L2 Peer Feedback in an Online Writing Environment: Focus on Mediational Tool Use

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Dedication

To my beloved parents, Shokry and Amina, who have been there for me through the best and worst of times.

Abstract

Peer feedback in L2 writing classrooms has recently attracted considerable attention in the field of second language acquisition (SLA), particularly as most studies to date suggest that it can help improve L2 learners' writing and consolidate their learning. However, some studies have reported major downsides in implementing peer feedback in certain L2 contexts. Among the issues frequently reported are that reviewers tend to be hesitant about providing feedback to their peers due to lack of confidence in their ability to make quality comments and not knowing what to target in their peers' essays, as well as writers not always accepting the comments provided. Access to the Internet in peer feedback activities has the potential to overcome such problems by enabling reviewers and writers to consult a wide range of sources (e.g. online dictionaries, spelling and grammar checkers) while interacting with each other. Framed within sociocultural theory and with a focus on the role of technology, this study aimed to examine how students mediated their learning while giving and receiving peer comments in Google Docs in English, with additional support from online sources. A secondary aim was to explore the learners' perceptions of peer feedback using Google Docs and online resources. A multiple qualitative case study was conducted with 14 Egyptian EFL university students (aged 19–23). Data were collected over 10 weeks. Peer feedback interactions in Google Docs were analysed and triangulated with screen capture recordings and interview data. The findings suggest that the Egyptian EFL students engaged in multiple forms of mediation when exchanging peer feedback in Google Docs. Using the language as a symbolic tool, the reviewers strategically employed different forms of mediation, such as providing direct and indirect feedback, clarifying, suggesting/advising, etc., facilitating advancement within the writers' Zone of Proximal Development. While mediation was primarily through language, the students employed a variety of online tools that provided mediational support to both writers and reviewers. Such support helped empower the reviewers and boosted their confidence as providers of feedback, as well as encouraging writers reluctant about receiving feedback to accept and incorporate it in their revised drafts. Although access to online sources was observed to encourage writers to trust and adopt comments made by reviewers, these were mainly oriented to language rather than content. The findings not only contribute understanding of the processes involved in peer feedback, but could also help classroom instructors consider the role played by online sources in adding to writers' and reviewers' learning experiences.

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Author's Declaration

I hereby declare that, except where explicit reference is made to others' work or contributions, this thesis is the result of my own work and I am the sole author. The work referred to in this thesis has not been submitted by the author in support of an application for another degree or qualification in any other university or institution.

Chapter 1. Introduction

1.1 Rationale

In recent years, peer feedback, a well-known pedagogical activity in academic writing classes, has received considerable attention from researchers and practitioners in both first (L1) and second (L2) language writing contexts (e.g. Hanjani & Li, 2014; Hu & Lam, 2010; Xu & Liu, 2010; Zhao, 2010; Zhu & Mitchell, 2012). Peer feedback (also commonly referred to as peer review, peer response, peer editing, and peer assessment) is a reciprocal activity during which students take turns in giving and receiving feedback on their written work in order to improve their writing (Hansen & Liu, 2005). In every peer feedback session, each student plays the role of a reviewer (also known as the assessor, or feedback giver), who peer reviews their peer's written work by providing comments, and also of writer (also known as the assessee, or feedback receiver), receiving comments and discussing them with the reviewer (Caoa, Yu, & Huang, 2019). Through this reciprocal exchange, peer feedback can "encourage a collaborative dialogue in which two-way feedback is established, and meaning is negotiated between reviewers and writers" (Rollinson, 2005, p. 25).

Greatly influenced by L1 writing theory, several L2 writing researchers (e.g. Zhao, 2018) agree that peer feedback is most closely associated with process writing theory. This theory emphasizes the process English as a second language (ESL)/English as a foreign language (EFL) learners undertake in writing their texts, rather than the final product (Yu & Lee, 2016b). While conventional product-oriented approaches view writing in a linear way, process writing theory views writing as a dynamic, nonlinear and recursive process through which meaning is created (Memari Hanjani, 2013; Roux-Rodriguez, 2003). In the process-oriented writing classroom, peer feedback serves as a crucial element that helps the process of writing "by providing opportunities for [students] to discover and negotiate meaning, to explore effective ways of expressing meaning, to practice a wide range of language and writing skills, and to assume a more active role in the learning process" (Hu, 2005, p. 322). Accordingly, the change in focus from product to process paves the way for a consciously formative role for feedback that meshes well with the recursive nature of process writing (Hyland & Hyland, 2006a).

The effectiveness of peer feedback in the L2 writing classroom has been investigated by a plethora of empirical studies (e.g. Hu & Lam, 2010; Kamimura, 2006; Min, 2005, 2006, 2008; Ting, 2010; Tsui & Ng, 2000; Yang, 2011; Yu & Lee, 2014, 2015; Zhao, 2010, 2014). By incorporating peer feedback in L2 writing, L2 learners are provided with many opportunities to actively engage in their learning. For example, peer feedback can engage L2 learners in negotiation meaning (Hu & Lam, 2010). In addition, it enhances students' sense of audience and ownership of text, as well as highlighting their strengths and weaknesses in writing, which eventually results in them improving their final written products (AbuSeileek & Abuslsha'r, 2014; Lee, 2015; Yu & Hu, 2017). It also been found to promote understanding of the feedback provided in comparison to teacher feedback (Suryani, Rozimela, & Anwar, 2019). Moreover, peer feedback can foster learner autonomy by minimizing students' overdependence on their teachers (Yang, Badger, & Yu, 2006) and by enhancing learner behaviors that help develop self-regulation, or "the capacity for independent problem solving" (de Guerrero & Villamil, 1994, p. 484). In terms of the dual roles played by learners in peer feedback, reviewing peers' written work exposes the reviewers to various ways of expressing ideas, draws their attention to language use and helps them reflect on their own writing (Alshuraidah & Storch, 2019), while receiving feedback helps reduce language errors (Diab, 2010) and improves writing quality (Kurihara, 2017).

Notwithstanding the positive findings outlined above concerning the effectiveness of peer feedback, empirical studies have also identified several challenges in implementing such feedback in L2 writing classrooms. Among the many problems that might hamper writers' acceptance of peer feedback is students' hesitancy and distrust in the feedback they receive from their reviewers for various reasons that research has identified (Tsui & Ng, 2000; Wang, 2014; Ho, Phung, Oanh, and Giao, 2020). They may consider their peers lack the knowledge necessary to provide them with correct feedback and eventually do not accept the comments and incorporate them into their revised texts. In addition, as mentioned by several researchers (e.g. Nelson & Murphy, 1993; Villamil & de Guerrero, 1998; Zhu, 2001), L2 peer reviewers may not have enough knowledge to enable them to detect and correct language and rhetorical issues as they are still in the process of mastering the target language and its rhetorical conventions. These concerns have resulted in some reluctance to provide critical comments (Kamimura, 2006).

One way of overcoming writers' distrust about accepting their peers' comments is to provide them with opportunities to interact in giving and receiving comments on their written work through technology. Milton (2006) noted that although peer feedback was found to be advantageous, students in EFL contexts still need particular support to overcome their reluctance to respond to each other's texts. Arguably, technological tools, with their potential benefits, can provide this kind of support, facilitating and mediating the provision of peer feedback. It would be a great waste of resources if educators did not take advantage of modern online technologies (Salaberry, 2001). For example, Warschauer (2002) argued that peer feedback provided through digital tools could increase learners' motivation and participation. Ho and Savignon (2007) noted that online peer feedback is effective in promoting negotiation of meaning. Tuzi (2004) claimed that online peer feedback could help writers make more successful revisions in their writing at both the sentence and paragraph levels by discussing and receiving feedback from peers. Online peer feedback helps increase the degree of validity and reliability of comments (Wu, 2019) and promotes critical thinking skills (Wu et al., 2015). In addition, it creates a less threatening environment that encourages students with limited English proficiency level to actively engage in the peer feedback process (Wu, 2019). Other researchers have also claimed it helps develop more focused and better-quality peer feedback (Pham, 2019).

Grounded on Vygotsky's (1978) sociocultural theory (SCT), and more particularly the concept of mediation, peer feedback engages learners in assisting each other using the language as a symbolic tool (Hanjani & Li, 2014; Hyland & Hyland, 2006a; Villamil & de Guerrero, 1996; Yu & Lee, 2014, 2016). SCT views language as the most important artefact in mediating language learning through social interaction and as a cognitive tool that mediates the peer feedback activity (Lantolf & Thorne, 2006). When giving and receiving feedback, language is used as a tool to communicate information from the feedback provider to the writer (in feedback comments) and by the writer to process the feedback received (Bitchener & Storch, 2016). In addition, with the advent of technology-enhanced writing platforms and their affordances, the notion of mediation has further been expanded, creating a potentially powerful learning environment for peer feedback activities. Mediation refers to "the process through which humans deploy culturally constructed artefacts, concepts, and activities to regulate the material world or their own and each other's social and mental activity" (Lantolf & Thorne, 2006, p. 79). Bearing this in mind, interaction in technology-enhanced learning environments is

mediated in two ways: using a second language (Lantolf, 2000; Vygotsky, 1978) and through the technology utilized with its multiple affordances (Wertsch, 2007). Chapelle (2003) noted the potential benefits of immediate feedback and easy access to online tools in technology-based L2 writing. Zeng and Takatsuka (2009) found that using online tools in peer feedback activities allowed students to provide assistance to each other in attending to language forms through collaborative dialogue, which enhanced language learning.

Reviewing studies that have examined mediational tool use in peer feedback, most have been conducted in oral peer feedback environments (e.g. Villamil & de Guerrero, 1996; Yu & Lee, 2016a; Zhao, 2018). In their study, Villamil and de Guerrero (1996, p. 61) reported five types of mediating strategies used by L2 learners while engaged in the revision process: employing symbols and external resources; using the L1; providing scaffolding; resorting to interlanguage knowledge; vocalizing private speech. However, studies that have looked into the use of mediational tools in technology-enhanced writing platforms have focused on how learners interact with online resources while composing a text and not while engaging in peer feedback tasks (e.g. Zhang, 2018). Moreover, thus far the multitude of online sources or tools that students use when giving and receiving online written peer feedback have also not been explored. Investigating mediation and tools in peer feedback would explain how they used these tools to facilitate the peer feedback process and consequently benefit their language learning (Zhao, 2018).

Among the new technologies that have recently been employed in L2 writing classrooms is Google Docs, a free online word processing application that affords opportunities for synchronous document sharing, editing, commenting and publishing (Chapelle & Sauro, 2017). Arguably, most peer feedback studies conducted in the synchronous mode have mainly been undertaken through text chat (e.g. Liang, 2010), which despite its benefits, as reported by previous studies, has some limitations. One such limitation is that it is typically separate from the drafting tool and the visual disconnect from the text may contribute added challenge to matching comments provided in text chat to the draft (Cha & Park, 2010). Google Docs as a writing tool has the potential to address this issue as it allows synchronous insertion of comments with direct reference to the text when a student is writing (Chang, Kelly, Satar, & Strobl, 2017). According to Strobl and Satar (2017), Google Docs increases opportunities for feedback provision through modal affordances such as tracking changes, adding colour,

strikethrough text, and hyperlinks to external resources "bringing in external voices to be considered in the production of written language" (p. 395).

While a considerable amount of research has looked into the efficacy of Web 2.0 technologies, such as blogs and wikis, in facilitating peer feedback (Pham & Usaha, 2016, Woo, Chu, & Li, 2013), I suggest that the use of cloud-based technologies such as Google Docs in peer feedback activities is yet to be explored. For a start, the reviewers' and the writers' moves in this technological tool are often logged in the history log of Google Docs and such moves can inform on the behaviours undertaken by writers and/or reviewers. Having said that, this study was undertaken in an online mode in which students had access to the Internet. The reason for this was to see whether or not such access could help peer feedback practice and in what way(s). The data were seen as complementary to those obtained from Google Docs. This is why the role of Screen-O-Matic, screen capture recording software used in the study, was crucial. Information is still needed on how access to online tools and resources such as web search or dictionaries shapes peer feedback comments, the processing of these comments and the impact on revision and language learning.

Given that feedback is a contextualized activity (Hyland & Hyland, 2006b), studies that look into how students provide and respond to their peers' feedback in specific contexts and why they do so in the way they do is lacking. More empirical research is needed to investigate students' learning through their roles as peer reviewers and writers and the factors that may shape their learning processes and outcomes (Yu, 2019). Thus, more qualitative studies should be conducted to explore individual differences and contextual factors that influence students' learning based on peer feedback in academic writing. Approaching peer feedback from a process-oriented sociocultural perspective, this study aimed to understand how Egyptian EFL students perform when they give and receive online peer feedback in Google Docs. Furthermore, this study probed the learners' perceptions of performing online peer feedback activities in Google Docs. To achieve the main aim of the study, the following overarching question was proposed: How do Egyptian EFL students mediate their learning while engaged in giving and receiving peer feedback in Google Docs? This was interrogated through several sub-questions:

RQ1. How do Egyptian EFL reviewers provide online peer feedback on their peers' essays through Google Docs?

a) What types of comments do they provide?
b) What mediational tools (if any) do they employ to provide feedback?
c) Why do they provide feedback in the way they do?

RQ2. How do Egyptian EFL writers use the peer feedback they receive?

a) How do they respond to peer feedback?
b) What mediational tools (if any) do they use when responding to peer feedback?
c) Why do they respond to peer feedback in the way they do?

RQ3. What are Egyptian EFL students' perceptions of online peer feedback in Google Docs?

A multiple case study design was used to develop an in-depth understanding of the online peer feedback process and data were collected from a multiple data collection sources, including background questionnaires, students' history of revisions and peer review comments in Google Docs, screen capture recordings, semi-structured interviews and stimulated recall interviews.

1.2 Context of the study

In Egypt, Arabic is the main medium of instruction in public schools and English is taught as a foreign language starting in Year 1 of the primary stage. Each year, school pupils need to sit an English test to proceed to a higher year. The General Certificate of Secondary Education (GCSE), which is the equivalent of the GCSE in England, includes a national English test that students must pass if they want to study at university, or enrol in an intermediate college or vocational training centre. At the university level, where students enrol in non-English language undergraduate programmes, English is a compulsory subject in the first year. In terms of undergraduate programmes in English, there are English Sections in Faculties of Education and Faculties of Arts. Students who join such programmes can work as EFL teachers after graduation.

Joining a particular programme at a Faculty of Education depends on attainment in the Secondary School Certificate, namely scores in summative assessments of knowledge of compulsory subjects published in government textbooks (El Ebyary, 2010; Hargreaves, 1997). Moreover, students who want to enrol for undergraduate programmes in English need to a) score highly in English and b) pass an English entry

exam designed in house and administered by the English Section they want to join. Faculty of Education undergraduate programmes in English take four years to complete. Such programmes involve a number of courses in English language (e.g. grammar, writing, phonetics) and English literature (e.g. drama, novels, poetry). English is the medium of instruction in these language and literature subjects. The programmes also have a professional element to them in which students study subjects such as educational psychology, child development, and methods of instructions, among others. The language and literature components aim to enhance English language proficiency, whereas the professional training aims to promote the professional aspects of teaching and learning (El Ebyary, 2010). Although various changes have been made to the programme structure over the years, the subjects students have to take in the English Sections have remained unchanged. Upon completion of the programme, a student is granted a Bachelor of Arts degree in Education, becoming officially qualified as an EFL teacher. Thus, the overarching aim of such programmes is described as providing pre-service training for candidates willing to work as EFL teachers in both state and private schools.

In terms of the subject of the thesis, English writing instruction, teaching in the English Section at the university selected for this research has long focused on writing to pass examinations. In this regard, Ahmed and Troudi (2018) point out that the Egyptian socio-cultural context has had an impact on the educational system, resulting in an emphasis primarily on writing to pass examinations and reducing EFL writing to a mere grade. Also, due to the prevailing examination culture and the assessment criteria, which focus on language accuracy, Darwish (2016) noted that both Egyptian EFL teachers and students tend to focus on the mechanics of the language rather than its rhetorical features and cultural norms. English writing is taught using the lecture format, which typically focuses on equipping students with necessary knowledge about essay writing (e.g. creating a thesis statement, writing paragraphs, different genres and improving coherence and cohesion), and knowledge of writing strategies (i.e. generating ideas and revising essays). In terms of teacher feedback practices, the low amount of teacher written feedback, a lack of oral conferences dealing with common writing issues and the infrequent implementation of peer feedback are among the issues reported in the literature (Ahmed, Troudi, & Riley, 2020). For Ahmed (2016), feedback provided on students' written work tends to be too late and lacks the necessary quality to be effective because of the large numbers of students, increasing teaching workloads and a

lack of research and professional development opportunities. This observation was previously made by El Ebyary (2010) and Sleim and Ahmed (2009), who mentioned that although direct assessment of students' written texts is employed as part of formative assessment, students receive very little feedback on their individual written work due to their large numbers compared to the few teachers, who are working under time constraints. Hence, if an instructor were to provide feedback on the written work of each individual student, the logistics would be daunting. The average number of students in a writing class is around 50 to more than 100, which discourages teachers from providing students with enough writing practice and good feedback, and ultimately affects the students' writing development and the quality of their writing (Shaalan, 2017).

However, writing instruction in the English Section has recently moved towards adopting a process approach, but the provision of teacher feedback remains a challenge. Therefore, the implementation of peer feedback is perceived as a sensible way of alleviating the burden imposed on teachers in providing all feedback and at the same time creating learning opportunities for students which can help them improve their writing ability. However, it is worth mentioning here that some researchers (e.g. Razak & Saeed, 2014) have noted that in such contexts it is difficult to engage learners in traditional peer feedback activities. This study was conducted in the English Language Section at a university in the northeast of Egypt, where I worked for nearly 9 years. Therefore, this study was motivated by the challenging issues that arise when writing is taught to EFL learners – specifically Egyptian students – and that are exacerbated by the teachers' heavy workloads. To help address these issues, the study aimed to provide students with opportunities to reflect on and evaluate their own writing and that of their peers by participating in peer feedback activities using Google Docs. It is hoped that the findings of the study can be used to shed light on the usefulness of incorporating online peer feedback in the Egyptian EFL writing context.

1.3 Structure of the thesis

The remainder of this thesis is organized as follows. Chapter 1 has presented the rationale for the study and described the context in which the project took place. The chapter has concluded with the purpose of the study, research questions and an outline of the chapters.

Chapter 2 provides a review of the relevant literature. It presents sociocultural theory (SCT) as the theoretical lens through which peer feedback in language classrooms can be examined (section 2.2). The chapter also presents the main theories of L2 writing, including writing process approaches (section 2.3). This is followed by a discussion of peer feedback in L2 writing pedagogy (section 2.4). In this section, the effects and benefits of peer feedback are discussed (section 2.4.1). There is then a discussion of the challenges of peer feedback (section 2.4.2). Online peer feedback is discussed as an approach to overcome the challenges associated with face-to-face peer feedback (section 2.5). The effects and benefits of online peer feedback, as well as the challenges are addressed (sections 2.5.1 and 2.5.2). Google Docs is introduced as an emerging online collaborative tool used recently in L2 writing classrooms (section 2.5.3). The chapter concludes by identifying the research gap and restating the research questions.

Chapter 3 presents the research methodology employed to answer the research questions. It starts by restating the aim of the study and the appropriate paradigmatic stance (sections 3.2 and 3.3). The chapter also discusses and research design (section 3.4), the study participants (section 3.5) and research strategy (section 3.6). The chapter also discusses the outcomes of the pilot study employed (section 3.7). The chapter also discusses the data collection instruments (section 3.8) and procedures (section 3.9). To analyse the data, a qualitative content analysis approach was adopted (section 3.10). After discussing how the data were analysed, the chapter highlights issues of trustworthiness, with a view to ensuring the rigour of the qualitative enquiry (section 3.11). The chapter concludes by explaining the ethical considerations (section 3.12).

Chapter 4 presents the analysis and discussion. Following the introduction (section 4.1), it starts by providing background information about the participants (section 4.2). This is followed by discussing patterns of peer feedback generated by the students in Google Docs (section 4.3). Section 4.4 discusses mediation in peer feedback. Then, section 4.5, discusses how the writers reacted to such peer feedback and mediation. Section 4.6 presents the online behaviours most frequently observed across the triangulated data. Section 4.7 provides further perceptions collected from interview data in the study. The chapter concludes by summarizing the findings in section 4.8.

Chapter 5 concludes the thesis by reiterating the focus (section 5.1) and summarizing the main findings (section 5.2). This is followed by an acknowledgement of the limitations of the study and suggested directions for future research (section 5.3). The

chapter discusses some implications (section 5.4). The thesis ends by sharing final considerations with the readers (section 5.5).

Chapter 2. Literature Review

2.1 Overview

This chapter discusses the theoretical framework that supports peer feedback (section 3.2), namely sociocultural theory (SCT) (section 2.2). This section focuses on the particular constructs of SCT which are salient to the current study, namely mediation, the Zone of Proximal Development (ZPD), regulation, internalization and its mechanisms. In section 2.3, important theories of L2 writing and writing instruction including writing process approaches, which have been dominating the field of L2 writing research in the past two decades are reviewed. This is followed by a discussion on peer feedback in L2 writing pedagogy (section 2.4). A review of empirical studies on the effects and benefits of peer feedback in L2 contexts is presented (section 2.4.1). The challenges that hinder the implementation of peer feedback as reported by previous research are also discussed (section 2.4.2). As an approach to overcome the challenges associated with FTF peer feedback, online peer feedback is discussed (section 2.5). The section also reviews studies on the effects and benefits of employing different technological tools for peer feedback activities (section 2.5.1). The challenges that hinder the implementation of online peer feedback have also been highlighted (2.5.2). The section also introduces Google Docs as an emerging online collaborative tool used recently in L2 writing classrooms (section 2.5.3). The chapter concludes by identifying the research gaps and the proposed questions to fill those gaps.

2.2 Sociocultural theory

The sociocultural theory (SCT) of human learning, a theory developed by Vygotsky (1978), who contributed significantly to a wide range of disciplines, including developmental psychology and educational research, provides the theoretical framework that guides this study. SCT highlights the causal relationship between social interaction and an individual's internal cognitive processes in co-constructing knowledge in social settings (Donato, 2000; Lantolf, 2000a). Unlike cognitive approaches which view cognition as being individually constructed, with knowledge developing exclusively inside the individual mind, SCT proposes that all cognitive development, including language development, is inherently social and mediated by artefacts and then internalized (Lantolf & Pavlenko, 1995; Swain & Watanabe, 2013). The underlying premise of SCT is that learning occurs as a result of contextualized interactions that

learners have with each other, especially when they are given opportunities to interact with more knowledgeable others (e.g. teachers and more competent leaners). SCT argues that the relationship between the mind and human interactions with others and with their surrounding context is central to the ability to learn aspects entailing higher mental activity, such as logical reasoning, planning, voluntary memory, attention and problem solving (Lantolf & Thorne, 2006). The process of learning in this theory, therefore, cannot be separated from the social and cultural context in which a learner is embedded. From this perspective, Lantolf and Thorne (2007) emphasize that an individual's cognitive development "takes place through participating in cultural, linguistic, and historically formed settings such as family life and peer interaction, and in institutional contexts such as schooling" (p. 197). In describing this process of how L2 is acquired, sociocultural theorists use various key concepts that are most relevant to language acquisition.

2.2.1 Mediation and tools

A central aspect of SCT is the fact that higher mental functions are culturally and historically mediated, either physically or symbolically, through culturally constructed tools and artefacts (Lantolf, Thorne, & Poehner, 2015; Wertsch, 2007). Vygotsky (1978) argued that humans do not interact directly with the surrounding physical world; rather they use tools and signs to regulate (i.e. gain control over and transform) their material worlds (Lantolf, 2000). The use of tools and artefacts is at the core of the concept of mediation. This concept of mediation can be exemplified by the unique nature of modern humans, who often use tools to facilitate action rather than being directly engaged with the physical world (Lantolf & Thorne, 2006). In elaborating the concept of mediation, Lantolf and Thorne (2006) provide the example of digging a hole in the ground, a task for which modern humans use a shovel as it is more efficient than using their bare hands.

From the SCT perspective, higher forms of thinking develop from interactions within the social milieu and are mediated through physical tools (e.g. computers), or symbolic tools or artefacts (e.g. gestures and language), which enable interaction to take place (e.g. dialogue, use of gestures, or use of computer-mediated forms of communication) (Loewen & Sato, 2017). Through mediation in interaction, humans deploy culturally constructed physical and symbolic tools and artefacts to mediate the relationships between themselves and the environment (Vygotsky, 1981). Figure 2.1 shows how

these tools, as mediational means, connect the individual and the environment, not only facilitating but also transforming human thinking.

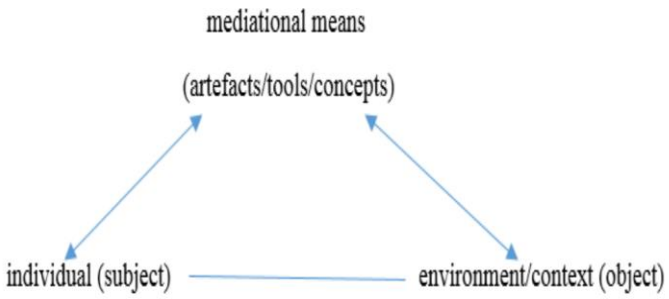


Figure 2.1 Mediational means

By means of mediational means and cultural artefacts, people can mediate their learning behaviours, adapting these means to cope with their dynamic learning needs (Wertsch, 1998). It has been argued that to understand the developmental processes and mechanisms as they emerge when L2 learners are engaged in a mediated activity, it is important to examine such activity as it evolves during learners' interactions with these various mediational means and cultural artefacts and – importantly – with others (Gánem-Gutiérrez & Gilmore, 2018).

2.2.2 Language as a mediational tool

Among mediational tools, language is considered the most the most pervasive and powerful in helping to mediate the relationship between the individual and the social world (Lantolf & Poehner, 2008; Lantolf & Thorne, 2006, 2007). It is through language that the higher functions of human mental activity, such as voluntary attention and logical memory and problem solving, are developed (Lantolf & Thorne, 2006, p. 198). For Vygotsky (1978), language is characterized as a cultural tool (for the construction and sharing of knowledge among individuals in a certain society on the social plane) and as a psychological tool (for generating the processes and creating content of individual thought on the psychological plane). According to Lantolf (2000b), language is used from one generation to another as both a communicative and psychological tool that helps develop an individual's cognitive processing (Lantolf, 2000b).

Applying a Vygotskian SCT perspective in the L2 classroom, social interaction with peers is regarded as an essential role in language development (Brooks & Swain, 2009; Leeser, 2004; Watanabe, 2008; Watanabe & Swain, 2007). This perspective assumes that all knowledge appears first when the learner participates

in cooperative social activity and then is internalized through the use of language as a tool (Swain, 1997). SCT suggests that peer interaction activities can be introduced into such L2 classes because they provide students with opportunities to participate in concrete social interaction, trying to solve problems together by using the target language. In this regard, language mediates L2 learners who jointly collaborate to solve linguistic issues and/or co-construct knowledge about the target language through interaction. This co-construction of meaning occurs through collaborative dialogue, defined by Swain (2002) as dialogic interaction in which "learners work together to solve linguistic problems and/or co-construct language or knowledge about language" (p. 172). Thus, in collaborative dialogue, output serves a cognitive function and thus speaking and/or writing activities are of paramount importance in aiding L2 learning as they mediate their understanding of how lexical and syntactic systems function in the target language.

