Hachetetepé. Revista científica de Educación y Comunicación
nº27, 1-23, 2023

IMPLEMENTING DYNAMIC WRITTEN CORRECTIVE FEEDBACK IN A DISTANCE LEARNING ENVIRONMENT: LESSONS AND CHALLENGES*

IMPLEMENTANDO FEEDBACK CORRETIVO ESCRITO DINÂMICO EM UM AMBIENTE DE ENSINO À DISTÂNCIA: LIÇÕES E DESAFIOS

IMPLEMENTACIÓN DE RETROALIMENTACIÓN DINÁMICA CORRECTIVA EN UN AMBIENTE DE APRENDIZAJE A DISTANCIA: LECCIONES Y RETOS

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Received:15/09/2023 Revised:11/10/2023 Accepted: 13/10/2023 Published: 17/10/2023

Abstract: This study is a qualitative investigation of four English for Academic Purposes students' thought processes as they engaged with Dynamic Written Corrective Feedback (DWCF) within a synchronous distance online setting. The virtual setting involved the use of the Canvas Learning Management System and Zoom video conferencing for participant engagement. It also used Camtasia screen capture, Audacity, and Otter.ai to facilitate data collection and preparation of detailed transcripts with verbal reports and concurrent actions to use in data analysis. Findings indicate that the participants generally had a positive uptake in DWCF activities conducted over this online setting as demonstrated by overall trends in the transcript data. A discussion of lessons learned and challenges to implementation of online synchronous DWCF is provided.
Keywords: Dynamic written corrective feedback; Written corrective feedback; Second language writing; Online distance learning

Resumo: Esse estudo conduziu uma investigação qualitativa dos processos de raciocínio de quatro estudantes de Inglês para Fins Acadêmicos enquanto eles se engajavam com a Escrita Dinâmica de Feedback Corretivo (DWCF) num sistema virtual sincronizado. O sistema virtual envolveu o uso de Gerenciamento de Ensino Canvas e o sistema de conferência por vídeo Zoom para garantir engajamento dos participantes. Camtasia também foi utilizada com seu elemento de captura de tela (screencapture), assim como Audacity e Otter.ai para facilitar a coleta de dados e a preparação de transcrições detalhadas com relatórios verbais, que ocorreram concomitantemente para analise dos dados. Os resultados indicam que os participantes tiveram uma absorção positiva em geral nas atividades em que DWCF foi conduzida nesse ambiente online, como foi demonstrado pelas tendências encontradas nos dados transcritos. Uma discussão das lições aprendidas e dos desafios encontrados na implementação da DWCF conduzida no sistema sincronizado online é oferecida.

e-ISSN:2172-7910
Doi: 10.25267/Hachetetepe.2023.i27.2204
Universidad de Cádiz

Palavras-chave: Escrita dinâmica de feedback corretivo; Escrita de feedback corretivo; Escrita em segunda língua; Ensino a distância on-line

Resumen: Este estudio es una investigación cualitativa del proceso de pensamiento de cuatro estudiantes en un programa de Ingles para Propósitos Académicos mientras participaban en Retroalimentación Dinámica Correctiva (Dynamic Written Corrective Feedback (DWCF) en inglés) dentro de un ambiente virtual sincronizado. El ambiente virtual incluyó el uso del sistema para el manejo del aprendizaje Canvas y el sistema Zoom de conferencia por video para la interacción de los participantes. También se utilizó Camtasia para capturar la imagen en las pantallas de computadoras (screencapture), Audacity, y Otter.ai para facilitar la colección de datos y preparación de transcripciones detalladas con informes verbales y acciones tomadas simultáneamente para el uso en análisis de data. Los resultados indican que generalmente los participantes implementaron actividades de DWCF ejecutadas dentro de este ambiente virtual, como fue demostrado por patrones generales en la data transcrita. Una discusión de lecciones aprendidas y desafíos para la implementación de DWCF sincronizado en línea es incluida.
Palabras claves: Retroalimentación dinámica correctiva; Retroalimentación correctiva; Escritura en lenguaje secundario; Aprendizaje a distancia en línea.

How to cite this article? Torres, C. & Mihai, F. M. (2023). Implementing dynamic written corrective feedback in a distance learning environment: Lessons and challenges. *Hachetetepé. Revista científica en Educación y Comunicación*, (28), 1-23 https://doi.org/10.25267/Hachetetepe.2023.i27.2204

1.INTRODUCTION

1.1. What is dynamic written corrective feedback?

Written corrective feedback (WCF) is considered to be an essential element of writing instruction. Consequently, the impact of written corrective feedback (WCF) on improving linguistic accuracy in second language (L2) writing has represented a sustained focus in second language writing research (Bitchener, 2019; Bitchener & Knoch, 2010; Chandler, 2003; Ferris, 2011). The proliferation of research in WCF was spurred by Truscott's broad claims that corrective feedback (CF) for linguistic accuracy was ineffective and potentially harmful for second language (L2) writers (1996; 2007). The body of research on WCF for L2 writers has found that the practice of providing feedback can be helpful towards linguistic accuracy, and is generally desired by L2 students and teachers, there has not yet been agreement on what type of feedback is most effective (Ellis, 2009; Ferris, 2011; Ferris & Kurzer, 2019).

Dynamic written corrective feedback (DWCF) has emerged as a response to the large body of WCF research that has not yet found consensus on the most effective strategies for applying WCF. DWCF focuses on two key principles (Evans et al., 2010). First, it emphasizes learner needs by using student-produced writing to guide individual WCF. Second, WCF must be "manageable, meaningful, timely, and constant" (Evans et al., 2010, p. 452).

Evans et al., (2010) shares the steps within DWCF to focus on learners' needs and principles of this feedback system. This allows practitioners and researchers to address corrections with a clear goal without overwhelming students or teachers. The first step of the DWCF system requires the second language (L2) student to produce a piece of writing during a 10-minute writing session. This writing is returned to the L2 classroom teacher

who then provides written coded feedback associated with short metalinguistic examples. Students track their feedback using feedback log charts and maintaining a list of errors in context before making corrections to their short paragraphs. Then, these revised paragraphs are returned to the teacher who, again, provides feedback on the drafts but uses indirect underlining instead of codes on the revised drafts. The cycle of revision and feedback (coded feedback initially followed by indirect underlining in subsequent drafts) is repeated until the paragraph is error free or until a predetermined number of drafts have been completed. DWCF is described as adaptable in nature to meet the needs of the L2 classrooms in which it is applied (Evans et al., 2010). One way research has displayed this adaptability of adjusting DWCF to meet students' needs is to vary the number of writing and revision cycles or rounds used with a class (Hartshorn, et al., 2010; Kurzer, 2018a).

