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ANALYZING EXPERIENCES OF USING EFFECTIVE FEEDBACK IN THE ESL CLASSROOM THROUGH THE USE OF DIGITAL TECHNOLOGIES

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Abstract

This article of systematic literature review presents the analysis of a series of experiences that use effective feedback in educational activities through the use and integration of digital technologies, specifically, in the classes of English as a second language in higher education. The revision analyzed 14 different experiences. As part of the analysis, criteria are defined to describe and compare them, linked with the possibilities of feedback to favor the formative processes at the higher education level. Criteria include: country of origin and level of education, design of feedback used, the timing of the feedback, the means of providing feedback, and the consideration of digital technologies. The main results indicate that the use of feedback, in the ESL classroom, allows learners to boost their capacity of analysis, critical thinking, and the resolution of problems linked with interlanguage. As a conclusion, the salience and positive impact of digital technologies are highlighted in favoring the positive and effective feedback, in the particular case of English as a second language. Finally, it is evident the use of computer -mediation, screencast, and web-based learning environments as the primary sources of authors used more frequently to implement effective feedback in higher education. It concludes that the set of experiences analyzed provides light in terms of the considerations needed to design and adjust formative processes that allow boosting effective feedback mediated by digital technologies. As future work, there will be the elaboration of a methodological proposal that helps to adjust the formative processes that enable the integration of digital technologies as mediators in the process of feedback between teachers and learners.

Keywords: *Effective feedback, digital technologies, interlanguage, critical thinking, higher education.*

1. Introduction

Currently, the design and adjustment of the formative processes at the higher education level request constant update and innovation from the instructors, innovation in terms that allow instructors to develop didactical strategies that boost the improvement of the formative process (Sandí & Cruz, 2016). In this sense, the implementation of effective feedback arises as the possibility to provide an answer for the current society requests linked with the improvement of the formative processes (Anson, Dannels, Laboy, & Carneiro, 2016; Ghaderi & Farrell, 2019; Wang, Gong, Xu, & Hu, 2019).

The purpose of this article consists of the analysis of a series of experiences from different countries that have implemented effective feedback in educational activities, specifically, in the classes of English as a second language in higher education. This analysis identifies distinctive characteristics that contribute to the design of formative processes that allow implementing effective feedback mediated by digital technologies. The results of the research provide support with the considerations that should take into account the design and adjustment of the formative processes to implement effective feedback.

2. Background

Research about effective feedback scopes, its design, the timing, and the means of providing effective feedback have been analyzed for the last 25 years, with the purpose of correcting positively. Corrective feedback has spawned a voluminous body of research in the past two and a half decades (Li & Vuono, 2019). In addition, it has been interesting how this process of effective feedback, especially at higher education level and among the means of providing feedback, the implementation of technology-mediation can be identified. Besides that, today, it may be pointed out

that technology-mediation could have a positive impact on providing effective feedback due to the use of means like computer-mediation, screencasts, and web-based learning environments, among others. it could also generate effective feedback and more contextualized in the current learning environments (Wang, Gong, Xu, & Hu, 2019)

2.1. Digital technologies

Digital technologies can be described as a set of technological sources (hardware and software) that enables knowledge management (processing of information) in innovative, interactive, and collaborative ways that boost the development of formative-mediated processes (Sandí & Sanz, 2020). It should be taken into account that digital technologies cannot change the educational systems and methodologies by themselves, these changes depend on the correct use given to digital technologies (Sandí & Sanz, 2018).

2.2. Effective feedback

According to Ghaderi & Farrell (2019), effective feedback is an essential element of any learning which could be understood as the process where teachers inform the students about their work in progress (Noor, Aman, Mustaffa, & Seong, 2010). Besides, the feedback can be used as a pedagogical technique teacher use to draw attention to students' erroneous utterances, and which may result in learners' modified output (Lee, 2013). In this sense, feedback is one critical component of classroom-based instruction, and it can exert powerful influences on learning and achievement (Yu, Wang, & Teo, 2018). The feedback could be implemented through different digital technologies (Wang, et al., 2019). However, different authors (Cunningham, 2019b, 2019a; Wang et al., 2019) say that instructors need to be aware of the way they convey their feedback and the way the technology they use to create and deliver that feedback impacts the message that they send. Finally, the computer-based feedback is one of the most important elements in computer-based learning environments.