As L2 learners engage in collaborative dialogue, they are also engaged in what Swain (2000, 2006) terms *languaging*, a "process of making meaning and shaping knowledge and experience through language" (p. 89). Swain (2006) coined the term languaging to capture the dual functions of language (i.e. social and cognitive) that unfold during interaction between learners as they work together to complete a language task (Roberson, 2014). To Swain (2006), languaging reflects "the process of making meaning and shaping knowledge and experience through language" (p. 98) and is where the mediation of output resides. Languaging can take the form of private speech or collaborative dialogue (Swain, 2006; Swain, 2013). *Collaborative dialogue* occurs when learners, either in groups or pairs, engage in problem solving and knowledge building by talking the problem through together (Swain, 2000; Swain & Lapkin, 2002). Languaging can occur at the individual level in the form of private speech or speech directed to oneself, which is also referred to as self-explanation. Private speech occurs when a learner works alone and engages in a dialogue with the self, either in verbal form (Chi, Bassok, Lewis, Reimann, & Glaser, 1989), or written form (e.g. Große & Renkl, 2006) to mediate mental behaviour. In operationalizing the concept of collaborative dialogue, researchers have used the *language-related episode (LRE)* as the unit of analysis. Swain and Lapkin (1998) defined an LRE as "any part of a dialogue where the students talk about the language they are producing, question their language use, or correct themselves or others" (p. 326). In the light of this definition, two main types of LRE have been identified: lexical and grammatical.

2.2.3 Regulation and internalization

SCT posits that learning appears first at the social level (i.e. interpsychological) through social interactions between individuals, with physical artefacts (e.g. the computer and the textbook) and more capable others (e.g. teachers and peers) and is then appropriated by the individual's cognitive processes (i.e. intrapsychological) (Lantolf, 2000b; Vygotsky, 1978). This shift from interpsychological to intrapsychological functioning can be explained with reference to the concepts of *regulation* and *internalization.* Regulation refers to a human's capacity to regulate own mental functioning and activity using tools (i.e. mediation). This process of internalization can be assessed in terms of three recurring stages (see Figure 2.2): (a) *object-regulation*, which is the stage of development in which learners are mediated through the use of external artefacts – cultural tools or symbols – such as numbers, art, music, language or technology; (b) *other-regulation*, which describes development supported by other people; (c) *self-regulation*, which describes the capacity for independent strategic functioning (Lantolf & Thorne, 2007).

Figure 2.2 The internalization process

Regulation begins when children (while learning a language) take words used by other members of their community and use them to regulate their own linguistic activities. Just as humans use physical tools, such as pencils, hammers, to assist in the completion of tasks, they also use symbolic tools (or artefacts) such as language, numbers, arithmetic systems, music and art, to interact with others and mediate their place in society.

In the first stage, object-regulation, children are controlled by the objects of their environment, e.g. a parent wants a child to fetch a toy, but the child will be distracted by other toys (more colourful or larger ones) and may not fulfil the parent's request. In the second stage, other-regulation, there is implicit and explicit mediation from parents, peers, teachers, etc., i.e. the provision of different levels of assistance and scaffolding. For instance, the parent indicates the direction of the toy's location to avoid distractions. In the third stage, self-regulation, the ability has developed to carry out activities with

minimal or no help, for example an 8-year-old child will not need to use blocks to add 2+2. It is in this final stage that internalization is possible (Lantolf & Thorne, 2006).

2.2.4 Zone of proximal development and scaffolding

One cornerstone of Vygotsky's (1978) theory is what he called the Zone of Proximal Development (ZPD). In the L2 classroom context, Ohta (2001) adapted the notion of the ZPD to explain how peer assistance is linked to language development, defining the ZPD as:

> …the distance between the actual developmental level as determined by individual linguistic production, and the level of potential development as determined through language produced collaboratively with a teacher or peer. (p. 9)

Originally proposed to assess the skills and learning capabilities of children with special needs, the ZPD concerns developmental potential in terms of the difference between a child's independent problem-solving capability and that under adult guidance or in collaboration with more capable peers (Vygotsky, 1978, p. 86). Thus, the ZPD bridges the gap between what the learner can perform without assistance (current level of development) and what can only be achieved with careful assistance by more knowledgeable or more experienced others, such as more capable peers or teachers (future level of development). Aljaafreh and Lantolf (1994) consider that the ZPD is primarily concerned with interaction between an "expert" and a "novice", in which the expert (usually a parent or a teacher) provides support to the novice (a child or a learner). According to Storch (2002), the ZPD acknowledges the dynamic nature of the interactions between teachers, learners and tasks, which creates conditions conducive to learning.

It has been argued that languaging takes place within the ZPD, which is expanded to include peer interaction. This view posits that L2 learning is most likely to occur through interaction between a less competent learner and a more competent learner, who work jointly on solving language problems and negotiating meaning. Ohta (2001) found that when engaged in a collaborative dialogue, peers are able to assist each other because they bring different strengths and weaknesses to each learning situation in which they participate and therefore can share their knowledge with one another. In addition, students play different roles when they participate in different activities and assist each other through these roles. There is no "unequivocal expert" (p. 74): rather,

the learners exchange the roles of "expert" and "novice" in these learning activities. Ohta (2001) argued that learners' linguistic strengths could be pooled collaboratively in the ZPD, thereby enhancing the accuracy of the language produced.

The ZPD is closely associated with the metaphor of scaffolding, another central Vygotskyan concept introduced by Wood, Bruner, and Ross (1976) while investigating parent tutoring in the early years. Although Vygotsky never used the term scaffolding, its theoretical underpinning "lies very much within the Vygotskian framework" (Hammond & Gibbons, 2001, p. 8). A growing number of scholars have used this term to describe the assistance a teacher or more capable peer can give to someone who is less skilled in order to solve a problem. In the context of L2 language learning, peer/group work among L2 language learners provides the same kind of scaffolded assistance as in expert/novice relationships in the everyday setting. Aljaafreh and Lantolf (1994, p. 468) pointed out some important characteristics of scaffolding in L2 contexts, namely that the tutor's intervention should be "graduated" (sensitive to the level of help required by the learner), "contingent" (offered only when needed), and "dialogic" (achieved through the medium of dialogue).

A number of empirical studies have used SCT as a theoretical framework investigating language-learning processes (e.g. Donato, 1994, 2000; Swain, 2000; Swain & Watanabe, 2012; Watanabe & Swain, 2007; Wigglesworth & Storch, 2009). In addition, a number of scholars have used this theoretical framework to investigate writing processes and peer feedback in L2 contexts (e.g. de Guerrero & Villamil, 2000; Hanjani & Li, 2014; Storch, 2002). For example, de Guerrero and Villamil (1994) examined the cognitive stages of regulation that might occur when L2 students engage in peer review interactions. Findings of the study showed different interactive processes and social relationships that occurred during the peer revisions. The study showed that students displayed movement between object-regulation, other-regulation and self-regulation during interactions. More specifically, students managed to adjust the way they interact with one another as a result of the changes in tasks and demands. Also, students displayed different patterns of social relationships that resulted from their stages of cognitive regulation.

Among all the SCT concepts, the application of mediation has recently become prominent in L2 writing research (e.g. Kang & Pyun, 2013; Lei, 2008, 2016; Rahimi & Noroozisiam, 2013; Yang, 2014). Kang and Pyun (2013) applied the Vygotskian SCT

perspective to examine the different writing strategies and mediated actions of two US learners of Korean. The findings showed that the situating of learners in a social context can have an influence on the types of writing strategies (e.g. first language [L1]-mediated strategies, L2-mediated strategies, or community-mediated strategies), and the mediational tools they tend to use or prefer. They further added that students' final writing products were found to be linked not only to students' mental decisions, but also the "interplay between sociocultural factors including a learner's cultural/historical experience, L2 proficiency, motivation, learning goals, and the context or the community in which the learner is situated" (p. 64).

Of the limited research that has adopted the Vygotskian concept of mediation to study peer revision in L2 writing, Villamil and de Guerrero (1996) carried out a detailed microgenetic analysis to observe the mediating strategies used by 54 L2 Spanish-speaking learners during peer revision activities. They identified five types of mediating strategies used by the L2 learners during the revision process: employing symbols and external resources; using the first language (L1); providing scaffolding; resorting to interlanguage knowledge; vocalizing private speech. Their results highlight the importance of activating students' cognitive processes via social interaction in the L2 writing classroom. Based on this study, de Guerrero and Villamil (2000) embarked on examining how two intermediate ESL Spanish college students, one as a writer and one as a reviewer, learned from each other (a mediation strategy) while engaged in a peer review activity. In their study, the reviewer played a key role as mediator, particularly in the first half of the peer review session, exhibiting several behaviours that facilitated advancement through the task. The study stressed the usefulness of articulating the process through which independent performance in revising a text is shaped and transformed by social mediation.

Informed by activity theory (AT) (a sub-branch of SCT), Yu and Lee (2016) investigated the mediating strategies that EFL Chinese students employ during peer revision. Data sources included video recordings of peer review sessions, semi-structured interviews, stimulated recalls and written drafts of students' writing. They identified five strategies that were employed by four Chinese EFL learners in grouped peer review on an argumentative essay: using the L1, employing L2 writing criteria, adopting rules of group activities, seeking help from teachers, and playing different roles. These strategies enabled the participants to contribute to the task and engage with each other's contributions.

In a more recent study, Zhao (2018) investigated the strategies mediating writers' understanding of peer feedback and the dynamics of peer interaction across 13 EFL Chinese peer review dyads who participated in peer review in six writing genres. Quantitative and qualitative data were obtained through audio-recording of students' interactions during the peer feedback sessions. The findings revealed three distinct interaction patterns and associated varieties of mediating strategies, amounts of oral peer feedback and focuses of peer interaction. This study highlighted the importance of exploring the process of peer review for EFL writing.

These previous studies emphasize the need to perceive peer feedback as a socially mediated activity in which students draw on different mediational tools to facilitate peer review of writing. Despite being carried out in conventional peer feedback settings, they yield insightful information on how peer reviewers mediate the negotiation of peer feedback with student writers. They have shown that students engage in different forms of mediation, such as using L1 or L2, seeking help from teachers, and exploiting other external resources. Building on these studies, this research examines the use of mediational tools in online peer feedback to provide a more in-depth understanding of the nature of the mediation process in peer feedback in technology settings.

2.3 Second language (L2) writing and process writing theories

Writing is often considered to be one of the most complex human activities due its heavy cognitive demands. This complex activity is not innate; it requires specific training and practice (Brown, 2007; Grabe & Kaplan, 1996; K. Hyland, 2003). Brown (2007) states that the process of writing requires the writer to meet the needs of a certain audience and to provide tools that help readers infer and interpret what is between the lines. In addition, it requires writers to consider the reader's cultural background, literary schemata and subject-matter knowledge (Brown, 2007). While writing in L1 is a complex process that includes cognitive, affective and socio-cultural domains, writing in the L2 may be considerably more complex (Silva, 1988). This added complexity is particularly because L2 writers need to able to generate ideas using the right words, make well-organized paragraphs, and to turn ideas into a comprehensible text (Richards & Renandya, 2002). While writing in L1 includes "producing content, drafting ideas, revising writing, choosing appropriate vocabulary, and editing text" the difficulty in writing in L2 is doubled as it involves "all of these elements jumbled with second language processing issues" (Wolfersberger, 2003, p.1). Notwithstanding the

differences between them, the L2 writing contexts have been greatly influenced by L1 writing theories due to the similar characteristics L2 writing researchers have found in the writing behaviours of unskilled L1 writers and L2 writers (Sommers, 1980; Zamel, 1985).

To illustrate the cyclical and complicated attributes of the writing process, several models have been proposed setting out the stages that writers follow when composing a piece of work (Flower & Hayes, 1981; Hayes, 1996, 2006; Kellogg, 1996, White & Arndt, 1991). Informed by cognitive process theory, proposed at the end of 1960s, Flower and Hayes (1981) constructed a working model of the writing process which illustrates what writers go through when they write a text. Flower and Hayes (1981) viewed writing composition as a goal-oriented process comprising three parts: (i) the task environment (receiving the rhetorical problem together with the topic and moving through the written text); (ii) the writer's long-term memory (extracting prior knowledge of the topic, audience and writing plan); (iii) writing processes (the basic processes of planning, translating and reviewing under the control of a monitor).

Within this traditional cognitive framework, writing is described as a "non-linear, exploratory and generative process whereby writers discover and reformulate their ideas as they attempt to approximate meaning" (Zamel, 1983, p. 165). Based on this model, writers employ strategies such as planning, monitoring, generating ideas, and revising (Berninger, Fuller, & Whitaker, 1996; Flower & Hayes, 1980, 1981). However, Prior (2006, p. 54) argues that this purely cognitive view of writing was "too narrow in its understanding of context and was eclipsed by studies that attended to social, historical, and political contexts of writing".

Influenced by Vygotsky's SCT, which emphasizes the interconnections between the social and individual processes in human cognitive development, there has been an increasing tendency to view writing as a socially and contextually situated (Slavkov, 2015). Understanding the mediating role that cultural and psychological tools might play within a specific contextualized writing task is central to an understanding of writing development (Thompson, 2013). As Arndt (1993, p. 90) pointed out, "writing is seen not as a de-contextualized solo-performance but as an interactive, social process of construction of meaning between writer and reader". Farrokh and Rahmani (2017) added that writing comprises a dynamic interaction between the text, the writer and the reader, and teaching this skill is crucial. This is because writing is not only a way in

which discourse is manifested but also a way of presenting linguistic knowledge. In developing this skill, teachers can help draw students' attention to the characteristics of the communicative act of writing and thus help them to communicate through writing.

In terms of writing instruction in L2 contexts, research has shifted from focusing on traditional product-oriented approaches, concentrating on the finished final product, to the process through which writing takes place. Pincas (1982) states that the product approach views writing as linguistic knowledge that stresses the appropriate use of words and lexical cohesion. This traditional teacher-centred approach originated from the theory of behaviourism, which describes teaching as a process of stimulus and response. In this approach, the teacher focuses primarily on the final product, evaluating students' written expression regardless of the steps undertaken in the writing process itself. In a typical product approach-oriented classroom, students are offered a standard model to follow to create a piece of writing. The sequence of activities in this approach comprises four steps: (i) familiarization, in which the learners study grammar and vocabulary; (ii) controlled writing, in which the learners imitate given patterns; (iii) guided writing, in which the learners manipulate model texts; (iv) free writing, in which the learners use the patterns they have developed to write paragraphs and essays. (Richards, 2002). Based on this approach, feedback that students receive from the teacher or from peers is provided only on the final product (Grami, 2010). This approach has received much criticism due to a number of limitations associated with it. Badger and White (2000) claimed that it ignores important aspects of writing, such as generating ideas, drafting and revising. Another criticism of this approach is that it restricts the freedom of expression of individual writers and thus disregards "the reality of the conscious, responsible, willing person" (Rohman, 1965, p. 108).

The limitations identified in the product approach led to the emergence of the process approach to L2, which views writing as a dynamic, recursive, contextualized, socially constructed process of invention and meaning making (Flower & Hayes, 1981; Mangelsdorf, 1992; Zamel, 1983). Process writing approaches attempt to create an "environment in which students are acknowledged as writers, encouraged to take risks, and engaged in creating meaning" (Zamel, 1987, p. 697). Badger and White (2000) provide a useful summary of the process writing approach:

> …writing in process approaches is seen as predominantly to do with linguistic skills, such as planning and drafting, and there is much less emphasis on linguistic knowledge, such as knowledge about grammar and text structure. (p. 154)

In terms of writing instruction, writing process approaches provide more meaningful interactions between the teacher and students than product approaches (Jin, 2007). Rather than providing feedback only on a completed final draft, process writing approaches encourage multiple drafting, with between-draft feedback from a teacher and/or peer (Zhang & Eneaney, 2019). Using a non-linear style, the process approach encourages students to follow four main stages in writing a text: prewriting, drafting, feedback, and revision (Ferris, 2003). The teacher only facilitates students' engagement in process of writing, instead of presenting information or motivating (Badger & White, 2000). Throughout the process, the different stages of the writing process are revisited iteratively to revise and refine the piece of writing.

Feedback is seen as a fundamental element in the process approach to writing. As stated by Ene and Upton (2018), "feedback includes comments/commentary/response as well as corrective feedback (CF), which focuses on formal aspects of learners' language and is provided with the intent to improve linguistic accuracy" (p. 1). Feedback as part of the process of writing has been the topic of many studies in L2 writing (e.g. Bitchener & Knoch, 2010; Ferris, 2005, 2010). Feedback is an essential element of formative assessment, which, if implemented appropriately, can enhance students' learning (Hattie & Timperley, 2007). Although studies such as those of Ferris (1999, 2010) that have investigated linguistic development have been useful in examining the impact of feedback on accuracy, they have been criticized due to the negative effects of corrective feedback on linguistic accuracy. A study conducted by Kubota (2001) found that the corrections students made based on such feedback hindered their creativity. That is, instead of making an effort to clarify or correct the issues in a certain passage, students kept deleting or reducing the text. As argued by Colpitts and Past (2019), one possible solution to the problem of promoting both accuracy and creativity is peer feedback. The following sections start by defining peer feedback in L2 writing and providing the rationale for this activity. Research findings that highlight the effectiveness of peer feedback are then presented, followed by challenges that hinder the implementation of this activity in L2 writing classrooms.

2.4 Peer feedback in L2 writing

Among the different types of feedback, peer feedback has been widely used in L1 writing classrooms (e.g. Baker, 2016; Fitzgerald & Markham, 1987; Gere, 1987; Nystrand, 1984) and L2 writing contexts (e.g. Lundstrom & Baker, 2009; Paulus, 1999).

Peer feedback, also referred to as peer review, peer editing, peer response, or peer evaluation, can be defined 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. (Liu & Hansen, 2002, p. 1)

Peer feedback on written drafts can be either oral, written, or a mixture of both oral and written. According to Yim, Zheng, and Warschauer (2017), peer feedback is the simplest and most frequently used type of collaboration in writing contexts when compared to other forms of collaboration in which mutual responsibility and specific strict roles are assigned (e.g. joint writing, parallel writing). It is an interactive and reciprocal process in which students play the role of feedback provider (reviewer) and/or feedback receiver (writer) (Caoa et al., 2019). Dyadic peer revision "offers an opportunity for bilateral, rather than unilateral, participation and learning; in other words, both peers may give and receive help, both peers may 'teach' and learn how to revise" (Villamil & de Guerrero,1996, p. 69).

Peer feedback is often associated with process approaches to writing instruction as it fits well with the stages of these approaches, such as prewriting and multiple drafting with an emphasis on revision, which is considered to be at the centre of such approaches (Jacobs, Curtis, Braine, & Huang, 1998; Nelson & Carson, 1998; Paulus, 1999). Proponents of peer feedback believe that there is a strong rationale for having learners review their peers' written work. This aligns with the view of writing as a socially constructed activity in which cognitive development results from interaction (see section 2.3). In addition, peer feedback motivates L2 students to activate their thinking instead of passively receiving information from the teacher (Mendonca & Johnson, 1994). It helps instructors attain similar results while reducing the burden of providing all the feedback when dealing with large classes (Pham, 2020).

Returning to the SCT perspective, it stipulates that language learning through social interaction (section 2.1) is considered a suitable framework for examining peer feedback interaction because it emphasizes the important role of social interaction, mediation of language and other tools in the process of human cognitive development (Allen & Mills, 2014). As a theoretical framework, SCT is helpful in providing opportunities for

understanding the impact of the process on both the reviewer and the writer. Villamil and de Guerrero (2006) argue that:

> Part of the great appeal of peer feedback is also derived, in our view, from its strong foothold in theoretical principles relating social interaction and mediation to individual development. These principles are best expressed in the sociocultural theory of the developmental psychologist Lev Vygotsky. (p. 23)

As a reciprocal learning activity, peer feedback provides "a favourable instructional environment for readers and writers to work within their respective […] ZPD" (Villamil & de Guerrero, 1998, p. 495). Peer feedback activities involve collaborative dialogue, which mediates language learning and fosters self-regulation in writing since the students pay attention to the language they use while they are engaged in dialogue (Martin-Beltrán, Chen, & Guzman, 2018). Previous studies framed within SCT have noted that language mediation is most effective when it is within the learners' ZPD (Nassaji & Swain, 2000). More specifically, language mediation within the ZPD was shown to enable learners to shift from other-regulation (i.e. identify errors with assistance) to self-regulation (i.e. the ability to identify errors independently) both within and across interactions (Aljaafreh & Lantolf, 1994). This indicates the importance of examining the negotiation process of other-regulation that occurs between learners and others (e.g. teachers and peers) to explore the role of other-regulation in enhancing language development (Zhao, 2018).

The next section reviews studies that have examined the effects and benefits of FTF peer feedback in L2 contexts (e.g. Berggren, 2015; Guerrero & Villamil, 2000; Lockhart & Ng, 1995; Lundstrom & Baker, 2009; Tsui, & Ng, 2000).

2.4.1 Effects and benefits of peer feedback

As the popularity of peer feedback in L2 writing classrooms has increased, so has the number of empirical studies investigating the effects and benefits of the application of this technique. These studies have provided generally positive evidence to support the effectiveness of peer feedback as a useful pedagogical activity in L2 writing classes (de Guerrero & Villamil, 2000; Lockhart & Ng, 1995; Lee, 2015; Lundstrom & Baker, 2009; Tsui & Ng, 2000). They have found that peer feedback can help promote language learner autonomy (Ekşi, 2012), enhances students' sense of audience (Tsui & Ng, 2000) and develop learners' writing skills in revised text drafts (Diab, 2010).

Empirical studies in peer feedback have also found that it could be as beneficial as teacher feedback for student writers. For example, one of the earliest studies to examine the effectiveness of peer feedback as part of an intensive English language course for ESL learners was conducted by Paulus (1999) at a public university in the US. Despite students' preference for teacher feedback over peer feedback, Paulus noted that they showed greater writing gains regardless of the feedback source. Zhao (2010) investigated 18 Chinese EFL learners' use and understanding of peer and teacher feedback. Although students incorporated more teacher feedback than peer feedback in their revised drafts (74% vs. 46%), they understood a greater proportion of peer feedback (83%) than teacher feedback (58%). This finding indicates that EFL learners may not fully understand teacher feedback and therefore may benefit more from peer feedback. Drawing on SCT and the concept of *internalization* (see section 2.2.3), Zhao (2018) maintains that understanding is crucial to the process of internalizing feedback.

In an eight-month longitudinal ethnographic case study, Seror (2011) examined the feedback experiences of five L2 Japanese undergraduates working on their L2 writing in regular content courses at a large Canadian university. Although the findings of this study emphasized the value of teacher feedback, it also highlighted the importance of peer feedback in developing students' L2 writing. Seror (2011) argued that peer feedback can be regarded as one of the "valuable sources of advice on writing that could compensate for perceived problems with content instructors' feedback" (p. 118). Lee (2008) examined how 76 students in two Hong Kong secondary classrooms responded to their teachers' feedback. The findings suggested that the teachers' feedback made students passive and more dependent on teachers. In another study, Yang et al. (2006) compared peer and teacher feedback in the Chinese EFL writing context and found that the group of students who received peer feedback only made more meaning-based changes than did the group who received teacher feedback, suggesting that peer feedback may help students shift their attention from focusing on form to focus on meaning in writing.

In a study conducted by Lin and Chien (2009) in Taiwan, 16 university students were trained to provide feedback on their peers' writing in both their L1 and L2. In addition, seven of the participants at the end of the study were surveyed on their attitudes towards peer feedback. Most participants believed that peer feedback positively helped improve their English writing. Students also found their peers' feedback was easier to read than that of their teacher because they felt more relaxed with their peers. They indicated that

they enjoyed peer feedback because the peer correction gave them the opportunity to establish their peers' writing proficiency, which made them feel more comfortable. In their study, students' anxiety created by the teachers' direct feedback lowered their motivation. Ekşi (2012) compared the effectiveness of peer feedback in comparison to teacher feedback on students' writing performance in a Turkish EFL university writing context. The findings of the study showed that even though the peer feedback group made many surface-level changes at the beginning, they gradually increased deep-level changes. There were no significant differences between the two groups in terms of their writing performance. However, in terms of teacher workload, the peer feedback alleviated the burden of commenting on students' written work, so peer feedback is a worthwhile alternative technique to teacher feedback.

With regard to the students' dual roles in the peer feedback process (i.e. the reviewer providing feedback and the writer receiving feedback), empirical studies have also documented the positive impact this pedagogical activity can have for the two roles separately. For the writers or receivers, some scholars have argued that peer feedback is conducive to improving writing performance, particularly in the areas of mechanics, grammar, idea development, and logic (e.g. Hu & Lam, 2010; Yang, 2016). The receivers or the writers can also develop critical writing techniques, such as writing to a real audience, acknowledging others' ideas and points of view, and effectively revising their writing (Rollinson, 2005;) In addition, empirical studies have looked into the benefits of peer feedback for the reviewers (e.g. Berggren, 2014; Cho & Cho, 2011; Wakabayashi, 2013). These studies have argued that it is not just receiving feedback that is beneficial; the act of providing feedback can also be beneficial. Rollinson (2005), for example, argued that peer feedback helps students learn to engage in critical self-evaluation of their own writing. Another claimed benefit of critical peer evaluation is that reviewers can learn by identifying problems that exist in the peer's writing and then producing solutions for those problems, explaining what makes the writer's text good or bad (Cho & Cho, 2011). This process requires reviewers to engage actively with the assessment criteria (Huisman, Saab, Driel, & Broek, 2018).

Lundstrom and Baker (2009) investigated whether receiving or giving feedback was more beneficial to university ESL learners of different proficiency levels over one semester. While the control group ("receivers") received peer feedback but did not offer feedback on the other students' writing, the experimental group ("givers") gave feedback but received no peer feedback. The findings of the study showed that lower

proficiency feedback givers made slightly greater gains in the global aspects (e.g. content and organization) than local (e.g. grammar, word choice, and mechanics) of their writing. They also shed light on the benefits of providing feedback, stating that "the skill of being able to critically evaluate writing … is a very necessary skill for quality writing and academic success in general" (Lundstrom & Baker, 2009, p. 31). However, it is worth mentioning that the study was not conducted in an authentic educational environment since the study separated the giving and receiving of feedback and there was no interaction between reviewers and writers.

In a longitudinal study, Tsui and Ng (2000) examined the impact of peer and teacher feedback on the written work of 27 secondary EFL students in Hong Kong. Although all students incorporated a higher proportion of teacher feedback than peer feedback, the study found that students became more audience conscious when reviewing their peers' essays and benefited more from providing than receiving peer feedback, which suggests that adopting peer feedback may contribute to the development of learner autonomy. Furthermore, peer feedback enhanced ownership of the text: because "peer comments are not seen as authoritative, students feel that they have autonomy over their own text and make their own decisions on whether they should take the comments on board or not" (Tsui & Ng, 2000, p. 167). Adopting a qualitative approach, Berggren (2015) examined how Swedish EFL secondary students' writing performance improved through the provision of peer feedback. The study targeted two classes of Swedish lower secondary students using data from their drafts, a feedback criteria list and feedback forms. In addition, the students provided genre-specific information (e.g. greeting or acknowledging in the response letter). The findings suggested that giving feedback might have enhanced students' awareness of the audience and genre, and the process of peer feedback stimulated further revisions and improved writing at the global level (content in particular).