Research on the linguistic accuracy of student-produced writing in DWCF settings has provided evidence of its potential as a teaching tool. Studies using DWCF have found significant results on increasing L2 writers' accuracy (Hartshorn et al., 2010; Hartshorn & Evans, 2015; Kurzer, 2018a). Studies on DWCF have investigated the effect of the feedback system on error-free T-units, rhetorical competence, fluency, and accuracy. In many experimental studies comparing L2 students' writing, the DWCF group has significantly outperformed control groups in improvements on linguistic accuracy with moderate to large effect sizes (e.g., Hartshorn & Evans, 2012; Evans et al., 2011; Kurzer, 2018a).

1.2. Use of Codes in DWCF

DWCF studies have used variations of editing-codes feedback, consisting of short abbreviations and symbols associated with separate metalanguage references. The use of codes in DWCF represents a choice to use a form of metalinguistic feedback. Table 1 below contextualizes this choice of codes for DWCF within a larger scope of CF options available to teachers and researchers.

Table 1
Major Types of Corrective Feedback for Writers

Feedback Type	Explanation
Direct	Teacher gives students the correct form
Indirect	Generally – teacher indicates error presence but does not correct Teachers can locate error in the text or show that the error occurred on a line of the text
Metalinguistic	Giving students an explanation of the type of error Can be coded or include grammatical explanations
Reformulation	Native speaker re-writes the text correcting all errors but keeping the original meaning
Feedback focus	Focused – correct a limited number of error types Unfocused – correct all the errors in a text

Source: Ellis (2009, pp.98-99)

Metalanguage used for coded corrective feedback warrants more explanation because of studies which highlight L2 writers' preference for this type of feedback (Chandler, 2003; Ferris & Roberts, 2001). Metalanguage can be defined as the formal grammar terms used to express metalinguistic awareness (Berry, 2005). It is notable that metalinguistic knowledge – the understanding of language structures – does not require explicit metalanguage (Berry, 2005). However, a highly developed metalinguistic awareness could include metalanguage to explain choices, for example, in a grammaticality judgment task with erroneous sentences. Examples of some codes associated with metalinguistic explanations are found in Table 2 below. These codes were used in Kurzer's (2018) study of DWCF in developmental multilingual writing classes. Learners' interpretation of the codes associated with metalanguage is an element of DWCF which will be discussed further in the context of the current study.

Table 2
Examples of Codes Used in DWCF

Code	Error Type	Example
PP	Prepositions	I was responsible of everything.
D	Determiners (articles)	The trip to United States was enjoyable.
NF	Noun Form	All family member are supposed to get along.
WF	Word Form	Money bring themselves more opportunities

Source: Kurzer (2018, p.30)

1.3. Class Modality and DWCF

DWCF was designed for use in a classroom context with the 10-minute student-produced writings done in class, collected by the teacher, and returned to the class group the following day with feedback (Evans et al., 2010). The idea was to make the writing and editing practice a constant feature of a classroom, situating the activity to authentically target individual needs because feedback was tailored to each student. Prior DWCF studies have kept the focus of the drafting, feedback returns, and editing activities within a classroom context (Hartshorn et. al., 2010; Evans et al., 2011; Hartshorn & Evans, 2012; Hartshorn & Evans, 2015; Kurzer, 2018a, 2018b, Eckstein et al., 2020; Eckstein & Bell, 2021).

2.METHODOLOGY

2.1. Study Objectives

The current article reports on the implementation of DWCF practices in the context of a synchronous online distance learning modality and is part of a larger study of DWCF. The focus of this article on the lessons and challenges of DWCF in an online modality is of value for educators who may want to consider implementation of DWCF practices in an online tutoring setting when the traditional face to face classroom modality is not an

option for learner interaction with this feedback system. Additionally, this article describes benefits and challenges of data collection in an online DWCF modality for researchers who may also wish to use the online modality. The purpose of this study was to explore the implementation of DWCF in an online distance learning modality and to understand how students may respond to feedback given in this environment.

2.2. Research Questions

The study described in this article focuses on answering the following questions: How can implementation of DWCF be accomplished in an online distance-learning modality, and what patterns are observed in participant uptake on feedback during these online DWCF sessions?

2.3. Participants

The data for the four participants represented in this article was taken from a larger purposive sample of eleven students recruited from a group of international students enrolled in an English for Academic Purposes (EAP) class at a large southeastern university in the United States. This class was designed as part of a bridge program to provide language support for international students in their first year at the English medium institution as they concurrently took other mainstream courses at the university. All students were on F1 international student visas and, at the time of data collection, in their first academic year. Students qualified for EAP classes with TOEFL scores of 68-79, IELTS scores of 5.5-6.0, or Pearson Versant scores of 50-68.

Language learner levels ranged from intermediate to advanced, as determined by internal placements into the EAP program and corroboration with two colleagues on the EAP classroom teaching team using de-identified diagnostic writing samples at the beginning of the semester. Students' home countries in the subset of four participants included in this article are: Oman, Pakistan, and India. The majority of the participants were from Oman (2 students). Participants 6, 7, 9, and 11 were included in this article and are referred to by numbers rather than names for the purpose of anonymity.

The researcher recruited students by introducing the study to all EAP students during the second week of the semester explaining the opportunity to participate in a study on L2 writing. Interested students contacted the researcher via email. The researcher did not recruit students from her own classes to reduce the impact of student-instructor power roles.

2.4. Setting

This study was conducted entirely in an online distance modality. The primary mode of interaction with participants was through individual video call sessions using Zoom software (Zoom Video Communications Inc.). Participants were asked to plan the location of their Zoom calls in a private space where they would not be interrupted, both to maintain audio quality and to protect participant confidentiality. Participants were asked to keep their Zoom screen share enabled during the sessions after removing any personally identifiable information from their desktops. In this way, the researcher was able to see participant actions while they applied feedback on their writing. This layer of visualization was important for the qualitative data analysis in the study. After obtaining permission at the beginning of each session, the sessions were recorded for analysis. All calls were made from the researchers' private home office. Web cameras remained active

throughout the sessions but were cropped out of any data collection to protect participant confidentiality.

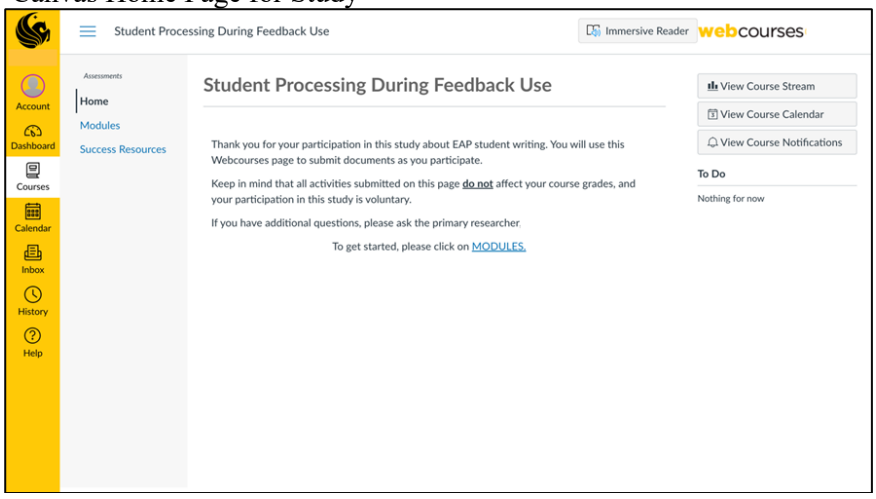
Additional to Zoom, the Canvas learning management system by Instructure was used as a platform to collect student writing. All participants were familiar with the basic features of Canvas, having used the platform for their own course work at the university. The timed writing samples were completed through the Canvas quiz feature with a single essay question. Later, revised documents and DWCF feedback tracking charts were collected through the assignments feature in Canvas. The primary digital tools for participant interaction in this study were Zoom and Canvas. Additional digital tools for work with the data collection and analysis included Camtasia for screen capture recording, Audacity for isolated audio recordings, and Otter ai for initial transcript analysis. The use of these digital tools is outlined in more detail below in the context of describing an online distance DWCF session.

