Code Description for Respondents

Kode Responden
AA
AR
EA
JO
MI
RA
RD
RF
SS
TS

The data collection technique was collected by distributing a Google Form containing the results of the visualisation of poetry made by Leonardo.Ai. Students were asked to interpret the visualised poem and provide an explanation of their interpretation. The results of student interpretation will then be measured using a rubric that has been validated by experts. The assessment in this validation sheet uses four criteria with a scale of 1 to 4, namely: very less (1), less (2), good (3), and very good (4). The selection of these four indicators was based on several methodological and practical considerations. Firstly, four assessment categories allow for a clearer distinction of competency or quality levels that is easily interpreted by the assessor. Secondly, this

structure simplifies the assessment process, minimises possible ambiguity in scoring, and ensures efficiency and consistency in evaluation.
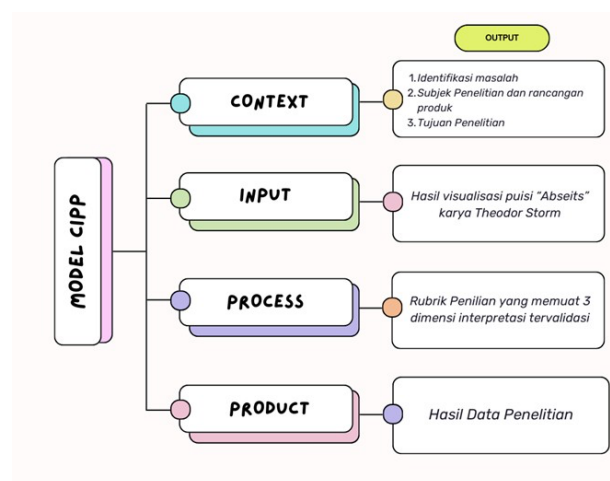

Figure 4. Output of the CIPP Model
Source: Personal Processed Data

The data analysis technique in Figure 5 was conducted using the theory of Miles & Huberman (1994) at the product evaluation stage. This analysis process includes data reduction, data presentation, and conclusion drawing/verification, applied specifically to evaluate the end result of using this technology:
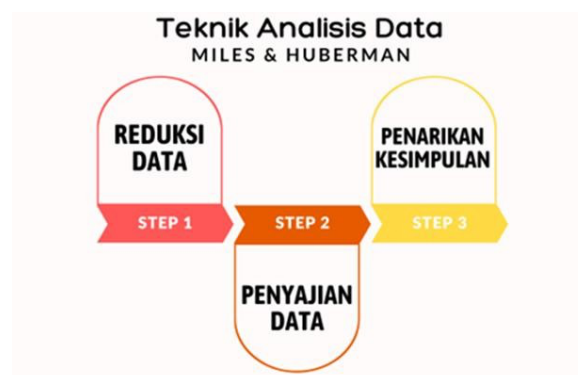

Figure 5. Miles & Huberman Data Analysis Technique

Data reduction is the process of selecting, focusing, simplifying, and transforming raw data from field notes, interview transcripts, documents, and other materials into more organised and manageable data. Data reduction

helps researchers in filtering relevant and important information from large and complex data. Data presentation is the process of organising and presenting information in a form that allows drawing conclusions and further action. Data presentation can be in the form of matrices, graphs, networks, or diagrams that help researchers to understand the data better and make more informed decisions. Finally, conclusion drawing is the process of identifying patterns, themes, relationships, and generalisations from the organised data. Verification is a step to test the validity and reliability of conclusions that have been drawn through the process of data reduction and presentation (Miles & Huberman, 1994)

3. RESULTS AND DISCUSSION

RESULTS

Research on the use of Leonardo.Ai in the concretisation of German-language poetry into visual image works as an effort to creativity in interpretation for students of the German Department was conducted on students taking Literature courses. This research focuses on the appreciation of literature through visualisation of poetry seen from how students can interpret the three main dimensions, namely the aesthetic dimension, the interpretation dimension, and the creativity dimension to reveal the potential of AI in enriching learning experiences and strengthening appreciation of cultural values with poetry concretisation. The poem "Abseits" by Theodor Storm has been visualised using artificial intelligence to provide a visual interpretation of every two lines of the poem.