The effectiveness of peer feedback has also been gauged by looking at whether a revision suggested by a reviewer is accepted and taken on board by the writers or not (e.g. Connor & Asenavage, 1994; Mendonça & Johnson, 1994; Nelson & Murphy, 1993; Paulus, 1999; Tsui & Ng, 2000; Villamil & de Guerrero, 1998; Wu, 2006; Yang et al., 2006). This does not necessarily involve examining the quality of the feedback provided or whether it results in better writing quality (Min, 2006). For example, in a study of two peer feedback groups (N = 8), Connor and Asenavage (1994) found that only about 5 % of students' revisions resulted from comments made by peers; rather,

the majority of their revisions resulted from other sources (teacher feedback and the writer's own textual revisions). Similarly, Rabiee (2010) found only small proportions of revisions resulting from peer feedback in a study undertaken in an Iranian EFL setting. In her study, she compared three groups of students: those who received only teacher comments, those who received only peer comments, and those who received both teacher and peer comments. The results showed that the peer comments group presented the least gains in holistic scoring from first to second drafts. In another study, Yang, Badger, and Yu (2006) compared peer and teacher feedback in the Chinese EFL writing context and found that students also incorporated more teacher feedback (90%) than peer feedback (76%) in their revisions.

However, it would not necessarily be correct to draw the conclusion that peer feedback has little impact on students' revisions based on the findings of these studies, even if the revisions triggered by peer feedback were not high, because they were conducted in settings in which students received both teacher feedback and peer feedback simultaneously in writing classes. It is not surprising that when students have access to both teacher feedback and peer feedback, they will incorporate more of the teacher feedback than comments made by their peers. Supporting this argument, Jacobs et al. (1998) noted that forcing students to choose between peer and teacher feedback was not appropriate, because the two sources of feedback are not mutually exclusive. When the students were not forced to choose between the two sources, they welcomed both peer and teacher feedback. This suggests that settings in which peer feedback is the only source of feedback or is employed separately from teacher feedback in the process of revision might yield a higher acceptance of peer feedback.

Research has also examined the effectiveness of peer feedback based on the quality of writing after peer feedback activities. For example, Kamimura (2006) examined the impact of peer feedback on students' revisions in two Japanese university-level classes. In addition, the study examined differences in the content of peers' comments based on their level of English proficiency. The participants' EFL proficiency levels in the two classes were categorized as high and low based on the General Test of English Language Proficiency. Although the findings showed that higher English proficiency students tended to focus on giving feedback on discourse-level issues, whereas lower English proficiency students provided feedback that deal with sentence-level issues, both high- and low-level students benefited from peer feedback and improved their writing products. Diab (2011) compared the writing quality of a peer feedback group

and a self-feedback group at a Lebanese university. The findings indicated that the students in the peer feedback group produced significantly better revised drafts than those in the self-feedback group with regard to rule-based issues (subject/verb agreement, pronoun agreement). The study attributed the positive impact of peer feedback on students' writing to the utilization of language learning strategies, interaction between peers, and engagement with language during peer feedback.

The studies reviewed in this section have provided generally positive empirical evidence to support the use of peer feedback in L2 writing classes. The review has shown that although students tend to accept and incorporate teachers' comments more than peers' comments, peer comments can also be as effective as teacher feedback (Zhao 2010). Peer feedback can enhance writers' sense of audience and reviewers' awareness of their own writing issues (Tsui & Ng, 2000). These positive perceptions on peer feedback, however, have not gone unchallenged. The following section discusses the challenges that might hinder the successful implementation of peer feedback in L2 contexts.

2.4.2 Challenges in implementing peer feedback

Notwithstanding the positive findings concerning the implementation of peer feedback in L2 writing classrooms, empirical studies have reported some challenges in undertaking such activities in L2 writing classrooms. One of the challenges most commonly reported is that writers do not trust their peer reviewers' comments and question their peers' ability to provide specific and correct feedback (e.g. Carson & Nelson, 1996; Fei, 2006; Park, 2018). Even when writers receive valid feedback from their peers, they can be hesitant about accepting it, but would accept feedback provided by the teacher (Leki, 1990). Amores (1997) found that when writers perceived themselves to be lower in language proficiency compared to their peer, they were more willing to accept and incorporate their peers' comments in their subsequent drafts. Ho et.al., (2020) argued that the trust issues associated with reviewers' abilities in providing valid comments can be attributed to the fact that the reviewers' comments always target surface issues, rather than marking learning improvements. Indeed, the ability to provide comments on global features (content and organization) in the text has been regarded as indicative of a successful peer response and has been found to be more helpful in improving the quality of students' essays (Hu, 2005; Zue, 1995). In relation to this, Lundstrom and Baker (2009) noted:

> The skill of being able to critically evaluate writing, defined as the ability to look at a classmate's writing and then provide effective feedback, particularly on a global level (i.e., at the level of content and organization), is a very necessary skill for quality writing and academic success in general. (p. 31)

A number of studies have reported multiple reasons for novice writers' tendency to focus on micro-level features rather than macro-level features in their feedback. For example, Alnasser (2013) found that this tendency may be attributed to the influence of form-based instruction in contexts in which teachers put great emphasis on language accuracy and pay very limited attention to language meaning. Consequently, students may themselves assume that they need to put more emphasis on micro-level features. In addition, students may find it difficult to provide feedback on content and therefore prefer to target issues such as grammar, wording and mechanics, which seem much easier than addressing content. Tsui and Ng (2000) argued that it is cognitively more demanding for L2 students to provide feedback on or discuss macro-level features, such as idea development, using the target language as they are still developing their language skills.

Another concern that hinders students' successful participation in peer feedback activities is related to their low proficiency in the target language and lack of knowledge regarding rhetorical conventions (Covill, 2010; Min, 2003). L2 proficiency a crucial factor that mediates students' participation in peer feedback. It can affect the nature of the comments that reviewers provide, students' attitudes to these comments and the incorporation of peer feedback and hence improvements in writing (Aldossary, 2017). In other words, the limited proficiency level of L2 student writers may prevent them from providing specific and constructive comments on their peers' writing because they are still in the process of improving the target language and learning its rhetorical conventions (e.g. Villamil & de Guerrero, 1998; Nelson & Murphy, 1993; Tsui & Ng, 2000). Consequently, students tend to play the passive role of receivers of feedback only (Wu, 2019). During oral peer feedback in particular, L2 students may find it difficult to understand peers' pronunciation or express their ideas in the target language (Ferris & Hedgcock, 1998). However, while Jalalifarahani and Azizi (2012) found teacher feedback was more useful for low proficiency learners than high proficiency in terms of correcting grammatical errors, they also found that L2 students can benefit from peer feedback irrespective of their proficiency level.

Challenges in peer feedback may be also related to what Hu and Lam (2010) have termed "the cultural factor, that is, complex of cultural and social differences" (p. 364), which may have an impact on interactions and negotiation between writers and reviewers, as well as on peer comments and text revisions (Yu, Lee, & Mak, 2016). A number of empirical studies of peer feedback have particularly emphasized that the cultural backgrounds of L2 students might influence their participation in peer feedback. For example, in collectivist cultures (e.g. China, Japan, Arab states), where students view the teacher as the only reliable source of knowledge, they have been found to prefer receiving feedback from the teacher rather than their peers (Carson & Nelson, 1996, 2009; Zhang, 1995). Yang et al. (2006) found that student writers incorporated both teacher and peer feedback in their final drafts. However, student writers preferred teacher feedback over peer feedback. They considered their teachers to be more knowledgeable, experienced than their peers. Moreover, students from these cultures may be reluctant to provide negative comments to avoid hurting their peers' feelings. This could limit students' willingness to provide useful comments and might reduce the successful impact of peer revision to a certain degree. Carson and Nelson (1996) found that peer feedback was not an effective technique for Asian students, who are accustomed to teacher-centred practices and therefore tend to incorporate more teacher comments than peer comments in subsequent drafts because they view the teacher as the only authority and the most trusted source of knowledge. The study also noted that Chinese students tend to avoid providing negative comments on their peers' written work to maintain interpersonal harmony. Similar findings were also reported in a longitudinal study conducted by Srichanyachon (2012) that found Thai EFL students, who are also accustomed to a traditional teacher-centred approach, favoured teacher feedback due to its accuracy compared to peer feedback. However, the study found that students were cautious about employing teacher feedback because some of them disliked its rigid format and felt shy when receiving negative comments from their teachers.

In terms of addressing the aforementioned potential challenges associated with peer feedback, empirical studies have revealed that with substantial training, peer feedback can be a valuable pedagogical activity in the writing classroom (Berg, 1999; Connor & Asenavage, 1994; Hedgcock & Lefkowitz, 1992; Hu, 2005; Min, 2005; Paulus, 1999; Stanley, 1992; Zhao 2014). Undertaking intensive training in peer feedback can help reviewers improve the quality of their feedback (e.g. Lam, 2010; Min, 2006) and enable

writers to distinguish between valid and invalid peer comments and revise their written work accordingly (Leki, 1990). Empirical studies (Berg, 1999; Min, 2006; Paulus, 1999; Stanley, 1992) have examined the impact of training on the quality of peer feedback and subsequent revisions. The findings of most of these studies have been generally positive. For example, Min (2006) investigated the extent to which training helped increase the number of peer feedback comments incorporated in students' revisions and whether the number of these revisions would be higher than before student writers received training. In other words, using both qualitative and quantitative data analysis, the study aimed to investigate whether peer feedback activities following training had a direct positive impact on students' revision quality. The findings of the study showed that peer feedback following training not only increased the number of comments incorporated in the revised texts, but also improved the quality of students' revisions. The study concluded that trained peer review could directly have an effect on EFL students' revision behaviour and the overall quality of written products. However, it is worth mentioning that Min's (2006) research, like other similar peer feedback studies, mainly focused on the provision of written peer feedback and did not analyse the interaction between reviewers and writers. More specifically, his study did not conduct an in-depth investigation of what students learned from peer review rather than how they learn (Zhu & Carless, 2018).

Rahimi (2013) reported that training EFL students in peer feedback helped reviewers shift their attention from only focusing on formal aspects of the writing to target global aspects and subsequently improved the quality of their paragraph writing. A very recent case study conducted by Pham, Huyen, and Nguyen (2020) aimed to examine the quality of trained written peer feedback and its effects on students' revisions. The findings were positive and showed that most of the comments produced by the trained written feedback EFL majors were revision oriented and the quantity of accurate comments was significantly higher than the quantity of incorrect forms. In addition, most of the revisions in the revised drafts were triggered by peer comments and the writing quality improved significantly among both low- and high-level writers. The study concluded that with appropriate training, reviewers can successfully take responsibility for providing constructive and direct comments to their peers.

Notwithstanding the positive findings reported above and the useful explicit instructions provided from previous peer feedback training studies, such as holding conferences

with each student or conducting extended training sessions to guarantee effective peer feedback sessions, Miao, Badger, and Zhen (2006) point out that these recommendations will not all be feasible and practical in all contexts. They noted that "...although conference or extended training programmes are desirable, it would not be practical in many contexts for teacher to spend one hour with each student" (p. 183). Furthermore, Zhu and Carless (2018) claim that many university instructors might be hesitant about devoting considerable time to training students and the processes entailed in training might not be workable in larger classes. In additionally, both studies cautioned that providing training only at the outset may be inadequate to target specific language issues resulting from subsequent multiple peer feedback sessions. Alternatively, students can be involved in providing feedback in review panels (see Yu & Lee, 2015). However, feedback from different reviewers could cause confusion to the writer (Allen, 2015). Lee's (2015) study reported that the feedback receiver (writer) struggled in handling two contrasting ideas from two different reviewers. This suggests that receiving different suggestions from more than one reviewer might have confused the writer, which in turn undermined the revision process. An alternative option – one that this study explores – is to have writers and reviewers interact with each other in giving and receiving peer feedback through technological tools that can amplify the affordances of peer feedback by enhancing the processes of scaffolded interaction and mediation.

The previous sections have discussed the theoretical assumptions of SCT and defined peer feedback. It is suggested that from a SCT perspective, peer feedback provides a context for social interaction and that writers and reviewers learn best through interacting with each other. Previous studies in peer feedback conducted in FTF settings have found that it helps promote language learner autonomy (Ekşi, 2012; Yang, Badger, & Yu, 2006), increase awareness of audience (Yang et al., 2006) The positive findings concerning peer feedback in its traditional format, however, have not gone unchallenged. Students can doubt their peers' ability in providing constructive comments. In addition, writers might feel reluctant to accept the feedback they receive from their peers. To maximize the potential benefits of peer feedback and address these challenges, online technologies, such as blogs, wikis and Google Docs, have been used in writing classrooms in recent years. The next section introduces online peer feedback and the findings from language learning research regarding their effectiveness in facilitating students' peer feedback. It also discusses the challenges that might hinder

the implementation of this activity. The section concludes by introducing Google Docs, the technology employed in this study.

2.5 Online peer feedback in L2 writing

To overcome challenges in traditional peer feedback, many EFL educators and instructors have recently been attracted by the innovative idea of integrating technology in writing instruction. Due to the emergence of Web 2.0 and cloud-based technologies (e.g. wikis, blogs, Google Docs), which enhance participation and collaboration at a greater level, the potential for peer feedback in L2 classrooms has advanced. These technological platforms have the potential to enable easy storage, archival, transmission and evaluation of learner interactions (Warschauer, 1997). The accessibility, flexibility and openness of such platforms help empower students to take the initiative in providing feedback and scaffolding each other's writing through exchanging peer comments, sharing resources and co-constructing knowledge (Richardson, 2010).

Research has examined peer feedback activities in different technological environments to gain a better understanding of the affordances of such technologies for the successful application of the peer feedback process. The following section reviews studies that have discussed the effects and benefits of online peer feedback in L2 writing contexts.

2.5.1 Effects and benefits of online peer feedback

Due to the convenience and potential of online technologies in contributing to peer feedback in L2 writing classrooms, their effects and benefits in facilitating online feedback have been explored by a number of researchers (e.g. Aydin & Yildiz, 2014; DiGiovanni & Nagaswami, 2001; Guardado & Shi, 2007; Liu & Sadler, 2003; Pham & Usaha, 2016; Strobl, 2013; Tuzi, 2004). The majority of studies employing technology-mediated peer feedback have examined the effectiveness of the two modes of peer feedback, traditional or online, on students' quality of comments and text revisions. Research has shown that online peer feedback can help overcome the challenges associated with FTF peer feedback because it is not subject to physical or time constraints (Rollinson, 2005). Online peer feedback helps promote motivation in writing and reduces anxiety and stress (Jiang, 2005). Online peer feedback can reduce emotional pressure on learners to exchange feedback compared to FTF peer feedback (Ho & Savignon, 2007). It can provide students with opportunities for meaning

negotiation and interaction (Chang, Chen, & Hsu, 2011). In addition, online peer feedback can encourage more equal member participation and collaboration between learners (Ho & Savignon, 2007), increase audience awareness (Ware, 2004), reduce anxiety and improve self-confidence and linguistic proficiency (Beauvois & Eledge, 1996; Fanderclai, 1995), and allow authentic interaction and negotiation (Kern, 2006).

Some studies have examined the effectiveness of online peer feedback based on the type and quality of comments and text revisions. Empirical studies have found that peer feedback generated through technological tools tends to lead to more revisions by writers (e.g. Tuzi, 2004), as well as more specific and revision-oriented comments in reviewers' feedback. However, some studies have reported different results regarding the priorities and focus of peer comments. As noted by Jiang and Ribeiro (2017) in their study of computer-mediated communication (CMC):

> The CMC technology influenced not only the effectiveness of feedback but also learners' decisions of which type and what content they used to provide feedback. Additionally, we also found two features of CMC technology – the existence of editing function and the publicity of the software – contributed the most to the impact on feedback effectiveness. (pp. 68–69)

Tuzi (2004) found that online peer feedback encouraged students to make more revisions and this feedback led writers to make more macro-level changes in their text. This finding led the researcher to argue that the type of feedback writers receive is influenced by the features of the technology itself. That is, macro-level issues, such as content or organization, might be easier to target in online peer feedback than micro-level issues, such as grammar or mechanics. In addition, although the study found that the students had more positive attitudes to oral feedback than online peer feedback, which could be attributed to the fact they were more familiar with it than online peer feedback, their revision behaviour did not match their reported attitudes. In other words, online peer feedback was found to be more useful in comparison to oral feedback in terms of the incorporation of feedback in their revisions. Jones, Garralda, Li, and Lock (2006) examined online vs. traditional peer feedback in a first-year writing class in Hong Kong. The findings showed more equal participation occurred in the online sessions and that the EFL students focused on language issues (e.g. grammar, vocabulary, style) in FTF sessions, whereas in the online sessions they focused more on global issues (e.g. content, organization). Moreover, there was interpersonal communication in the synchronous online peer feedback.

In a very recent study, Wu (2019) used a mixed-methods design to examine feedback performance (i.e. the feedback process and product) of 69 lower English proficiency (LEP) and higher English proficiency (HEP) EFL students at a first-tier university in China. The data sources included analysis of peer feedback generated by 23 LEP students and 23 HEP students in terms of the amount, type and quality of feedback, and semi-structured interviews. Students were asked to provide content feedback first, followed by language feedback, using Track Changes and marginal comments in Microsoft Word. Quantitative analysis did not identify significant differences between the HEP and LEP students in terms of the amount or quality of feedback, but there were significant differences in feedback type. The LEP students tended to make more clarification requests in content feedback, and more suggestions and fewer direct corrections in language feedback. Qualitative analysis of the interviews with students showed that individual factors (i.e. genre knowledge, L1, L2, reference materials, and imagined identities) and contextual factors (i.e. anonymity, feedback separation, and time availability) influenced their feedback processes. Of particular relevance for the focus of this study, in online peer feedback, the low English proficiency level of students can be compensated by employing online mediational tools such as corpora and dictionaries. More specifically, the study found that access to these online mediational tools can be helpful in empowering LEP students, who might be less confident participating in peer feedback activities if English is the only resource available in the peer feedback task. Based on these findings, the study indicates that underestimating students' ability to provide effective feedback is misplaced. Instead of questioning the ability of students (particularly LEP) to give feedback, the study encourages writing instructors to create an empowering environment whereby they can carefully orchestrate feedback and exploit the various mediating affordances of technology and information artefacts in feedback tasks.

Pham and Usaha (2016) explored the effects of blog-based peer feedback on student revisions. The findings showed that although there were more comments on global areas than on local, the total accepted and incorporated revisions were higher than the total revision-oriented comments provided by peers (including self-initiated revisions). In addition, student writers needed more assistance in higher level features, namely "sentence" and "paragraph", but received more online peer comments that targeted lower level items, namely "word" and "phrase".

Other studies have focused on the impact of online peer feedback on text quality. Ciftci and Kocoglu (2012) examined the effect of online peer feedback provided through blogs on Turkish EFL students' writing performance. The findings showed that the students in the experimental group (blog-based feedback) exhibited better writing performance in their revised drafts than those in the control group (FTF oral discussions to conduct peer feedback). Sayed (2010) investigated the effect of using blog-based peer feedback on the persuasive writing of EFL Saudi students. A pre-test/post-test experimental and control group design was adopted. The experimental group conducted peer feedback through a class blog, while the control group engaged in FTF peer feedback in the classroom. The results indicated that using online peer feedback, as opposed to FTF, is a helpful in improving students' writing and increasing their confidence as EFL writers. In addition, Xiao and Lucking (2008) investigated the efficacy of peer feedback in a wiki environment on students' writing performance. The findings showed that students in the experimental group demonstrated higher improvement in their writing than those in the control group and students in the experimental group expressed greater satisfaction with peer feedback than those in the comparison group. Chen (2012) also explored the viability of blogs to provide peer feedback incorporated in an undergraduate English writing course at a technological university in Taiwan. The students were required to submit their writing assignments through blogs, provide peer comments and revise their written work based on the feedback they received from their peers. The findings revealed that using electronic peer review helped the students improve their academic writing abilities. In addition, both the students and the instructor expressed positive attitudes towards the weblog peer review process.

Empirical studies have specifically examined the effectiveness of synchronous versus asynchronous peer feedback on students' writing and how learners react to different modes of feedback. Asynchronous peer feedback takes place as students "provide feedback to their peers when they have completed their essays and then submitted the revised text electronically" Hu (2005, cited in Shang, 2019, p. 1). Studies of asynchronous peer feedback have highlighted positive findings, such as ease of email submission (Ho & Savignon, 2007), it being less face-threatening to use (Liu & Sadler) and making it easier for students to work at their own pace. Liu and Sadler (2003) compared how a group of students provided peer feedback using asynchronous Word comments and synchronous multi-user object oriented (MOO) chats, comparing them with a group who participated in a more traditional pen-and-paper feedback and FTF

peer conferences. They found that the comments generated in Microsoft Word were the highest in number and the most revision oriented, but locally focused, while the comments generated in MOO chats were globally oriented, but less effective in terms of triggering revisions. Taken together, the online peer feedback group resulted in more overall comments than the pen-and-paper mode, with more revision-oriented comments in particular. The students preferred MOO chats over commenting in Word, which was time consuming, although Word comments were less face-threatening to use, more salient and easier to elaborate. The study concluded that technology may be an effective tool for peer feedback as it resulted in numerous comments, but they noted that teachers should consider student preferences regarding the features of technology-enhanced and pen-and-paper peer feedback and that a combination of modes might be most effective.

Lin and Yang (2011) explored students' perceptions of integrating wiki technology in peer feedback activities. Most students had positive attitudes towards the application of wiki for peer feedback activities. In a study focused on examining the use of weblogs as a peer-editing platform, Ge (2011) examined the peer feedback practices of 36 Chinese students who attended online peer review classes and were divided into three groups based on their English writing ability. The study showed that most participants had positive attitudes towards online peer feedback. In addition, students with lower writing ability made more progress than those with higher writing ability. Students with higher writing ability tended to be less motivated if they were grouped with lower ability students.

Bradley (2014) studied how a wiki could be used in the provision of intercultural peer feedback between 16 native English-speaking undergraduates at a US university and 26 non-native English-speaking postgraduates at a Swedish university. Bradley (2014, p. 91) concluded that the wiki enabled peer feedback and that the asynchronous nature of the application allowed reviewers to reflect and thus provide "both detailed and comprehensive levels of feedback". However, the influence of the wiki on the feedback comments remained unclear. Although Bradley concluded that the wiki enabled international collaboration and resulted in a diversity of feedback, information on how the participants used the application was ambiguous.

Empirical studies of synchronous online peer feedback have explored the use of text chat during the peer feedback process, with many studies specifically examining the efficacy of chat as just one of several tools in the synchronous online peer review

process (e.g. Cha, 2008; Liang, 2010; So & Lee, 2012). In a study that compared the effectiveness of both synchronous and asynchronous online peer feedback, Cha (2008) explored the how 52 Korean English majors performed when participating in peer feedback activities as part of a freshman writing course. The asynchronous group was assigned to provide feedback on a bulletin board, while the other both on the bulletin board and using synchronous text chat. The findings showed that the text chat helped learners share ideas and negotiate issues emerging in the asynchronous feedback and thus resulted in better understanding.

This section has presented positive findings concerning the effectiveness of different technological tools for peer feedback activities. The studies reviewed in this section have provided generally positive empirical evidence to support the use of online peer feedback in L2 writing classes. These studies have shown that online peer feedback can improve students' writing (Chen, 2010) and result in numerous feedback comments (Liu & Sadler, 2010). Online peer feedback can also increase students' participation and promote collaboration between learners (Ho & Savignon, 2007). Notwithstanding these positive findings, a number of challenges to the incorporation of technology for peer feedback have been identified and these are addressed in the following section.

2.5.2 Challenges in online peer feedback

Despite the positive findings from many studies investigating the effectiveness of online peer feedback, a number have found that it retains several of the issues reported with traditional peer feedback, some of which can be related to students' uncertainty about the quality of the comments and the different features of the different modes (FTF vs. online synchronous and/or asynchronous modes). For example, some research on peer feedback has noted that more are revisions made by writers in the FTF mode than in the online mode (e.g. Ho, 2015; Liu & Sadler, 2003; Vaezi & Abbaspour, 2015). Liu and Sadler (2003), for instance, found that a higher percentage of incorporated revisions were made based on revision-oriented peer feedback among the traditional FTF group (41%) than in the technology supported group (27%), which suggested that the total numbers of comments made by the two groups did not reflect the real influence of technology on the peer feedback process. Similarly, Vaezi and Abbaspour (2015) reported that students incorporated more peer comments in their subsequent drafts when they worked in the FTF mode than in the online mode.

Other challenges that persist from traditional peer feedback are related to the cultural impact when online peer feedback is implemented in certain contexts (Ma, 2019; Zhan, 2019). For example, face culture in the Chinse culture prohibits students from providing negative comments to their peers, particularly (Pham, Lin, Trinh & Bui, 2020). Guardado and Shi (2007) explored the types of comments generated using the Blackboard virtual learning environment (VLE) discussion board by 22 ESL Japanese students at a Canadian university. Although there was a balance between positive and negative comments, some students were reluctant to provide peer feedback comments. They preferred to withdraw from activities, which made online peer feedback a one-way communication process rather than a reciprocal one. As a result, many peer comments were ignored and resulted in no revisions. Hence, the study suggested that writing teachers should explicitly train students to provide peer feedback electronically.

Technical difficulties, such as slow Internet and computers freezing, faced by students when exchanging peer comments online are also among the challenges reported in some previous online peer feedback studies. For example, Liu and Sadler (2003) found that students struggled to open their Word documents after receiving corrupted files from their peer review partners. Therefore, they had to get another copy from the writer. The study found that the students blamed their peers for these technical challenges, which might promote animosity. Moreover, this resulted in having to spend longer on the task, which created anxiety among students.

Despite the benefits of online peer feedback when conducted in the asynchronous mode previously reported (see section 2.5.1), some studies have reported negative findings, such as the process being slow and interaction not being encouraging or a lack of deep revisions (Chang, 2012; Guardado & Shi, 2007; Ho & Savignon, 2007). For example, Chang (2012) noted that when student writers worked in the asynchronous mode, they reported higher levels of frustration when they could not understand the reviewers' comments; this is particularly the case because communication using technological tools often lacks nonverbal cues, which could result in a distrust of reviewers' comments and misunderstanding between writers and reviewers.