2.5. DWCF Session Protocol

All participant sessions were scheduled at weeks 3, 6, 9, and 12 within a 16-week semester. The sessions were scheduled at times of mutual convenience for the participants and the researcher. All participants attended separate distance DWCF sessions during these selected weeks. The protocol for each session was structured in the same way.

1. **Obtaining Consent**. All sessions began with the researcher obtaining informed consent. The consent procedure used in this study followed institutional review board practices for the university and included five steps: The establishment of rapport, explanation of purpose, sharing of a motivational reason for participation, providing an estimate of the session's time, and the consent process itself.
2. **Joining the Canvas page**. As explained previously, the participants in this study were enrolled in a canvas page which was created for the purpose of drafting timed writing and collecting documents during the sessions. Images of the home page —Figure 1— and the module page —Figure 2— can be found below. All modules followed the same organizational format.

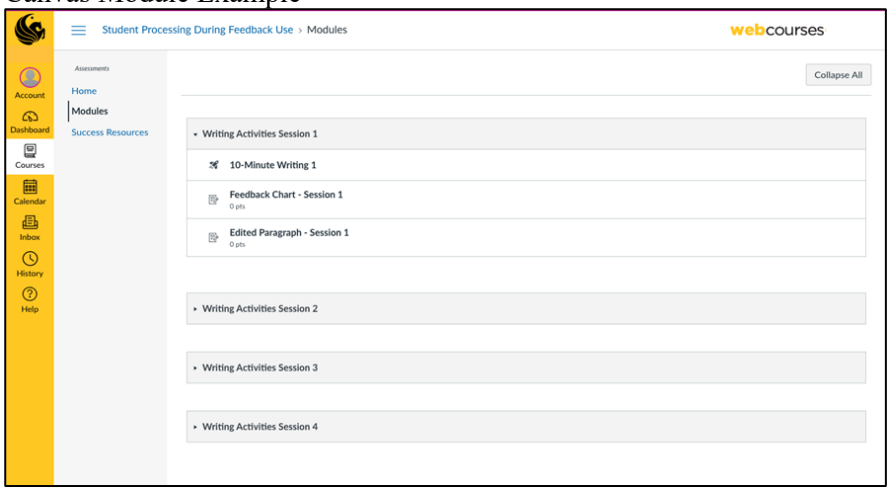
Figure 1
Canvas Home Page for Study



Source: Original image

3. **After consent was obtained**, the participants received training (or a reminder of training in second, third, and fourth sessions) in the concurrent think-aloud protocol for the data collection focusing on verbal report. This training demonstrated and emphasized verbalization of the heeded information – the thought processes themselves – instead of explanations of the participant's thought processes. Think-aloud training was not recorded. Both the demonstration and think-aloud training task were completed with a multiplication task as recommended by Ericsson and Simon (1993) and used in Swain and Lapkin's (1995) study to avoid priming the participants' verbal reports. There was one student who was unable to think aloud while completing the task in spite of training and prompting. In this case, the sessions were shortened, the participant was thanked for their time, and their data was not used for analysis.

Figure 2
Canvas Module Example

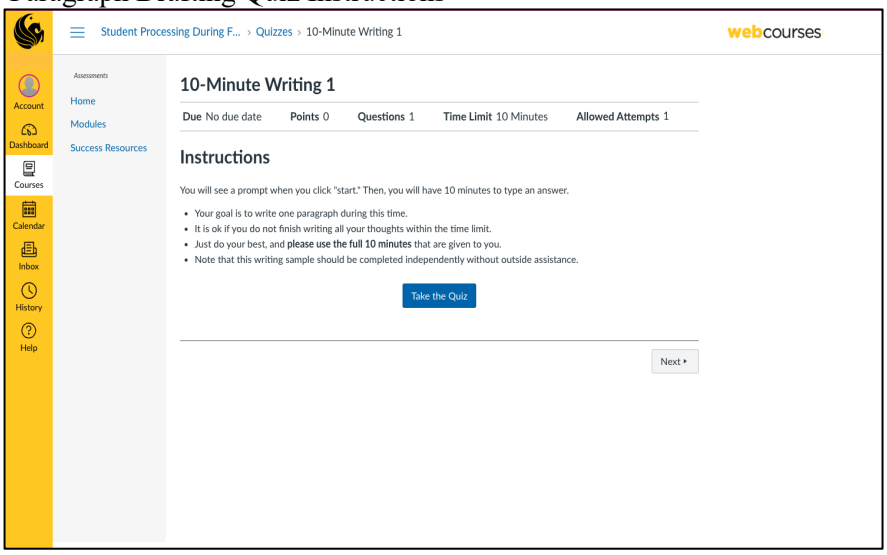


Source: Original image

4. **Ten-minute paragraph drafting**. The participants then completed a short draft. Prompts were provided within a Canvas quiz page and were chosen to reflect the style of the TOEFL iBT independent writing task. An image of the quiz instructional page can be seen below in Figure 3. Writing prompts were kept hidden from participants until they began the quiz as demonstrated below in Figure 4.

