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AI-Based Feedback in German as a Foreign Language Classes: Relevance and Impact on Learners' Writing Skills

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Abstract
The use of artificial intelligence (AI) in foreign language teaching is a widely discussed topic among educators. Some are concerned that learners will become too dependent on AI tools, making it difficult for teachers to assess their actual language proficiency. However, recent studies (e.g. Schluer, 2024) demonstrate that AI-Based Feedback can serve as an effective 'teaching assistant'. This research analyses the importance and effectiveness of AI feedback in German as a foreign language instruction for beginners. The focus is on the influence of automatic feedback on writing proficiency. The study examines the opportunities and risks of this technology. It demonstrates how teachers can use AI tools to support the learning process while enabling learners to write independently. The result showed that AI- Based Feedback helps learners to study more independently. However, this is only the case if the tools — in this instance, AI bots — are used in a controlled manner. A critical point is that overly complicated corrections can overwhelm learners.

Keywords: *AI-Based Feedback, German as a Foreign Language, Writing Skills*

Introduction

The emergence of artificial intelligence (AI) is having an impact on foreign language teaching and learning. Furthermore, AI has now become a teaching and learning assistant. Numerous research findings have shown that the use of AI has significant positive as well as negative effects. This topic is relevant because nearly all learners studying German as a foreign language at either a college or university use AI. Häusler et al. (2025) demonstrate in their research article that they have identified objectives for the use of AI assistance. Many learners use AI assistance to translate words, texts, or text passages; to better understand the meaning of words; and to generate new ideas.

Based on these findings, my research will focus on the potential of AI- Based Feedback for learners who wish to improve the comprehension of their writing skills. The emergence of AI-Based Feedback Usage is due to the heavy workload of instructors in Indonesia. This is the main reason why it takes timely of instructors to give appropriate and punctual Feedback to learners. Meanwhile, learners need feedback to improve both their writing skills and their comprehension.

As a Form of an alternative way to do Evaluation on learners' writings, and as a big help for learners and instructors, it is recommended to use it properly, but how? This research aims to explore how learners utilize AI as a learning assistant, particularly in writing. In order to gather the data, a survey was distributed to the learners, and the writing

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products of the learners are also used in this study. Furthermore, an interview will be held in order to get the supporting data, which is qualitative data. That strengthens the hypotheses of the study.

AI-Based Feedback

Feedback is commonly known as a critical instructional tool to facilitate effective language learning and to accelerate language acquisition. However, the effective feedback for learners depends on the individual circumstances, language development stage, and learners' readiness to receive feedback (Sheen, 2011). Many studies have shown that feedback affects many aspects of learners, such as affective, cognitive, and behavioral aspects. Feedback is often given either by the teacher or peers, but nowadays, feedback is also given by AI.

Currently, many utilize automated writing evaluation (AWE) and Natural Language Processing to provide users immediate Feedback on grammar, text structure, and improve users' writing, speaking, listening, and reading skills. Specifically, in order to enhance their writing skill, learners tend to use help from an AI Chatbot. Several researchers recommend integrating Automated Writing Evaluation (AWE) programs with complementary assessment methods, such as writing portfolios, to create a more comprehensive approach to writing development. This integration allows for the inclusion of instructor feedback and peer review, fostering a more holistic learning environment for students. (Hockly,2018).

Furtehrmore, the argument of AI usage varies, but the whole argument can be summarized as follows: learners need direct and clear Feedback on their writing. Furthermore, they might get insight from the feedback and make major or minor revisions to their writing. So, they are able to make precise writings and also learn from the given feedback. Artificial Intelligence (AI)-Based Feedback refers to the usage of AI in chatbot applications, which later emerges in the interaction between human users and AI, either in written or oral data forms and prompts. AI-Based Feedback is a good help for learners to analyze their writing in the target language. AI-Based Feedback later gives timely and constructive Feedback to learners.

However, the roles of AI-Based Feedback in the focus on writing in the target language are distinguished into three functions: learning function, assisting, and mentoring (Wollny et al., 2021). The detailed information about the functions can be found in Table 1.