A greater challenge arises in online peer feedback when learners are supposedly engaged in synchronous interaction as social discussions and task management episodes can exceed on-task activities. It is worth noting here that most of the synchronous peer feedback studies that have reported this issue employed text chat tools (Liang, 2010), or

discussion forums (Sengupta, 2001). For example, Liang (2010), analysing students' online synchronous peer feedback interactions in two writing tasks undertaken in MSN Messenger, found that meaning negotiation, error correction and technical actions rarely occurred, whereas social talk, task management and content discussion predominated the chat. In addition, Liu and Sadler (2003) found that the quality of peer feedback comments derived from a traditional FTF peer feedback group was higher than from a synchronous peer feedback chat group. They attributed this finding to the pressure for participants to respond immediately in online interaction in the synchronous mode. Hewett (2006) also found that half of the interactions during synchronous online peer feedback activities revolved around interpersonal discussions, interactional facilitation and workspace discussion. Chang (2009, 2012) reported that there are more on-task episodes in asynchronous online peer feedback mode because there was no socialization in the absence of live interaction. In addition, synchronous peer feedback through chat comes with other limitations. The drafting tool is separate from the text chat tool and this visual disconnect makes it difficult for students to link and match the comments provided in the chat tool to the draft (Cha & Park, 2010). Liu and Sadler (2003) found many students had difficulty in reading the comments on the screen and at the same time writing their comments in Microsoft Word because it was separate from MOO, the chat tool employed in the study.

In addition, FTF peer responses have been found to be more effective in terms of the impact on subsequent revisions incorporated by writers because synchronous interactions via online chat rooms tend to generate more superficial comments, perhaps due to the pressure to respond immediately. For example, it has been found that students' inappropriate keyboarding and slow typing skills can frustrate both writers and reviewers when interacting in giving and receiving peer feedback (Jin & Zhu, 2010). Liu and Sadler (2003) found that not all students were technologically savvy. Some students were not used to typing and were constantly looking at the keyboard to type. Such drawbacks could clearly affect meaning negotiation and the flow of interaction in online chat sessions.

The limitations found in relation to synchronous peer feedback using text chat tools paved the way for new technological tools allowing synchronous insertion of comments while a student is writing. Arguably, these tools have opened up innovative possibilities for more successful application of synchronous peer feedback sessions. One example of

a platform that offers this potential is Google Docs. The following section discusses the affordances of Google Docs.

2.5.3 Google Docs and peer feedback

Among the wide range of online writing tools that have recently emerged, Google Docs is a free online word processing tool with cloud-based storage within Google Drive, a synchronization service developed by Google. It allows users to access, write, collaborate and edit documents from their computers, tablets, or smartphones. Google Docs is not just a typical word processing tool like Microsoft Word, but also includes other applications, such as a spreadsheet, a form designer and a presentation package (Aufa, 2019). These are secure applications that save updated information automatically and thus offer the least possible chance of losing data (Taprial & Kanwar, 2011). Slightly different from the wiki, which is solely an asynchronous tool, Google Docs allows multiple users to edit the same document either synchronously or asynchronously while viewing the contributions made by other users (Zhou, Simpson, & Domizi, 2012).

Google Docs is unique in its capability to provide real-time collaboration, including editing, commenting and chatting (Chapelle & Sauro, 2017). It allows students to work simultaneously on the same document and view the changes made by others if they are online at the same time (Yang, 2010). This unique synchronicity feature offered by Google Docs was not previously possible with traditional word processors (Kessler, Bikowski, & Boggs, 2012). The real time insertion of comments is a unique feature in Google Docs that differentiates it from other popular online synchronous tools. Ebener (2017) noted that one of the challenges hindering the application of any collaborative activity, such as peer feedback, is that students continue to feel ownership over their writing when others have some form of control by inserting direct comments into their texts. This issue has been addressed in Google Docs, which allows students to maintain ownership through the ability to leave *comments* and *suggestions* in the margins of documents that can be accepted or rejected by writers (Ebener, 2017).

To save revisions in documents, Google Docs is supported by a “revision history” function in the tracking tool. This tracking function allows students to manage and track updated versions of written documents based on the time and date the document was created (Aufa, 2019; Yeh, 2014). The changes are updated and automatically saved to

the text and all the previous and new versions can be traced back (Yang, 2010). In a recent study, Colpitts and Past (2019) described this function as one of the most attractive features of Google Docs and noted that the important aspect is that it allows educators to identify what written feedback was provided, at which stage of the revision process and whether or not the students made the correct revisions in the text. In addition, this function offers teachers a more robust analytical tool to observe students' use and uptake of both teacher and peer written feedback. Brine, Wilson, and Roy (2007, p. 1063) noted the uniqueness of this function:

> For each iteration of the document, Google Docs can be used to identify grammar and spelling mistakes by indicating in the version record exactly where they occurred, while students can provide an explanation to support their view, and finally show the correction for the specific version of the document.

While many studies have investigated the effectiveness of writing tools like wikis (e.g. Bradley, 2014), blogs (e.g. Pham & Usaha, 2016), and synchronous chatting (e.g. Liang, 2010) in peer feedback, the usefulness of Google Docs for the provision of synchronous peer feedback has been investigated by only a limited number of studies (e.g. Bradley & Thouësny, 2017; Ebadi & Rahimi, 2017). Fuccio (2014) examined how 34 students at a university in the US used Google Docs for feedback purposes. The students expressed positive attitudes towards the use of Google Docs due to its community fostering features. In addition, the Google Docs platform helped L2 students to target both the feedback focus (local to global) and classroom power dynamics (both instructor–student and peer–peer). Finally, using Google Docs to provide feedback helped students focus on content rather than problems in using the language.

Bradley and Thouësny's (2017) study looked into peer feedback conducted through Google Docs with Swedish engineering students in an English for Specific Purposes course. The findings showed that the majority of the comments generated by students were local and revision oriented in nature, but unfortunately there was no information on the type of comments that students provided. Nevertheless, the researchers concluded that Google Docs could support peer feedback. In another study, Ebadi and Rahimi (2017) compared the impact of FTF peer comments and online peer comments using Google Docs on EFL learners' writing. The study found that both peer feedback modes significantly improved the students' academic writing skills. Furthermore, the online peer comments group outperformed the FTF group in both the short and long

term. Moreover, the study reported learners had positive attitudes towards the impact of online peer feedback on their writing performance.

Yim et al. (2017) examined the feedback and revision activities of peers and teacher in a collaborative writing environment using Google Docs. The study aimed at examining the how the feedback and revision patterns varied across the two sources of feedback (i.e. teacher vs. peer) and three type of tasks assigned (i.e. argumentation, narrative, report). To analyse the feedback and revision activities, qualitative content analysis was used followed by quantitative analyses. The study found that teacher paid more attention to macro-level features (e.g. content, organization), whereas peer paid more attention to micro-level features (e.g. mechanics, conventions). However, the study found that none of the two sources of feedback led to subsequent revisions. The study found also that the feedback and revision patterns can be influenced by the task type. In their conclusions, the researchers emphasized the importance of examining how the integration of technology may vary across different contexts and different age groups, what contextual factors may shape their performance in the feedback and revision activities, and why.

Suwantarathip and Wichadee (2014) examined the performance of students participating in collaborative writing using Google Docs with those working in groups in an FTF classroom. Data methods included writing tests and two questionnaires. Findings of the study showed that the students in the Google Docs group outperformed those in the FTF group. The collaborative feature of Google Docs encouraged students to learn more effectively and to engage better than students in the FTF classroom.

Given that the affordances of different technological tools can affect the feedback processes (e.g. Tuzi, 2004), more research is needed to examine whether the results of previous online peer feedback studies are in fact applicable to a different technology platform, such as Google Docs. Cloud-based writing technologies like Google Docs have come into widespread use in L2 contexts only in recent years and thus further studies on how the use of these technologies fosters online peer feedback activities in L2 writing classrooms are merited. Bearing this in mind, the overarching question of this study is: How do EFL Egyptian students mediate their learning in online peer feedback activities in Google Docs? This was then articulated through a number of specific sub-questions, as follows:

RQ1. How do EFL students provide feedback on their peers' essays in Google Docs?

a) What types of comments do they provide on essays?
b) What mediational tools do they employ to provide such feedback?
c) Why do they provide feedback in the way they do?

RQ2. How do EFL students respond to peers' feedback on their essays in Google Docs?

a) How do they use comments given by peers on their writing?
b) What tools do they employ to respond to such feedback?
c) Why do they respond to such feedback in the way they do?

RQ3. How do EFL Egyptian students perceive their experience of peer feedback in Google Docs?

2.6 Summary

This chapter has established that SCT, which posits that all learning, including language learning, occurs in social interaction with others, can provide useful insights concerning peer feedback in L2 writing. One of the core concepts of an SCT of mind is mediation, which maintains that higher forms of human mental activity are mediated by culturally constructed tools and artefacts (Lantolf, Thorne, & Poehner, 2015). Considerable efforts have been made to understand the role of mediation in language learning, showing different ways in which mediation can be established and the positive results that can be attained in the L2 classroom (e.g. Kang & Pyun, 2013; Lei, 2016; Yang, 2014).

Reviewing studies that have particularly examined mediational tool use in peer feedback shows that most have been conducted in traditional settings (e.g. Villamil & de Guerrero, 1996). However, they provide useful information on how students can be engaged in different forms of mediation to facilitate the peer review process. Studies that have examined the effectiveness of such activity in both FTF and online L2 writing contexts have been reviewed. It was found that peer feedback enhances students' sense of audience and ownership of text (Tsui & Ng, 2000), fosters learner autonomy (Yang, Badger, & Yu, 2006), and promotes greater understanding of the feedback provided in comparison to teacher feedback (Suryani, Rozimela, & Anwar, 2019).

With the aim of further illustrating the motivation for this study, the challenges that hinder the implementation of such activity in both FTF and online L2 writing contexts have also been reviewed. One of the challenges frequently reported is student writers'

hesitancy and distrust in the feedback they receive from their reviewers (e.g. Wang, 2014). Another particular challenge frequently reported in online synchronous peer feedback studies conducted through chat (e.g. Liu & Sadler, 2003) is that students tend to become engaged in discussions irrelevant to the task rather than discussing potential problems related to revising the writing texts of their peers. Arguably, Google Docs as an emerging word processing tool has the potential to overcome this issue by allowing synchronous insertion of comments while a student is writing.

While the overarching research question in this study focuses on how learning is mediated in the peer feedback process, the provision of mediation by the reviewer and the appropriation of mediation by the writer in the novel environment of Google Docs are central to the research. More specifically, more in-depth information is still needed on how students perform when engaged in online peer feedback activities, what types of online sources benefit their performance, and why writers accept or reject online peer feedback in L2 writing contexts. The lens of SCT, with its key tenet of mediation, provides a useful way of addressing the mediational tools available on the Internet and how these tools are employed and appropriated as physical tools to mediate peer feedback activities. Based on the lack of conclusive findings regarding the efficacy of online peer feedback and the paucity of research exploring peer feedback processes and the use of mediational tools in technology settings, one can infer that such activity has not undergone sufficient thorough investigation and therefore it is worth exploring further to determine its utility.

Chapter 3. Methodology

3.1 Overview

This chapter discusses the methodology adopted to answer the research questions and to achieve the broader aim of the study (restated in section 3.2). To investigate how Egyptian EFL students interact in giving and receiving peer feedback in Google Docs, an interpretative inquiry paradigm (i.e. way of thinking about the real world) was adopted, since it would provide an opportunity to develop an in-depth perspective on the phenomenon under investigation or social reality (section 3.3). The nature of the research questions, in addition to the interpretive approach, in turn influenced the selection of a case study as the research design (section 3.4) and the sampling strategy used in choosing the study participants (section 3.5). It also influenced the selection of qualitative multi-methods as research strategy (section 3.6). Contextual data on the participants were collected using background interviews and questionnaires to help interpretation of their online peer feedback interactions. The chapter also discusses the outcomes of the pilot study employed (section 3.7).

This chapter discusses the data instruments and how they were selected and employed in the study (section 3.8). It also highlights the data collection procedures (section 3.9). To analyse the data, a qualitative content analysis approach was adopted (section 3.10). After discussing how the data were analysed, the chapter discusses issues of trustworthiness, with a view to ensuring the rigour of the qualitative enquiry (section 3.11). The chapter concludes by explaining the ethical considerations (section 3.12).

3.2 Research aims and questions

This exploratory case study aimed to scrutinize peer feedback interactions and the use of online tools for giving and receiving comments in Google Docs. This was achieved by a) identifying the types of peer feedback generated by students (b) the ways in which reviewers mediate their feedback using the language as a mediational tool with the support of online tools such as dictionaries and language websites (if used), (b) identifying the ways in which writers use feedback and online tools to respond to such feedback and (c) examining both writers and reviewers' specific perceptions of peer feedback in such an environment. To achieve these objectives, the following overarching research question was posed: How do EFL Egyptian students mediate their

learning in online peer feedback activities in Google Docs? This was then articulated in a number of specific sub-questions, as follows:

RQ1. How do EFL students provide feedback on their peers' essays in Google Docs?

d) What types of comments do they provide on essays?
e) What mediational tools do they employ to provide such feedback?
f) Why do they provide feedback in the way they do?

RQ2. How do EFL students respond to peers' feedback on their essays in Google Docs?

d) How do they use comments given by peers on their writing?
e) What tools do they employ to respond to such feedback?
f) Why do they respond to such feedback in the way they do?

RQ3. How do EFL Egyptian students perceive their experience of peer feedback in Google Docs?

3.3 Interpretivism

Research is guided by certain underlying philosophical and theoretical paradigms that guide the direction of the collection and analysis of data. In simplified terms, a paradigm can be defined as the "basic belief system or worldview that guides the investigator, not only in the choice of methods but in ontologically and epistemologically fundamental ways" (Guba & Lincoln, 1994, p. 105). Due to the exploratory and context-specificity nature of this study, which focused on understanding a social phenomenon, an interpretive paradigm was adopted. The purpose of this philosophical framework or paradigm is to understand human experience based on the underlying assumption that knowledge is socially constructed by the individuals who participate in it. In terms of methodology, this involves linking up the researcher's (etic) perspectives and also the participants' own (emic) perceptions, experiences and interpretations while trying to understand multiple realities (Alghasab, 2015). Accordingly, observing students' online behaviour while exchanging peer comments on their written work in the study was crucial to understand and interpret the multiple realities, i.e. the participants' perceptions and experiences of the online peer feedback activities in Google Docs and the use of online resources. Bearing this in mind, understanding the students' realities was achieved through the exploration and

clarification of their behaviour while exchanging online peer comments and by involving them in the process of interpreting the data (through interviews).

The interpretive paradigm, which postulates that there is no single fixed reality, was also considered to be well aligned with the aim of the research, which did not seek to predefine specific variables related to the phenomenon, but rather to explore the social world of the students in real time (Merriam, 1988a). To attain a clearer understanding of this phenomenon and its real-life complexities, I immersed myself in the social world of the students by exploring their online peer feedback interactions in depth as they unfolded in real life (Merriam, 1988a). In addition, this paradigm stresses the need to explore the social phenomenon within its social context due to the importance of the natural context in shaping participants' perceptions and behaviours (Creswell, 2007). This aligns with the theoretical framework of the study, which stressed the interdependence of social and individual learning processes in the construction of knowledge (John-Steiner & Mahn, 1996). As discussed in Chapter 2, learning within sociocultural theory is recognized as a social phenomenon embedded in specific historical settings and social contexts (Lantolf, 2000). In the same vein, students' online peer feedback interactions cannot be studied in isolation. That is, to understand how the students mediated their learning while exchanging online peer comments, the broader cultural context needed to be considered. In addition, as pointed out by computer-assisted language learning (CALL) researchers (e.g. Warschauer, 1998, 2005), when examining a technology's effectiveness, it is crucial to consider the sociocultural context in which it is employed.

3.4 Multiple case study

This study adopted a qualitative multiple case study design to obtain an in-depth and holistic understanding of how EFL Egyptian students mediated their learning while participating in online peer feedback activities in an L2 writing classroom. A case study is as an empirical study aimed at providing an in-depth exploration of "a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009, p. 18). A phenomenon may be an individual, a class, or a "communicative interaction in a particular situation", bounded in time and place. To study such a phenomenon, the wider contextual features should be considered (Johnson, 1992; Yin, 2009). Creswell (2007, p. 61) further elaborates that the case study is "an exploration of a bounded system or a case (or

multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context".

The contemporary phenomenon in this case study was the interaction over one semester in the process of online peer feedback as experienced by EFL Egyptian university students enrolled in a writing course. This phenomenon was not examined in isolation, but rather also taking into account the wider contextual factors involved in peer feedback. As argued by Villamil and de Guererro (2006), peer feedback cannot fully be understood without addressing the sociocultural factors involved in it. According to Roberson (2014), the contextual factors involved in peer feedback involve the learners' attitudes towards its practice in the L2 writing classroom, their cultural and L1 backgrounds and social dynamics. A case study is an ideal means of understanding these contextual factors.

The study adopted a case study design for a number of reasons. First, as Yin (2014, pp. 7-9) points out, "case studies are useful in providing answers to 'How?' and 'Why?' questions, and in this role they can be used for exploratory, descriptive or explanatory research". This study was exploratory, the inquiry being aimed at investigating the process of "how" EFL students interact in an online peer feedback process and "why" they interact in the way they do. Second, Gall, Gall, and Borg (2003) hold that case study allows an in-depth study of instances of a phenomenon in its natural setting in light of the views of participants involved in the phenomenon. This study set out to explore the peer feedback process in a naturalistic setting by observing their behaviour as they interacted online in an L2 writing course. Third, Yin (2003) maintains that the case study is a preferred method when examining contemporary events and the behaviour of the participants cannot be manipulated. In this research, there was limited control over the behaviour of the students being constrained by the computer and online sources as mediational tools, but not on the impact of the wider sociocultural context on how they would interact in the online peer feedback activities. Fourth, one of the major strengths of using case study research is the opportunity to use multiple sources of evidence to assure the validation of data through triangulation (Yin, 2003). The study used methodological triangulation, employing multiple methods, including a background questionnaire and in-depth interviews, Google Docs and screen capture recordings. Fifth, Johnson (1992, cited in Zhu, 2001, p 255) argues that communicative interaction is "well suited to a case study research approach" and this aligns with the aim of the study, focused on interaction between one another and with and online

sources in peer feedback activities in an L2 writing class. According to Yin (2003), case studies comprise either one (i.e. single case study) or a small number of cases (i.e. multiple-case design). In other words, single case design involves the study of a single unique or critical case, while the multiple-case design refers to a study that takes into account more than one case.

The multiple-case study design was the most appropriate in this study because it can offer deeper insights into the similarities and differences within and between cases (Baxter & Jack, 2008; Stake,1995). Bearing that in mind, the decision to use multiple cases rather than single case was taken to help gain an understanding of the complex interactions among peers as they engaged in exchanging peer comments in an online writing environment.

3.5 Participants

According to Duff (2008), "case selection and sampling are the most crucial consideration in case study research" (p. 114). This case study was conducted within the naturalistic setting of a 10-week writing course for third year EFL students at a state university in the north east of Egypt. The course focused on developing students' writing skills and grammatical accuracy. It was selected in particular because it often included peer feedback activities, in which students exchanged comments on each other's paper-based writing assignments. The course was run on a weekly basis with a 2-hour lecture per week and aimed to help students learn to write well-structured essays, namely focusing on comparison and contrast, cause and effect and argumentation. The essays typically followed the standard five-paragraph format, with an introductory and a concluding paragraph and three body paragraphs. Although teacher feedback was part of the course, it generally did not happen more than once a term because of the teaching load and the large number of students. This is why the effects of teacher feedback were not considered.

The participants in the study were 14 EFL students attending the writing course in the English Language and Literature Department at the selected university. Convenience sampling was used as a strategy to select the participants from the available cohort. As the term implies, this sampling strategy includes selecting participants "who are readily available and who meet the study criteria" (Lewis-Beck, Bryman, & Liao, 2003, p. 993). This strategy was selected because it was assumed that by having students willingly volunteer to take part in the study, they would participate actively in the

process. To recruit participants, I liaised with the course instructor to explain the project and what would be required of the students. The students were introduced to the research by distributing information sheets (see Appendix A) and those who indicated willingness to take part in the study were asked to complete an informed consent form prior to participation (see Appendix B). As mentioned in Chapter 1, to join the English Language and Literature Department, students are required to pass an entrance exam evaluating their English proficiency. The exam is administered by the university to select students who wish to major in English. Therefore, although the students' English learning backgrounds may vary, those in this study had attained a similar level of proficiency. Their English proficiency is equivalent to B1 level according to the Common European Framework Reference (CEFR) for Languages: Learning, teaching, and assessment. Also, they all had the same exposure to English through the Egyptian formal public education system. The English Language and Literature Department in which the participants were enrolled provided a four-year programme of formal study at the university. Demographic information about each participant was collected at the beginning of the semester through a background questionnaire (see Appendix C)., followed by semi-structured interviews (see Appendix D). In grouping the study participants, peer feedback dyads were formed based on students' free selection.

3.6 Research strategy

Previous peer feedback studies in L2 writing have adopted various research methods for data collection. These studies have mainly adopted quantitative methods, particularly quasi-experimental studies with pre- and post-test designs addressing writing skills, surveys and corpus analysis (e.g. Birjandi & Tamjid, 2012; Ciftci & Kocoglu, 2012; Diab, 2011; Jalalifarahani & Azizi, 2012; Kurihara, 2017; Lundstrom & Baker, 2009; Rahimi, 2013; Rouhi & Azizian, 2013; Van Steendam, Rijlaarsdam, Sercu & Van den Bergh, 2010; Wang, 2014). Other studies have adopted more qualitative methods, such as audio/video transcripts of peer interactions, peer comments, subsequent revised drafts and interviews (e.g. Caoa, Yu, & Huang, 2019; Hanjani**,** 2013; Hojeij & Baroudi, 2018; Martin-Beltrán et al., 2018; Yu & Hu, 2017). In addition, several researchers have also used a mixed-methods approach, employing both quantitative and qualitative methods (e.g. Aldossary, 2017; Alnasser & Alyousef, 2015; Chang 2012; Gabarre 2012; Hu & Lam 2010; Lee, 2015; Shih 2011; Wu, 2019; Zhang et al., 2014).

In line with the interpretive perspective adopted in this study (see section 3.3) and in response to Hyland and Hyland's (2006a, p. 96) call for research that leans towards more "systematic and comprehensive descriptions of the contextual environments in which feedback is given and used", a qualitative case study approach was employed. Qualitative research provides a lens through which researchers can begin "to gain a holistic (systematic encompassing), integrated view of the context under study" (Miles & Huberman, 1994, p. 6). The context being investigated in this case was patterns of peer feedback, mediational tool use and the writers' responses. To achieve as comprehensive a picture as possible of how students interacted in giving and receiving online peer feedback, more than one method was used. Observational/tracking data from Google Docs and screen capture recordings were collected, along with interview data, to explore students' online peer feedback interactions in Google Docs. This is called data triangulation, namely the use of multiple data sources in qualitative research to develop a comprehensive understanding of the phenomenon (Denzin, 1978; Patton, 1999). The triangulation of multiple qualitative data sources in this study was influenced by Yu and Lee's (2016b) view that it is helpful in presenting a relatively complete picture of how peer feedback is implemented in specific contexts and how it affects student learning.

While this study employed a multiple methods approach, it was assumed that using quantitative methods such as a quasi-experimental design with pre/post writing tests, which are commonly used in peer feedback studies, would not be an appropriate choice, because they would not provide an in-depth exploration of the process of peer feedback, i.e. how learning takes place through the process (Yu & Lee, 2016b). That is, using such quantitative methods might not be able to capture fully the complexity of students' interactions with each other and with online mediational tools or address the relationship between students' online behaviour and the context during the peer feedback process. Employing qualitative methods is also consistent with Caoa et al.'s (2019) research, which employed a qualitative approach based on the argument that this not only helped show students' individual differences with regard to their experiences, attitudes and feelings concerning learning through giving and receiving peer feedback, but also revealed the factors that shaped the perceived benefits of peer feedback.

By way of explanation, using more than one method can provide multifaceted insights concerning the area being investigated (Barbour, 2008). In this case, each data method explored the phenomenon from various angles and hence strengthened understanding of the process. To obtain an initial demographic picture of participants, a background questionnaire was used initially, which provided baseline information on the participants' linguistic history (learning and use) and experience of technology. One of the main advantages of using a questionnaire as a data collection tool is that it provides a large amount of information in a short amount of time and does not require a great effort on the part of the researcher (Dornyei, 2010). This was followed by semi-structured interviews to provide further clarification and elaboration of students' responses. This type of interview involves a series of open-ended questions based on a list of topics the researcher intends to cover (Skinner, Edwards, & Corbett, 2015). Semi-structured interviews are considered a more flexible version of the structured interview. The semi-structured interview was viewed as appropriate because, as Partington (2001) suggests, "it allows depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses" (p. 35). Hence, the semi-structured interviews were an appropriate method because they allowed more in depth and open-ended discussion of students' prior experiences of technology use, L2 writing and attitudes towards peer feedback. In addition, they informed on the explanations of students' behaviour during the online peer feedback activities. In addition, follow-up semi-structured interviews were undertaken to gather data regarding students' perceptions, reflections and experiences regarding giving and receiving online peer comments in Google Docs.

Observation of students' online feedback and revision activities in Google Docs was conducted by retrieving data from the Google Docs platform. In addition, to allow comprehensive observation of students' on-screen online behaviour during the peer feedback interactions, screen capture recording software was used. Screen recording refers to "real-time recording of the computer screen that captures everything displayed on the screen and creates a video file" (Cho, 2018, p.38). The software package not only made it possible to observe all students' movements in the Google Docs platform, such as amendments to or deletions in text, but also to observe/track their movements outside Google Docs, such as the websites visited and the online dictionaries consulted. Seedhouse and Almutairi (2009, cited in Cho, 2018) have argued that combining technologies, such as task-tracking programs and video recordings, to capture the task-

in-process helps relate non-verbal communications to verbal interactions. Thus, integrating various data sources for the purpose of analysing students' interactions can help provide a holistic picture of what actually happens in the task process (Cho, 2018).

Observation of the students' on-screen behaviour using the screen capture recordings in this study assisted in formulating a stimulus for stimulated recall interviews. Stimulated recall is a type of introspective research methodology that helps "prompt participants to recall thoughts they had while performing a task or participating in an event" (Gass & Mackey, 2000, p. 17). The importance of conducting stimulated recall interviews with focal participants has been highlighted by some peer feedback studies (e.g. Roberson, 2014; Zhao, 2010). This technique involves the use of a recorded event (video/audio/transcript) as a stimulus to help participants articulate what they were thinking at the time the event took place (Gass & Mackey, 2000). In this study, selected extracts from the screen recordings were used in the stimulated recall interviews to prompt discussion and reveal what the students were thinking at the time and what meaning they assigned to what they did in the earlier event. Interpreting students' online behaviours tends to be subjective and providing them with opportunities to voice what they thought they were doing was expected to enhance the validity of the interpretation. In addition, it was felt that stimulated recall interviews would help provide concrete examples and more contextualized and richer data than those obtained from the other methods.

The triangulation of methods made it possible to generate "rich" data that fulfilled both the characteristics of qualitative research and the aims of an interpretivist research paradigm. In addition, it assisted in contributing to richer contextualized data and enhance the trustworthiness of the study (see section 3.11). Before discussing the instruments, the pilot study is presented in the following section.