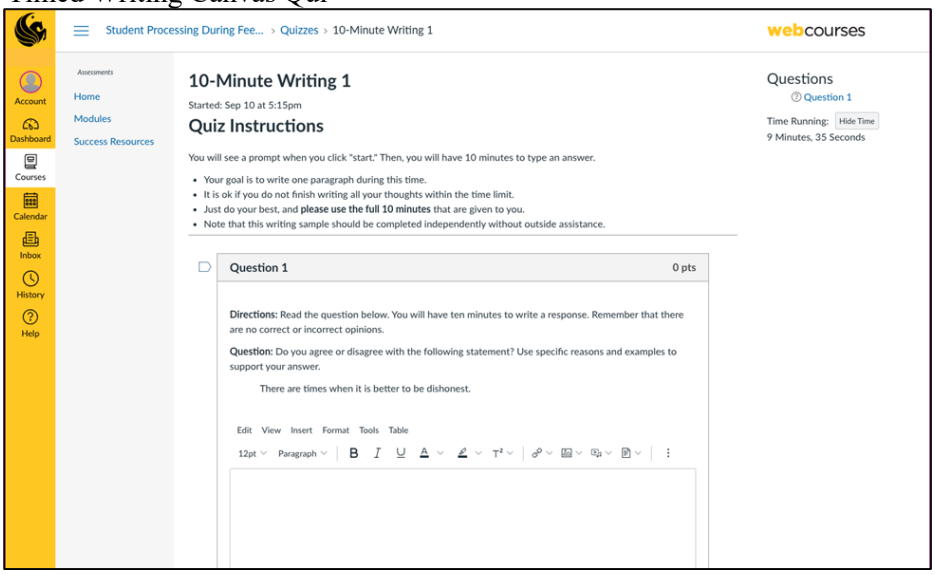
e-ISSN:2172-7910
Doi: 10.25267/Hachetetepe.2023.i27.2204

Figure 3
Paragraph Drafting Quiz Instructions



Source: Original image

Figure 4
Timed Writing Canvas Qui



Source:Original image

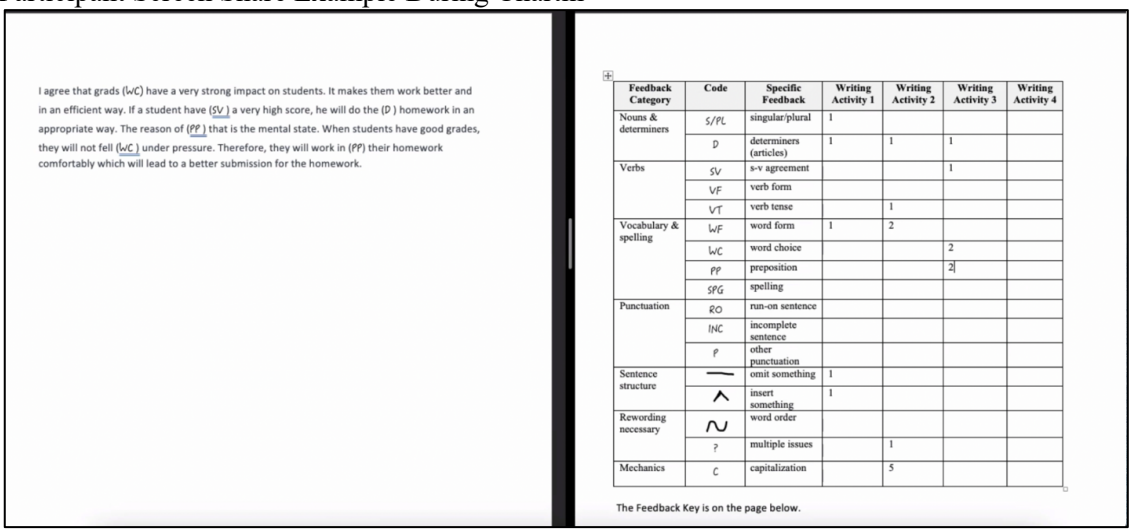
5. **Providing feedback.** Upon receipt of the timed writing paragraph, the researcher copy-pasted the student's work into a Microsoft Word document and used WCF in the form of codes. All participants were provided an associated charting document with which to track feedback provided across sessions and a feedback key. The feedback key for this study included metalanguage to explain types of errors as well as examples of possible errors and corrections within each code. This was more information than the code chart presented in Kurzer's (2018a; 2018b) studies, which included example sentences containing errors but no corrections. The decision to include additional corrected examples in the code

charts for this study was made in the interest of clarity within short data-collection rounds. Kurzer's (2018a; 2018b) studies, as the other DWCF studies, took place in classroom settings where students had the opportunity to learn the codes before receiving the feedback. The current study necessitated more context for codes so that participants could use this feedback with minimal training for Zoom sessions. The charts for coded feedback were based on previous coding schemes for DWCF (Hartshorn, et al., 2010; Kurzer, 2018a). The adapted feedback codes for the current study (Appendix) still addressed noun, verb, lexical, and mechanical errors. Related errors were grouped into larger feedback categories. For example, errors with subject-verbagreement, verb form, and verb tense are all grouped under verb errors. Also, what previous DWCF studies listed as "awkward" and "unclear meaning" were combined into one "multiple issues" code. The adjustment of the feedback code system in this study followed the directive for more DWCF studies adapting the method's principles to suit different learners' needs (Ferris & Kurzer, 2019).

6. **Applying Feedback**. Participants' paragraphs were returned within the same Zoom session as soon as the researcher completed marking the documents with typed WCF using the DWCF codes in this study. These document files along with the feedback tracking chart and the feedback key were dropped into the Zoom chat, so that the participants could easily access the file documents. Files were named with participants' study numbers so as to maintain confidentiality. Participants then opened all files and began their screenshare with the researcher. The researcher began recording the session audio as soon as the feedback documents were shared with the participant. Then, the participant's screenshare was recorded with Camtasia screen capture to crop out the participants' web camera from the data collection. An example of this screenshare recording view can be seen below in Figure 5. This example is from Writing Session 3 with Participant 6, and the still image was taken from an early moment in the video where the participant just received his feedback. The feedback tracking chart on the right side of the screen includes feedback tallies from the first two writing activity sessions and part of the tallies from the third session. The student's cursor is present in the preposition row for writing activity 3, and the screenshare captured the feedback charting decisions made by the participant.

e-ISSN:2172-7910
Doi: 10.25267/Hachetetepe.2023.i27.2204

Figure 5
Participant Screen Share Example During Chartin

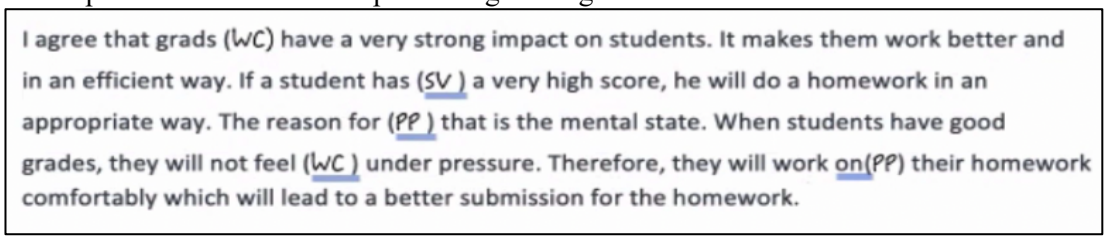


Feedback Category	Code	Specific Feedback	Writing Activity 1	Writing Activity 2	Writing Activity 3	Writing Activity 4
Nouns & determiners	S/PL	singular/plural	1			
	D	determiners (articles)	1	1	1	
Verbs	SV	s-v agreement			1	
	VF	verb form				
	VT	verb tense		1		
Vocabulary & spelling	WF	word form	1	2		
	WC	word choice			2	
	PP	preposition			2	
	SPG	spelling				
Punctuation	RO	run-on sentence				
	INC	incomplete sentence				
	P	other punctuation				
Sentence structure	—	omit something	1			
	^	insert something	1			
Rewording necessary	∿	word order				
	?	multiple issues		1		
Mechanics	C	capitalization		5		

Source: Original data

Later in the same session, the screen capture image below in Figure 6 illustrates edits that the participant made while using the feedback provided. The participant kept the feedback codes in the body of the paragraph next to the corrections made.

