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EMBEDDING AUTOMATED WRITING EVALUATION IN PROVIDING FORMATIVE FEEDBACK

Maya Defianty[1], Siti Zulfa[2]✉, Yatni Fatwa Mulyati[3]

Universitas Islam Negeri Syarif Hidayatullah, Jl. Ir. H. Djuanda 95, Jakarta, Indonesia[1,2,3]

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Abstract

The pivotal role of feedback in improving students' writing competence has been undeniable, yet there has not been any agreement about how feedback can improve learning. The advancement of technology has opened opportunities to give feedback facilitated by technology, commonly referred to as Automated Writing Evaluation (AWE). AWE-based applications help produce effective feedback mostly because they are friendly. Several studies have documented that several AWE-based applications can potentially improve students' writing skills. Nevertheless, effective feedback constitutes more than timely feedback. AWE-based applications cannot attain other factors, such as ongoing and goal-oriented. In other words, an AWE-based application is merely a form of feedback, such as comments and scores. Therefore, improving students' writing competence cannot rely solely on AWE-based applications. The AWE-based application should be framed in the process of feedback provision that aims to improve learning, known as formative feedback. This paper elaborates on how AWE can be framed in formative feedback. The concept of formative feedback and the writing process will be discussed thoroughly before discussing how AWE tools can be embedded in formative feedback during the writing process.

✉Correspondence:
Email: sitizulfa21@mhs.uinjkt.ac.id

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INTRODUCTION

The central role of feedback in improving learning has been widely recognized in many studies—for example, van der Kleij (2020). Nevertheless, further studies pointed out that not all feedback can improve students' competence; the content, recipient, and provision time are contributing factors that lead students to accept, reject, and adapt the feedback (Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

Moreover, teachers and students may have different perceptions of what constitutes effective feedback, as revealed in a study conducted by Dawson et al. (2019). This study focused on identifying what constitutes effective feedback from teachers' and students' perspectives. Based on data from survey questionnaires, the study revealed that teachers emphasized effective feedback as feedback, which design considered timing, modalities, and interrelated tasks; in comparison, students perceived high-quality feedback in terms of comments that were useful, thorough, and personalized (Dawson et al., 2019).

Providing feedback has been a thorny issue in the English language teaching (ELT) landscape, especially in teaching writing. Findings from some studies document that giving feedback to students in writing class is challenging, e.g. Yu (2021). A recent study specified two prevailing problems in providing effective: large classes and limited time and resources (Olsen & Hunnes, 2024). Seemingly, several notions of providing feedback, such as direct and indirect feedback (Jamalinesari et al., 2015), corrective feedback (Sanosi, 2022), and delayed and immediate feedback (Hofslundsengen et al., 2016), have not yet overcome the complexity of giving effective feedback in ELT writing. Challenges in ELT writing in the EFL context can be twofold due to the distinct features and conventions that may differ from the student's native language (Brown & Abeywickrama, 2010).

Recent developments in the issue of feedback have led to a renewed interest in using Automated Writing Evaluation (AWE) formative feedback. As implied by the term, AWE is a web-based system that can identify mistakes and errors and suggest an essay regarding genre, content, and language use (Cotos, 2011; Shermis et al., 2013). However, AWE is merely an application. It needs to be embedded in a writing process, specifically in feedback provision that aims to improve learning, commonly known as formative feedback. Embedding AWE in formative feedback can benefit teachers and students because AWE is resourceful and timely and helps teachers overcome problems when giving feedback to a large class. While applying formative feedback in the writing process can enable teachers to monitor students' progress, how AWE is situated in the formative feedback process has remained underexplored.

This paper focused on how AWE can be embedded in the formative feedback process in writing class. The notion of formative feedback and the writing process will be discussed before discussing the use of AWE in the process of formative feedback in writing class.

WRITING PROCESS

There has been a significant shift in teaching writing in the ELT context from the product approach (Oshima & Hogue, 2006) to the process approach (Mehr, 2017; Onozawa, 2010; Rusinovci, 2015; Thomson, 2022). The writing product approach means students must write from the beginning until they finish by considering the language structure (Pasand & Haghi, 2013). Students encounter every writing process, from prewriting to making a final product. The study showed that writing instructional used product-oriented significantly increases students' writing motivation and engagement (Yu, 2020). Unfortunately, the other study indicated that the product approach cannot enhance students' writing skills because the teacher cannot encourage students to understand the writing path (Wasike et al., 2022). Meanwhile, in the product approach, teachers must direct students to comprehend the input and output process.