3.7 Pilot study

Before conducting the main study, a small-scale pilot study was conducted to check the feasibility of the research procedures and the practicality of the selected screen capture software recording, to refine the instruments proposed and to assess their relevance to the target environment. Using a convenience sampling strategy, the pilot study was conducted in February 2017 with eight EFL students enrolled as full-time students in a semester-long essay writing course at a public university in Egypt. The participants shared similar characteristics to the participants in the main study as they were all EFL

Egyptian university students aged 19–23 years. Their English proficiency was rated at the B1 level according to the Common European Framework Reference (CEFR) for Languages: Learning, teaching, and assessment. Based on the data from the pilot study, several decisions were made.

The pilot study helped assess the research design and highlight logistical issues that could arise during the main study. For example, it was necessary to check whether the computer laboratories in the selected university were equipped with computers in good working order and with a good Internet connection service. It was found that the majority of the university computers laboratories had recently been renovated just before the pilot study. The renovations included updating existing computers, increasing their number to meet the needs of increasing numbers of students and ensuring that all computers at the university had a good Internet connection. However, during the pilot technical training session on Google Docs, some challenges emerged. In particular, the Internet connection was still slow, and this hindered the students' interaction during the online peer feedback activities and also distracted their attention.

The pilot study also helped assess the practicality of the screen capture software to be selected for the main study. Based on a range of screen capture software recordings, the decision was made to use *Screencast-O-Matic (SOM)* for data collection in the main study. This software package in particular was selected for pilot testing due to the simplicity of its interface and ease of use, as well as being based on the positive views and recommendations of researchers in previous studies (e.g. Harrell, 2012; Seror, 2013). However, one problem that emerged when piloting SOM was the limited free trial, which only allowed up to 15 min duration of recording. This limited duration put pressure on the students to exchange feedback before it cut off and thus made it difficult to attain a full picture of the interaction among peers in the whole online peer review session. However, the professional version imposed no limit on the length of recording and the decision was taken to buy it for the main study to ensure that the students would not be asked to work under pressure.

Before conducting the pilot study, the research aimed to look into peer feedback in Google Docs and its impact on students' revision processes, while the screen recording was supposed to be used as a supplementary tool in addition to the built-in recording facilities in Google Docs. However, the SOM data revealed that the online platform offered both writers and reviewers a broad range of online tools, both within and outside

Google Docs, that shaped the peer feedback interactions. Seeking support and help from these online tools could have an impact on the peer feedback and revision processes. Based on this observation, the decision was made to specifically code data from SOM in terms of online tool use during the peer feedback process and its impact on students' revision behaviours.

Before conducting the pilot study, there were some concerns about whether to undertake the online peer feedback activities synchronously or asynchronously. Both modes were trialled in the pilot study to help decide which would be used in the main study. The delayed feedback that students received in the asynchronous mode provided enough time to read and write comments on each other's drafts any time at home. Some students even installed the Google Docs application on their mobile phones and started writing and exchanging feedback remotely at their own pace. However, some students did not have Internet access at home and therefore only used the computer laboratories. In addition, most students preferred using functions in Google Docs in the synchronous mode, such as commenting, because it was possible to get immediate feedback and receive more detailed explanations from their peers in real time. Hence, the decision was taken to have the main study participants engage in online peer feedback activities in the synchronous mode. The pilot study also showed that it was essential to provide a technical training session on online peer feedback to familiarize the students with the Google Docs technology and how to use it to exchange peer comments.

Although the study did not aim to focus on testing the effect of different group structures (dyads and groups) on students' interaction in peer feedback, it was important to test both grouping strategies in the pilot study to determine their relative feasibility. Some students in the pilot study reported having difficulty reading and reviewing a number of drafts when they were organized in groups to exchange feedback. The decision was therefore made to adopt a dyadic configuration, as also advocated by a number of scholars (Achmad & Yusuf, 2014; Kowal & Swain, 1994).

Finally, prior to data collection, the intention was to conduct the online peer feedback activities with all dyads on the same day in each task. However, due to the arrangement of equipment in the university computer laboratory and the students' study commitments, it was not feasible to do so. Moreover, this would not allow for adequate thorough in-depth observation of each student's online behaviour. Hence, it was convenient to have them two days a week.

3.8 Instruments

In this study, multiple data sources were combined, including: a background questionnaire, background semi-structured interviews, students' comments and revisions in Google Docs, screen capture software recordings, stimulated recall interviews and follow-up semi-structured interviews. All these instruments were piloted before being used in the main study.

3.8.1 Background questionnaire

A background questionnaire (see Appendix C) was administered at the outset of the study to obtain participants' demographic information and elicit their prior experience regarding peer feedback and the use of technology. The questionnaire consisted of four sections. The first section included biographical questions about the participants' age and gender. The second section included questions about students' self-assessed English proficiency and prior educational experience, particularly in L2 writing instruction. The third section included questions about their prior experience of using computers and the Internet. The fourth and final section included questions about their prior experience of peer feedback. These types of questions are asked in almost all CALL research in general and peer feedback studies in particular (e.g. Jin, 2007; Roux-Rodriguez, 2003), as they offer an efficient way of collecting basic personal information related to the students' previous language learning experiences and experiences with technology.

3.8.2 Background semi-structured interviews

One-to-one background semi-structured interviews (see Appendix D) were also conducted with each student to elaborate further on their responses to the background questionnaire and also for the purpose of the transferability of the research findings (discussed in section 3.11.2). To administer the semi-structured interviews, an interview schedule was developed listing the questions to be asked or the topics to be discussed (see appendix D). The questions focused on prior experience of using technology, either for academic or social purposes, as well as of peer and teacher feedback practices in the target context, drawing on those used in previous studies (e.g. Woo, 2013). Based on the findings of the pilot study and the focus of the main study, other questions were added. The interviews were conducted in Arabic, audio recorded and later translated into English. I conducted the interviews at a time convenient for the students in a quite seminar room on campus and each lasted 10–15 minutes.

3.8.3 Observing/tracking in the Google Docs

Google Docs, a free cloud-based word-processing tool provided by Google, was the technology selected for conducting the peer feedback activities in the study. The students' artefacts analysed in the study comprised data collected from Google Docs and its built-in functions, which include "*commenting*", "*suggesting*", "*chat*", and "*revision history*". As mentioned in Chapter 2, Google Docs affords real-time collaboration by supporting synchronous editing and the sharing of documents. The peer feedback activities in the study were conducted in the synchronous mode, which also makes it possible to provide comments by clicking on the *comment* function in the top right-hand corner of the page in Google Docs (see Figure 3.1).

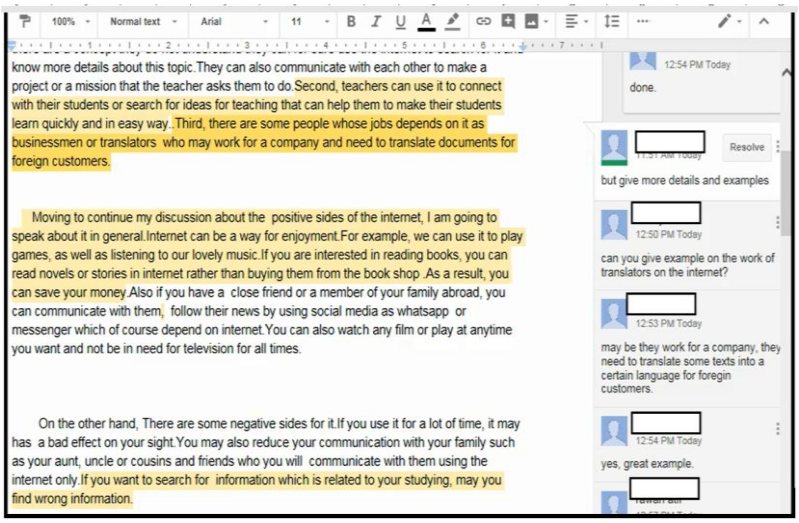


Figure 3.1 Comment function in Google Docs

Students can provide feedback by clicking the *suggesting* mode in the top-right corner of the page to suggest an edit to the student writers (see Figure 3.2).

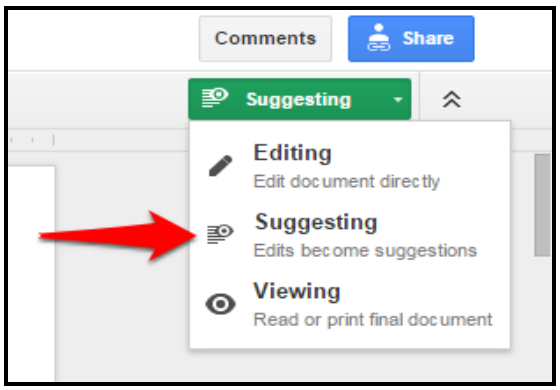


Figure 3.2 Suggesting mode in Google Docs

Students can also use the *chat tool* (see Figure 3.3). which appears to the bottom right and can be minimized by users.

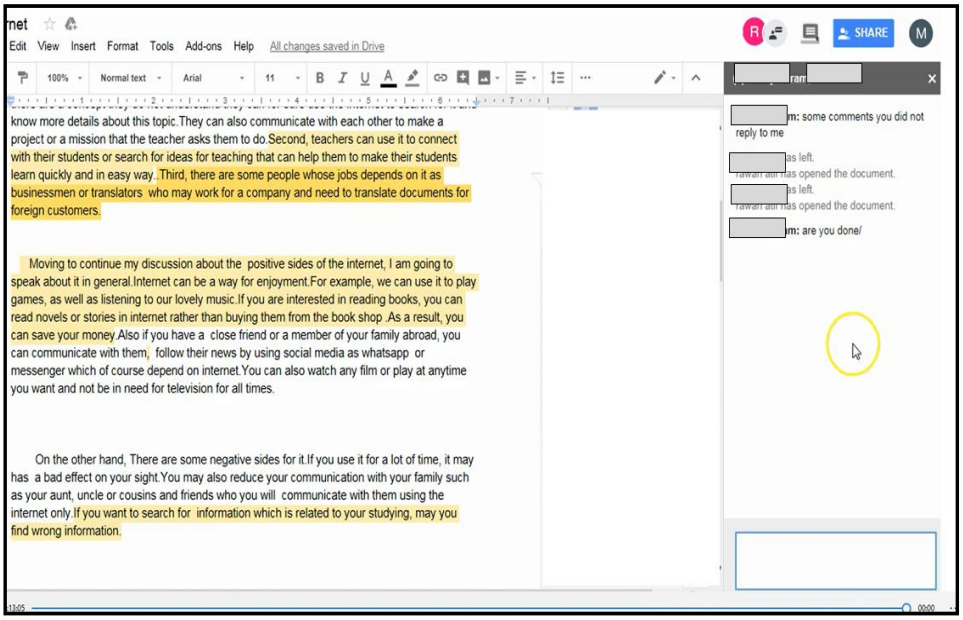


Figure 3.3 Chat tool in Google Docs

Students' use of other online resources outside the Google Docs document was also examined (see section 3.8.4). Students' revised drafts conducted by students and stored within the *revision history* of Google Docs were examined. These versions were saved in real time, with details that included the date, the person editing and the changes made.

3.8.4 On-screen behaviour: Observation

In this study, screen capture software, SOM, was used to gather information about the participants' online behaviour, particularly the online tools that the students used in giving and receiving online peer feedback. In other words, this screen capture software was used to record students' moment-by-moment on-screen actions, including their online activities inside and outside Google Docs, particularly their access to online tools, such websites, online dictionaries and spell-checkers. Seror (2013) recommends using SOM due to its simple interface and because students do not need to install it on their individual computers. Students' writing, peer feedback and revision processes were screen recorded. Although screen recording of students' essay writing helped understand the context when students developed their drafts, examining students' writing processes were beyond the focus of the study. Hence, only those recordings that captured students' peer feedback and revision processes were further examined and analysed in terms of online tool use. For illustration, Figure 3.4 shows a snapshot of the

sample online peer feedback session in the display mode of the SOM screen-recording program.

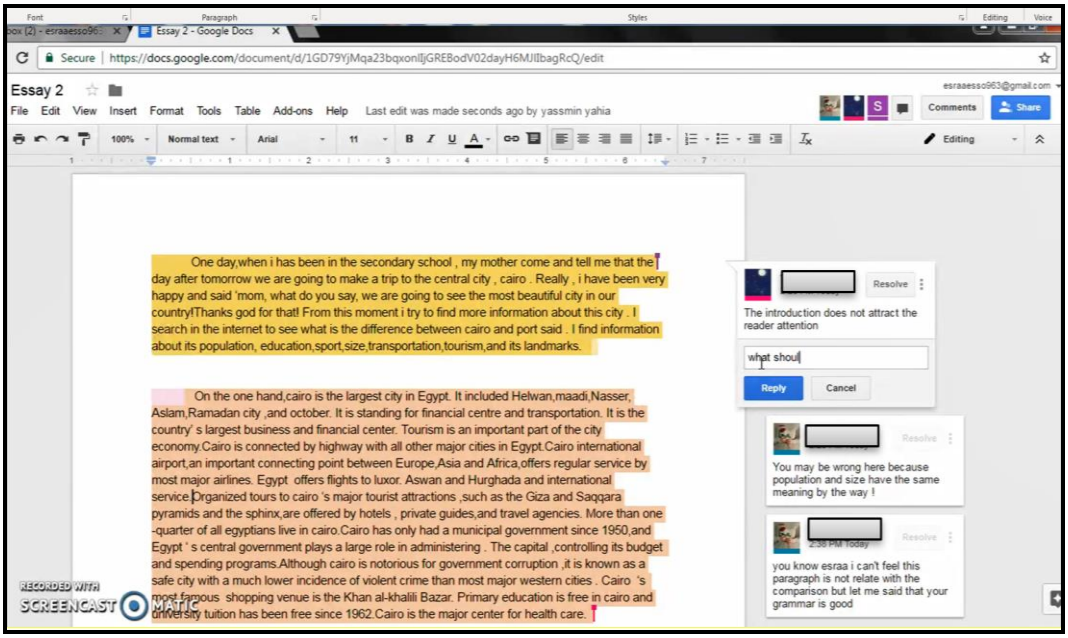


Figure 3.4 Snapshot of screen recording

The software was pilot tested to check its feasibility in the target context (see section 3.7). In addition, the recordings generated served as stimulus for recall interviews (see section 3.8.5).

3.8.5 Stimulated recall interviews

Stimulated recall interviews were also conducted to elicit introspective data from the participants (see Appendix F). To formulate stimulated recall questions in this study, selected extracts from the screen recordings of students' online behaviour were used as stimuli to recall a particular moment when carrying out the peer feedback and revision activities in Google Docs. Each student in this study viewed selected moments in the screen capture recording and was prompted to recall what they were doing or thinking when exchanging peer comments, revising their own drafts, pausing, using online tools and other details of their online interactions while watching the recorded data. The questions were formulated in advance based on the students' observed online behaviours and the interviews lasted for 20 minutes. The stimulated recall interviews, therefore, provided more detailed and personalized views of what the participants thought in their own words. Sample questions included: "Why did/didn't you accept/reject this comment?", "In what way do you think the online tool helped you in accepting/ rejecting such feedback?" (an excerpt is provided in Appendix F).

For this study, it was not possible to conduct stimulated recall interviews immediately after the students completed each online peer feedback session due to their busy schedules and the long time it took for SOM to process the videos and upload them to Google Drive; this was particularly an issue due to the slow Internet connection in the university computer laboratory. The stimulated recall interviews were audio recorded and transcribed verbatim. The data collected through these interviews were used to supplement interpretation of the students' thinking processes as they interacted with each other and with online tools if used. They also helped unpack their perceptions of online peer feedback activities in Google Docs. In addition, the data from stimulated recall triangulated the student participants' peer feedback interactions recorded in Google Docs with their on-screen behaviour captured by SOM.

3.8.6 Follow-up interviews

Follow-up semi-structured interviews were conducted at the end of the study to explore students' experiences and reflections on different aspects of peer feedback, their use of online tools for peer feedback and revision activities, and the usefulness of Google Docs for peer feedback activities in L2 writing. The interview questions were developed with reference to previous peer feedback studies (e.g. Allen & Katayama, 2016; Ebadi & Rahimi, 2017; Ryoo & Wing, 2012). The broader topics were related to the use of Google Docs for peer feedback activities, perceived benefits and challenges of giving and receiving peer feedback, and the usefulness of online tools in both the peer feedback and revision process.

3.9 Procedure

With the informed consent of the participants, data were collected in the second academic term of 2018, which spanned 10 weeks. The data collection timeline is displayed in Table 3.1. The first week was an orientation week, in which students were introduced to the research by distributing information sheets (Appendix A), and those who volunteered were asked to sign a consent form (Appendix B). Background questionnaires were distributed to students to collect demographic information, such as age, experience with computers, English proficiency and attitudes towards peer feedback. The questionnaire was followed by a semi-structured interview to obtain further information and elaboration based on the questionnaire responses.

As advocated by a number of researchers (e.g. Min, 2005; Paulus, 1999; Stanley, 1992), it is important to train participants in peer feedback to ensure the success of sessions. Peer feedback training is essential in preparing students to provide critical comments and workable suggestions on their peer's writing and in helping them to realize the value of peer feedback (Min, 2005). Not only do students need to be trained in conducting peer feedback, they also need to change their conventional learning practices to embrace the new technology-enhanced learning environment (Lin & Yang, 2011). To familiarize the students with the peer feedback procedure, they received training (see section 3.9.1), in which I explained the process of peer feedback and guided the students to comment on different aspects of writing. The students also received technical training in Google Docs and screen capture recording in SOM (see section 3.9.2). From weeks three to nine, the students participated in online peer feedback sessions in Google Docs in the university computer laboratory.

Table 3.1 Data collection timeline

Week 1	**Week 2**	**Weeks 3–9**	**Week 10**
– Explanation of the study and provision of informed consent. – Background questionnaire and semi-structured interviews.	– Training in peer feedback. – Technical training in Google Docs and SOM.	– Online peer feedback activities in Goole Docs and stimulated recall interviews.	– Follow-up semi-structured interviews.

All peer feedback dyads were self-initiated (i.e. students decided who they would share their drafts with in Google Docs and this formed the dyads). Three different types of essay – cause and effect, comparison and contrast, and argumentation – comprised the writing genres. For each of the three tasks, students used the same computer laboratory. I was also present in the computer laboratory to address any technical issues and reiterate task requirements if needed. In each writing cycle, the writers were asked to generate ideas on the topic assigned and write their first drafts individually in Google Docs. After writing their first drafts, they shared them with their peer reviewers to receive feedback that could be used for revision. The reviewers commented on their essays based on the guidelines provided in the peer feedback checklists for each genre (see Appendix H). The checklists and instructions encouraged the reviewers to start with positive comments followed by any suggested amendments or comments on errors to help the writer improve his/her essay.

The peer feedback sessions were designed to be task-based in that the sessions were meant to focus on encouraging students to interact and give effective feedback which could be used for revision. Having worked in the research context, I was aware of the summative exam orientation of the educational system and how peer feedback sessions in the specific research context might be perceived by some students. For this reason, the information given in the training session was reiterated (see section 3.9.1) and in addition there was an informal conversation about the benefits of peer feedback for their language ability, which would then help them in their summative assessment. The informal conversation also attempted to touch upon factors that might impede peer review (e.g. fear of losing face), which helped them perceive peer feedback as a kind of social activity. It was also important to explain to the students that the written texts with the comments would be anonymized when reporting the data.

Then, stimulated recalls were conducted with each student individually. During each stimulated recall, the participants watched videos from the SOM screen capture recordings related to the online peer feedback activities and were prompted to recall their thoughts and to comment on behaviour when engaging in the peer feedback and revision activities in Google Docs. Each stimulated recall was audio-recorded using SOM and lasted 20 minutes. In the final week (week 10), the students participated in semi-structured interviews which lasted approximately 20 minutes. The interviews were conducted in Arabic and then the responses were transcribed and translated into English.

3.9.1 Peer feedback training

As mentioned in Chapter 2, many studies have highlighted the importance of conducting training in peer feedback to help students provide effective comments in the peer feedback process. Bearing this in mind, I allocated three hours of training in peer feedback to students in the second week in a university classroom. The training was adapted from Min's (2005, p. 296) four-step procedure, namely clarifying, identifying, explaining and giving suggestions, as well as Lam's (2010) peer feedback training workshop to suit the online peer feedback activities in the current study. Using Microsoft PowerPoint, I introduced the peer feedback activity, explained its potential benefits, its purposes and its possible drawbacks. As part of their writing course, all students were required to exchange peer comments on their peers' essays face to face during class time, as assigned and based on peer feedback checklists. The same

checklists were used in slightly modified form to suit the online peer feedback activities (see Appendix H). Using one of these peer feedback checklists, I modelled the provision of feedback, giving comments on sample paragraphs according to writing aspects that students could comment on. The students were asked to pair up randomly and sample essays were distributed to each dyad. Then, each dyad was asked to highlight and discuss the problematic areas they found in the essay using the guidelines in the peer feedback checklists.

3.9.2 Training in Google Docs and Screen-O-Matic (SOM)

In addition to the peer feedback training, students received technical training in Google Docs with the aim of familiarizing them with the platform to use it for conducting the online peer review activities in the study. In addition, screen capture software, namely SOM, which captures all on-screen movements, such as clicking, highlighting and typing, was installed on the students' computers (see section 3.8.4). On the projection screen, I modelled the creation of a Gmail account, writing in a document, editing, inserting comments using the commenting function and suggesting mode, inserting weblinks in comments, sharing the document with other people, using the chat tool, and checking the revision history. I also modelled using Google Docs built-in dictionary, word count, …etc. In addition, I showed the students how to start SOM on a computer to record a Google document. The students were given training hand-outs (Appendix G) and I provided technical assistance.

3.10 Data analysis and triangulation

As mentioned in section3.8 Instruments 3.8, the data for this study were drawn from background questionnaires, students' essays and comments in Google Docs, observation of on-screen behaviours, semi-structured interviews and stimulated-recall interviews. Qualitative content analysis (QCA), a method that allows for "subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005, p. 1278), was first used to code the main data from the online peer feedback interactions obtained from a compilation of the built-in functions in Google Docs: "*comments*", "*suggesting mode*", "*revision history*" and "*chat*". In addition, the qualitative data in the study were supplemented with descriptive analysis of the frequency counts for the peer feedback comments, mediational tool use and writer response, to explicate and display the data. Ellis and Barkhuizen (2005) claim that exploring qualitative data from a quantitative

angle "often produces a different perspective on phenomena and brings about deeper interpretations of meanings in the original qualitative data" (p. 255). Each dyad's peer feedback interactions were considered a case and were analysed separately by creating a case database for each task in Microsoft Word. The comment and highlighting tools in Word helped not only to code the peer feedback interactions, but also to develop memos about them.

To present the peer feedback transcripts in the data analysis chapter, a transcription format was designed to capture the convergence between the original text, the comments posted by reviewers and the writers' responses, as well as the use of online tools by both parties (if used), in a single transcript (see Excerpt 3.1). The transcript first presented the original text related to the peer feedback exchange, with the specific portion of the trouble-source being discussed highlighted in grey. Traces of the online tools captured by SOM were presented in brackets. If a comment was accepted, the revised text was presented by adding an arrow to highlight the revision (deleted text struck through and added text underlined). If a comment was rejected, no text was added. The role of each pair, whether writer or reviewer, was also coded. All students' mistakes were left intact.

Excerpt 3.1 Online peer feedback transcript

Original text		
Unemployment is a big problem that face our society and harm the youth,		
Line	**Reviewer/ Writer**	**Episode**
1	Lara (R)	[Referring to Google Translate] (harms) is not accurate you can say (affects)
2	Lara (R)	or damages
3	Noha (W)	why do you think that? I think it is good
4	Lara (R)	[Referring to Google Translate] harms means cut or hurt an abstract thing
5	Noha (W)	okay
Revised text		
→ and ~~harm~~ affects the youth, because		

In coding and analysing the peer feedback interactions in Google Docs for each dyad, the first step was to segment those interactions into episodes. An episode is defined as a unit of discourse (a word, sentence, turn, or several turns) that is semantically related to a topic (de Guerrero & Villamil, 1994; Nelson & Carson, 1998; Storch, 2001a). These segments were segmented and classified into two major categories: on-task, about-, and off-task episodes (De Guerrero & Villamil, 1994). The criterion for an on-task episode is one in which reviewers and writers discuss their writing to complete the task (e.g. de Guerrero & Villamil, 1994; Storch, 2001; Villamil & de Guerrero, 1996). When

students talk about things irrelevant to the piece of writing, their interaction is coded as an off-task episode. An example of an on-task episode tackling a single topic is given below. Here, Christine is giving Maya feedback on an argumentative essay about unemployment.

Excerpt 3.2 [Sarah: the reviewer; Dora: the writer]

Original text		
Unemployment is a phenomenon that spread all over the world. It attracted many people and researchers to think about. In your opinion, what is the causes and the effects of this phenomenon? Some people find that this issue spreaded because of the increase of the population. However, the others do not think so. Also, some people find that this phenomenon has a great effect on our life. This what we will talk about in this essay. We will illustrate the main causes and effects of unemployment.		
Line	**Reviewer (R)/ Writer (W)**	**Episode**
1	Sarah (R)	You need to provide some background information about causes and effects of unemployment in the intro.
2	Dora (W)	.i think i donot need to do so because in the intro we have to add only hints to make the readers complete reading. but if you write more info as you say the reader will find that completing reading is something useless.
3	Sarah (R)	I disagree with you. I didn't say that you have to give them all the information in the intro, but you need at least to give brief idea about what they are going to read in this para.
4	Dora (W)	okay, i did so ;)

This excerpt illustrates an on-task episode tackling a single topic. In this case, the topic was how much background information Dora would need to include in the introduction of her cause-and-effect essay about unemployment. The episode is considered to be an on-task example because both the reviewer and writer are discussing a specific source of trouble addressing language meaning. More specifically, the episode is content related.

Next, each on-task episode was further coded in terms of focus areas (see Table 3.2) to determine the specific writing/language aspects that participants attended to in their feedback episodes using a modified coding scheme originally derived from Jacobs et al. (1981) and modified and used by Yim et al. (2018). The coding scheme was useful because it covered specific language aspects for each instance of feedback (i.e. content, organization, word choice, grammar). The reviewers' peer comments that did not fall into any of these categories were described as "other". A distinction was made between episodes that targeted language meaning (i.e. content and organization), and those that targeted language form (i.e. grammar, word choice, mechanics).