In this study, only the initial two dimensions were revealed, namely the aesthetic and interpretation dimensions, with the limitation that the creativity dimension could not be discussed. This is due to the complexity in objectively measuring and evaluating creativity, which requires different instruments and approaches compared to the aesthetic and interpretation

dimensions. In addition, measuring creativity requires greater time and resources, which is not possible to be included in the scope of this study. It is hoped that future research can be more in-depth in discussing the dimensions of students' creativity, so as to provide a more comprehensive picture of the development of their creativity in the context of AI-assisted poetry visualisation.

In this study, the visualisation of poetry was done by considering two lines of poetry for each image. This approach was chosen after the researcher found that the use of one line of poetry resulted in relatively the same visualisation in each subsequent image, which did not provide sufficient variety. Therefore, to ensure efficiency and clarity in visualisation, as well as to avoid repetition of images, two lines of poetry were integrated into a single visual prompt. This approach also allows for a richer and more detailed depiction, as the two lines of poetry are often closely related in creating a certain mood or image, thus providing a fuller and deeper context in each resulting visualisation. This contextual cohesion ensures that the relationship between the elements in the poem can be better reflected, providing a more cohesive and meaningful visual representation.

In Figures 6-8 the prompts were chosen with the aim of capturing the essence of each line of the poem "Abseits" and interpreting it visually appropriately. These prompts are designed to reflect the thematic and symbolic elements of the poem, such as the stillness and beauty of nature, the richness of symbolism, as well as the emotions contained in the text. The visualisation of the poem is outlined in the following image:

Kode	Baris Puisi	Prompt	Hasil Visualisasi Leonardo.ai
Gb 1.	1. Es ist so still; die Heide liegt 2. Im warmen Mittagssonnenstrahle,	"A quiet, serene heathland under a dark, silent sky. The heathland bathed in warm midday sunlight, creating a peaceful atmosphere."	

Figure 6. Visualization of Poem Lines 1-2

| Gb 3. | 5. Die Kräuter blühn; der Heideduft 6. Steigt in die blaue Sommerluft. | "Herbs in full bloom, releasing a fragrant scent into the air. The fragrance rising into the clear blue summer sky." | |

Figure 7. Visualization of Poem Lines 3-4

| Gb 2. | 3. Ein rosenroter Schimmer fliegt 4. Um ihre alten Gräbermale; | "A rosy-red glow flying softly around the ancient graves. Encircling the old, moss-covered gravestones with a soft red light." | |

Figure 8. Visualization of Poem Lines 5-6

Aesthetic Dimensions in The Interpretation of Poetry through Visual Images

In the analysis of the aesthetic dimension in achieving poetic meaning through visual images, students are expected to understand the use of colour, composition, and visual harmony in the visualisation of poetry. This aesthetic dimension plays an important role in enabling students to interpret the meaning of poetry through visual elements. The data collection process was carried out through a questionnaire sheet containing statements regarding the aesthetic dimension. Students were asked to answer the following questions: "How does the use of colour in this image support the mood and theme of the poem? Explain how the composition and visual harmony of the elements in the image help in interpreting the meaning of the poem!" This question was designed to evaluate the extent to which the visual elements in the picture can effectively portray the mood and theme of the poem, as well as how the composition and visual harmony can strengthen the interpretation of the meaning of the poem. The following are the results of the questionnaires filled out by the students along with the analysis based on the rubric.

In figure 6, regarding the aesthetic dimension, respondent TS stated, "The aesthetic dimension of this image seems to depict a calm morning atmosphere with plants and grasses that seem to be flushed with cold morning dew. the visual composition is neat and balances the elements of nature very well, creating a beautiful harmony." It can be seen that the image is interpreted by TS as a calm morning atmosphere with plants and grasses that look like they are covered with cool morning dew. This description is in accordance with the rubric which emphasises calmness and visual harmony through the use of colour and composition. The student explains that the image creates a beautiful harmony by balancing the elements of nature, which shows a good understanding of this aesthetic dimension. The use of words such as "harmony" and "neat visual composition" shows that the student understood and applied the concepts expected in the rubric to create an appropriate description. While in figure 7, TS commented, "The use of the colour orange in giving a dramatic atmosphere the emotional message to be conveyed is felt, on the other hand, the use of the colour orange that represents the poem line Ein rosenroter Schimmer fliegt needs to be made more intense." Respondent TS highlighted the use of orange to create a dramatic atmosphere and convey a strong emotional message, and associated the use of this colour with the poem line "Ein rosenroter Schimmer fliegt." However, respondents suggested that the orange colour be made more intense to enhance the dramatic feel. This suggestion shows a critical understanding that, although there is a slight discrepancy with the rubric, this description is still in line with the desired aesthetic goal. The use of colour and the aim to create strong emotions are in line with the rubric.