Figure 6
Participant Screen Share Example During Editing



Source: Original data

7. **Data Preparation**. The value of participant screen share concurrent to their think-aloud data became clear quickly as the data collected from the forty-four sessions in this larger DWCF study was prepared for analysis. For the scope of this article, it is important to note the importance of the visual layer as triangulation for the audio recorded data in transcription. As an example, below is an excerpt of the transcript data's formatting in Figure 5. The transcript excerpt in Table 2 includes the timestamp in the session, the participant's verbalized think-aloud data, actions taken concurrent to these verbalizations, and the researcher's notation of the data. Together, these elements of the collected data presented a picture of the participants' decision-making process as they engaged with the feedback provided.

Table 2
Transcript Formatting Example

Time	Verbal Data	Screen Share Data	Researcher Notes

Source:Original content

8. *Technology Tools and Data Collection.* This study of online distance-learning DWCF was made possible by a combination of technology tools which worked together to create an environment conducive for DWCF sessions and researcher's data collection goals. Zoom video conferencing provided the digital space for the participants to engage face to face with the researcher while in a distance setting. The ability to share documents on the Zoom chat assisted the researcher to share feedback documents with participants in a timely and confidential way. The learning management system, Canvas, created the place for students to complete their timed writings within the traditional 10-minute limit of DWCF procedures because the auto submission function of the learning management system quiz allowed participants to continue writing until the essay question turned itself in. The time stamp in the quiz submission also permitted the researcher to precisely know how long each participant spent on the writing and consistently collect the writings at the same time for each session. Furthermore, the submission of documents to the researcher within Canvas kept each submission organized and timestamped for reference later in the data analysis. Audacity allowed the researcher to audio record the entire session inclusive of portions when screen recordings were not enabled. Also, in the event that the screen recording audio was not crisp enough for confidence in transcription accuracy, the Audacity recording could be used because the software allowed for white noise to be removed and audio levels to be balanced for optimal clarity to facilitate transcription.

Finally, Camtasia screen capture software was a valuable tool to capture combined audio and participant actions taken while engaging with the feedback in the DWCF sessions. While this recording could have been accomplished through Zoom, the use of Camtasia allowed the researcher to intentionally crop the participants' cameras out of the data recording to maintain confidentiality in the data while maintaining this face-to-face element in the sessions. All in all, the combination of technology used in each session was manageable for the researcher and the participants. There was no participant attrition in the study, and all documents were successfully collected from all participants.

3.RESULTS

3.1. Participant Engagement with DWCF Codes

Participant engagement with the feedback was observed through detailed session transcripts combining think-aloud data and concurrent actions captured through recorded screen share. Tabled data included information from all aspects of the feedback application process from interpretation of the feedback given as demonstrated by marking tallies in the feedback chart to the application of the feedback provided towards editing decisions on the participants' paragraphs. An example from an early part of Participant 6

Session 3 in Table 3 below illustrates his interpretation of the feedback received on his writing as observed by his tallying in the feedback chart. This excerpt of transcript aligns with the part of the session associated with Figure 5 shown earlier.

Table 3
Participant 6 Session 3 Transcript Excerpt – Feedback Chart Activity

Time	Verbal Data	Screen Share Data	Researcher Notes
1:38	Yeah, I have one word choice issue, or two word choice issue	Types a 2 in the word choice issue box for writing activity 3	This is an accurate marking in the chart.
1:46	and one subject-verb agreement.	Types a 1 in the subject-verb agreement box for writing activity 3	This is an accurate marking in the chart
1:53	And one article issue.	Types a 1 in the determiners box for writing activity 3	This is an accurate marking in the chart
2:01	And also one preposition. Yeah and are two prepositions.	Types a 1 in the preposition box for writing activity 3 and changes it to 2	This is an accurate marking in the chart

Source: Original data

The transcript data from this session provides key elements of information for the researcher. First, the interpretation of the coded feedback was completed efficiently as noted by the timestamps in the leftmost column. Second, the participant's interpretation of the feedback as marked on his feedback chart during the DWCF session was completed as intended. This action of correctly interpreting the feedback is evidenced by the researcher notes based on the observations noted. The verbalizations combined with the actions taken indicate the participant was counting and tallying the feedback codes received. The decision-making process for the participant using this coded feedback was smooth and did not appear effortful. In fact, the same participant in the fourth session of the semester later noted in retrospective comments that, "I think that the chart was easy to form, actually. And I have one issue, I think that I didn't find in the beginning. But to answer, my form actually because the chart was so easy, and you are only matching, you don't do anything actually."

Table 4 includes a transcript excerpt from a later portion of the third session referencing Participant 6's decision-making process while applying the feedback codes to make initial editing changes to his paragraph draft after charting his feedback.

Table 4
Participant 6 Session 3 Transcript Excerpt – Paragraph Editing Activity

Time	Verbal Data	Screen Share Data	Researcher Notes
2:59	Yeah. So if a student has instead of has	Deletes *have* and types *has*	This is an accurate correction for the subject-verb agreement issue. His pronunciation of *have* and *has* is the same.
3:04	And I feel and he do h. Do and I have article issue there. I think it's he do homework or a homework. Should I delete the D or?	Deletes *the (D)* before *homework.* Types *a* in the same place.	This change still contains an article error before the non-count noun *homework*.
3:37	(Researcher) Oh yeah. You can take the symbols out as you go, that's fine.		I felt that this clarification was appropriate.
3:43	Do a homework in an appropriate way		Reading
3:46	And also, I have a preposition there the reason of that. The reason for that maybe.	Deletes *of* and replaces it with *for*	This is an accurate change for the preposition collocation.
4:04	And also another preposition. They will they will work on? Maybe. I don't know.	Deletes *in* and replaces it with *on*	This is an accurate change for the preposition collocation.

Source: Original data

This transcript example includes Participant 6's decision-making process while applying feedback towards a subject-verb agreement correction, a determiner correction, and two preposition corrections. There is also an example of a task clarification request when the participant asked the researcher if it was ok to delete a given feedback code once it was used. In this case, the researcher felt it was appropriate to answer this question so that the participant could return their attention to the act of editing. The transcript shows the participant attending to all the feedback provided one by one. Most of the application of feedback resulted in expected corrections as intended by the researcher's feedback. One example in the excerpt above shows an attempted change to a determiner error which still required further correction. This further correction would be later addressed in the second wave of researcher-provided feedback during the same session. The initial paragraph and final edited paragraph are presented below as a point of comparison:

Original Paragraph with WCF Codes

> I agree that grads (WC) have a very strong impact on students. It makes them work better and in an efficient way. If a student have (SV) a very high score, he will do the (D) homework in an appropriate way. The reason of (PP) that is the mental state. When students have good grades, they will not fell (WC) under pressure. Therefore, they will work in (PP) their homework comfortably which will lead to a better submission for the homework.