Table 3.2 Feedback focus

Feedback focus	Sub-categories	Examples from the data analysis
Content		*Lara: your content is clear except the types of unemployment* Noha: okay I will try to explain it Lara: good girl :D
Organization		*Sarah: Your introduction is really good. It grabbed my attention.* Dora: thanks. Sarah: you are welcome)))
Grammar	Singular/plural	*Dora: this is plural add s* Nancy: ok
	Articles	*Norah: Could you revise this sentence? I think that it would be an isolated way.* Monica: oh , sorry . you are right.
	Run-on sentences	*Maryam: This sentence is very long, you can make it shorter because it is hard to read.* Rola: which one please? Maryam: the sentence which starts with 'second', can you make it shorter? Rola: done.
	Subject-verb agreement	*Noha: you should add (s) here* Lara: ok Noha: Marked as resolved
	Tenses	*Sarah: Remove the(ed)because the past tense of spread is spread also* Dorah: done
	Prepositions	*Norah: I think that it should be travel to* Monica: oh , you are right .
	Conjunctions	*Farah: you should put and before Brazil* Ayat: I think you are right. Farah: yes♥
	Redundancy	*Noha: I think it is the same meaning of the sentence before you should delete one of them* Lara: you are right
	Parts of speech	*Monica: you should write 'exciting' not excited because you speak about things.* Norah: yes, you are right Monica: thank you .
Mechanics	Spelling	*Ayat: please check the spelling of this word.* Farah: I found it correct
	Capitalization	*Maya: This word should be capitalized.* Chrsitine: ok:) Maya: Marked as resolved
	Punctuation	*Noha: You should add a comma here* Lara: Ok dear Lara: Marked as resolved
	Formatting	*Maya: Great title,but you need to revise the format of your essay.* Christine: what's wrong with the format? Maya: There are a big spaces between paragraphs. Also, you have a problem with the indentation for the start of each new paragraph in your essay.
Word Choice	Choice of words, phrases, or idioms	*Dora: internet is worldwide network not an organization check this http://www.referenceforbusiness.com/management/Int-Loc/The-Internet.html* Nancy: ok, i will check it Nancy: Marked as resolved
Other		*Rola: you can make it more simple and say "which is a big cause..etc.."* Maryam: okay i will Maryam: done

Note. Target sentences are in italics.

As seen in Table 3.2, the coding scheme involved five areas: content, organization, word choice, mechanics and other. Feedback on grammar can be subdivided into nine categories: singular and plural forms, articles, run-on sentences, subject–verb agreement, tenses, prepositions, conjunctions, redundant words, and parts of speech. Feedback on mechanics was further subdivided into feedback on spelling, capitalization punctuation, and formatting. Feedback on word choice included choice of word, phrases, or idioms. In addition to the area of focus, comments were analysed in terms of their nature: (a) revision-oriented comments, i.e. those pointing to areas that needed to be changed; (b) non-revision-oriented comments, i.e. those not addressing revisions.

The second stage of analysis involved coding reviewers' mediational tool use using data from Google Docs and SOM. Informed by Vygotsky's concept of mediation, these mediated strategies included their use of symbolic tools such as use of dictionaries and prompt sheets provided for the occasion (Villamil & de Guerrero, 1996). In the current study, a distinction was made between language-mediated peer feedback and language mediation supported with online tool. Whether supported by online tool use (i.e., online source like dictionaries or language websites), language was the primary tool used by reviewers in which they employed a number of strategies. These mediating strategies were coded to examine how the peer reviewers mediated the negotiation of peer feedback with the student writers. Reviewers used and employed a number of strategies to influence their revision behaviour (see Table 3.3). Since each episode contained more than one mediating strategy, a move was selected as the unit of analysis. In coding these strategies, a coding scheme originally derived from Villamil and de Guerrero's (1996) study and adapted by Zhao (2018) has been employed. Both coding schemes had a similar research focus, their categories were comprehensive and their participants shared similar levels of English language proficiency to those in this study. However, further categories (persisting, clarifying, advising/suggesting) were also adapted from Saeed and Ghazali (2017)'s study.

Table 3.3 Mediating strategies

Mediating Strategies	Definition	Example
Providing direct feedback	Reviewers point out the problem AND provide specific solutions to the problem that lead to a possible improvement	*Ayat: this should be in the plural form.* Farah: Did you mean technologies? Ayat: yes.
Providing indirect feedback	Reviewers indicate the possible need for revisions but do not provide revision solutions	*Maryam: I think that *be busy with' is grammatically wrong…what do you think?* Rola: hmmm i am not sure if it is correct or not, can you give me a suggestion? Maryam: any wok to do? What do yu think? Rola: i like it. thanks for your help
Praising	Reviewers provide complimentary comments about the text	*Farah: I like this part which you defined unemployment in a good way* Ayat: thanks
Requesting clarification	Reviewers elicit information from writer to clarify intended meaning	*Christine: Do you mean "the use of the internet"?* Maya: YES Christine: Thanks for correcting it.
Questioning as a hint	Reviewers question the problem of the writing point as a hint to assist the writer in detecting an error	*Sarah: You mean that internet is something useless?* Dorah: no i mean that using the internet much time make it useless. Sarah: So you need to add this that if we use the internet a lot, this can waste our time.
Advising/ suggesting	Reviewers provide advice/suggestions as a hint to assist the writer in detecting an error	*Farah: what about changing it to them. I think it's more simple* Ayat: okay, I will do it.
Instructing	Reviewers give "mini" lessons on aspects of grammar, word choice, etc.	*Rola: you repeat the word isolation a lot, this is called wordiness.* Maryam: okay, I will delete one of them. Maryam: done Rola: great dear.
Reinforcement feedback	Reviewers reinforce feedback by restating their feedback or confirming with writers their understanding of the feedback	*Norah: It is better to say against rather than disagree with. we disagree with people in idea not in object* Mona: Are you sure Norah ? Norah: Yes, you can search for it. Mona: I searched it, and I think you are right.
Justifying	Reviewers explain and defend their comments by giving reasons	Maya: [Resorting to Google Docs spell checker] El-kedeseen not Al-kdeseen. Christine: There is no role for names. I think It's Al not El. El is used in everyday language. *Christine: [Resorting to Google Search] Google it and you will find it is written like El kedeseen*
Clarifying	Reviewers elaborate on the feedback given to the writer	Mona: I think that 'employed ' is better. Nour: How? This essay is about unemployment. I think that it is good here. *Mona: sorry, I mean laziness has a negative effect on the unemployed person .*
Persisting	Reviewers firmly continue to repeat the feedback given in a different way to persuade the writer to accept the suggested feedback	Dora: What about changing this word. I think it is not suitable. Sarah: Why? Dora: the oppisite of benefits is drawbacks not danger Sarah: I do not want to use the opposite I want to use something to stress on its effect. *Dora: okay but dangers is not suitable at all*

Note. Target sentences are in italics.

In coding the students' online tool use (writers and reviewers), the SOM screen capture recordings were coded for search behaviours, key words searched, websites consulted, feedback provision and writer's response. These recordings, in mp4 format, were uploaded in Google Drive. The unit of analysis was an event. An event means a single occasion of a participant's use of an online tool in the middle of giving or receiving feedback comments in Google Docs. The peer feedback interactions coded in Google Docs, which included reviewers' feedback focus, mediating strategies used and writers' responses, were linked with the transcribed screen capture recordings. Thus, it was possible to follow their on-screen behaviour in terms of online tool use and link this behaviour to their peer comments and revision behaviour.

Given that the incorporation of feedback is considered an important indication of potential learning (see Chen, 2014), analysing writers' responses to the reviewers' feedback and what revisions L2 writers made was important. In coding writers' responses to reviewers' comments, Kamimura's (2006) classification of accepted vs. rejected was adapted to include three categories: fully accepted, partially accepted and rejected. The first category included those comments that writers fully accepted and incorporated in their revised texts. The second category included those they accepted, but slightly modified in their texts. The third category included both the comments that they accepted in their responses but did not incorporate in their revisions and those that they explicitly rejected and did not incorporate.

The data from the stimulated recall interviews, during which the students verbalized their thoughts and reasons for providing and using the feedback and use of online tools in the way they did, were transcribed and triangulated with the feedback data, using the two broad patterns of feedback incorporations: acceptance and rejection (see Table 3.5).

Table 3.4 Features of stimulated recall interviews by patterns of acceptance vs. rejection

Category	Examples from the data analysis
Full Acceptance	**Researcher:** What were the reasons behind your *acceptance* of the feedback given by your partner here? **Writer:** I didn't know the exact meaning of the word when I first wrote it in my essay, but when I looked it up in the link to the dictionary she put in her comment, I accepted her suggestion.
	Researcher: Why do you think your partner *accepted* the feedback that you provided here? **Reviewer:** I gave her a link to the meaning of the word from a dictionary and put it in my comment, she would definitely accept the feedback because I gave her solid evidence already which is the web link.
Partial Acceptance	**Researcher:** What were the reasons behind your *partial acceptance* of the feedback given by your partner here? **Writer:** I believe both are correct (gain confidence) or have confidence. I did not make a mistake here. I rejected her advice, but I changed it slightly to feel good haha!
Rejection	**Researcher:** What reasons lay behind your *rejection* of the feedback given by your partner here? **Writer:** I was not convinced that what I wrote is an Arabic translation as she said, so I did not change it. I searched the Internet and I found similar results to what I wrote.
	Researcher: Why do you think your partner *rejected* the feedback that you provided here? **Reviewer:** I provided her with many other suggestions but after I posted the link to those suggestions, I found in the Internet expressions similar to what she wrote. I guess what she wrote was not wrong and that's why I said (it's up to you).

At the higher level, data obtained from the "*suggesting mode*", "*comments*", "*revision history*" and "*chat*" records in Google Docs and stimulated recalls were coded and analysed to examine in further detail how the students' interactions with the support of online tools promoted the acceptance and rejection of peer feedback and a close qualitative analysis of peer feedback and revision processes was employed. Data from the various sources were integrated to explore students' most frequently observed behaviours in the peer feedback process and make a link between the mediating strategies employed, use of online tools, and the impact these tangible processes had on the acceptance or rejection of peer feedback. The stimulated recalls were coded and reviewed for how well they aligned with the interpretations of data sources in the peer feedback interactions in Google Docs and SOM. This exploration of the triangulated data sources was guided by the following questions:

- How do reviewers describe the peer feedback comments they provide? What do they focus on? And why?
- How do writers describe the peer feedback comments they receive? How do they explain their revision choices?
- How do participants explain the patterns of acceptance or rejection of the different comment types?

- How do they explain their mediation of online tools in the online peer feedback process?
- How do they perceive the peer feedback task?

The last level of coding was concerned with the participants' emic perspectives of their experience of the peer review activities they conducted in Google Docs, obtained from secondary data sources in terms of the semi-structured interviews and stimulated recalls. Informed by the theoretical framework underpinning the study, the interview transcripts were analysed to identify how the participants experienced the peer feedback activities and the reasons why students accepted or rejected online peer feedback from their peers.

The interview transcripts in Arabic were translated into English. The process of transcription and translation was accompanied by a process of recursive coding and categorization (Miles & Huberman, 1994, p. 56). All interview data were coded thematically according to the patterns of acceptance or rejection of comment types. More specifically, the thematic analysis model proposed by Braun and Clarke (2006) was used to code the interview transcripts. This analysis approach consists of six major phases: familiarization with the data, generating initial codes, searching for themes, defining themes, reviewing themes and producing the report. The interview transcripts were first read through in their entirety and segments containing the students' explanations of their behaviour relevant to specific instances of their online interactions were located, highlighted and attached to a specific sequence of interaction. After conducting a within-case analysis for each individual case, a cross-case synthesis was employed. A thick description was developed by identifying transcript quotes that were related to specific instances of the peer feedback interactions.

This process involved being deeply immersed in all data sources, reading and rereading the peer feedback interactions interactively and repeatedly, writing memos and making notes on the units that seemed relevant to the research questions. Since the study aimed to examine multiple cases, two sequentially integrated processes of analysis – within-case and cross-case – were employed. That is, within-case analysis of the interactional features of each dyadic peer review was conducted, followed by cross-case analysis in which all the categories from all the data sources across cases were analysed to compare and contrast the commonalities and differences among the peer review dyads in each writing task (Maxwell, 2013; Miles, Huberman, & Saldana, 2014; Patton, 2002; Stake, 2006). The constant comparison method was primarily used for building a grounded

theory, in line with Merriam's (1998) argument that "the constant comparison method is widely used in qualitative studies, whether or not the researcher is building a grounded theory" (p. 18). The research questions were simultaneously fine-tuned, consistent with the emerging themes. To ensure the reliability of the coding, a second coder, who was a fellow PhD applied linguistics student, reviewed the codes and patterns identified to check they were representative and accurate.

3.11 Trustworthiness

As in quantitative research, researchers conducting qualitative inquiries should verify the quality and rigour of their studies (Lincoln & Guba, 1985). Unlike quantitative research, in which *reliability*, *objectivity* and *validity* (*internal* and *external*) are taken into consideration to ensure the rigour and quality of the study, in qualitative research four key criteria, namely *credibility*, *transferability*, *dependability* and *confirmability*, have been proposed to ensure trustworthiness (Lincoln & Guba, 1985; Schwandt, Lincoln, & Guba, 2007). To enhance the trustworthiness of this study, three techniques were applied, namely persistent observation, triangulation and member checking. In addition, for the purposes of reflexivity and transparency, my role as the researcher is discussed.

3.11.1 Credibility

Credibility is synonymous with internal validity in quantitative research and is concerned with the aspect of truth-value (Korstjens & Moser, 2018). As a concept in qualitative research, credibility involves checking deals with the question, "How congruent are the findings with reality?" (Merriam, 1998b, p. 201). Credibility can be achieved through strategies such as prolonged engagement, persistent observation, triangulation and peer debriefing (Creswell & Miller, 2000; Padgett, 2008). Credibility in this study was addressed by adopting three techniques: persistent observation, triangulation, and member checking. First, prolonged engagement and persistent observation were achieved through the constant observation of students' behaviour in a series of three online peer feedback tasks and the fact that I was the data collector, taking field notes and formulating questions for students to gain an in-depth insight into the phenomenon under study (Lincoln & Guba, 1985). In addition, I kept a reflective journal after each online peer feedback session to record to reflect on any issues that emerged during the tasks.

Second, triangulation was used, referring to "the act of bringing more than one source of data to bear on a single point" (Marshall & Rossman, 1989, p. 146). Data were collected through several methods: the background questionnaire, interviews, on-screen observations and stimulated-recall interviews. These allowed triangulations of the data sources. In particular, in this study, the interpretation of students' online behaviour during peer feedback interactions was strengthened by interview data. Using these multiple sources of data enabled an in-depth understanding of the phenomenon and authentic interpretation of the events under investigation.

Third, member checking, also known as participant or respondent validation, was conducted with the research participants. This technique involves taking the study results or specific emerging interpretations back to the research participants to check for accuracy and reflect on their experiences (Birt, Scott, Cavers, Campbell &Walter, 2016; Harvey, 2015). During the follow-up interviews, my interpretations of the students' responses were verified with all the participants to ensure the interpretations were accurate and matched their perspectives. After the initial findings were identified, the reports of these findings were shared with the research participants via video phone calls and emails. The information gathered from each participant was kept in my reflective journals.

3.11.2 Transferability

Transferability is argued to be similar to generalizability or external validity in quantitative research but is not achieved through random sampling and probabilistic reasoning (Johnson & Rasulova, 2017). In qualitative research, transferability refers to the degree to which the phenomenon or the study findings are transferable to other contexts or other participants with similar characteristics (Lincoln & Guba, 1985). Mackey and Gass (2005) argue that "although findings in a case study research are rarely directly transferable from one context to another, the extent to which findings may be transferred depends on the similarity of the context" (p. 180). In order for findings to be transferable, a thick description of the participants should be provided to allow the readers to decide whether there is similarity between the research site and the receiving context (Bryman, 2012; Mertens & McLaughlin, 2004), known as transferability judgment (Korstjens & Moser, 2018). To enhance the transferability of the study, a thick description of the research participants with an emphasis on the study context, the research design and the sampling strategy has been provided.

3.11.3 Dependability

Dependability is parallel to reliability in quantitative research and closely linked to credibility. It is equally important for qualitative research (Johnson & Rasulova, 2017). It involves assessing whether, "the process of the study is consistent, reasonably stable over time and across researcher and methods" (Miles & Huberman, 1994, p. 278). To consolidate dependability in this study, peer debriefing was conducted by sharing questions about the research process to provide an additional perspective on the analysis and interpretation (Mertens, 2010). A peer debriefer with a PhD in applied linguistics and an understanding of the context of the study was selected. The peer debriefer reread, evaluated and gave feedback concerning the data analysis and asked probing questions about the study.

In addition, an "audit trail" was constructed, which involved tracing and documenting all data sources, methods and decisions made during the data collection in a reflective journal. In this line, a systematic approach detailing each step taken during data collection (section 3.9) and data analysis (section 3.10) was followed. In addition, tables, diagrams and figures were used to improve the clarity of the presentation. This aimed to allow the reader outside the research to follow, audit and evaluate the research process (Moon, Brewer, Januchowski-Hartley, Adams, & Blackman, 2016).

3.11.4 Confirmability

Confirmability is similar to objectivity in quantitative research and refers to the extent to which the study results and interpretations are found in the data and not subject to research biases (Lincoln & Guba, 1985; Miles & Huberman, 1994). To achieve confirmability, Miles and Huberman (1994), the researcher needs to ensure that the "sequence of how data were collected, processed, condensed/transformed and displayed for specific conclusion drawing" and whether the study is free from any unacknowledged biases" (p. 278). To ensure confirmability, a detailed account of the study context (section 1.2) and data collection (section 3.9) and analytic procedures (section 3.10) procedures and methods have been provided. Several transcripts from the online peer feedback interactions and quotations from the interviews are provided in the data analysis chapter (see Chapter 4) to allow the reader to judge whether the research process and findings reflect the ideas and experiences of the observed participants, rather than my own preferences or assumptions (Ibiamke & Ajekwe, 2017). In addition, to address conformability, reflexivity which requires the acknowledgement of my own

predisposition and biases, have been employed (see section 3.11.5). Confirmability is also attained through data triangulation and member checking.

3.11.5 Considerations of reflexivity

Reflexivity is defined by Berger (2015) as "the process of a continual internal dialogue and critical self-evaluation of researcher's positionality as well as active acknowledgement and explicit recognition that this position may affect the research process and outcome" (p. 220). In this study, I was not the course instructor and therefore there should be minimal concern about bias and conflict of interest in relation to the study. In addition, I was an invisible online observer, taking notes on students' online peer feedback interactions and consistently checking changes in the Google Docs platform, providing assistance to students when they faced any technical issues while engaged in the online peer feedback activities (emic perspective). Furthermore, I was not involved in the course assessment and therefore the participants were not subjected to stress while being observed. This emic role enabled me to view what the participants viewed, observing their behaviours in a natural context and by interviewing them. At the same time, it was very important for me to maintain my own perspective as an outsider by developing a conceptual and theoretical description of the case and reporting the findings so that their contribution to the literature was evident (etic perspective). My interest in the affordances of technology in L2 writing encouraged me to pursue this study. I was involved in the procedures of collecting data and interacting with the course instructor.

3.12 Ethical considerations

A number of procedures were undertaken to ensure that the research was ethical. At the outset of the study, ethical approval was granted by the Department of Education Ethics Committee at the University of York prior to data collection. Information sheets were distributed (see Appendix A), in which information about the research aims, procedures, potential risks and expected benefits was provided. In addition, participants were asked to read and sign a consent form (see Appendix B). They were given one week to consider whether they would like to participate in this study or not and they were informed that they were free to withdraw at any time during the study if they felt they needed to. Anonymity and confidentiality were guaranteed, meaning that they were assured that their names would be kept confidential through the use of pseudonyms during data collection, data analysis and later dissemination of the results. Their

electronic data would be stored in a password-protected computer until the completion of the research, after which time such data would be destroyed. To avoid misinterpretation of the data, member-checking sessions were undertaken, and any potential bias was explicitly acknowledged (sections 3.11.1 and 3.11.5).

3.13 Summary

This chapter has presented the research aims and questions, focused on exploring the process of providing and receiving peer feedback in Google Docs. It has articulated how the research questions were investigated by using a case study approach, which included the use of multiple data methods to achieve an in-depth exploration of the phenomenon. It has described the case study conducted with 14 EFL Egyptian students, who were asked to participate in three writing tasks in Google Docs. It has set out the analytic approach, specifically the selection of qualitative content analysis for analysing students' online peer feedback interactions in Google Docs. Finally, the chapter concluded by explaining how trustworthiness criteria and ethical considerations were met. The following chapter presents the data analysis and discussion of how writers and reviewers mediated their learning in giving and receiving feedback in Google Docs, specifically with the help of online tools (if used).

Chapter 4. Results and Discussion

4.1 Overview

Framed within sociocultural theory (SCT), this study aimed to examine: a) the focus of peer feedback comments provided by reviewers in Google Docs; b) how the participants mediated their peer feedback comments through the use of language and/or various online resources; c) how such mediation influenced the acceptance or rejection of feedback by the writers. In addition, this study aimed to examine learners' perceptions of peer feedback using Google Docs. This chapter starts by providing some background information about each dyad to contextualize the findings that follow (section 4.2). It then first reports the peer feedback patterns (section 4.3) in terms of task orientation (section 4.3.1), as well as focus and extent of revision orientation (section 4.3.2). Section 4.4 discusses mediation in peer feedback, specifically in relation to the use of two types of mediational tool: (i) language-mediated peer feedback (section 4.4.1), i.e. reviewers using their own language resources without referring to Internet sources; (ii) language- and online tool-mediated peer feedback (section 4.4.2), i.e. reviewers using online sources to help formulate comments. Then, section 4.5, discusses how the writers reacted to such peer feedback and mediation. Section 4.6 presents the online behaviours most frequently observed across the triangulated data. This section aims to provide more in-depth insights into how students mediated their learning during the online peer feedback interactions in Google Docs with the aim of answering the overarching research question: *How do Egyptian EFL learners mediate their learning in online peer feedback activities in Google Docs?* Section 4.7 provides further perceptions collected from interview data in the study. The chapter concludes by summarizing the findings in section 4.8.

4.2 Profile of participants

As mentioned in section 3.5, the study involved 14 female Egyptian EFL students from the English Language Section at a state university in the north east of Egypt. The names of the participants were changed to preserve anonymity. They worked in self-selected dyads during the online peer feedback activities. While the participants' actual English proficiency was rated B1 on the Common European Framework Reference (CEFR) for languages, when asked to self-rate their proficiency based on their own perceptions in the background questionnaire, half of the students rated their overall English language

proficiency as good and the other half rated theirs as very good. None of them had attended any English writing courses outside the university.

Given that interaction with technology and online tools and resources was an integral part of participants' engagement in the peer feedback process in Google Docs, it was important to understand the participants' prior experience and habits in using computer technologies and their ability to locate and use information online. Moreover, as argued by Ma (2017) students' experience of using online resources outside the classroom can affect their perceptions when adopting these tools for educational purposes.

All the participants owned computers with Internet access. Only one participant (Monica) had a computer with no access to the Internet. In terms of Internet use, all students reported spending time on the Internet daily. Some students reported 1–3 hours of use per day, while others reported spending more than three hours per day. Norah spent the longest time at 10 hours per day, while Monica spent the least amount of time online (2 hours per day), mainly on her phone. Maya, Lara and Diana spent a comparable amount of time online per day (3–6 hours). Based on self-report evaluations, more than half (51.3%) of the students rated their competence in using computers as good, 48.6% rated themselves as adequate and none rated themselves as poor. None of the participants had used technology for peer feedback activities before. In addition, in terms of using Google Docs in particular, none of the participants had used this technological tool before.

Similar to the difference in the time they spent using the Internet, the students' use of technological tools varied from one participant to another in terms of the range, type of tool and the purposes of using tools. The online tools most commonly by all participants were social networking applications (e.g. Facebook, WhatsApp, Instagram). The Google search engine was also commonly used by all students to help with university assignments. Some participants (Monica, Lara, Christine) reported using language learning tools/websites (e.g. online dictionaries, machine translation) whenever they needed immediate help for specific linguistic (lexical and grammatical) issues to do their university assignments. In addition to these resources, Christine, Norah, Lara and Farah specifically used YouTube for language learning, whereas Maya used YouTube for entertainment only. The common purposes of internet use most reported were socializing via Facebook, learning English, doing university assignments, and watching YouTube videos mainly for entertainment purposes.

In the interviews, students reported different goals and purposes for selecting the course. The first priority for all students was to improve their overall writing performance, but especially grammar. Some students added other writing goals, such as reducing writing apprehension (Maya and Norah) and increasing vocabulary (Nancy). Asked about their strengths in writing, five students reported good organization (Norah, Maram, Monica, Nancy and Farah), three declared their strength in generating ideas (Lara, Rola and Ayat), and one student (Diana) considered that expanding ideas in writing was her strength. As for specific areas of weakness in writing, they noted vocabulary (Monica, Lara and Nancy), organization (Lara and Maryam), redundancy in writing (Maya), and specific grammar items, such as compound/complex sentences (Christine and Maya).

When asked about previous experience of peer feedback, all participants except Diana expressed positive attitudes. For example, Maya, Norah and Farah viewed peer feedback as a useful activity that helped students learn from their mistakes. Although they were not sure about peer feedback as a learning activity, as they reported in the background questionnaire, four participants (Christine, Rola, Nancy and Farah) reported positive attitudes towards peer feedback in the background interview, while other participants (Maya, Lara and Monica) reported positive attitudes towards peer feedback in both the background questionnaire and interviews. Unlike the other participants, Diana was not sure about the usefulness of this activity. When asked about her attitude in the background interview, she argued that the writer would still need to double check with a reliable online source if the feedback given was correct or not before accepting or rejecting such feedback.

4.3 Peer feedback patterns

In terms of how students provided peer feedback, it is helpful first to understand the peer feedback patterns identified in the novel environment of Google Docs. To do so, the following sub-section (4.3.1) presents the patterns, supplemented with coding and frequency counts, focusing on the extent of task orientation in the peer feedback episodes. This is followed by exploration of the areas of language on which the participants focused and whether they were revision oriented or not (4.3.2).

4.3.1 Task orientation

As mentioned in Chapter 3, the analysis of students' peer feedback comments in Google Docs was approached in terms of episodes. Following de Guerrero and Villamil (1994), these episodes were further categorized as on-task episodes that focused on revising their essays, about-task episodes that focused on discussing things related to task procedures, or off-task episodes that discussed matters unrelated to the task. Overall, a total of 1,215 episodes were generated by the seven dyads in Google Docs across the three tasks. The majority of these interactions centred on on-task episodes, accounting for 99% (1,119), with off-task episodes accounting for 1% and no about-task episodes occurring.

This finding suggests that the students were highly focused on discussing potential problems related to revising the writing texts of their peers rather than engaging in other discussions irrelevant to the task. This finding confirms that of Chang (2009), who found that despite the lack of course instructor intervention, EFL students' online peer feedback interactions centred mostly on on-task episodes, while little off-task or about-task interaction was involved, implying high engagement in the peer feedback process.

One possible reason for the high percentage of on-task episodes is that the majority of students' peer feedback interactions in this study (67%) occurred through the *commenting* function in Google Docs, which was next to the draft they were discussing. While this function acted as a discussion thread that students used in real time, the line-in comment in Google Docs next to the writing tool facilitated referencing and the matching of comments to specific areas in the draft, which helped focus students' attention on specific problems in their peers' essays. This finding is in contrast to the results of other synchronous peer feedback studies (e.g. Chang, 2009, 2012; Liang, 2010) finding less on-task interaction, mainly because students' discussions occurred through text chat tools such as MSN, which at times might shift students' attention from the task to engage in social conversations. Chang (2009, 2012) reported that there were more on-task episodes in the asynchronous online mode of peer feedback because of the lack of socialization without real-time interaction. Table 4.1 shows the distribution of occurrence and percentage of task orientation across the peer feedback activities.