The process approach becomes more adaptable in writing. Understanding that writing is a process may contribute to quality writing (McMahan et al., 2017). Hence, students need to acknowledge, contemplate, and appreciate the writing process and writing as a valuable endeavor that individuals can undertake to accomplish writing (Bailey, 2003; Butts, 2017). When implementing the process approach in writing, students need feedback to improve their writing process (Pasand & Haghi, 2013). Students need to get input for better revision and recognize the inside of the writing. This study supported the idea that the process approach positively influences the promotion of students' writing performance (Mehr, 2017). The process approach allows students to learn and understand writing fluency and accuracy adequately.

Different labels were applied to different stages of writing in the process approach. For example, two main writing processes are activated and terminated (Seow, 2002). The inactivated process consists of planning and drafting. The planning process is similar to the prewriting process, generating ideas for the writing content. The drafting process emphasizes that the writer or students should write considering fluency, coherence, and cohesion. The previous consists of planning and drafting, while the latter includes the editing and revising process. The editing process of writing pointed out to get feedback from any sources such as teachers, peers, or technology in notifying the grammar, vocabulary, and content. The revising

process directs students to reexamine the writing after getting feedback and ascertain that the writing product is ready to distribute to the readers.

The writing process is divided into three stages, and the process is identified by different labels(Aliotta, 2018). First is the prewriting stage, which focuses on discovering a writing topic. The second stage is drafting, which deals with writing clarity, coherence, and cohesion. The last stage is editing and proofreading.

The writing process directs students to write a proper text to deliver their ideas to a specific audience to immerse themselves in the information or knowledge. The writing process needs to be conducted sequentially to produce high-quality writing, allowing students to practice being aware of the writing process (Bailey, 2003). Hence, students need to recognize every writing process. This study describes three main writing processes, namely prewriting, drafting, and revising, as instruction for students to write by compiling several pieces of literature (Aliotta, 2018; Bailey, 2003; McMahan et al., 2017; Seow, 2002).

FORMATIVE FEEDBACK

The term formative feedback is often used to distinguish it from summative feedback. The significant difference between formative and summative feedback lies in the information provided to learners to enhance learning (McGarrell & Verbeem, 2007; Schneider & Randel, 2010), as illustrated by Defianty (2018) in the diagram below.

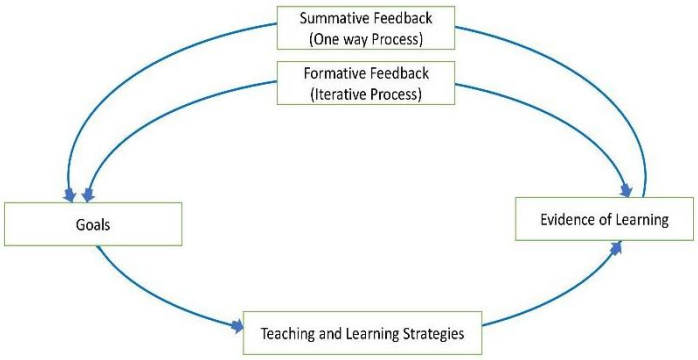

Figure 1: Diagram of Formative Feedback

Formative feedback serves two essential functions: improving and altering learning (Irons & Elkington, 2021; Kumar & Stracke, 2017; Ruiz-Primo et al., 2012; Shute, 2008; Wiliam, 2012). Maintain that formative feedback needs to fulfill the following requirements: first, it involves students, process, and scaffolding to improve learning outcomes; second, it should

ensure that it is useful, accessible, practical, and varied; lastly, it should relate to the learning trajectory of the lessons (Ruiz-Primo et al., 2012).

Similarly, there are seven characteristics of effective formative feedback; they are as follows (Wiggins, 2016):

Goal-referenced

Feedback is most effective when given about a specific goal or objective. For example, if a student's goal is to make readers laugh in a writing task, feedback should be given on how funny the writing is and how it can be made funnier. By providing direct feedback related to the goal, learners can better understand how to improve their performance and achieve their objectives.

Tangible and transparent

Concrete and specific feedback is such as laughter or attention from students in response to a joke or teaching. Transparent feedback is clear and easily understood feedback, such as a grade or score on an assignment. When feedback is tangible and transparent, learners can better understand how to improve their performance and achieve their objectives.