Revised Paragraph

> I agree that grades (grades)* have a very strong impact on students. It makes them work better and in an efficient way. If a student has a very high score, he will do homework in an appropriate way. The reason for that is the mental state. When students have good grades, they will not feel under pressure. Therefore, they will work on their homework comfortably which will lead to a better submission for the homework.

The revised paragraph above contains an asterisk (*) which represents the direct feedback provided to the participant on the second wave of feedback in the same session. The researcher used direct feedback for spelling correction on this second wave as per the DWCF recommendation to do this with some lexical features that do not have systematic rules for students to easily apply (Evans, et al., 2010). Across all sessions in this study, participants engaged with all aspects of provided feedback.

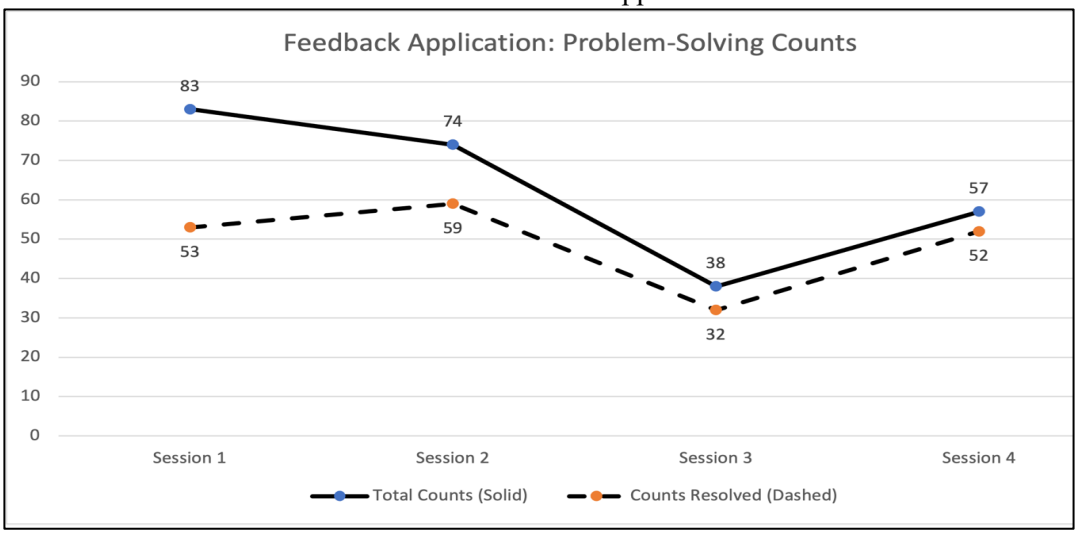
3.2. Incorporating DWCF

The examples from Participant 6's third DWCF session are one piece of the larger data collection in this qualitative study of EAP student's engagement and use of DWCF in an online distance modality. Data from the remaining participants who received coded DWCF feedback will now be further discussed. There were five total participants who received DWCF with metalinguistic editing codes in this study, and all five participated in four total DWCF sessions. These sessions took place in weeks 3, 6, 9, and 12 of a 16-week semester. Of these five participants, one was unable to maintain a think-aloud protocol for use in the qualitative data. For this reason, his sessions were shortened and summarized but not included in the overall counts used in this data analysis. The remaining data from these four participants is the basis of the data shared below.

To contextualize the data, every problem-solving application instance of a provided feedback code was noted in the transcript data along with their resolutions. These included the application of feedback codes to the feedback charting activity and the application of feedback in the context of editing choices in paragraphs. This is a qualitative study, so the counts in the figures below are intended as a visualization of the data on a macro level for overall trends in the large body of collected data. It was with these macro trends illustrated that the researcher returned to the individual data transcripts to further confirm and illustrate these patterns.

Figure 6 illustrates the overall trends in problem-solving instances from the four participants receiving editing codes as they applied feedback they received towards feedback chart and paragraph editing activities during DWCF sessions. The solid line represents the total counts of problem-solving instances across participants in each session. The dashed line represents the total resolved counts of problem-solving instances, the instances where the participants applied the provided feedback towards correct resolutions of charting and editing activities.

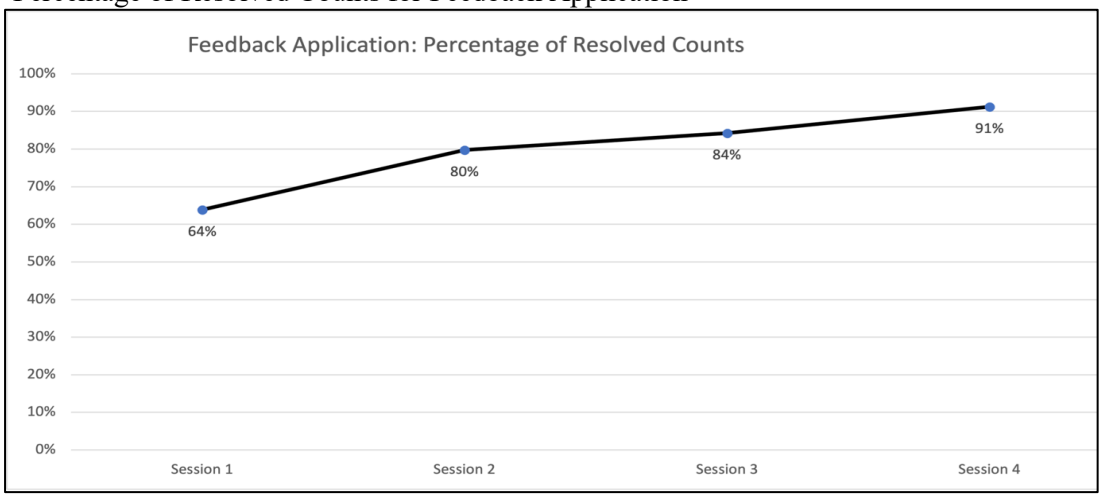
Figure 6
Overall Counts and Resolved Counts for Feedback Application



Source:Original data graph

While the counts for expected resolutions are lower than the total counts, the overall pattern illustrates the lines drawing closer together as the semester progressed. This suggests a positive trend towards the successful use of the provided DWCF towards feedback uptake. Figure 7 is a percentage of the counts resolved as expected for the purpose of sharing an overall trend line for the semester. Figure 7 further illustrates this overall positive trend towards greater feedback uptake over the course of sessions in the study.