Table 1. AI-Chatbot Feedback Functions (Wollny, et.al, 2021)

1.	Supporting Learning Function	**AI chatbots are used as an educational tool to teach content or skills. This can be achieved through a fixed integration into a curriculum, such as a conversation task, or through additional offerings alongside classroom teaching, such as voice assistance for leisure at home or activity outside the classroom.**
2.	Assisting Function	**AI-Chatbots are used to simplify the student's everyday life, like taking tasks off the student's hands in whole or in part. This can be achieved by making information more easily available or by simplifying the process through the AI-Chabot automation. To answer general questions about the course, etc.**
3.	Mentoring Function	**AI-Chatbots' actions also deal with the students' personal development. They help to focus their conversation and should be encouraged to plan, reflect, or assess learners' learning progress on a metacognitive**

level. AI-Chatbot helping students develop lifelong learning skills by prompting in action reflection.

Artificial Intelligence (AI) Chatbot Roles

Main questions every time we focus on the AI usage are "Is it acceptable if teachers, lecturers, trainers are using AI?" The answer is yes. The AI usage here is substantial, because it directly impacts the Instructors' Workloads Reduction. For instance, instructors might use AI-Chatbot to generate ideas for teaching, to create a lesson plan and syllabus, to create personalized assessments, and also to get direct feedback on learners' text other assignments (Schluer, 2024). AI-Based Feedback is genuinely useful for instructors with a large number of learners in the classes, so that instructors can be more focused on their high-level tasks. AI-Based Feedback is now identified as Feedback Assistants for Instructors.

On the other hand, learners often use an AI Chatbot to obtain timely and accurate feedback on their writing. Here, the AI-based feedback functioned as a learning assistant for learners. AI-Based feedback is able to give more language input for learners. However, many learners are also having problems understanding all the given input, especially for beginner learners. These could be a backlash for them, as they are overwhelmed to understand all that AI has been suggested in their writing. Later, learners also need to develop their strategies to use the right and precise prompts on AI. AI-Based Feedback is valuable for learners that can help them raise their language awareness and improve their writing skills in the future.

Writing Skill and Evaluation

Writing is a complex cognitive and linguistic skill that requires learners to integrate grammar, vocabulary, coherence, and task fulfillment (Hyland, 2015). For A2-level German learners, writing proficiency is defined by the Common European Framework of Reference for Languages (CEFR) as the ability to produce short, simple texts on familiar topics, such as personal descriptions, messages, and basic narratives (Council of Europe, 2020). The Key Components of Writing Assessment Effective writing evaluation typically considers:

(1) Task Completion or Content – The fulfillment the communicative purpose,
(2) Coherence and Cohesion – Text is logically structured with appropriate connectors,
(3) Lexical and Grammatical Accuracy – Vocabulary and gramma used correctly,
(4) Mechanics – Spelling, Punctuation, and Formatting are correct.

However, there are always Challenges in Evaluating Beginner Writing A2 learners often struggle with Limited lexical range, that lead them to repetition and or overusing simplified vocabulary (Nation, 2013), Varies of Grammatical errors in basic sentence structures (Ellis, 2009), reliance to transferring L1 syntactic structures to German Language (Kroll, 2015), and learners are often struggling with paragraph organization (Weigle, 2002).

Method

Research Context

This study analyzed the relevance and impact of AI-Based Feedback on German as a foreign language learner at level A2 (basic user) according to the CEFR level. The Data that researchers collected were the product texts from their semester test. The data was taken from the first and second semesters. The writing data is the main data, and the supporting data is a survey of the AI-Feedback usage of Learners.

Participants and Research Instrument

The participants of this study are 40 Learners in the university level who learn the German language in their second year, at the level A2. The participants were asked to fill out a survey about their usage of the AI-Chatbot in general and to enhance their writing skills. The research instruments are an online survey and learners' writings. Main Data were collected from the writing products of learners, and the supporting data is the survey. The survey aims to identify learners' behavior to get feedback from varies AI-Chatbot. Learners' writings are being assessed by using a general rubric assessment for the writing skill in the German as a foreign language learning. The Assessment criteria consisted of 3 main criteria:

Table 2. Assessment Criteria

1.	Task completion / Content	50 Point
2.	Coherence / Text structure	20 Point
3.	Vocabulary and grammar / Lexicon and structures	30 Point
		100 Total Point

Result and Discussion

Survey

General AI-Usage

The research instruments are an online survey and learners' writings. From the survey, it is shown that all learners are using AI in the process of learning German as a foreign language. AI-Chatbots that learners used are varies Google Translate, ChatGPT free version and premium, Google Gemini, Claude, and DeepL. Each learner has their own objectives to use the AI chatbot. Here is Figure 1 showing the result of Learners' Goals for Using AI-Assistance. (see Figure 1).

