

## Computer-based Automated Writing Evaluation: A Potential Solution for Foreign Language Writing Assessment

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**ABSTRACT:** Academic writing has been a challenge for many scholars. The challenge escalates when it comes to writing academic papers in a second or foreign language. In addition to the content of the academic papers, both organizational and pragmatic knowledge of the language impose complications in assessing the writing. With the fact that many foreign language writing classes are proposed to accommodate a large number of students, giving appropriate assessment to each student seems to be an arduous task. This paper is aimed at revealing challenges, underlying causes, and efforts to conquer the challenges done by teachers of foreign language writing classes. A thorough explorations towards the teachers' experiences were done and reported using narrative inquiry research method. Suggested feasible solution is further nominated to overcome the challenges.

**KEYWORDS:** Automated Writing Evaluation, Feedback, Foreign Language, Writing Assessment.

### I. INTRODUCTION

Learning a second or foreign language is often challenging as both positive and negative transfers emergence during the learning process. Different level of fear and anxiety are obviously identified from the learners (Ellis, 201; Horwitz, 2016; Oxford, 2017). As language learners are required to be proficient in the four language skills, writing is perceived to be intricate skill to master (Alsamadani, 2009; Harmer, 2007; Richards & Rodgers, 2014). It stems from the knowledge that writing is a productive skill which requires several parameters involving various techniques and strategies (Obeid, 2017). Writing in a second/foreign language wraps up numerous factors affecting the composition result (Friedrich, 2008; Tang, 2012). It involves many stages which are not necessarily sequential or consecutive, but rather having different indicators (Obed, 2017). For example, when learners of second/foreign language attempt to produce a piece of writing, it involves cognitive process (Li, 2008), culture (Myles, 2002), relative proficiency in the target language (Allen & Katayama, 2016) and genre (Hyland, 2004). Moreover a large class sizes and incomprehensible writing rubrics can add more complication in mastering writing in a second/foreign language (Al-Jarf, 2011; Ghalib & Al-Hatami, 2015).

A rubric articulates the expectations for an assignment by listing the criteria, or "what counts" and describing levels of quality from excellent to poor (Saddler & Andrade, 2004). Rubrics are commonly used in assessing learners' skills or performance. In writing, the assessment rubrics commonly covers two main facets namely content/idea and mechanics. The two are often further scrutinized into more detail and specific aspects aimed by the learning process. Regardless the possible variety of aspects comprised in a scoring rubrics of writing, the main significance is to facilitate the assessment process so that both teachers and learners are able to monitor the learners' progress toward the intended learning objectives (Hattie & Timperley, 2007). Learners should know and understand where they are going and what counts as a successful achievement if they are to generate meaningful feedback from the assessment (Hawe & Parr, 2014).

In a teaching or instructional context, feedback refers to 'information provided by an agent (e.g. teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding...' (Hattie & Timperley, 2007, p.81 [17]). Feedback is thus largely corrective in nature (Hawe et al., 2008; Ward & Dix, 2004). In regard to writing, feedback addressing at the purpose of writing, how the ideas are delivered, and how the language is used is very effective because the feedback can draw learners' attention to the substantive aspects of learning. Such feedback also primes learners to a deeper thinking and understanding of the writing activity they are doing (Hawe & Parr, 2014). Zeller-mayer (1989) pointed out that quality feedback from teachers and their peers are needed by writers so that they can realize the reactions and needs of their readers, make adjustments to their work and monitor their progress. Parr and Timperley (2011) also added that teachers' ability to generate quality feedback is strongly correlated with learners' progress in writing. Although providing quality feedback to learners' works in writing is an undoubted notion which every teacher is aware of, overburdened teachers are barely able to do that. In foreign/second language class in which a large number of students are joining, giving feedback becomes an onerous task. There is clearly insufficient time to mark learners' papers, not to mention to

cater quality feedback for each student. A common practical solution taken by teachers is by doing peer assessment and generating peer feedback.

## II. METHOD

Numerous studies related to assessment in writing have been done to explore various aspects of the assessment seen from diverse point of views though out the world. However, qualitative approach are less employed in the investigation of such topics as the research results often quantitatively depict obstacles that are commonly experienced by second/foreign language teachers in giving assessment to written works of their learners. Exploration about the nature of the difficulties and their underlying causes are often overlooked. This study is aimed at exploring the problems faced by teachers assessing foreign language learners' writing as well as unveiling the underlying causes and efforts that have been done to solve the problems. The purpose of this study is reflected from the following research questions:

1. What problems are faced by teachers of foreign language in assessing students' writing?
2. What are the underlying causes of the problems?
3. How do the teachers overcome the problems?