Actionable

Feedback that is specific enough to allow the learner to understand what they did well and what they need to improve. For example, instead of saying "Good job" or "You did that wrong," actionable feedback would be specific and provide information on what was done well or what needs improvement. This type of feedback allows learners to understand what they need to do differently to improve their performance and achieve their objectives. Additionally, actionable feedback must be accepted by the performer, meaning that the feedback must be presented in a descriptive manner that is easily understood and not open to interpretation or argument

User-friendly

Feedback is presented in a way that is easily understood by the learner, considering their level of expertise and knowledge. Feedback that is too technical or complex may be confusing or overwhelming to a novice learner. Additionally, too much feedback can be counterproductive, as it can create a buzz of information from all sides, making it difficult for the learner to focus on what is most important. Expert coaches avoid overloading performers with too much or too technical information, instead focusing on one or two key elements of performance that, if changed, will likely yield an immediate and noticeable improvement

Timely

Feedback should be provided as soon as possible after the performance or task has been completed, allowing the learner to reflect on their performance and make adjustments.

Consistent

The feedback provided to the learner is stable, accurate, and trustworthy

Ongoing

Ongoing means that feedback is provided continuously over time rather than just once or sporadically

Several studies have postulated the efficacy of formative feedback. For example, the exploratory study on first-year undergraduate students in the UK found that formative feedback improves students' written product (Wingate, 2010). From a different perspective, a qualitative study in a secondary school in Norway revealed that the absence of formative feedback may lead teachers only to focus their writing assessment on the finished-written products, and feedback is limited to correction on sentence level; thus, it may not support students' writing development (Saliu-Abdulahi et al., 2017). A recent study focused on the experiences of two educators who designed a formative feedback process for a large class of business students in academic writing (Olsen & Hunnes, 2024). The researchers found that formative feedback is central to improving students' learning outcomes. However, implementing formative feedback can be challenging in large classes as it requires personalized feedback.

AWE-BASED APPLICATION

Technology advancement offers potential. Technology has brought about a significant transformation in providing formative feedback for writing. Technology for providing feedback is called Automated Writing Evaluation (AWE), a web-based system that instantly gives feedback for students' writing by recognizing different writing types and content (Shermis et al., 2013). Besides, AWE, as a component of software or programs, is designed to facilitate the writing process by identifying language errors and providing suggestions (Cotos, 2011). Its study discovered that the AWE can potentially drive students' language proficiency by understanding their writing process. The study of the Arabian students of the English language department used AWE to write a cause-effect essay (Al-Inbari & Al-Wasy, 2023). The study showed that AWE positively impacts students' writing by involving peers and self-editing using machine techniques for getting feedback.

The other study indicates that AWE fulfills the role of giving feedback in writing as an interactive program; it may meet the need to identify errors and also can miss some errors in

the language structure of students' writing. The famous part of a technology-based tool called AWE directs students to have new experiences in having feedback for their writing (Woodworth & Barkaoui, 2020). Also, another study indicated that AWE positively impacts students to get feedback in understanding their writing, improving their writing performance (Fan & Ma, 2022). Besides, the study indicates that students' academic writing has improved using AWE, and students can recognize their writing revision into better writing quality (Cheng, 2022).

As depicted by several researchers, the implementation of AWE towards students' perception highlighted a positive outcome for the students. A meta-analysis by Huang et al. (2024) found that AWE tools can significantly reduce students' writing anxiety and enhance motivation. Students appreciate the immediate feedback AWE systems provide, which helps them understand their mistakes and improve their writing autonomously. In line with this, a study by Roscoe et al. (2017) emphasized that students' direct experiences with AWE systems significantly shape their perceptions and willingness to use these tools in the future. While initial expectations based on how the software is presented (e.g., claims about accuracy) play a role, the experience of using the software is more influential. Positive experiences with AWE can lead to higher motivation and a greater likelihood of recommending the tool to peers. Students' motivation after using AWE is also connected with the feedback that AWE provides. Research by Ding and Zou (2024) and Zhang (2020) explored the effectiveness of different AWE systems like Grammarly, Pigai, and Criterion. These studies revealed that students value the quality of feedback these tools provide, especially when it helps them make substantive revisions to their writing. Effective feedback from AWE systems can boost students' confidence and motivation to engage with the writing process. In addition, based on the educator's point of view, teacher and peer interactions also play a role during the implementation of A. Integration of AWE with teacher and peer feedback can enhance students' motivation (Hockly, 2019; Xue, 2024). For instance, combining automated feedback with human input creates a more comprehensive feedback system that students find more beneficial. This hybrid approach can lead to improved writing performance and greater motivation.