Then in figure 8, TS's interpretation emphasises, "the selection of the image presented is very interesting by focusing on one flower as the main object and the old building behind it is beautifully depicted. the colours produced in this image are right with the colour of the bright sky." The focus on one flower as the main object and the old building in the background and the use of

colours that are said to be appropriate with the bright sky, show visual harmony, which is in accordance with the rubric that emphasises visual focus on the main object as well as the use of colours to create harmony. No discrepancies were found, as the students' descriptions were in line with the aesthetic elements of the rubric.

Dimension of Interpretation in the Interpretation of Poetry through Visual Images

In analysing the inner interpretation dimension, students are expected to develop an in-depth understanding of the art, themes, and symbols contained in the poem. This dimension aims to improve students' critical ability in linking these elements holistically. The data collection process is carried out through a questionnaire sheet containing statements regarding the aesthetic dimension. Students were asked to answer the following question: "To what extent does the visualisation of this image match the text of the poem it represents? Explain how the themes and messages of the poem are portrayed through symbolism and other visual elements in this image!" This question is designed to evaluate the compatibility between the visualisation of the image and the text of the poem, as well as to assess how the theme and message of the poem can be expressed through symbolism and other elements. The following are the results of the questionnaire filling by students along with the analysis based on the rubric

In figure 6, regarding EA's dimension of interpretation, "From the image above, the line "Es ist so still; die Heide liegt" depicts the peace that many people who feel crowded in the real world dream of. This sentence means a person's dream to live alone without the interference of other people, which often makes life feel lonely and annoying. Coupled with the line "Im warmen Mittagssonnenstrahle", which can be interpreted as a moment when one enjoys freedom and tranquility by enjoying the twilight or sunset, which people often like and enjoy while on

holiday from the hustle and bustle of everyday life." EA's interpretation of this image suitably depicts the deep meaning of peace and freedom described in the poem. The description of "peace" and the moment of savouring freedom" shows a good understanding of the essence of the poem. This interpretation is in line with the expected dimensions of interpretation in the rubric, especially in the aspect of understanding the symbolic and emotional meaning of the poetic lines. EA shows a good understanding of the symbolism and themes conveyed in the poem through detailed descriptions.

While in figure 7 EA explains, "The line 'Ein rosenroter Schimmer fliegt' shows the red colour like a rose floating in the air, like a red twilight sky. It depicts a colour that can be seen only when the sun sets, indicating that time will change into night. The line 'Um ihre alten Gräbermale' depicts the red glow surrounding an old tombstone, which looks solid but faded. These tombstones symbolise the sadness and memories that remain in the heart and are not easily erased. The tree standing next to the gravestones symbolises life continuing even in the silence of death and gives a sense of shade. This image shows how nature and human remains can illustrate the themes of eternity, change, and memory. The contrast between the beautiful rose-red sky and the serenity of the tombstone suggests a visual of eternal life, death, and beauty." EA's interpretation shows a good understanding of the symbolic meaning of the poem. The descriptions of the floating rose-red colour and the old tombstone are in line with the elements outlined by the rubric. EA's description captures the essence of eternity, change and memory which are the main themes of the poem and interprets them well. The use of contrast between the beauty of the sky and the serenity of the tombstone shows a deep understanding of the visualisation of the poem.

Then in figure 8, EA elaborates, "The line 'Die Kräuter blühn' describes wildflowers blooming,

like the brightly coloured flowers in the picture. It reflects the beauty and joy of nature in summer. The line 'der Heideduft: Steigt in die blaue Sommerluft' depicts the scent of plants rising into the blue summer air, like the bright blue sky and the flowers that seem as if they are exhaling their scent into the air. This image shows how flowers and sky can depict moods and feelings, creating an emotional connection between the viewer and the scene depicted." EA's interpretation of this image depicts the summer mood well, reflecting the beauty and cheerfulness of the nature described in the poem. The description of wildflowers blooming and the scent of herbs rising into the air corresponds to the elements outlined in the rubric. This interpretation shows a good understanding of the emotional connection between nature and the feelings the poem describes. EA's description illustrates a strong emotional connection that shows a deep understanding of the poem. The data above shows that students' interpretation of the visualisation of the poem "Abseits" by Theodor Storm is generally in accordance with the elements outlined in the rubric. The harmony between the understanding of symbolism, deep meaning, emotional connection and critical application of aesthetic elements is seen in various dimensions of interpretation. For example, the interpretations in Figure 6 to Figure 8 show an understanding of peace, freedom, sweet dreams, solitude, the dynamism of nature, and the harmony between man and nature, all of which correspond to the elements outlined in the rubric, demonstrating the students' deep understanding and good analytical skills in connecting the visualisation with the overall meaning of the poem.