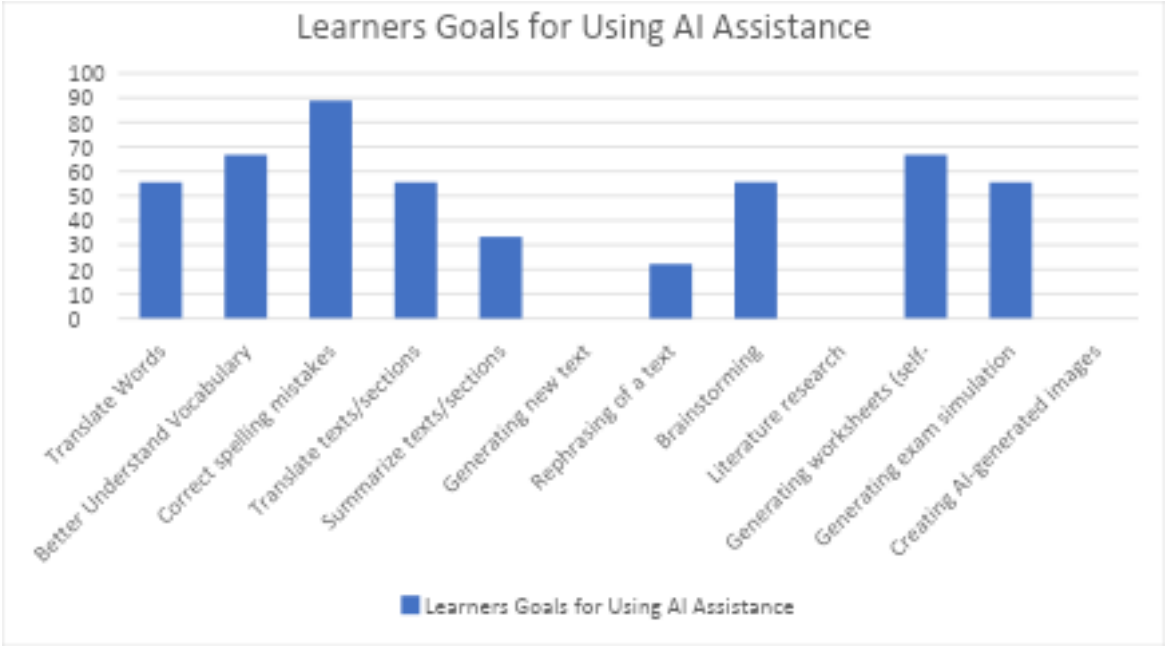


Figure 1. Result of Learners Goal for using AI-Assistance

The result showed that most learners, 88,9% using AI-Assistance to correct their spelling mistakes. This means learners are often not confident about their writing. As a beginner, this happened because they tend to feel wrong if they have already made the right sentence or text. They are afraid to make mistakes, but on the other hand, their mistake

would be a good lesson for their writing skills. Through the mistakes in spelling and the direct Feedback from AI-Assistance, learners are hopefully improving their productive skills.

The next results there are two objectives that got the same percentage, 66,7%. Learners are using AI-Assistance to help them understand the vocabulary better. The fact that some learners have prior experience learning German as a foreign language in high school, this is a bit surprising. This later shown that even though they have experience to learn the German language for three years in school, they still need support other than their instructors, that is, AI-Assistance. The second goal that has the same percentage is the AI-Assistance usage to generate worksheets for learners. This indicates that AI-Assistance is a good thing to help learners improve their self-learning awareness.