Qualitative approach with narrative research design is performed in this study to best reach the purpose of the study. Qualitative approach enables researchers to explore a problem and develop a detailed understanding of a central phenomenon in which data are collected from words from small number of individuals so that the participants' view are obtained (Creswell, 2014). Researchers are facilitated to reach detailed data in its natural setting, and since it is interpretative, it gives opportunities to the researchers to interpret the data. It also focused on participants' experiences and ideas. To do so, narrative research is operated in this study as it offers practical and specific insights about personal experiences in actual academic setting (Creswell, 2014). As a strategy of inquiry, a narrative research aims at understating "the outcome of interpretation rather than explanations" by providing an opportunity to gather data from real life and lived experiences (Kramp, 2004). Narratives are related with life stories. "a narrative is a story that tells a sequence of events that is significant for the narrator or audience or her or his audience" (Moen, 2006, p.60). Narrative research gives us stories about lived experiences that are not forgotten and the way of experiencing them (Moen, 2006).

In this study, the narrative research is focused on writing assessment performed by teachers of English as a foreign language. To be detail, the study disclosed the problems encountered by the teachers in giving the assessment and the underlying reasons that put them in the difficulties. Further, exploration was also done to report struggles of the teachers to overpower the problems. Storytelling method was used to collect data in this study which includes the stories of three higher education faculty members who have been teaching writing to learners of English as a foreign language. The stories are about situation they experienced in assessing their students' writing. The stories explained the causes of the difficulties experienced and what they have done to overcome the difficulties. In this study individual stories were told, which included detailed experiences of what is done, why it is done, and how it is done. In analyzing the data, our stories were re-read and reorganized regarding to the aim of the research. In other words, the participant's stories (Creswell, 2006) were retold. In narrative study, the cases that told their stories are a typical rather than representative of population (Cohen, et al., 2001). Since participants and researchers are the same persons, bias is more or less disappeared from the aspect of researcher. Moreover, the narrative inquiry provides an opportunity to researcher and participant work collaboratively in understanding behavior and discovering explanations so that validity of the participant may be obtained (Godson & Sikes, 2001).

## III. FINDINGS

Findings and discussion in this study address three research questions to reach the purpose of the study. Therefore, data resulted from the analysis as well as theoretical and practical overview and implication related to the data are presented systematically due to the sequence of the research question. Recommendations to suggest potential solution to the problems are presented following the sub topics namely the teachers' problems and causes of the problems in giving assessment in writing and the teachers' endeavor to overcome the problems.

**The Teachers' Problems and Causes of the Problems in Giving Assessment in Writing:** Having done with the data analysis after the exploration to gather information related to the three research questions was performed, it can be figured out that the teachers' problems and causes of the problems should be best reported as a unity. This conclusion is derived from the result of the data analysis prompting that the problems spring from the same causes; large number of students, heavy workloads, and inadequate time to give detail assessment. Meanwhile, the complexity of the problems faced by the teachers in giving assessment to their students work in their writing classes can be classified into three main problems. The first complication is the

fact that they are unable to give detailed written feedback related to the students' way of delivering their ideas in an assigned text. Next, the teachers concerned that they overlooked the linguistics mistakes and error produced by the students. Finally, they regretted their lack of monitoring the students' revision activities and results.

In regard to the first problem, the three participants of this study disclosed that their deficient in providing quality feedback to their students' writing is their biggest weakness in doing assessment activities in their writing classes. Assessing student writing constitutes the major portion of second language writing teachers' workloads. Having 2 writing classes in which 35 students joined in each class incurs certain anguish to the teachers. This plight is often topped up with other workloads demanding their intricate skills in managing their time. This situations forcethe teacher to only give a brief look to some of the students' works. Teachers often randomly sampled the students papers to give them quick reading and scan for how the ideas are presented and organized. A detailed written feedback related to the content of the texts is almost a privilege for some lucky students.

Addressing the second problem, the three teachers revealed that the brief reading focusing on the content of the texts which they gave to some of the students' sampled papers make it possible for them to leave out details of linguistics mistakes and errors produced by the students. These overlooked details are mostly the ones insignificantly affect the overall meaning of the text. This second problem also rooted from the same obstacle that is the limited time allowed due to the large number of students and the heavy workloads. Insufficient time spent to assess an extensive number of students' works in the writing classes also lead to the third problem; lack of monitoring students' progress in detail. As not all of the students' papers are examined to be given feedback due to the sampling practice, the teachers stumbled in other problems – they cannot confirm whether the revisions made by the students agree with the feedback provided. Often times, in an effort to give fair treatment to all students, the teachers randomly selected some of the students' revised-papers to check whether the necessary revisions had been made. Unfortunately, the papers that are selected were different from the ones that were previously checked for to be given the feedback. Thus, the teachers needed to read the students' first draft, indicated some feedback, and went through the revised paper to ascertain that the revisions properly address the suggested feedback. These activities required ample time for the teacher to finish all the process. Consequently, fewer number of students' papers were being reviewed. Table 1 provides a wrap up of the explanations presented in this sub topic.