3. Methodology

The investigation was developed with a qualitative methodological approach through a systematic revision of literature, following the protocol proposed by (Kitchenham et al., 2009). The protocol proposes to use the following structure: a) definition for the search: Research questions (RQs), revision scope, criteria for references inclusion and exclusion, keywords and search String. b) search execution: define the selection of primary works and diffusion of analysis criteria. c) result analysis: specify the characterization scheme and analyze results. The decisions made for taking the process of research forward, according to the protocol proposed, are:

a) Search strategy. ***Research questions****:* 4 RQs are defined which comprehend conceptual aspects such as: RQ1: How are the concepts of digital technologies and effective feedback defined? RQ2: What are the possibilities of digital technologies and effective feedback in education? RQ3: What are the possibilities that are identified in applying effective feedback in a class of English as a second language in higher education? and RQ4: What are the potentialities identified in digital technologies to favor effective feedback in an ESL Classroom? ***Revision scope:*** The RQs are determined with the purpose to serve as guide to identify experiences about the use of effective feedback in educational activities and the possibilities for digital technologies to favor their implementation in the ESL classroom. The strategy for the search used to find articles linked to feedback and digital technologies was based on searching in different scientific and academic databases, such as IEE Xplore Digital Library, ScienceDirect, SCOPUS, among others. They were chosen due to their availability and access to the information required (Cruz & Bazán, 2018). ***Inclusion and exclusion criteria:*** The following criteria for inclusion and exclusion were defined: *Criteria for inclusion:* Published texts in their full version, written either in English or Spanish, published from 2005 to 2020 inclusive, related to feedback and digital competencies. These criteria allowed identifying experiences and results of activities that used digital technologies to boost the application of effective feedback. *Criteria for exclusion:* references not related to the RQs, texts written in other languages different from Spanish and English, duplicated investigations based on other existing investigations, references with no access or incomplete document. ***Keywords and search string:*** keywords were defined: feedback, digital technologies, ESL, among others. And, search string: feedback and ESL, feedback and digital technologies, among others.

b) Search execution. With the first sources found, the criteria established were applied, resulting in the documents used and cited in this investigation. For doing this, the title, abstract, and keywords were skimmed. After the preselected documents were obtained, extensive reading of the documents proceeded. Finally, the criteria for inclusion and exclusion were applied again.

c) Result analysis. For the result analysis, the definition and description of the criteria of analysis were necessary, those described in subsection 3.1. Then, the description of experiences and the use of effective feedback in the ESL classroom proceeded according to the research criteria defined.

3.1. Definition of the analysis criteria

This research analyzes the background related to the active objectives of effective feedback in the EFL classroom through the use of digital technologies. For doing this, some criteria are established to focus on a homogeneous analysis based on different literature review, the selection of criteria is based on (Kitchenham et al., 2009) and the objective of study that aim at describing and comparing the experiences related to the possibilities for effective feedback to favor formative processes at higher education. For doing this, 2 categories are identified: ***A) General aspects***. The criteria for this category are related to the contextualization of experiences. Through these indicators, for example, it is possible to consider the country of origin and level of education. ***B) Aspects for effective feedback***. The criteria included in this category allows to analyze whether effective feedback is provided or not. For carrying out this study, the analysis focuses on the design of feedback, timing of the feedback, and the means of providing feedback. The criteria of analysis here proposed are now described for the revision and study of the experiences.

A. General description. ***Country of origin:*** This criterion refers to the country where the research is carried out. ***Level of education***. This criterion identifies the level of education of the experiences studied. The possible criterion's values are: i) Primary, ii) Secondary, and iii) Higher education.

B. Aspects for effective feedback. ***Design of feedback:*** This criterion aims at identifying if the design is based on elaborated or global feedback. Elaborated feedback includes, in addition to the correct answer, supplementary information designed to foster deep learning of the target information while global feedback simply identifies the error and provides the right answer. Besides that, there are a variety of ways that feedback can be elaborated: explanations, follow up questions, location of the correct information in the text, or a combination of multiple types of information (Finn, Thomas, & Rawson, 2018). In addressing to process-oriented tasks, this effect suggests that students with low prior knowledge would be expected to benefit more from elaborated feedback that provides them with detailed information on how the problem should have been solved and why it should have been solved this way (Smits, Boon, Sluijsmans, & van Gog, 2008). ***Timing of the feedback***. the criteria present in this category allow to know how effective feedback is provided. These criteria show if feedback is provided immediate or delayed. It is hypothesized that learning outcomes of students with low prior knowledge would be fostered by immediate (after each task) elaborate feedback, whereas those of students with more prior knowledge would be enhanced by delayed (after a few tasks) global feedback (Smits et al., 2008). ***The means of providing feedback***. This criterion searches to analyze the means used to provide feedback. The criterion helps to identify the way feedback is provided. it means to identify whether feedback is delivered through teacher's corrective feedback or technology- mediated means. With respect to technology-mediated means, feedback can not only be provided using multiple modalities (e.g. text, audio, visuals or a tutor on screen), but also in a spatially and temporally integrated format. In other words, after answering a question or completing a task, the reader is only a mouse-click away from the feedback appearing on the screen (Swart, Nielen, & Sikkema, 2019).