Table 4.1 Occurrence and percentage of task orientation in peer feedback activities in Google Docs

Google Docs tools	Task orientation			Total
	On-task episodes	About-task episodes	Off-task episodes	
Comment	1103 (99%)	3 (0%)	11(1%)	117 (67%)
Suggest	57 (100%)	0 (0%)	0 (0%)	57 (32%)
Chat	0 (0%)	2 (100%)	0 (0%)	2 (1%)
Total	1199 (99%)	5 (0%)	11 (1%)	1215

Note. Percentages are rounded to the closest integer.

As shown in Table 4.1, the majority of students' comments in Google Docs were made through the *commenting* function (117, 67%), followed by the *suggesting* function (57, 32%). In contrast, only 2 (1%) comments were made using the *chat* feature in Google Docs. In terms of task orientation, the majority of students' feedback provided through the *commenting* function was on task, accounting for 99% of comments, followed by 1% for off-task comments; there were no about-task episodes employing this function. All the students' on-task episodes were generated through the *suggesting* function (57, 100%). Surprisingly, all the about-task episodes were generated only through the *chat* function in Google Docs.

Students' responses in both the stimulated recall and follow-up interviews matched this finding. For example, in the follow-up interviews, when asked about the tools in Google Docs they found more useful for the peer feedback process, the majority of students mentioned that they preferred the commenting function because it was next to the draft they were revising and that helped focus their discussion. For example, one student commented:

> What I liked most about Google Docs was the commenting feature which is next to the text. The highlighting helped us as we both could see the part of the text we were discussing highlighted in the text. (Diana, follow-up interview)

Reviewers expressed how the *commenting* function helped them spot the mistakes in their peers' essays:

> I really liked the margin comment bubble with this highlighting line that showed up in Google Docs whenever I made a comment about a specific part in my peer's essay. This made the writer's job of revising the text much easier because once they clicked the comment, they could go directly to the part in the text that I meant. (Monica, follow-up interview)

Steinberger (2017) noted that although the *commenting* function in Google Docs is more asynchronous in nature (compared to chat), it provides a "very effective way of highlighting a problem in the text and opening up an area where one issue can be

discussed in a focused manner" (p. 188). In addition to the *commenting* function, some of the students' on-task episodes occurred through the *suggesting* mode (57, 5%), which also helped focus their discussion. This function, which is similar to the track changes feature in Microsoft Word, allows the reviewer to make changes to the writer's text. These changes are highlighted in the text, showing the specific changes that need to be made, and the writer simply needs to accept or reject them with a single click. Consequently, problematic areas are easily identifiable through highlighting, which also provides a minimal opportunity for students to discuss irrelevant matters. In the follow-up interviews, some students praised the ability to receive comments through the *suggesting* mode rather than the *commenting* function, because they could choose to accept or reject the changes made to their text very easily, with a single click:

> I liked receiving comments through the *suggesting* function in Google Docs more than the *commenting* function. It was easier for me as a writer when I received a suggested revision and I decided to accept it to only click accept and the reviewer's suggested revision would automatically be incorporated in my text. (Ayat, follow-up interview)

> The *comment* function is better than the *chat* because it is next to the text and highlights exactly what needs to be edited. I can revise the correction immediately in response to the comment … with the chat, I would not be able to edit the text immediately because I would waste time looking for the text. (Norah, follow-up interview)

Although editing in suggesting mode can still be commented on by students, some reviewers perceived this function as imposing their ideas on the writer's text by making changes to the text and felt this would hinder the interaction between them. For example, Sarah commented:

> When we used it, we were just using it to edit each other's essays. It does not promote discussion. It looks as though I am giving my partner a direct command that she should accept or reject only and that does not leave us other options. The comment function gives me more chance to discuss it further with her. In the end, it's her essay and she has the freedom whether to accept or reject this feedback. (Sarah, follow-up interview)

Similarly, in both the stimulated recall and follow-up interviews, Christine mentioned that she did not like using this function either to provide feedback or receive comments on her text. In the stimulated recall, for example, she recounted:

> When I use this suggesting mode and make changes to her text, I get the feeling that I'm imposing my ideas on her text because of the crossing out and I do not like to do that. I prefer posting a comment next to her draft and she has the freedom to accept my comment and integrate the revision or reject it. (Christine, stimulated recall)

Therefore, some reviewers preferred using the comments or suggesting feature in Google Docs for specific feedback areas. For example, they preferred using the *suggesting* function to address macro-level changes such as grammar and mechanics, but use the *commenting* function in giving feedback that addressed content and organization. For them, commenting on content and ideas was considered direct interference in the writers' text and therefore they preferred using comments rather than suggesting. For example, Farah stated:

> I prefer using the comment function than the suggesting if I want to comment on ideas, but if I want to comment on mechanics or grammar the suggesting mode is better. It is difficult to change her ideas using the suggesting function. (Farah, follow-up interview)

On the other hand, students did not perceive the *chat* function in Google Docs as an ideal vehicle for discussing the problems in their writing because it was separate from the text. In the follow-up interview, Christine commented as follows:

> I did not use chat a lot in providing feedback to my peer because it is separate from the text. I preferred using the comment function more because it was next to the essay I was revising and that helped focus my discussion with my partner on the different issues. My partner and I used the chat sometimes only to discuss things irrelevant to the task.

Interestingly, because of the visual disconnection between the chat tool and the writing tool, students preferred using the chat function only occasionally to discuss the task procedures. More specifically, they used the chat tool to remind each other about addressing all comments and making the necessary revisions. Examples of these comments include "Are you done yet?", "Some comments you did not reply to, please make sure you reply to all of them". One of the weaknesses in Google Docs that reviewers noted was that they could not receive notifications of any changes made by the writers; however, the reviewers compensated for this using the chat function to notify each other when one had made a change to the text or addressed a comment. In the follow-up interview, Farah highlighted such weakness in Google Docs, saying:

> The bad thing in Google Docs is that if I want to respond to a specific comment, I need to scroll up and down to see her new comment. I get distracted by the multiple comments I receive, and I find it difficult sometimes to follow the comments one by one. I wish there was a notification function in Google Docs that would alert me when my partner makes a comment, or the location in the text or whenever she needs me to respond to her comment.

In relation to the aspects focused on in off-task episodes, the majority of peer feedback studies report them only as calculations and exclude them from further analysis (e.g. Chang, 2009; Chang, 2012; Ho, 2012, 2015; Liu & Sadler, 2003; Pham & Usaha, 2015). More precisely, they exclude these episodes from further analysis because they do not target specific issues in students' writing. However, when students discuss matters not specifically related to their writing, such as their social lives, it reflects the socio-relational aspect of communication (Saeed, Ghazali, & Aljaberi, 2018). Thus, excluding such episodes can be considered a limitation of these studies. In this study, the intention initially was to examine the focus of these episodes in fine detail, but due to the very small number identified (1%), I also excluded them from further analysis. For this reason, only on-task episodes are addressed in the following sub-sections.

4.3.2 Focus and extent of revision orientation

To gain a more in-depth understanding of what students focused on in the on-task episodes, they were analysed in terms of patterns of language focus area (i.e. content, organization, grammar, word choice, mechanics). Reviewers' comments that did not fall into any of these areas were described as "other". A distinction is made between episodes that target language meaning (i.e. content and organization) and those targeting language form (i.e. grammar, word choice, mechanics). In addition to the area of focus, comments were analysed in terms of their nature:

- Revision-oriented comments: comments pointing to areas that needed to be changed.
- Non-revision-oriented comments: comments that do not address revisions.

Table 4.2 presents the on-task episodes generated by reviewers in Google Docs in terms of language focus area and whether they were revision oriented or not.

Table 4.2 Focus and extent of revision orientation in on-task episodes

Focus area	Revision oriented	Non-revision oriented	Total
Grammar	380 (98%)	8 (2%)	388 (32%)
Content	158 (73%)	59 (27%)	217 (18%)
Word choice	186 (89%)	23 (11%)	209 (17%)
Mechanics	170 (99%)	2 (1%)	172 (14%)
Organization	67 (45%)	81 (55%)	148 (12%)
Other	80 (99%)	1 (1%)	81 (7%)
Total	1041	173	1215

Note. Percentages are rounded to the closest integer.

As shown in Table 4.2, there were considerably more revision-oriented comments (986, 85%) than non-revision-oriented comments. In addition, the findings show that revision-oriented comments outnumbered non-revision-oriented comments in all areas, with grammar being the highest for the revision-oriented comments (388, 32%) vs. (8, 2%) only for the non-revision oriented. Non-revision-oriented comments concerning grammar comprised only 2% (8), followed by mechanics and other at 1% each. Similarly, revision-oriented comments on word choice outnumbered non-revision-oriented comments (186, 89% vs. 23, 11%, respectively). Finally, just over half the comments for organization were revision oriented (81, 55%), against 45% (67) that were not revision oriented.

This finding indicates that the reviewers strove to provide their peers with revision solutions that could help reduce their errors and improve the overall quality of their writing. In addition, as shown in Table 4.2, the majority of revision-oriented comments focused on grammar more than the other aspects. This finding is partly in line with other previous studies that found a higher focus on micro-level features (i.e. grammar and mechanics) in peer feedback than on macro-level features (i.e. content and organization) (e.g. Anderson, Bergman, Bradley, Gustafsson, & Matzke, 2010; Ge, 2011; Yim et al., 2017). This partial agreement was specifically in relation to grammar (see Table 4.2). The higher number in grammar in this study might be attributable to the constant emphasis on language accuracy in university assignments and assessments and the examination-oriented culture in the Egyptian EFL context (see Chapter 1). This observation tends to corroborate the findings of SwAnna and Yokoyama (2013), who attributed students' focus on issues such as style rather than content or organization to the form-oriented writing instruction in the Japanese EFL context, which could have affected how students viewed their peers' compositions. Similarly, in the Chinese context, Ge (2011) found that students focused on language, which was considered to be

because most L2 tests for Chinese e-learners focus on issues of grammar and vocabulary.

In the interviews, the students provided different reasons for placing more emphasis on language accuracy than content or organization in their feedback. Some students mentioned that they focused on grammar and mechanics more than the other aspects because they are much easier for them to target. For example, Norah commented:

> I used to take a long time providing feedback at the beginning, because I did not know what I should focus on. That's why I used to target grammar and spelling, because they are much easier for me to target. However, I started focusing more on the ideas and which idea I needed to discuss further with her. (Norah, follow-up interview)

Some students also commented that they focused more on language problems because they believed that such issues obscured the general meaning of the text:

> Grammar and spelling errors, and I commented on grammar especially if her mistakes were clear and annoying, ones that I could never ignore. (Norah, stimulated recall)

> I focused on grammar and spelling mistakes in my feedback because they make the general meaning unclear and are annoying for the reader. That is why, as a reader, I could never ignore or tolerate these kinds of mistake. (Ayat, follow-up interview)

Other students argued that comments on content and idea development were a matter of different perspectives and therefore making comments on language aspects, which could either be right or wrong, was more important. For example, as one student pointed out:

> I hate to see grammar or spelling mistakes in an essay I am reviewing. I do not believe that giving feedback to my peer on her ideas is that important because we can agree or disagree about them, but with mistakes in grammar or spelling there is right or wrong and none of us, especially as English majors, should make them. I cannot tolerate mistakes in grammar or mechanics. (Monica, follow-up interview)

Similarly, Norah argued that comments regarding ideas were a matter of different perspectives and therefore she preferred to accept them only if the reviewer provided her with better ideas that were more related to her topic. She stated:

> Comments on ideas are a matter of different points of view. For example, if my peer suggested an idea that had the same meaning as my own idea, I would not replace my idea with her idea, but if I found the idea that she suggested was better and more relevant and catchier, I would accept it and incorporate it in my essay. (Norah, follow-up interview)

It was noticed in the findings that while reviewers' comments on grammatical issues was a priority, content was a second priority (18%). This researcher claims that use of online sources was an impetus for reviewers to provide feedback on content too (see Table 4.2). Although the number of content related comments may not be seen as huge (if compared to grammar) it is still high in its own right if it is to a) other language related areas (e.g. word choice and mechanics), and (b) what previous research suggest (i.e. reviewers tend not to focus on content).

In relation to non-revision-oriented comments, it can be observed that in contrast to other language areas, only in organization did they outnumber revision-oriented comments (81, 55% vs. 67, 45%, respectively). Examining the non-revision-oriented comments in both content and organization more closely, they tended to point out positive aspects of the writing. Maya stated that she focused on all aspects of writing, but first began by providing critical feedback on grammar and punctuation and then giving positive feedback only on content and organization of an essay. In the follow-up interview, she commented:

> I did not focus on grammar and mechanics only in my peer review. I also focused on other aspects, like organization, content and formatting, but I started by giving critical feedback targeting the problems in her grammar and mechanics, then I moved on to give positive comments about the ideas that I liked in her essay by saying, for example "Well done, that's a really good point". If I did not like the idea, I would say "It would be better if you rephrased this idea in that way", without providing her with a specific revision. (Maya, follow-up interview)

Excerpt 4.1 shows an example of a non-revision-oriented comment that pointed out a positive aspect in Maryam's compare-and-contrast essay about travelling alone vs. travelling on tour.

Excerpt 4.1 [Rola: reviewer; Maryam: writer]

Original text		
And I asked myself a question, which is better, travelling alone or in a tour? There are some similarities and differences between travelling alone and in a tour.		
Line	**Reviewer (R)/ Writer (W)**	**Episode**
1	Rola (R)	I like your thesis statement it is clear enough to let me know what are the points that you are going to discuss.
2	Maryam (W)	thanks a lot.
3	Rola (R)	with pleasure (:(:

As shown in Excerpt 4.1, Rola praised the clarity of the thesis statement in Maryam's essay (travelling on tour vs. travelling in a group). This use of positive comments may be because the guidelines in the peer feedback checklists urged reviewers to point out positive things that they liked about their peer's essay. In the follow up-interviews, some students reported that they were hesitant at the beginning to give negative or evaluative peer feedback to their peer in order not to hurt their feelings. For example:

> I was very sensitive, and she is my friend at the same time. I did not want her to be upset by me, that's why I was so cautious in giving her feedback without hurting her feelings by joking with each other sometimes in our comments, and by being friendly in my feedback to her. (Rola, follow-up interview)

This concern about face threatening and hurting the feelings of peers has also been noted in research on peer feedback tasks, particularly among Chinese students (see Carson & Nelson, 1996; Nelson & Carson, 1995,1998). The guidelines in the peer feedback checklist helped them provide positive feedback, which was appreciated by their peers. For example, Farah's responses in the interview matched this interpretation as she commented:

> The peer feedback checklist was very useful indeed. Sometimes the way I express my comments might embarrass my peer, but the guidelines in the checklist helped me express what I wanted to say in a nice way that would not hurt my peer's feelings.

Similarly, Monica, stated in the follow-up interview that she liked having recourse to the peer review checklist to provide positive comments related to the organization of an essay:

> I would check the peer checklist sometimes to provide positive comments about the organization of my peer's essay. I use phrases such "you have a good introduction, or thesis statement" and so on.

This finding is consistent with that of Roberts (2014), who found that with the help of a peer feedback checklist, about 10% of the non-revision-oriented comments students produced aimed to point out positive features of the writing, which helped build rapport among students. Students also reported in the stimulated recall interviews that they liked receiving positive comments on what they were doing well so that they could try to keep doing the same. For example, in the follow-up interview, Rola commented:

> I liked receiving positive comments on my ideas. I generally prefer receiving comments on ideas rather than on grammar. I can learn grammar from any source. It is not as important as comments on ideas.

4.4 Mediation of peer feedback

As discussed in Chapter 2, based on SCT language learning is a socially mediated process and mediation can occur through the use of language, as well as through the use of technology employed with its affordances (Lantolf, 2000b; Wertsch, 2007). In this study, mediation occurred through the use of language only as a tool and language mediation was supported with the students use of online tools. In using the only language as a tool, the reviewer (the language mediator) relied only on existing linguistic background knowledge in processing and providing the peer review comments to the writer in order to mediate their revision behaviour. Such mediation is perceived as the verbal support provided by the reviewer to assist the writer to solve linguistic problems in her writing within her ZPD. In addition to language mediation, the students strategically utilized a range of online tools, such as online dictionaries, language websites, spelling and grammar checkers, forums, etc., to support and/or validate their peer feedback comments and further mediate the writer's revisions. This section discusses the two types in detail. It starts by discussing overall mediational tool use and then goes on to address each type that the reviewers used in the peer feedback process.

To understand how the reviewers mediated the writers' revisions in the novel online environment of Google Docs, a distinction was made between the two types of tool. Each of the two types of mediational tool was linked to the feedback focus area to reveal whether there were certain patterns in their use (see Table 4.3). It is worth mentioning that at this stage of the analysis some on-task episodes in which language mediation was supported by online tool use involved multiple searches. However, Table 4.3 simply distinguishes between online tool use and non-online tool use in relation to

language focus areas, regardless of any multiple searches involved (i.e. the number of on-task episodes which involved online tool use). In other words, occurrences of multiple online tool use by a reviewer in a single episode were counted as one.

Excerpt 4.2 provides an example of this kind of episode, in which the reviewer made use of multiple online tools before providing a comment to the writer, but the use of these online tools was counted as a single instance in the episode. However, later in sub-section 4.4.2, the number of searches was discussed to gain deeper insights about how the reviewer made use of technology affordances in the peer review process.

Excerpt 4.2 [Christine: reviewer; Maya: writer]

Original text		
Furthermore, internet nowadays is used to buy a lot of things such as foods, clothes, and so on. You can pay your bills by using the internet. So, the internet is very important because it becomes a source of entertainment.		
Line	**Reviewer (R)/ Writer (W)**	**Episode**
1	Christine (R)	[Searching www.qoura.com] [Searching to www.english.stackexchange.com] this word may be not suitable here. Food is singular, although it can be used in a plural way, to describe a number of different types of food considered as a group. For example, •The grocery store carried a large amount of food, including the foods of a number of Asian countries. You can check this website https://www.quora.com/Is-the-word-food-singular-or-plural
2	Maya (W)	Yes, I mean that internet can be used to sell different types of foods.
3	Christine (R)	if you meant that, you should mention the group first.
4	Maya (W)	Of course
5	Christine (R)	okay!

Before providing Maya with feedback asking her to replace the word (foods) with (food) (line 1), Christine was observed searching online and visiting two websites: www.qoura.com, on which she read the information carefully, then www.english.stackexchange.com. After studying the information on these two websites, Christine resorted to *instructing* (line 1) as a mediating strategy, giving Maya a mini lesson in grammar about the usage of the word (food). Although Maya seemed to be convinced by Christine's feedback (line 4), she did not revise her text. In the stimulated recall, she commented:

> Christine stated that (food) should be preceded by types of or numbers of and should be singular. I believe it can be both singular or plural depending on the context.

This episode shows an example of how the reviewers mediated their use of language with the support of online tools, in this case, two language websites (www.qoura.com.com and www.english.stackexchange.com). The result of the comparison between the two types of mediational tools used in the current study is presented in the following table. In this table, the numbers and percentages of each on-task episodes whether mediated by language only or language and online tools were presented in accords with the feedback focus areas:

Table 4.3 Overall mediational tool use

Focus area	Types of mediational tool				Total
	Language mediation		Language and online tool mediation		
	Frequency	Percentage	Frequency	Percentage	
Grammar	328	85%	60	15%	388 (32%)
Content	182	84%	35	16%	217 (18%)
Word choice	144	69%	65	31%	209 (17%)
Mechanics	159	92%	13	8%	172 (14%)
Organization	117	79%	31	21%	148 (12%)
Other	79	98%	2	2%	81(7%)
Total	1009	100%	206	100%	1215

Note. Percentages are rounded to the closest integer.

As shown in Table 4.3, the use of language only as a mediational tool greatly outnumbered the use of mediation through both language and online tools in all language focus areas. More specifically, the use of language only greatly outnumbered mediation through language and online tools for mediating comments in *mechanics* (159, 92% vs. 13, 8%), *grammar* (328, 85% vs. 60, 15%), *content* (182, 84% vs. 35, 16%) and *organization* (117, 79% vs. 31, 21%). For *word choice*, mediation through language and online tool use made up almost half of the comments (65, 31%), but this was still considerably outweighed by mediation through language only (144, 69). It is also worth mentioning that the majority of feedback in the *other* category, were mediated through language only (79, 98%), with only 2 (2%) instances of mediation through language and online tools. Like the above mentioning language categories, the other category did not include any off-task episodes. However, comments in this category (i.e mediation through language) were the highest in frequency when compared to the above-mentioned language areas.

These results show that the students relied more on their linguistic background than on online tools in producing and processing their peer comments to the writers. The low amount of online tool use in comparison to language only as a tool may be attributed to

the fact that the students were experiencing technology affordances in peer feedback for the first time and were therefore not sufficiently competent in the use of technology to rely to any great extent on digital tools in validating their feedback. This is in contrast to a study by Caws, Léger, & Perry (2017), who observed overreliance on digital tools during peer-editing sessions among university-level learners of French as an L2. The discrepancy between the findings could be due to familiarity with technology use in education in general and thus explained by a distinction between the two research contexts. The following sub-section discusses peer feedback mediate through language only.

4.4.1 Language mediated peer feedback

As mentioned in Chapter 2, SCT maintains that language learning is mediated via tools such as language, external sources, self and others (e.g. peers) and then appropriated via self-regulation, i.e. internalized by the learners themselves (Aljaafreh & Lantolf, 1994; Vygotsky, 1978). From this perspective, Zhao (2018) argues that investigating mediation strategies during the review process is an important dimension that can assist in understanding the quality of other regulation. Table 4.4 presents the frequency counts for mediating strategies employed through language only as a tool.

Table 4.4 Language mediation in peer feedback strategies

Mediating Strategies	Frequency	Percentage	Examples
Providing direct feedback	672	56%	**Original text**
			It gives us more experiences and teach us to be able to treat with difficult situations
			Monica: you must add 'es' to this verb teaches' Norah: ok, you are right Monica: Marked as resolved
			Revised text
			→ It gives us more experiences and teaches us to be able to treat with difficult situations
Praising	128	11%	**Original text**
			Unemployment is defined as a situation where someone of working age is not able to get a job.
			Farah: I like this part which you defined unemployment in a good way Ayat: thanks
Questioning as hints	88	7%	**Original text**
			On the other hand, some people against the using of the internet. They say that the internet isolates us and encourages people not to socialise.
			Christine: Do you mean "the use of the internet"? Maya: YES

			Christine: Thanks for correcting it. **Revised text** → On the other hand, some people against the us~~ing~~e of the internet.
Providing indirect feedback	76	6%	**Original text** The community will suffer from those persons who do not have any work to be busy with. *Maryam: I think that *be busy with' is grammatically wrong… what do you think?* Rola: hmmm i am not sure if it is correct or not, can you give me a suggestion? Maryam: any work to do? What do yu think? Rola: i like it. thanks for your help **Revised text** → ~~T~~the community will suffer from those persons who do not have <u>any work to do</u> ~~be busy with.~~
Requesting clarification	64	5%	**Original text** The increase in population does not make the government do their role because of the number of people and lack of culture of birth control. *Ayat: could you explain this sentence to me?* Farah: Here I wanted to say that the lack of culture and birth control result in over population which lead to unemployment. Ayat: I agree with you.
Advising/ suggesting	32	3%	**Original text** Unemployment affects man's food because he will not eat good food when he is poor. *Rola: i suggest you to say "'he will not have the ability to buy good food"* Maryam: done Rola: excellent. Maryam: Marked as resolved **Revised text** ~~he~~ <u>we will not</u> ~~eat good~~ <u>have the ability to buy a good food</u> when
Justifying	34	3%	**Original text** In conclusion, the causes are different, but the problem is one Lara: rewrite this statement Norah: why do you think it is wrong *Lara: it is not a well-formed sentence* **Revised text** → In conclusion,~~ the causes are different, but the problem is one~~<u>There are many causes while having one problem.</u>
Clarifying	33	3%	**Original text** In conclusion, unemployment is a terrible issue in society. It becomes now a topic of discussion in the family. Monica: in family and all countries Norah: What do you mean? *Monica: I mean this problem occurs not only in families but in all countries in general. It is a global problem*

			Monica: ok , I understand it
			Revised text
			→ It becomes now a topic of discussion in the family and all countries
Persisting	28	2%	**Original text**
			The internet just like the real world there are good, and bad people
			Norah: I think that you should use relative pronoun that to relate the sentence. How about changing this sentence to say that the internet has bad and good effects like the real world. Monica: no, i think it is good . *Norah: OK, but you should relate the sentence with relative pronoun*
Reinforcement feedback	12	1%	**Original text**
			For example most of us want to be a good teacher or a good doctor, and a good engineer
			Norah: You should put comma after for example. Do not make space.' For example,.....' Monica: Are you sure? *Norah: yes* Monica: ok.
			Revised text
			→ For example , most of us want to be a good teacher or a good doctor, and a good engineer.
Instructing	19	1%	**Original text**
			It may make you in an isolation only if it is your own decision to be in an isolation, and if you decide to connect with people on your phone only, and not in reality.
			Rola: you repeat the word isolation a lot, this is called wordiness. Maryam: okay, I will delete one of them. Maryam: done Rola: great dear.
			Revised text
			→ It may make you in an isolation only if it is your own decision to be in ~~an isolation~~ it, and if you decide to connect with people on your phone only, and not in reality.

Note. Target sentences are in italics.

Of all the mediating strategies identified that peer reviewers employed using only language as a tool, *providing direct feedback* (i.e. feedback indicating the need for revisions and providing solutions) was the most frequent, accounting for 672 instances (56%), as shown in Table 4.4. This confirms students' revision-oriented attitudes towards peer feedback and their inclination to improve the writing quality of their peers (see section 4.3.2). Cho, Schunn, and Charney (2006) found that directive feedback suggesting a specific revision was perceived to be the most useful type of feedback by

undergraduate student writers. This finding also aligns with Zhao (2018), who found that one of the mediating strategies most frequently used by students in peer review activities was *providing direct feedback*, in which students provided feedback with revision solutions that would help improve the writing of their peers.

Praising was the second most frequently employed mediating strategy by reviewers (128, 11%). This indicates that students not only pointed out problematic areas in their peers' writing, but also made positive comments that signalled the strengths in their peers' essays. Both *providing indirect feedback* (i.e. feedback that indicates the need for revisions without providing solutions) and *questioning as hints* (questioning a peer's comment as a hint to *elicit* correct forms) occurred less often than *providing direct feedback* and *praising*, accounting for 7% and 6% of the mediating strategies identified respectively. This was followed by *requesting clarification*, which occurred occasionally (5%) when students requested more information about the writer's intended meaning. The other mediating strategies occurred very rarely in comparison to the other strategies, with *justifying, clarifying*, and *Advising/suggesting* occurring 3%, *persisting* occurring 2%, whereas *instructing* and *reinforcement* constituting only 1%.

It is worth mentioning that reviewers' use of *praising, providing indirect feedback, questioning as hints* and *advising/suggesting* helped soften or mitigate the potential face-threatening nature of direct negative feedback. Affective and mitigating language are common techniques used by reviewers during the peer feedback process and have been found to build rapport between the writer and the reviewer, also resulting in an increase in the writers' acceptance of reviewers' comments (Tseng & Tsai, 2006). Excerpt 4.3 shows how Rola (the reviewer) strategically used different mediating strategies to mediate Maryam's (the writer's) revision behaviour.