Table 1. The Teachers' Problems and Causes of the Problems in Giving Assessment in Writing

The Teachers' Problems	Causes of the Problems
Unable to give detailed written feedback related to the students' way of delivering their ideas	Large number of students
Overlooking students' linguistics mistakes and error	Heavy workloads
Lack of monitoring the students' revision activities and results	3. Inadequate time to give detail assessment

Although all of the teachers are aware that assessment remains a ubiquitous element of any writing classroom and is vitally important to the academic growth of students (White, 2009), a variety of context-related issues can affect teachers in giving assessment to students' writing. Ruecker et al. (2014) pointed out that the issues are pertinent to the availability of resources, the place of writing in English in different contexts, institutional mandates about how writing is taught and assessed, and teachers' workloads. Bad assessment practices can have a potent effect on students. The consequences of uninformed assessment can be losses for students in time, money, motivation, and confidence. That is why teachers need to know how to create fair assessments that provide information about their students' writing ability. They need to know how to develop scoring rubrics and assessment criteria as well as considering the feasibility of conducting the assessment process due to certain situations that they encounter.

**The Teachers' Endeavour to Overcome the Problems :** Summarizing the result of the explorations and data analysis process related to the third research question addressing the teachers' efforts in dealing with their problems in giving assessment to the students' papers, it can be learnt that various efforts had been experimented. A vivid interpretation of how the teachers have been struggling to win over the problems and the effect of their attempts is presented in Table 2.

Table 2. The Teachers' Problems, Endeavour to Overcome the Problems and Its Implications

<b>The Teachers' Problems</b>	<b>Endeavour</b>	<b>Implications</b>
Unable to give detailed written feedback related to the students' way of delivering their ideas	Giving feedback to randomly selected students' papers	Not all students' issues in writing are addressed and discussed. It can lead to students' demotivation.
Overlooking students' linguistics mistakes and error	Generating peer feedback	Peer may not have satisfactory competence to propose good/qualified feedback for other students' work. It is a pitfall to achieving a better quality writings since the feedback provided by the peers may mislead the writer into another thing that potentially mess up with the writing.
Lack of monitoring the students' revision activities and results		

Dealing with the first problem that is the inability of the teacher to give detailed written feedback related to the students' way of delivering their ideas due to inadequate time to give detail assessment to large numbers of students, the three teachers had voiced similar strategy that is by giving feedback to randomly selected students' papers. The students' whose papers are luckily selected will get a privilege of getting direct feedback from the teachers while others, who are unlucky, somewhat have the feeling of neglected. As there were more students whose papers were not selected the ones who were, this situation triggers class dissatisfaction. The process of learning to write in second/foreign language is usually a challenging endeavor. It can be further exacerbated by unfavorable atmosphere (Dewaele, Witney, Saito, & Dewaele, 2017; Rodriguez, 2017). This condition can lead to students' demotivation in learning.

As the teachers merely focused on assessing students' efforts to deliver ideas in their papers, linguistics errors/mistakes produced by the students are barely scrutinized unless they affect the overall meaning and ideas organization in the texts. Again, this less meticulous assessment is due to the limited time the teachers have. To overcome this problem, the teacher tried to get feedback from the other students inside the classroom by generating peer feedback. Storch (2004) noted that many students in L2 contexts focused on sentence-level errors (local errors) rather than on the content and ideas (global errors). Thus, this peer feedback does not seem to conquer the problems related to feedback for students' ideas organization and delivery. Quality feedback is heavily dependent on teachers' knowledge bases, in particular their content and pedagogical content knowledge, knowledge of the student(s) and of the context (Cowie & Bell, 1999; Timperley & Parr, 2009). Peer may not have satisfactory competence to propose good/qualified feedback for other students' work. It is a pitfall to achieving a better quality writings since the feedback provided by the peers may mislead the writer into another thing that potentially mess up with the writing.

Peer feedback is also implemented to resolve the third problems; the teachers' lack of monitoring the students' revision activities and results. Draft revision activities are pivotal points in process writing. Quality feedback is really crucial for the students' development in this point. Amongst the four levels of feedback proposed by Hattie and Timperley (2007), task-related feedback is of greatest value when focused on improvement and provided in conjunction with information about cognitive processing and/or student self-regulation (Hattie & Timperley, 2007). On its own, task-related feedback would address such things as construction of the appropriate kind of text and progress in the production of written work to expectations (Hawe & Parr, 2014).