Figure 7
Percentage of Resolved Counts for Feedback Application

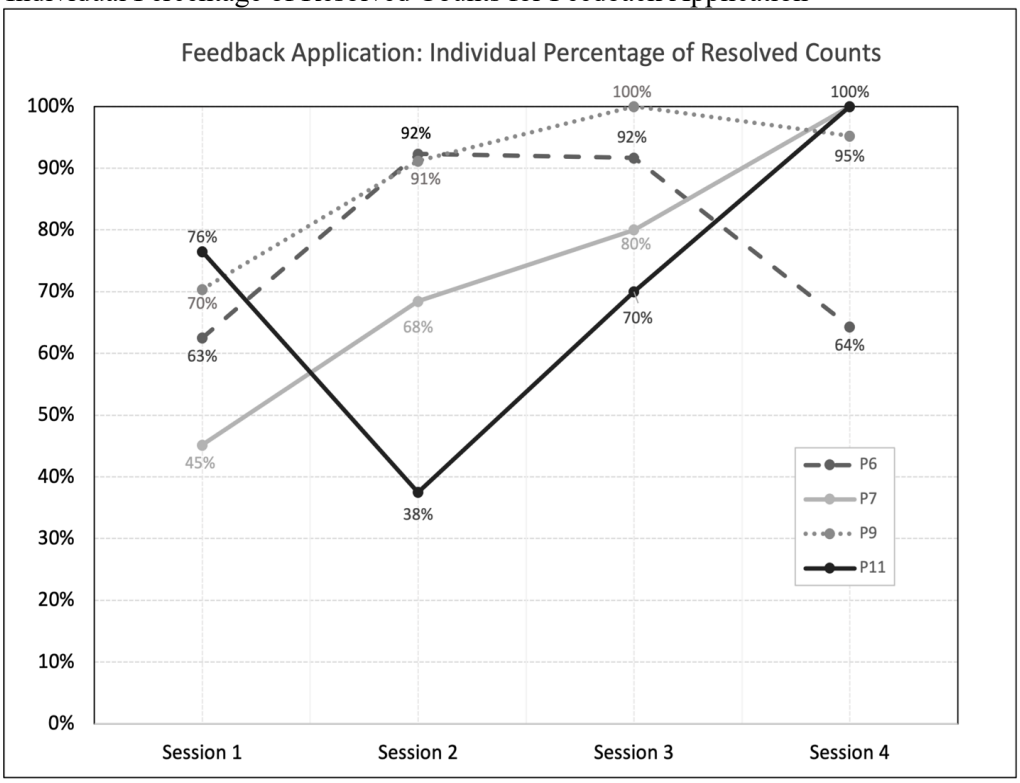


Source:Original data graph

For further clarity of the macro trends in this qualitative study with four participants, the overall trends for percentage of resolved counts are displayed in Figure 8 for each individual. This chart illustrates that each participant's trend varied individually. However, it is of note that the participants overall concluded their fourth

session with a higher percentage of feedback resolution for problem-solving instances than they began. Generally, with the exception of Participant 6, the percentages show an upward trend towards resolving problem-solving instances.

Figure 8
Individual Percentage of Resolved Counts for Feedback Application



Source:Original data graph

Overall, the participants in this online distance modality were able to successfully demonstrate feedback uptake in their DWCF sessions. The sessions included both feedback tracking charts and application of the feedback provided towards paragraph editing. The following section will contextualize these findings by addressing lessons and challenges to application of DWCF activities in an online distance modality.

4.DISCUSSION

4.1.Lessons and Challenges with the Online Distance DWCF Modality

The practice of DWCF was originally intended to be incorporated within activities for a face-to-face classroom modality (Evans et al., 2010). In the traditional in-person setting, the writing, feedback marking, and student feedback activities happen at separate times. That is, the 10-minute drafting occurs on one class day. Next, the classroom teacher marks the papers with coded feedback after class. Then, the teacher returns these papers to students with the feedback during the next class, and students use class time to track their feedback in charts, with error lists, and in application to their paragraphs which were then resubmitted.

The online distance modality collapsed the time in between these phases of DWCF because each individual session required participant drafting, researcher feedback

marking, and application of the provided feedback within the same session. With time limitations in mind, the portion of traditional DWCF requiring students to create a list of errors in context was not used in this study. Instead, the tracking of errors was done only with the feedback tracking chart. Also, rubric-based scores for the paragraph drafts were not provided as this would have required further instructional time on Zoom video calls to explain the nature of a written rubric. Instead, the focus of this study was on participant uptake in the application of the feedback given. This decision to streamline activities in the present study was made in consideration of cognitive load for multimedia instruction with the understanding that allowing time between successive segments is a strategy to reduce cognitive load (Mayer & Moreno, 2003). In the live online sessions with continuous DWCF activities, limiting the number of activities was intended to prevent cognitive overload.

Time was also a notable factor in the marking of student papers with feedback. Providing immediate coded feedback with one quick read of the participants' paragraph drafts as necessary in this setting. As a handbook intended for instructors using DWCF once said, "Coding is not an exact science" (Shelley, 2014, p. 15). The researcher marking papers in this study agreed with the statement and noted that the same written error may be coded in more than one way. For example, a vocabulary-related error could be marked as spelling (SPG), word form (WF), or word choice (WC) depending on the interpretation of the instructor marking the papers. Time pressure in returning feedback quickly was felt with the choice of what to mark an error that could be coded in more than one way. Awareness of time limitations on video calls is a challenge for instructors who may wish to use a similar online distance learning DWCF protocol. Even with a focused and motivated student, live online settings can carry a risk of Zoom Fatigue (McCabe et al., 2023).

Another challenge experienced in the online distance modality was symbol and font changes which occurred as document files were saved and shared between the researcher and the participant. One such example was the change in font with the feedback codes. The codes were intentionally typed within participant paragraphs using a font that modeled handwriting. This way, there was a visual cue in the change of font to facilitate participants' noticing of the feedback. This handwritten font appeared differently in the participants' computers once the files were downloaded. All participants still engaged with all the feedback provided, but this change is something to note when selecting the style of codes to be inserted into student writing when working with typed documents. Also, one of the symbols intended for use in this study was a ∧ mark in handwritten font () for feedback requiring the participant to insert a missing word. This symbol did not transfer into the documents as intended, and so the researcher changed the symbol into the written phrase (insert something) in the interest of providing feedback quickly to the participants in this live virtual online modality. One possibility for future DWCF done in an online distance setting is the use of a stylus to facilitate digital marking of codes rather than typing the codes within student texts.

From the researcher's perspective, it was highly valuable to use concurrent screen capture to accompany verbal reports as participants took action applying feedback. Despite concerns about reactivity and veridicality in the research literature on verbal report, Bowles (2010) argues for the value of the methodology because it allows access to language learners' thought processes not available from production data alone.

Thought processes captured in concurrent verbalizations differ from regular social speech and can include "disjointed sequences without explicit relations between the thoughts" (Ericsson & Simon, 1993, p. xv). The layer of visual actions allowed confirmation of resolutions associated with problem solving within the verbal reports, and this was meaningful to the analysis of the concurrent verbal report data in this study.