Academic scientist educators appreciate the reduction in grading time and the ability to provide more frequent feedback (Han & Sari, 2024; Z. Li, 2021); this leads to the way that the accuracy and pedagogical implications of relying on automated tools such as AW can be included as one of the evaluation tools that could be mentioned in the school curriculum. In supporting the point of view above, successfully integrating AWE into the curriculum requires

thoughtful implementation. Teachers need to guide students in interpreting and applying automated feedback. Combining AWE with traditional instructional methods can support a more holistic learning experience, encouraging students to engage in the writing process more deeply (J. Li et al., 2015; Macdonald et al., 1982).

Studies show that integrating AWE systems into writing curricula can be highly effective with strategic planning and consideration for students and teachers. First, AWE tools should be used to supplement, not replace, human feedback (Herrington & Moran, 2001). AWE systems provide immediate and consistent feedback on grammar, style, and structure; human teachers can offer nuanced, context-sensitive guidance that considers individual students' specific needs and learning trajectories—second, blending AWE with Process-Oriented Writing (Geng et al., 2024). Implementing AWE in a process-oriented writing curriculum encourages students to view writing as a multi-stage process. It includes drafting, receiving feedback, revising, and editing. Studies suggest that combining AWE with process writing approaches significantly improves writing quality. Third, it is Compatible with adaptable writing tasks (Cotos, 2023). AWE systems often come with customizable writing prompts that can be aligned with specific learning objectives. Teachers can create or modify prompts to suit the curriculum and address areas where students need improvement. Fourth, implementing AW in curricula can extend teacher monitoring and analytics of students' writing (Cotos, 2023; Ranalli, 2021). Many AWE systems offer analytics and reporting features that allow teachers to track student progress over time. These insights can inform instructional decisions and help identify areas where students struggle, enabling targeted interventions.

AWE systems offer help that is vital in enhancing the teaching of writing skills and the learning of such skills. Teachers can focus on more complex instructional responsibilities because they can streamline the feedback process they facilitate. To ensure that students receive teaching that is both comprehensive and appropriate for their circumstances, however, the successful execution is contingent on the careful incorporation of both automated and teacher-provided feedback.

This study discusses some popular AWE-based applications, namely Grammarly, ProWritingAid, Ginger, and WhiteSmoke, as part of supporting formative feedback for students writing.

Grammarly is a technology-based program that offers feedback to students on several aspects of their writing, including grammar, mechanics, language styles, and vocabulary (Barrot, 2022). By inputting their work into the software, students can receive a generated score and notices highlighting errors or areas requiring modification. Grammarly provides

suggestions for improving students' writing, but students must understand their writing thoroughly. Students' use of Grammarly can enhance the quality of their writing regarding content and context, as facilitated by automatic feedback. Some studies explore using Grammarly for automatic formative feedback toward students' writing.

Ambarwati (2021) highlighted Indonesian higher-education students using Grammarly to get formative feedback. Her study indicated that Grammarly is suitable for formative feedback since it can generate comprehensive instruction to revise students' writing. The formative feedback from Grammarly showed students' writing related to its grammatical rules, vocabulary, and plagiarism index. After receiving formative feedback from Grammarly, which includes the writing's content and form, students can gain more insight into their writing development. Grammarly provides formative feedback, such as direct interaction with students' writing progress.

The study on Indonesian students using Grammarly in academic writing was also conducted by Faisal & Carabella (2023). The study's findings reveal that students' perceptions can be categorized into positive and negative using Grammarly. One benefit of receiving feedback from Grammarly is that students can recognize and address their mistakes or errors while writing. The negative opinions around using Grammarly pertain to receiving feedback deemed irrelevant and without contextual relevance, as it fails to account for the underlying ideas inside the writing. However, the feedback provided by Grammarly is a valuable tool for students when revising their writing drafts.

Moreover, in Afghanistan, a study discovered that Grammarly can provide feedback for students' writing, which can enhance students' writing skills (Yousofi, 2022). The findings indicate that Grammarly can assist students in their writing endeavors by offering on-time feedback on writing styles and detecting errors in spelling and grammar. The integration of Grammarly into the curriculum, classes, and computer labs can be seen as an AWE tool that provides students with prompt feedback on their writing.