In third place, there are four goals that got the same percentage, 55,6 %. Learners using AI-Assistance to translate words. This could be proof of a massive shift from printed dictionary into translation online machine. Another goal that has a common purpose with translation is the usage of AI-Assistance for helping learners translate texts or text sections. Many of leaners are also using the AI-Assistance to generate Ideas. The last goal with the same percentage is the usage of AI-Assistance for generating exam simulations. Learners are preparing themselves before the exam by using AI to make a simulation.

The next goal with 33,3 % is the usage of AI-Assistance to summarize texts or text sections. This means that learners are in a need to understand texts. The lowest percentage of learners' goals is to rephrase the text. From the result of the AI-Usage in the general section, we identified how learners use AI-Assistance as a tool to help them understand and to evaluate their production skill, specifically writing skill. Starting from understanding the meaning of learned words, the text, and also how to rephrase a text.

Learners Prompt on AI-based Feedback

The next section of survey results is about learners' prompts to get AI-Based Feedback. The roles of AI-Based Feedback in the focus on writing in the target language are distinguished into three functions: supporting the learning function, assisting and mentoring (Wollny et al., 2021). Varies prompt were used by learners in order to get the appropriate feedback for their writing. Each prompt refers to feedback functions. However, the mentoring function is the one that most closely aligns with the learner's goal of using AI-Chabot to get Feedback.

These prompt for instance: *"Is this *sentence* correct in A2-level German?",* this shows that learners using AI-Assistance to get direct feedback about their sentence during the learning process. As a supporting learning function, AI-Chatbots are used as an educational tool to teach content or skills. This can be used by integrating AI-Based feedback alongside classroom activity, such as checking the answers of learners or identifying misspellings or any grammatical errors in dialog exercises.

Not only with classroom activity but also self-study activity, such as writing exercise outside the classroom, for instance, "*Hi, Gemini. I have an [exam] coming up soon, and I need your help. There's a writing section in this [exam/test]. Please give me the main topic to write about in the form of a [blog/narrative/etc], along with 5 questions I need to answer in my writing, and 5 keywords I need to use*. The example showed that learners got a chance to learn outside the classroom by asking AI-Assistance with a proper prompt to make a writing exercises, before they have writing exam. Regarding these kinds of activities, AI-Based feedback plays a supporting role in enhancing learners' productive skills.

Examples of prompts that reflect the Assisting function are "*Is there anything that needs to be added to this writing?*" "*What do you think of this writing?*" "*Are there any other words that are easier to understand or that A2 learners can use?*" From those examples, it is clear to see that learners used AI-Assistance to get Information about their

writing. The information learners need is likely to be a commentary about how good their writing is, or a recommendation to add or delete words, phrases, and even parts to their writing. AI-Chatbot here, giving assistance to learners in order to enhance their writing skills.

Another example of prompts that reflect the mentoring function is "*Is the grammar in this text correct? If there are any mistakes, please explain how to correct them.*" "*Please help me correct any grammatical errors in my writing.*" "*Please provide a detailed assessment of my writing*". Three examples showed that AI-Assistance helps learners by giving a plan, reflection, and or assessment on learners' work. Learners later develop their writing skills from the AI-Based Feedback.

Learners' perception of AI-Based Feedback

As shown in Table 3, learners' perceptions of AI-based feedback are predominantly "Very Positive", with an overall average score of 4.00 (80.00%). The most notable finding concerns statement number 1, where respondents felt greatly assisted in identifying their writing weaknesses (mean = 4.56; 91.11%). Furthermore, the AI's capacity to encourage critical thinking about one's own writing (statement 10) received highly favorable ratings (mean = 4.33; 86.67%). On the other hand, although still in the positive category, the item with the lowest average score was the AI's accuracy in identifying grammatical errors (statement 3), with a score of 3.44 (68.89%)."