DISCUSSION

The aesthetic dimension in this study includes the visual elements used in the images to support the interpretation of the poems. The findings showed that the students were generally able to apply aesthetic principles, but there were also some discrepancies that showed a critical understanding of visual elements and aesthetic purposes. The aesthetic dimensions discussed in this study included the effective use of colour, composition, and visual harmony as the basis for students' interpretations. Previous research by Aini (2023) also confirmed the importance of visual elements in the process of visualising text to image. In the analysis conducted on the poem "Nachtzauber" by Joseph von Eichendorff using AI art generator, it was found that the dominant colours that tend to be dark create an atmosphere of sadness and loneliness. This is in line with the findings of this study which showed variations in students' colour perspectives.

The use of colour in the visualisation of the poems by the students showed prominent variations and displayed a variety of interpretations. Some students were able to make very effective use of colour to portray moods and emotions that were appropriate to the theme of the poem. For example, one respondent described a calm morning atmosphere with the use of colours that harmoniously balanced the elements of nature. The use of words such as "harmony" and "neat visual composition" indicates a deep understanding of basic aesthetic concepts in line with research (Budianto, 2007) that discusses art and aesthetics. However, not all student interpretations showed conformity with the rubric. The dominance of green was criticised for making the image appear monotonous and uninteresting which suggests that although there is an understanding of the visual elements, the practical application of that understanding could still be improved. In Aini'research (2023), it was found that the mismatch between colour theory and practical application is common among students. Such findings support the results of the current study which also shows similar challenges in the learning and application of colour theory.

In terms of composition, which is the way elements are organised in a work of art to create

an interesting and meaningful display, and visual harmony, which refers to the harmony and compatibility between visual elements in a work of art or design, some students were able to display dynamic and harmonious compositions. The green of the forest combined with the shiny gold of the beetles, as in Leonardo.ai's visualisation, creates a very dynamic impression of movement and life. Criticisms have also been raised regarding the lack of variation in composition and colour, which can make the image appear flat and uninteresting. For example, the dominance of blue and the reflection of water are considered to make the image too monotonous and lacking variety. These discrepancies show that students understand the basic concept of visual harmony and have a critical understanding of visual elements.

Constructive criticism based on student questionnaires shows a good understanding and awareness of aspects that need improvement. For example, respondents suggested that the orange colour be made more intense to enhance the dramatic and emotional impression. This suggestion shows that students not only understand the use of colour but also have the critical ability to evaluate and improve their work. This finding shows concordance with research (Sartori et al., 2015) which explains that colour plays an essential role in human life and that the use of colour can affect one's emotions. The criticism of the lack of colour harmony and excessive focus on details also shows a good understanding of visual composition (Agnia & Sari, 2021). Despite the discrepancies with the rubric, these critiques were relevant and constructive, showing that students were able to identify weaknesses and offer solutions for improvement. Constructive suggestions given by respondents are important for the development of students' aesthetic skills, in line with the research of McKay et al. (2024) which shows that constructive feedback is an integral part of the visual arts learning process.

The results showed that students were able to apply aesthetic principles in the visualisation of the poems, although there were some discrepancies that demonstrated a critical understanding of visual elements and aesthetics. These findings support research Palmer et al. (2013) that discusses various aspects of esthetics, including colour, composition, and balance, which are key principles in the visual arts showing the importance of a deep understanding of aesthetic principles in the visual arts. The effective application of colour, dynamic composition, and visual harmony created in the visualisation of the poem show that students can apply aesthetic theories in practice as colour has effects that can be used for high aesthetic purposes. This finding shows that students have a good understanding of the aesthetic dimension in poetry visualisation. They are able to apply the aesthetic concepts outlined in the rubric and provide constructive criticism, thus showing great potential in the use of AI as a learning support medium to support literature learning.