4.2.Pedagogical Recommendations

The nature of the larger DWCF study from which this subset of data was taken necessitated live concurrent videoconferencing. The time constraints in this study impacted the choice to remove paragraph rubric use and error lists in context from the DWCF procedure. However, an online distance DWCF modality which does not seek to actively capture concurrent student decision-making in the process of DWCF activities may adapt DWCF activities to an asynchronous mode. The asynchronous modality would allow for less time pressure to be felt on the part of the coder making feedback decisions. If requirements for feedback tracking and application were spaced to different days on a learning management system, it would also give the students more time to decompress between the DWCF activities. Spaced practice is a valuable strategy for studying (Mayer, 2011). The use of a stylus or similar writing tool on digital student submissions is another strategy which may aid in the provision of feedback in an online distance DWCF modality. This way, an instructor could provide handwritten codes which differentiate clearly from the students' typed text, and the documents would not alter the font of feedback codes when saving and sharing the feedback between students and their instructor.

Overall, findings from this qualitative study of EAP students' uptake of DWCF indicate that there is potential to apply DWCF to an online distance setting. Participants engaged with the feedback provided and were able to use it towards their DWCF activities with more expected outcomes in uptake as the sessions spaced throughout the study progressed. Participants generally shared positive reactions to the live online sessions. For example, the researcher asked a general question at the end of the fourth recording session asking if there was anything else that the participants wished to share on-record. Participant 11 said, "Um. Yeah, it was really fun. I mean, this session is really really fun and refreshing. I was something new, which I did not have in my home country. And I find it very interesting and I looking forward and hope I get more opportunities to attend sessions like this. It was really, really fun with you." Similarly, Participant 6 added, "It's my pleasure to work with you and to be a part of this study actually." Participant 9 shared, "It's just that this activity just helped me a lot for going through and revising all the grammatical issues, which I have usually in the text, and this did help me for the writing essays."

5.CONCLUSIONS

This study investigated the possibility of applying DWCF activities in an online distance modality. The procedure utilized a mixture of technology tools in order to engage with participants and capture the data which was used in this qualitative study. The tools used to engage with participants included Zoom video conferencing, the Canvas learning management system, and Word processing documents. The tools used for data collection and analysis included Audacity audio software, Camtasia screen capture, and Otter Ai transcription software. The technology tools were manageable for both participants and

e-ISSN:2172-7910
Doi: 10.25267/Hachetetepe.2023.i27.2204

the researcher. Participants were able to demonstrate uptake on the DWCF provided in the study's sessions, while the researcher was able to capture the participants' decision-making process through the combination of audio and screen capture which was used to create session transcripts. Suggestions for future use of an online DWCF strategy include the use of a stylus or another alternative feedback tool to maintain consistency for this instructional feedback when files are shared across different computers. Also, there is a possibility for DWCF to be applied in an asynchronous online environment even through the goals of this study necessitated live synchronous sessions.

This study's central questions were: How can implementation of DWCF be accomplished in an online distance-learning modality, and what patterns are observed in participant uptake on feedback during these online DWCF sessions? The answers to those questions are that DWCF implementation online requires creative use of various technology tools available for instructors.

Observations of overall positive patterns in feedback uptake over the sessions in this study support the possibility of using DWCF in an online setting. This study provides suggestions for the adaptation of DWCF to meet the needs of students who do not meet regularly in a face-to-face content, just as Evans et al. (2010) suggested that adaptation may be necessary to meet students' needs and that online learning management tools such as Blackboard or Moodle could be used to facilitate adjustments for such classes. Continuing to investigate options to address the needs of language learners in all modalities is relevant for modern language teachers as they make decisions for their students and for researchers to support modality shifts towards online learning environments.

AUTHORS' CONTRIBUTIONS: Christina Torres (Study design, data collection, analysis, and interpretation) and Florin M. Mihai (Study design and supervision).

FUNDING: This study did not receive external funding.

ACKNOWLEDGEMENTS: Thank you to Dr. Aimee Schoonmaker for her assistance with participant recruitment for this study and for her assistance with Portuguese translation for the abstract and key words in this article.

*All participants in this study were informed of the nature of the research and they provided informed consent.

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Appendix

DWCF Editing Codes

Feedback Category	Code	Specific Feedback	Examples Note: **RED** = incorrect

Nouns & determiners	S/PL	Singular/plural	• Countable nouns:
			  ○ Singular: Person, chair, student
			  ○ Plural: People, chairs, students
			• Noncount nouns: honesty, furniture
			  ○ Incorrect: **Honesties, furnitures**

	D	Determiners (articles)	• Incorrect: I bought **chair**. • Correct: I bought **a** chair. • Correct: **The** chair in my room is comfortable. • Correct: **The** chairs in my room are comfortable.
Verbs	SV	S-v agreement	• Incorrect: He **study** at UCF. • Correct: He **studies** at UCF. • Correct: We **study** at UCF.
	VF	Verb form	• Incorrect: I **was eaten** by the apple • Incorrect: I **was arrived** yesterday.
	VT	Verb tense	• Incorrect: I **have went** to Disney World. • Correct: I **have gone** to Disney World. • Incorrect: I **watch** television when my sister called me. • Correct: I **was watching** television when my sister called me.
Vocabulary & spelling	WF	Word form	• Incorrect: It is a **beauty** day outside. • Correct: It is a **beautiful** day outside.
	WC	Word choice	• Incorrect: **There** my best friends. • Correct: **They're** my best friends.
	PP	Preposition	• Incorrect: We live **on** Florida. • Correct: We live in Florida.
	SPG	Spelling	• Incorrect: Let's go to the **beech.** • Correct: Let's go to the beach.
Punctuation	RO	Run-on sentence	• Incorrect: **He needed more food he went to the store.** • Incorrect: **He needed more food, he went to the store.** • Correct: **He needed more food, so he went to the store.** • Correct: **He needed more food. Therefore, he went to the store.** • Correct: **He needed more food. He went to the store.** • Correct: **He needed more food; he went to the store.**
	INC	Incomplete sentence	• Incorrect: **Like chocolate**. • Incorrect: **I like.** • Incorrect: **Because I like chocolate**.

e-ISSN:2172-7910
Doi: 10.25267/Hachetetepe.2023.i27.2204
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			• Correct: **I like chocolate.**
	P	Other punctuation	• Incorrect: **He said Let's go to the store.** • Correct: **He said, "Let's go to the store."**
Sentence structure		Omit something	• Incorrect: Anyone **that** who wants to come is welcome. • Correct: Anyone who wants to come is welcome.
		Insert something	• Incorrect: I want **see** the movie. • Correct: I want **to see** the movie.
Rewording necessary		Word order	• Incorrect: The **girl pretty** waved at us. • Correct: The **pretty girl** waved at us.
	?	Multiple issues	• Incorrect: **Online learning both of teacher and student must collaborate with each others.** • Correct: **Students and teachers must collaborate with each other in an online learning classroom.**
Mechanics	C	Capitalization	Incorrect: **i** wanted to be a firefighter. Correct: **I** wanted to be a firefighter.