Tabel 3. Descriptive Statistics of Learners' Perception (N=40)

No.	Statements	Index	Mean
1.	*The AI feedback helped me understand the weaknesses in my German writing skills.*	*91.11%*	*4.56*
2.	*AI Feedback provides clear and easy-to-understand suggestions*	*82.22%*	*4.11*
3.	*Feedback: AI can accurately identify grammatical errors.*	*68.89%*	*3.44*
4.	*AI Feedback provides relevant recommendations to improve the structure of your writing.*	*84.44%*	*4.22*
5.	*AI feedback helps me expand my German vocabulary.*	*75.56%*	*3.78*
6.	*The AI feedback has motivated me to write German even better.*	*80.00%*	*4.00*
7.	*I feel like my writing skills have improved since using AI Feedback.*	*75.56%*	*3.78*
8.	*AI feedback makes the process of revising my writing more efficient.*	*77.78%*	*3.89*
9.	*AI feedback helps me write with more confidence.*	*82.22%*	*4.11*
10.	*AI feedback encourages me to think critically about my own writing.*	*86.67%*	*4.33*
11.	*The AI interface is easy to use.*	*82.22%*	*4.11*
12.	*The AI feedback process is fast and accurate.*	*75.56%*	*3.78*
13.	*AI feedback provides useful suggestions for improvement.*	*82.22%*	*4.11*
14.	*I feel comfortable using AI to provide feedback on my writing.*	*75.56%*	*3.78*
15.	*Overall, I'm satisfied with my experience using AI to get feedback on my writing.*	*80.00%*	*4.00*

AI-Based Feedback VS direct Feedback from Instructors

In the survey, there are also open-ended questions that aim to get a more detailed vision from learners about AI-Based Feedback and instructors' feedback on their writing. The results of the three questions are explained here:

Q16. What are the main advantages of AI feedback compared to instructors?

"AI-Chatbot is giving us quick responses, and you can ask for a repeat if you don't understand—no need to feel shy."

Various answers were found in this section; however, learners agreed that the main advantages of AI-Based feedback lie in its speed. One of the answers is, furthermore, that learners are more comfortable asking an AI chatbot to get feedback. The reason is that

learners are allowed to ask about basic concepts that might sound easy without feeling embarrassed. AI-Based Feedback is a very efficient self-study tool that learner can get their feedback not limited by time or place.

Q17. What are the main disadvantages of AI feedback compared to instructors?

"Sometimes the language used is too technical…we're at the A2 level, but the corrections are at the B1/B2 level."

The main problem with AI that was identified, it was a lack of attention to the context of the German language. Learners noted that AI often provides vocabulary that is too technical or too advanced, for instance, AI keeps suggesting B1/B2-level vocabulary for A2-level students. Moreover, the reliance on prompts or instructions is a shortcoming. If the prompt is incomplete, the AI-Assistance is likely to provide equivocal or inadequate responses, in contrast to the more thorough explanations offered by instructors.

Q18. What is the best way to combine AI feedback and instructors to improve the quality of students' writing?

"Use AI as the first tool for grammar revision, then discuss the AI's feedback with the instructor."

The most interesting findings emerged regarding how to best combine the two. Students proposed a Hybrid Learning Workflow model. Initial stage: Using AI for initial grammar checks and independent drafting. Advanced stage: Cross-checking or consulting the AI results with the instructor to ensure contextual appropriateness and nuanced meaning. Students view AI as a tool that deepens the instructor's explanations and the instructor as the Final validator who ensures their understanding is culturally and situationally accurate.

Learners Writing

In this section, the results of the learners' writing exam. There are three writing exams. First and second writing were taken in their first semester, meanwhile, the third writing was taken in the second semester. Detailed result showed in Table 4.

Tabel 4. Learners Writing Exam Results (N=40)

Learners Code	Writing Exam Results			Learners Code	Writing Exam Results		
	1	2	3		1	2	3
L1	86	85	82	L21	73	70	85
L2	98	85	88	L22	91	70	83
L3	97	95	96	L23	85	60	78
L4	93	80	75	L24	86	80	67
L5	92	80	81	L25	84	90	85
L6	78	65	75	L26	94	65	93
L7	91	90	82	L27	81	70	65
L8	92	65	78	L28	82	70	80
L9	83	95	93	L29	81	75	85
L10	82	65	83	L30	90	85	80
L11	85	65	92	L31	91	75	85
L12	98	90	98	L32	86	75	80

L13	59	65	78	L33	83	85	93
L14	83	90	90	L34	92	85	96
L15	92	90	93	L35	92	70	75
L16	93	85	96	L36	80	70	90
L17	88	80	78	L37	84	85	93
L18	96	80	80	L38	95	90	94
L19	83	85	90	L39	85	70	68
L20	95	70	88	L40	63	65	70

Based on new data from 40 students, a unique trend emerged in which the average score initially dropped significantly on the second assignment, but rebounded on the third assignment following the use of AI-Based-Feedback. The statistical data of learners' writing result as shown in Table 5.