#### IV. DISCUSSION

Taking all the findings into account, it can be summed up that inadequacy in giving feedback due to deficient time is an essential issue faced by the teachers. Several attempts had been done by the teachers to cope with the situations. One of which is by generating peer feedback which is aimed at reducing the students' disappointment of not getting teacher's feedback. The teachers generated peer feedback by taking into account that contemporary notions of feedback involve the teacher and student(s) working together to construct achievement and effect improvement (Gardner, 2006). Liu and Hansen (2001) defined peer feedback as the use of learners as sources of information and interactants for each other in such a way that learners assume roles and responsibilities normally taken on by a formally trained teacher, tutor, or editor in commenting on and critiquing each other's drafts in both written and oral formats in the process of writing. Peer feedback and student self-

monitoring are powerful and indispensable conditions for the improvement of learning (Black & Wiliam, 1998; Sadler, 1989). The role of the teacher is to establish an environment where students freely exchange views about texts and mutually construct meaning in a thoughtful and reflective manner (Hawe & Parr, 2014). While valuable in helping writers make improvements to their work (Hyland, 2000; Keen, 2010), peer feedback also helps student assessors clarify their own understandings and build their evaluative knowledge and productive expertise as they are exposed to the ways in which others have approached the same or a similar task, the challenges faced by peers and the different moves and strategies used to bring performance closer to what is expected (Paris & Paris, 2001; Sadler, 2008). However, a number of studies challenged the strong positive comments about peer review and cautioned that some peers are likely to comment on surface errors and give advice that does not help revision (Bijami et al, 2013). Tsui and Ng (2000) in their study in Hong Kong discovered that all students prefer teacher feedback than peer feedback. The main reason is that they assume teacher is the one who is qualified to provide them with useful comments.

The teachers, in another hand, were overburdened with the large numbers of students in their writing classes and their professional workloads. This situation makes them have insufficient time to mark students' papers. Warschauer and Grimes (2008) pointed out that Proponents of automated writing evaluation (AWE; also called automated essay scoring or computerized essay scoring), which uses artificial intelligence (AI) to score and respond to essays, claim that it can dramatically ease this burden on teachers, thus allowing more writing practice and faster improvement.

Automated writing evaluation first emerged in the 1960s with *Page Essay Grade* (PEG), a program that used multiple regression analysis of measurable features of text, such as essay length and average sentence length, to build a scoring model based on a corpus of essays previously graded by hand (Shermis, Mzumara, Olson, & Harrington, 2001). Hamp-Lyons (2002) stated that Huot (1990) locates the mid-1960s as the beginning of a time of change in writing assessment: this date coincides with the work of Diederich, French, and Carlton (1961), spurring serious research into improving direct writing assessment. She further indicated that Cooper and Odell's (1977) three main approaches - analytic scoring, primary trait scoring, and holistic or impression marking - were valid at that era. In the 1990s, Educational Testing Service and Vantage Learning developed competing automated essay scoring engines called *e-rater* and *Intellimetric*, respectively (Burstein, 2003 [49]; Elliot & Mikulas, 2004). *e-rater* analyzes the rate of errors in grammar, usage, mechanics, and style; the number of required discourse elements (such as thesis statement, main idea, or supporting idea); the lexical complexity (determined by the number of unique words divided by the number of total words); the relationship of vocabulary used to that found in topscoring essays on the same prompt; and the essay length (Attali & Burstein, 2004; Chodorow & Burstein, 2004).

A third scoring engine called *Intelligent Essay Assessor*, developed by a group of academics and later purchased by Pearson Knowledge Technologies, uses an alternate technique called latent semantic analysis to score essays. The semantic meaning of a given piece of writing is compared with a broader corpus of textual information on a similar topic, thus requiring a smaller corpus of human-scored essays (Landauer, Laham, & Foltz, 2003).

A more recent development in AWE software is as a classroom instructional tool. Each of the main scoring engines discussed earlier has been incorporated into one or more programs directed at classroom use. ETS Technologies (a for-profit subsidiary of Educational Testing Service) has developed *Criterion*, Vantage Learning has created *My Access*, and Pearson Knowledge Technologies has launched *WriteToLearn*. In each case, the programs combine the scoring engine; a separate editing tool providing grammar, spelling, and mechanical feedback; and a suite of support resources, such as graphic organizers, model essays, dictionaries, thesauruses, and rubrics. The editing tools provide feedback similar to that offered by Microsoft Word's spelling and grammar checker but more extensively, for example, by indicating that a word may be too colloquial for an academic essay (Warschauer & Grimes, 2008).

## V. CONCLUSION

Computer-based writing assessment allows the development of tests that fit the levels, purposes and needs of test-takers. It allows the design of writing tasks that can be built out of multiple elements previously identified, ensuring authenticity and task variety. A really "smart" computer-based writing assessment system would enable each writer to build a portfolio of writing and select from it according to a particular purpose. A computer-based writing assessment would enable multiple pathways for writers through the many pitfalls of tests. Integrated Automated writing evaluation is a potential solution for overburdened teachers of second/foreign language writing classes.

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