The interpretation dimension in this study focuses on students' ability to understand and describe the meaning of poetry through image visualisation. The findings in the interpretation dimension showed students' deep understanding of the poems visualised using Leonardo.ai. Interpretation includes not only literal understanding, but also a deep symbolic, artistic, and thematic understanding of the elements depicted in the poem. Previous research by (Aini, 2023) also raised the interpretation dimension as the main focus, with an emphasis on how AI art generators can reveal layers of meaning in poetry, by displaying visual elements that may not be directly visible in the written text.

One prominent finding was the interpretation of freedom and limitation depicted through images of birds and trees. This interpretation shows that students are able to identify and evaluate visual elements that contain the meaning of the duality between freedom and limitation. In

addition, there is another finding that interprets the house that is about to collapse as old age. Students were able to capture the emotional nuances of solitude and hope depicted in the poem. This finding is consistent with research of Khairi & Purwanto (2022) which shows that visualisation can help in understanding and interpreting the emotional meaning of literary texts which in this study is poetry.

Findings from the interpretation dimension also showed how students were able to connect visual elements with major themes in the poems. For example, the interpretation of joy represented by images of blooming wildflowers shows students' ability to understand the duality between beauty and feelings. This illustrates a deep understanding of how visual symbols can represent complex feelings in poetry in line with Darmadi (2018) research which explains about signs in semiotic theory. In addition, the interpretation of stored sadness and tranquillity is depicted through the tombstone surrounded by red sparkles. It shows the students' ability to capture the nuances of sadness and memories in life. This interpretation is in line with semiotic theory which states that visual signs can be used to convey narratives and deeper meanings. Similarly, the theme of the symbiotic relationship between living creatures depicted through the image of a flower inhabited by bees shows students' understanding of symbolism. Students are able to see the relationship between these visual elements and universal themes that are relevant in human life. According to Gestalt theory, visual perception is not only based on individual elements, but also on he whole composition and how each element interacts with each other. The students in this study were able to apply the principles of Gestalt in their interpretations, as seen in the students' interpretations depicting the harmony between humans and nature.

The findings in the interpretation dimension show that students are able to apply the understanding of symbolism, art and theme in the interpretation of poetry. Students demonstrated the ability to identify and understand symbolic elements in poetry and relate them to many relevant themes in human life. This research contributes to the understanding of the importance of learning literary interpretation that includes visual and symbolic aspects, as well as the need for a comprehensive approach to ensure the accuracy and depth of students'understanding. As such, the findings support a comprehensive evaluative approach in literary education, as well as the need for critical awareness of the limitations and potential biases that may arise in the interpretation process. Research on the dimensions of interpretation contributes to understanding how the process of literary interpretation can be strengthened through an approach that includes artistic, thematic and symbolic aspects. It is also expected to develop students' critical abilities in linking elements in the picture holistically, thus enriching their learning experience and understanding of literature.

4. CONCLUSIONS

Based on the results of the research on the use of Leonardo.Ai in the concretisation of German-language poetry into visual images, it can be concluded that the use of artificial intelligence (AI) has great potential in enriching students' learning experience and strengthening appreciation of cultural values with the visualisation of the poem "Abseits" by Theodor Storm, in the main dimensions of aesthetics, interpretation, and creativity. In the aesthetic dimension, the results showed that students were able to interpret the meaning of the poem through various visual elements generated by Leonardo.Ai, by considering the use of colour, composition, and visual harmony.

In the interpretation dimension, students' ability to apply their understanding of symbolism, art and theme in poetry with visual elements

strengthens their understanding of poetry literature. Research on the interpretation dimension contributes to understanding how the process of literary interpretation can be strengthened through an approach that includes artistic, thematic and symbolic aspects. Constructive criticism from students showed good understanding and awareness of aspects that need improvement. Students demonstrated the ability to creatively combine visual elements and text to produce a creative interpretation of the visualisation of poetry.

The main contribution of this research lies in exploring the interdisciplinary approach between literature and technology. It shows that the integration of AI in learning provides students with opportunities for creative expression and strengthens multimodal literacy in the field of German language education. In addition, the limitation of this study lies in the reliance on visual representations generated by the AI system, and this reason may limit the subjective interpretation and originality of the students themselves. It should also be emphasised that students need more systematic technical assistance in its implementation.

This research shows that AI can be used as a supporting medium in literature learning to develop appreciation and deep understanding of literary works. It is hoped that these results can serve as a reference for the development of more innovative and effective learning methods in language and literature education.

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