Tabel 5. Mean and Standard Deviation of Learners Writing Exam Results (N=40)

Parameter	Writing 1 (W1)	Writing 2 (W2)	Writing 3 (W3)
Mean	86,6	77,1	84,1
Highest Score	98 (L2, L12)	95 (L3, L9)	98 (L12)
Lowest Score	59 (L13)	60 (L23)	65 (L27)
Standard Deviation	8,24	10,48	8,76

From the table above, it can be seen that the first writing assignment is the baseline. Learners haven't been told by instructors to use AI-Based Feedback and usually only get direct feedback from the instructor during the writing exercise in the classroom. Later on, in writing 2, there is a significant decrease in learners' writing results. The average decrease is -9.5 points. Nearly all students experienced a decline in scores on the second assignment.

The decline in the second writing task may indicate an adjustment period in which learners were still becoming familiar with AI-generated feedback and adapting to higher writing expectations. Rather than reflecting reduced learning, this temporary decrease suggests that students required time to interpret and apply automated feedback effectively. Furthermore, there was a consistent improvement in writing quality from assignment 2 to assignment 3. This indicates that learners not only received feedback but also learned from it to improve their writing. The three highest scores on the final assignment were achieved by L12 with a score of 98 (Very high consistency), L3 & L16 & L34 with a score of 96.

Tabel 6. T-Test Result of Leaners Writing Scores (N=40)

Comparison	Mean Difference	t-value	p-value	Significance
W2 vs W3	+7.00	7.24	**< 0.001**	Extremely significant

The statistical results indicate a significant improvement between the second and third writing tasks. This "U-shaped" curve—where scores drop before rising—is a critical finding. According to Hyland & Hyland (2019), this temporary dip represents a cognitive adjustment period where students must navigate new standards and complex feedback patterns. The recovery seen in Writing 3 suggests that students successfully internalized the AI-generated suggestions. This aligns with the findings of Li et al. (2015), who argued that automated writing evaluation (AWE) tools are highly effective in enhancing linguistic

accuracy through iterative revisions. Furthermore, the progress of lower-performing students, such as L13, proves that AI-based feedback acts as a vital scaffolding tool, providing immediate guidance that human instructors may not always be able to offer instantly.

Conclusion

The study concludes that instructor feedback is most effective when it focuses on recurring errors rather than every mistake (Ellis, 2009), is provided close to the writing task (Ferris, 2014), and encourages learners to engage in self-editing (Hyland, 2019). However, providing such individualized and timely feedback remains challenging in many Indonesian higher education contexts due to limited instructional time and large class sizes. This situation highlights the need for AI-Based Feedback as a complementary tool to support instructors in providing immediate and continuous feedback throughout the writing process.

The findings demonstrate that AI-Based Feedback can effectively complement teacher feedback by providing immediate corrective feedback, supporting writing revision, and encouraging learner autonomy. Beyond improving writing performance, AI-assisted feedback also serves as a pedagogical scaffolding tool that promotes metacognitive awareness and deeper learning. Nevertheless, AI should not be viewed as a replacement for instructors. Instead, the findings support a hybrid instructional model in which AI functions as a first-layer feedback provider, while instructors offer contextual explanations, final validation, and feedback on more complex grammatical and rhetorical issues.

This study contributes to the growing body of research on AI-assisted language learning by providing empirical evidence on the implementation of AI-Based Feedback in German as a Foreign Language (DaF) writing instruction within the Indonesian higher education context. Despite these contributions, the study is limited to a relatively small sample from a single institution, which may limit the generalizability of the findings. Therefore, future research is recommended to involve larger and more diverse participant groups, compare different AI-based feedback systems, and employ longitudinal research designs to examine the long-term effects of AI-assisted feedback on writing development.

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