Another AWE-based application, ProWritingAid, allows students to have feedback, such as identifying errors in writing and readability. It is highlighted that ProWritingAid is a software tool that provides writing support through its grammar checking, editing, and suggestion features (Rahma & Zen, 2023). It has been discovered that ProWritingAid offers valuable feedback for students' writing, facilitating the enhancement of their writing skills. By including ProWritingAid in their writing process, students have the potential to achieve satisfactory outcomes in terms of the quality of their written content. This is primarily due to the valuable feedback provided by the software. Students can receive comments on their

writing by either inputting their material or directly composing it within the ProWritingAid application. ProWritingAid can be utilized directly on the internet or installed on a PC, and students can get feedback immediately.

A descriptive study conducted in higher education discovered using ProWritingAid as a feedback tool for students' writing using semi-structured interviews as the data (Ariyanto et al., 2021). The study indicated that students have positive opinions by using ProWritingAid, which supports them in getting direct feedback about grammatical rules, vocabulary selection, and students' confidence in writing. Students can integrate the technology tools to improve their writing results by identifying errors and getting direct feedback.

In addition, a study in senior high schools in Indonesia discovered the use of ProWritingAid as feedback for students' writing (Nasution & Fatimah, 2018). The study highlights that using ProWritingAid becomes the solution to teaching writing interestingly, and it supports students to edit their writing content and context. Using ProWritingAid in writing, students can enhance their motivation to identify writing errors and improve vocabulary knowledge. The role of teachers in giving feedback becomes necessary to support students' understanding after using the technology tools.

Ginger become one of the AWE-based applications offering feedback for students' writing. Ginger is a software program that provides feedback for writing with several features such as grammar, spelling, and punctuation (Swier, 2016). It is a technological tool designed to support students in several aspects of their writing, including paraphrasing, writing style, and structural organization. Also, Ginger facilitates a platform for students to assess their written work in grammar, paraphrasing, translation, and other related aspects. Ginger offers a premium option that grants users complete access to facilities and a free option that provides access to general facilities. Ginger can be used through a website or installed on a computer or laptop. Students can directly check their writing progress in the Ginger, and then it can present feedback for comments, corrections, and suggestions.

A mixed-method study discovered Ginger software's use for getting feedback (Saadi & Saadat, 2015). This study investigates the utilization and effectiveness of two types of electronic corrective feedback: direct electronic corrective feedback (DECF) and metalinguistic electronic corrective feedback (MECF). The findings indicated a substantial enhancement in students' writing skills regarding grammatical accuracy, word selection, and writing structure. By employing Ginger, students can be encouraged to use digital tools in the writing process. This study also examined the comparison between technology and instructor feedback, which revealed that students experience greater enjoyment in receiving feedback

through Ginger Software. Additionally, it was shown that Ginger could contribute to enhancing student-centered in the writing process.

A study in Indonesia discusses Ginger Software's utilization among senior high school students (Restika et al., 2021). The study employed an experimental and control group to examine the impact of Ginger on students' writing process. The findings of the study suggest that there has been a positive enhancement in the students' writing abilities. Ginger aids students in enhancing their writing skills by offering feedback and guidance, including features such as accessing a dictionary for translation or synonym suggestions to facilitate the writing process. Incorporating Ginger into students' writing exercises positively impacts their writing abilities since it allows them to recognize and correct faults in their writing.

Another AWE-based tool is WhiteSmoke. It gives feedback about language structure, punctuation, writing style, and translation. Students could easily use WhiteSmoke to check their writing to know the right words, phrases, and syntax by writing or inputting their essays (Siswandi, 2016). WhiteSmoke gives students writing feedback to correct, add, or remove the suitable word choice or wrong grammar.

The other study indicated that WhiteSmoke could be used through mobile phones, facilitating students to write and edit their writing drafts using many feature checkers (Al-Wasy & Mahdi, 2016)). Also, a study about WhiteSmoke facilitated the feedback for students' writing process (Fallah et al., 2021). The study highlights that after receiving WhiteSmoke's feedback, students can enhance their writing ability by recognizing their errors and improving to the correct ones by considering their accuracy.

CONCLUSION

Giving feedback for students' written text has often been challenging for teachers in the ELT context. However, the literature pointed out that teachers' feedback can be the only source of improvement for students. The complexity of providing feedback is derived from several factors, such as the amount of feedback, time provision, and the feedback form itself. Determining how much feedback should be provided for each writing assignment, when feedback should be provided, and what form of feedback will be best given can contribute to students' attitudes towards the feedback. Studies have claimed that formative feedback can potentially improve students' writing performance. To benefit from formative feedback, teachers should also support the process with AWE-based tools so that students can get personalized feedback, which is one of the essential keys in formative feedback.

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