4. Analysis of the results

This section presents the application of the criteria for the analysis of experiences selected. Some of the sources analyzed do not focus on the higher education level; however, they turn interesting due to the results they also present in terms of the use of effective feedback in English as a second language. Consequently, they are also considered for the analysis; such is the case of two experiences at secondary (Calisto-Miranda & Ortiz-Navarrete, 2019; Wang et al., 2019) and one experience at primary level (Noor, Aman, Mustaffa, & Seong, 2010). Table 1, presents the experiences identified, and it summarizes the results of the application of the criteria of analysis previously defined.

Table 1. Experience comparison according to criteria of analysis.

Experiences	General description		Aspects for effective feedback		
	Country of origin	Level of education	Design of the feedback	Timing of the feedback	The means of providing feedback
(Noor et al., 2010)	Malaysia	PY	Global	Immediate	TCF
(Calisto-Miranda & Ortiz-Navarrete, 2019)	Chile	SY	Elaborated	Immediate	TCF
(Wang et al., 2019)	China	SY	Elaborated	Delayed	TMF
(Ghaderi & Farrell, 2019)	USA	HE	Elaborated	Immediate	TCF
(Yu, Wang, & Teo, 2018)	China	HE	Elaborated and global	Immediate and delayed	TCF
(Swart et al., 2019)	Netherlands	HE	Elaborated	Delayed	TCF
(Ortiz, Fuica, & Saez, 2019)	Costa Rica	HE	Elaborated	Delayed	TCF
(Lee, 2013)	USA	HE	Elaborated	Delayed	TCF
(Al-Jarrah, 2016)	Jordan	HE	Elaborated	Delayed	TCF
(Cunningham, 2019b)	USA	HE	Elaborated	Delayed	TMF
(Cunningham, 2019a)	USA	HE	Elaborated	Delayed	TMF
(Anson et al., 2016)	USA	HE	Elaborated	Delayed	TMF
(Smits et al., 2008)	Netherlands	HE	Elaborated	Delayed	TMF
(Ortiz-Navarrete & Diaz-Larenas, 2017)	Chile	HE	Elaborated	Delayed	CF

HE=Higher education. **SY**=Secondary. **PY**=Primary. **TCF**=Teacher's corrective feedback. **TMF**=Technology-mediated feedback. **CF**=Collaborative feedback.

A. Aspects generals. The ***country in which the investigation is developed*** shows that the development of methodological proposals has focused on America with 57.14%, followed by Asia with 28.57%, and last by Europe with 14.29%. Regarding the ***educational level*** criteria, 78.57% of the methodologies are mainly used in higher education/university, 14.29% in high school, and 7.14% in primary.

B. Aspects for effective feedback. Regarding ***the design of the feedback*** 85.72% of the experiences analyzed focuses on elaborated feedback, while 7.15% focuses on global feedback, and 7.15% combines both types of feedback. The latter shows that most of the experiences analyzed focused on the implementation of effective feedback using elaborated feedback. In this type of feedback, the learner has better opportunities to learn and restructure his errors (it means there is an opportunity to learn from the error) (Sandí & Cruz, 2016).

Then, considering ***the timing of the feedback***, 71.42% of the experiences revised consider important to incorporate delayed feedback. In contrast, 21.43% of the experiences revised lean for immediate feedback, and 7.15% combine delayed and immediate feedback. Even though there is a division concerning which feedback is more effective, a recent study (Swart et al., 2019) indicates that delayed feedback is the most effective for learners restructure their errors. These results evidence that most of the experiences aim at a positive and effective timing of the feedback.

Regarding ***the means of providing feedback***, 64.29% of the experiences analyzed focus on teacher's corrective feedback, while only 35.71% of the experiences rely on other means such as technology-mediated. These results show a) teacher's corrective feedback is still used the most as a primary source for effective feedback, and b) technology-mediated means start gaining a position as a positive source for effective feedback. In some of the experiences analyzed, digital technologies are used to boost effective feedback, such as the case of Smits et al. (2008), Cunningham(2019a) and, Wang et al. (2019). They used sources, for example, web-based learning environments (pre-tests, study tasks, and feedback post-tests), screencasts for writing and, computer mediation.

5. Conclusions and future work

The purpose of this article is to do a comparative analysis of the different experiences that used effective feedback in ESL classrooms at the higher education level. The article also had the purpose of identifying distinctive characteristics that contribute to the design and adjustment of formative processes linked to the implementation of effective feedback and, mainly, mediated by digital technologies.

The investigation made it evident that there are efforts to consolidate the mediation of digital technologies in the implementation of effective feedback. However, the results obtained verify that the experiences analyzed focus mostly in offering corrective feedback through the instructor, and in a few cases, offering corrective feedback through technology-mediation. This means that the experiences that integrate effective feedback through technology-mediation are reduced. Nevertheless, the investigation concludes that the set of experiences analyzed bring light in terms of the task of analyzing the distinctive characteristics that a methodological proposal should include for suggesting corrective feedback. As future work, it is thought to design a pedagogical strategy to guide step by step, the design of educational situations that boost the use of effective feedback through the integration of digital technologies.

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