Excerpt 4.3 [Rola: reviewer; Maryam: writer]

Original text		
Fourth, If your family suffers from poverty, they will not have the chance to help you with their own money to start a project you always dream to start with. Also, there are not an interest with vocational education which is the specialty for a large class. As a result, There are not enough factories to work in.		
Line	**Reviewer/ Writer**	**Episode**
1	Rola (R)	I liked that you mentioned this in your essay a lot.
2	Maryam (W)	many thanks dear.
3	Rola (R)	but if I were you i will say give you fund
4	Maryam (W)	what the word "fund" means?
5	Rola (R)	it means (a sum of money saved or made available for a particular purpose)
6	Maryam (W)	where should i add it?
7	Rola (R)	you can write your family will not be able to give you a fund.
8	Maryam (W)	i see
9	Maryam (W)	done
Revised text		
→ they will not ~~have the~~ be able to ~~chance to help you with their own money to start a project you always dream~~ fund you ~~of~~.		

As shown in Excerpt 4.3, the reviewer (Rola) was striving to achieve a balance between providing critical comments and avoiding hurting the writer's feelings with direct evaluative feedback. To avoid the reviewer losing face, the reviewer started with *praising* (line 1), which was appreciated by the writer (line 2), then moved on to suggest replacing the phrase "help you with their own money" to "give you a fund" (line 3). The use of the conjunction "but" signals the shift from positive to negative comments. The writer showed an interest in learning the word "fund" from the reviewer (line 4), who in response used *clarifying* to mediate the writer's revision behaviour. The use of *praising* (line 1), followed by *advising/suggesting* (line 3) helped soften the tone in making the suggestion and made the proposed comment more acceptable. Trying to avoid imposing her opinion, Maryam left the writer to make the final decision, as shown in "You can" (line 7). The writer, Rola, was observed to accept revision of the sentence partially as she accepted the reviewer's suggestion but in a modified form ("they will give you a fund" to "they will not be able to fund you").

Excerpt 4.4 [Christine: reviewer; Maya: writer]

Original text		
Why do young people not find the opportunity to work?. Our society now faces a big problem which is called unemployment. Unemployment is one of the most important economic problems that faces our society. Unemployment refers to people who do not have a job. In this essay, I will discuss causes and effects of unemployment.		
Line	**Reviewer/writer**	**Episode**
1	Christine (R)	why do this question in the past tense?
2	Maya (W)	Because unemployment faced a lot of people now.
3	Christine (R)	I cannot understand
4	Maya (W)	I mean nowadays.
5	Christine (R)	how?!! You mean nowadays and you used the past tense?!
6	Maya (W)	Sorry, it slipped by my mind.
7	Christine (R)	it's ok :)
Revised text		
→ Why d~~id~~o young people not find the opportunity to work?.		

As shown in the excerpt, instead of providing Maya (the writer) with an explicit direct correction, Christine (the reviewer) used *questioning as a hint* (line 1) to elicit the correct grammatical error (misuse use of the verb tense) in the writer's original text: "Why do young people not find the opportunity to work?" Although Maya offered a justification to the reviewer (line 2), it was not convincing (line 5). As a result, the mediation she received helped her recognize the error and finally accept the need to revise the text. In the stimulated recall, Christine commented:

> I prefer to use questions as hints, or phrases like "in my opinion" because I do not like to give direct corrective feedback to avoid hurting her feelings and to give her a chance to find the mistake by herself.

The ways in which the students used these mediating strategies varied depending on the feedback area. Table 4.5 shows the different mediating strategies used in language only mediation according to area of focus.

Table 4.5 Language-mediated peer feedback strategies and focus

Language focus	Mediating strategies											
	Providing direct feedback	Providing indirect feedback	Praising	Questioning as a hint	Requesting clarification	Instructing	Reinforcement feedback	Advising/Suggesting	Justifying	Clarifying	Persisting	Total
Content	35 (18%)	24 (12%)	37 (19%)	19 (10%)	38 (19%)	1 (0%)	2 (1%)	7 (4%)	9 (5%)	16 (8%)	7 (4%)	195 (16%)
Organization	38 (25%)	6 (4%)	80 (53%)	7 (5%)	4 (3%)	4 (3%)	0 (0%)	1 (1%)	6 (4%)	2 (1%)	2 (1%)	151 (13%)
Grammar	305 (76%)	19 (5%)	0 (0%)	31 (8%)	6 (1%)	9 (2%)	4 (1%)	4 (1%)	11 (3%)	5 (1%)	8 (2%)	402 (33%)
Word choice	117 (57%)	19 (9%)	5 (2%)	12 (6%)	11 (1%)	2 (1%)	3 (2%)	14 (7%)	6 (3%)	8 (4%)	8 (4%)	205 (17%)
Mechanics	128 (73%)	8 (4%)	6 (3%)	18 (10%)	4 (2%)	3 (2%)	3 (1%)	2 (1%)	1 (1%)	1 (1%)	2 (1%)	176 (15%)
Other	69 (89%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)	0 (0%)	0 (0%)	4 (5%)	1 (1%)	1 (1%)	1 (1%)	78 (6%)
Total	692 (57%)	76 (6%)	128 (11%)	88 (7%)	64 (5%)	19 (2%)	12 (1%)	32 (3%)	34 (3%)	33 (3%)	28 (2%)	1206

Note. Percentages are rounded to the closest integer.

In terms of the focus of strategies, for grammar the primary strategy was *providing direct feedback* (305, 76%). *Questioning as a hint* made up only 8% of the comments in grammar, followed by *providing indirect feedback* (19, 5%). The other mediating strategies were rarely used for grammar, with both *instructin*g and *persisting* constituting 2%, while *reinforcement feedback*, *advising/suggesting* and *clarifying* comprised only 1%.

Regarding word choice, *providing direct feedback* constituted more than half of the strategy use (117, 57%). *Providing indirect feedback* comprised 19 instances (9%), followed by *advising/suggesting* (14, 7%) and *questioning as a hint* (12, 6%). Both *clarifying* and *persisting* comprised only 8 instances (4%) of the mediating strategies, followed by *justifying* (6, 3%) and *reinforcement feedback* (3, 2%). *Requesting clarification* and *instructing* were rarely used (1%).

In terms of comments concerning content, *praising* and *requesting clarification* were the mediating strategies most used, at 37 (19%) and 38 (19%) instances, respectively. This was followed by *providing direct feedback* (35, 18%), *providing indirect feedback* (24, 12%) and *questioning as a hint* (19, 10%). The other mediating strategies were less used: *clarifying* (16, 8%), *justifying* (9, 5%), *advising/suggesting and persisting* (7, 4%); *reinforcement feedback* was not used at all.

In relation to mechanics, *providing direct feedback* constituted nearly three-quarters of mediating strategy use (128, 73%). In contrast, the other strategies were seldom used, with *questioning as a hint* constituting 10% (18 instances), *providing indirect feedback* constituted 4% (8 instances), followed by *praising* at 3% (6 instances). Both *requesting clarification* and *instructing* constituted only 1% of mediation strategy use. *Providing direct feedback* also constituted the majority of strategy use in the other category (69, 89%), while the other mediating strategies were rarely used: *advising/suggesting* (4, 5%), *questioning as a hint* and *requesting clarification* (1%).

Table 4.5 show two noticeable patterns in peer reviewers' use of language only mediating strategies. The first pattern is a preferred mediating strategy, i.e. *providing direct feedback*, commonly employed by peer reviewers in the study (692, 57%). The second pattern was related to the feedback focus, which seemed to emphasize grammar (402, 33%). These two patterns are in line with the information provided in sub-section 1.2 of the thesis concerning the participants and the research context. In other words, the participants in this study are a representative sample of the population in the research

context, seeming to place grammar at the top of the list of "good" writing in the L2. In addition, the focus on providing direct feedback in particular may be because this is the type of feedback they are accustomed to receiving from their teacher. This finding is line with that of Al Shahrani and Storch (2014), whose study was also conducted in an EFL Arab context. They found that the feedback students provided to their peers tended simply to mirror the type of feedback they were accustomed to receiving from their EFL teachers.

4.4.2 Language- and online tool-mediated peer feedback

As mentioned in section 4.4, the peer reviewers in this study used different online tools, such as dictionaries and language websites, to support and/or validate their peer feedback comments. Using data from SOM, the following paragraphs first discuss how reviewers used these online tools to mediate their peer feedback comments in Google Docs. This sections initially scrutinizes the types and purposes of the different online tools that peer reviewers used with reference to each feedback area. Then, the sub-section provides frequency counts of the mediating strategies used through language and online tools overall, followed by frequency counts of these strategies in terms of language focus area.

Feedback focus and tool use. Examining the reviewers' on-screen behaviour, they resorted to different online tools to construct their feedback comments. Instead of using specialized language-related search engines, students in this study predominantly defaulted to open search engines, namely Google, in searching for online information. This strong predominance of Google search over other online tools in the study is consistent with the findings of other research (e.g. Eu, 2017; Geiller, 2014; Sha, 2010). The students' preference for Google as a search tool in particular was noted in the follow-up interviews. For example, Christine explained that her familiarity with Google search was the reason for her reliance on this tool for online information. She commented:

> Just out of habit, I use the Google search engine more than any other online source to double-check the accuracy of my comments before giving them to my peer. (Christine, follow-up interview)

In using Google, Farah mentioned that she usually started from the top of the search results, which she considered to be more relevant and trusted; if she did not find what she wanted or needed, she would do another search but changing the keywords. Farah

explained that she trusted the results generated by a Google search, especially those displayed at the top:

> I primarily rely on Google search in comparison to other online tools. Actually, I trust the top results displayed in Google search because these results are trusted and often more relevant to the topic I'm searching. (Farah, follow-up interview)

This finding may be attributed to the fact that the students in the study were novices in terms of using technology for peer feedback activities. In addition, the students' access to language-related resources in this particular context was limited and their search techniques were still lacking. This finding is consistent with Hughes' (2013) study, which investigated 25 international students' use of online resources for study purposes at two Australian universities and found that their interactions with these resources were limited in terms of the range and academic level and their search skills. In terms of assignments, the researcher found that students often used open search engines, such as Google or Yahoo, or general academic databases such as ProQuest, rather than discipline-specific databases or specialist sources.

In addition to using open search engines such as Google or Bing in searching for language issues. These engines these served also as launch points to other language-related online tools. More specifically, a Google search led students to various language-related tools, such as dictionaries, language websites, spelling and grammar checkers, forums, etc. Table 4.6 shows the types and purposes of each all the online tools used by reviewers according to each feedback area.

As shown in Table 4.6, the peer reviewers strategically used a number of online tools in relation to each feedback area. Overall, online tools were used 241 times in total by all students when acting as reviewers. Grammar, unsurprisingly, accounted for the highest amount of online tool use with 86 searches. The second most prominent language area was word choice with 73 search terms, followed by 27 searches related to content, 34 for organization and only 21 for mechanics.

Table 4.6 Type and purpose of online tool use per focus areas

Language area	Number (%) of searches	Tool type	Use of tools
Grammar	86 (36%)	Search Engine Language website/forum	- Searching for grammatically correct sentence structures and finding example sentences - Searching collocation of words, verb tenses, parts of speech, count/non-count nouns, word forms and prepositions
		Online dictionary	- Checking sentence-level grammatical structures, verb forms, parts of speech, countable and uncountable nouns, and comparisons
		Machine Translation	- Checking plural forms of nouns, parts of speech, run-on sentences
Word choice	73 (30%)	Search Engine Language website/forum	- Checking appropriateness of word use
		Machine Translation	- Double-checking the meaning of words or phrases by seeing their meaning in their L1
		Search Engine Online dictionary	- Checking unknown words, synonyms, contextual meanings - Finding synonyms for words
		Peer feedback checklists	- Copying phrases from the checklist to support their argument in critiquing the word choice of the essay
Organization	34 (14%)	Peer feedback checklists	- Copying and paraphrasing from the checklist to support their argument in critiquing the organization of the essay
Content	27 (11%)	Search Engine Language website/forum	- Searching information to judge the accuracy, clarity of information, and elaboration of ideas in the writer's essay
		Peer feedback checklists	- Copying and phrasing phrases from the checklist to support the writer's argument in critiquing content - Paraphrasing
		Machine Translation	- Translating words and phrases from L1 to L2 to construct feedback to support the argument
Mechanics	21 (9%)	Search Engine	- Consulting about punctuation rules - Verifying spelling

The high number of searches for grammar in comparison to the other areas may be attributed to the fact that the students were least sure about certain grammatical rules. In addition, as mentioned previously, this finding might be due to the essential role of language accuracy in examination essays and the fact that Egyptian writing teachers focus their instruction on language form rather than content (see Chapter 1). In the background interviews, all participants emphasized that grammar was their greatest concern and the most difficult aspect for them to learn in English. Based on their prior educational experience, the students believed that accurate grammar was the key to good writing and good writing marks. The results obtained here seem to conform to a) the SCT perspective that the attention learners pay to specific elements of writing may

be dependent on cognitive, motivational and affective factors and b) Bitchener's (2012, p. 352) argument that learners' reaction to feedback is associated with their "motives (beliefs and attitudes) which elicit the activity".

Among the online mediational tools, the peer feedback checklists uploaded in Google Drive (see Appendix H) facilitated reviewers' provision of comments to their peers. They functioned as model formats that offered guidelines for reviewers to follow for each writing genre. They also helped reviewers provide positive comments to mitigate any critique and these were appreciated by writers (see 4.4.1). According to students' on-screen behaviour, the mediation derived from the peer feedback checklist varied across the tasks from one student to another. Some students were observed reading the instructions of the peer feedback checklist at the beginning of each session only, while others were observed moving back and forth between Google Docs and the peer feedback checklist throughout the session. In terms of how they used the peer feedback checklist, students were observed copying and paraphrasing phrases from them in their comments (e.g. "your body para does not treat one main idea", "I like how your introduction grabbed my attention as a reader", etc). They used these phrases to support their argument in pointing out the problematic areas in their peers' essays or providing positive comments, as mentioned previously (see 4.3.2).

Excerpt 4.5 [Maya: reviewer; Christine: writer]

Original text		
By and large, internet is a great instrument and all the people surf the internet most of the day. Many students surf the internet to do research and complete their assignments. Many adults and olders use the internet for entertainment. In my opinion, we cannot dispense the internet		
Line	**Reviewer/ Writer**	**Episode**
1	Maya (R)	[Referring to peer feedback checklist] This sentence should be supported by more details
2	Christine (W)	It's a conclusion I think I don't have to give more details, but thanks.
3	Maya (R)	No, this is not true. Look at the peer review questions. In the conclusion, you should mention your claim and the counter-claim
4	Christine (W)	OK
5	Christine (W)	*Marked as resolved*
Revised text		
→ I support the use of the internet wisely**.** In my opinion, we cannot dispense the internet.		

In Excerpt 4.5, Maya (the reviewer) directs the writer's attention to adding more details to support her argument in the conclusion. Before *providing direct feedback* on the issue in Christine's conclusion (line 1), Maya examines the peer feedback checklist, studying the information related to the conclusion part in an argumentative essay carefully, then providing her with feedback (line 1). Christine appears unconvinced at first and clearly

rejects the feedback (line 2). In response, Maya explicitly referred to guidelines in the peer feedback checklist in her argument, noting that it provides directions for discussing both the claim and counter-claim in argumentative writing (line 3). In response to this explicit mediation, Christine accepted the feedback (line 4), revised her text and then resolved the comment (line 5).

In the follow-up interviews, students acknowledged online tools in general and the peer feedback checklist in particular as important sources of support when giving feedback for the first time in Google Docs. Some students mentioned that the checklist helped them provide better quality peer feedback comments. For example, Rola stated:

> As a person never having known Google Docs or done online peer review before, the tasks were pretty difficult at the beginning, but with the help and guidance of the peer review checklist, I was more confident in giving quality feedback to my partner. (Rola, follow-up interview)

In addition, some students mentioned that it guided them in terms of knowing what they should focus on in their peer feedback. For example, Sarah commented:

> I was stuck at the beginning and had no clue where to start in such a new online environment. The peer feedback checklist was helpful and it facilitated the process, it directed me in what I should pay attention to and address when I gave feedback. (Sarah, follow-up interview)

Some students associated using the peer feedback checklist with particular types of comment, namely those on content and organization (see 4.3.2). For example, Monica reported that they used the peer feedback checklist to provide feedback targeting either organization or content only. She noted:

> I liked double-checking my feedback with the peer feedback checklist in particular areas, such as the content and organization of the essay. It was helpful in directing my attention to the things that I needed to judge in relation to the content or how the essay should be organized. (Monica, follow-up interview)

Of all the students, Norah in particular emphasized the resourcefulness of reverso.com, a website specializing in online translation aids and language services that offers translation in context. She used it to seek help with contextual meanings and appropriate usage of words and phrases. She reported:

> The website reverse.com is my favourite because it provides me with the meaning of a word with many examples in multiple contexts. This helps me write the sentence in a more sophisticated style. I relied on this website a lot in doing university assignments for the translation course that I studied at the university. (Norah, follow-up interview)

The following example shows the mediation from www.reverso.com helped Norah suggest grammatically correct example sentences to Monica.

Excerpt 4.6 [Norah: reviewer; Monica: writer]

Original text		
Secondly, there are effects that result from unemployment. When person become an idle, he will be lazy not creative. The unemployment eliminates over the creative		
Line	**Reviewer/ Writer**	**Episode**
1	Norah (R)	[Searching www.reverso.com] What do you mean by this sentence? It would better to say unemployment does not cause creativity or unemployment eliminates creativity not creative.
2	Monica(W)	ok you are right.
Revised text		
→ The unemployment eliminates creativity**.**		

In Excerpt 4.6, Norah detected a grammatical mistake in the original text (The unemployment eliminates over the creative) in Monica's cause-and-effect essay about unemployment. She was observed referring to her favourite online tool (www.reverso.com) and typing "unemployment eliminates creativity". In the same website, she typed the phrase again, but in Arabic: البطالة تقضي علي الابداع. After reading multiple sample sentences related to various contexts, Norah suggested other correct sentence examples (line 1). However, Norah did not provide an explanation or incorporate a weblink to the online tools that she used to support her feedback. As a result, Monica was observed undertaking an online search to double-check the correctness of Norah's suggestion. It is worth mentioning that Norah's behaviour in conducting an online search in her own language was common practice among the students in the study. Translating from L2 to L1 has also been reported in Kim's (2018) study, who have found that L2 writers transferred their intended meaning in L1 as a way of finding the right equivalent in L2.

In particular, the peer reviewers used Google Translate to translate to L1. However, it is worth mentioning here that the use of L1 as a mediating strategy in the study was not common. It was used only on two occasions by reviewers who intended to ensure the writers understood their feedback and provided the weblink to Google Translate. Due to the scarcity of L1 use as a strategy, it was excluded from further analysis. Notwithstanding this, Rola mentioned in the follow-up interview that Google Translate was her favourite tool in both the writing process and in feedback provision: "Google Translate is my favourite tool which I always use to find equivalent words in Arabic".

In the following example, in Norah's compare-and-contrast essay entitled "Travelling on a trip vs. travelling in a tour", Lara doubted Norah's spelling of the word "trip" (tripe). She referred to Google Translate to check the accuracy of the word by looking at its meaning in L1. She later commented that using Google Translate is faster and easier than looking up online dictionaries.

Excerpt 4.7 [Lara: reviewer; Noha: writer]

Original text		
Last summer, I travelled with my family to Sharm El- Sheikh. It was nice tripe, as I visited many places, and took a lot of photos. Have you ever travelled to any place? Do you like travelling alone or with tour? Some people prefer solo travel, while other people prefer travelling with group.		
Line	**Reviewer/ Writer**	**Episode**
1	Lara (R)	[Referring to Google Translate] delete (e) and weite (trip) https://translate.google.com/?hl=ar#en/ar/trip
2	Lara (R)	trip رحلة tripe امعاء
3	Noha (W)	okay sorry i wrote it by mistake
4	Noha (W)	never mind
Revised text		
→	It was nice tripe, as I visited many places, and took a lot of photos. Have you ever travelled to any place?	

As seen in the above excerpt, accessing Google Translate activated Lara's lexical background as she appeared to gain an understanding of the difference between the word "trip" and "tripe". This is evidenced by confident tone in her use provision of direct feedback in the form of a command supported with an explicit mention of the online tool (incorporating the weblink for Google Translate) in her comment. She used an instruction to show the difference between the two words, translating them into her L1 (i.e. Arabic) as a means of semiotic mediation (line 2). Villamil and de Guerrero (1996) found that "the L1 was an essential tool for making meaning of the text, retrieving language from memory, exploring and expanding content, guiding their actions through the task and maintaining dialog" (p. 60). Having had the meanings of the two words pointed out to her, Noha acknowledged that she was wrong (line 3) and revised the word (see the revised text). In the stimulated-recall interview, Lara stated that she used the online tool in her feedback to convince Noha that the word she chose was wrong. She added that her use of LI enabled her to provide her partner with definitions of difficult vocabulary, particularly when she did not have the required metalanguage. She commented:

> This was the second time I wrote in Arabic because I wanted to convince her that (tripe) was wrong here in this context, so I incorporated a website link to her in my comment and I explained the difference between both words in Arabic. We use Arabic rarely; only when we cannot express our viewpoint in English.

This finding is in line with Clifford, Merschel, and Munné (2013), who found that students primarily used Google Translate to help define unknown words and increase their vocabulary. In relation to L1 use, this finding is in line with Storch and Wigglesworth (2012), who found that use of L1 helped learners provide each other with definitions of unknown words more directly and perhaps more successfully. As can be seen in the above quote, Lara said "we" rather than "I" when explaining how the use of L1 assisted in the joint discussion about revising the essay. According to Brooks and Donato (1994, p. 271), the use of the LI may assist learners "to gain control of the task" and work on the task at a higher cognitive level than might have been possible had they been working individually. Villamil and de Guerrero (1996) found that L1 use was one major mediating strategy employed by Spanish EFL students in delivering peer feedback. In Zhao's (2010a) study, the use of L1 (i.e. Mandarin Chinese) was similarly found to contribute to the participants' improved understanding of their peers' feedback on their writing

Likewise, in the following example (Excerpt 4.8), support from Google Translate again assisted Lara (the reviewer) in finding a synonym for the word "harm" in Norah's cause-and-effect essay about unemployment.

Excerpt 4.8 [Lara: reviewer; Noha: writer]

Original text		
Unemployment is a big problem that face our society and harm the youth,		
Line	**Reviewer/ Writer**	**Episode**
1	Lara (R)	[Referring to Google Translate] (harms) is not accurate you can say (affects)
2	Lara (R)	or damages
3	Noha (W)	why do you think that? I think it is good
4	Lara (R)	[Referring to Google Translate] harms means cut or hurt an abstract thing
5	Noha (W)	okay
Revised text		
→ and ~~harm~~ affects the youth, because		

In Excerpt 4.8, Lara questioned the appropriateness of the word "harms" in Noha's essay. She resorted to providing direct feedback, suggesting Lara replace the word "harm" with the word "affects" or "damages" (lines 1 and 2). However, she does not provide Noha with an explanation for choosing either of these words. Noha seems

unconvinced and requests justification from Lara (line 3). Lara has referred to Google Translate to find equivalent words. Google Translate then provides Lara with a definition of the word "harm" and she confidently shares this to help Noha comprehend the meaning and mediate her revision behaviour. In response, Noha accepts her feedback (line 5) and revises the text, replacing the word "harm" with "affects".

However, the use of online tools can also confuse peer reviewers and lead to them providing incorrect information, as in the example below (Excerpt 4.9) when Christine (the reviewer) uses Google Translate to point out an error in Maya's cause-and-effect essay about travelling on a tour vs. travelling alone.

Excerpt 4.9 [Christine: reviewer; Maya: writer]

Original text		
As well as, when you become a solo traveller, you lack safety. For example, we may feel dangerous when you are a woman or a man who is walking down in an unfamiliar city at night.		
Line	**Reviewer/ Writer**	Episode
1	Christine (R)	[Referring to Google Translate] you propably want to say "feel danger" Danger is an adjective but dangerous is a noun.
2	Maya (W)	Yes, I frogot it, thanks.
Revised text		
→ For example, we may feel danger~~ous~~ when you are a woman or a man who is walking down in an unfamiliar city at night.		

In Excerpt 4.9, Christine has an inkling that there is something wrong with Maya's original sentence "we may feel dangerous" and checks with Google Translate, translating "feel danger" from L1 to L2, "feel threatened" then "dangerous", then "feel dangerous". She then asks Maya to replace "feel dangerous" with "feel danger". She provides Maya with an incorrect justification, saying that "danger" is an adjective, whereas "dangerous" is noun. Nonetheless, Maya accepts the comment and incorporates it in her revision. Lee (2015) found the wrong use of online resources resulted in awkward vocabulary uses or ungrammatical sentence constructions among students interacting with each other in L2 pair writing.

In addition to Google Translate, the students used online dictionaries, both external (e.g. Merriam-Webster, the Oxford English Dictionary) and internal (the Google Docs dictionary) to check unknown words, synonyms, contextual meanings, and the appropriateness of word use in the writer's context. As noted by Wei (2016), dictionaries are considered very helpful in terms of providing assistance in content, linguistic performance that can help produce valid and reliable feedback for peers. In

the follow-up interview, Sarah commented on the usefulness of online dictionaries in increasing her vocabulary knowledge:

> My peer sometimes uses vocabulary items in her text which are unfamiliar to me, and instead of asking her their meaning every time I review her text, I prefer to look up these vocabulary items in the dictionary myself. This helps increase my linguistic competence because I search and learn the new vocabulary items by myself.

The reviewers were observed using the Google Docs dictionary more than other external dictionaries, mainly due to it being built into the writing tool. In the follow-up interview, Norah stated that the Google Docs dictionary was helpful in saving time, rather than referring to external sources. She added that she liked it more than Google Translate because it was helpful in providing synonyms of the word in the target language instead of relying on machine translation:

> The dictionary in Google Docs was very helpful in looking up the words I was not familiar with. To have this tool built into Google Docs saved the time of referring to other external dictionaries. I liked to use it more than Google Translate, which gives only a literal translation for the word in the target language, but the Google Docs dictionary provides me with so many equivalent words in context.

In addition, the embedded links in Google search led the reviewers to useful language websites that empowered them and helped them play the role of tutor in providing mini-lessons, as in Excerpt 4.10.

Excerpt 4.10 [Maryam: reviewer; Rola: writer]

Original text		
Third, you can take photos with your friends so, you will and have memories with them. As a result, you will give you joy.		
Line	**Reviewer/ Writer**	**Episode**
1	Maryam (R)	you can say “feel excited” instead of feel enjoyment.
2	Maryam (R)	[Searching www.ecenglish.com] the verb feel is a linking verb like (seem, appear, be, become, feel, get, go, grow, look, prove, remain, seem, smell, sound, stay, taste, turn.) should be followed by adjectives instead of adverbs
3	Maryam (R)	check this link https://www.ecenglish.com/learnenglish/lessons/adverbs-adjectives-and-linking-verbs
4	Rola (W)	yes i understand you, thanks for helping me with this source.
5	Maryam (R)	you are welcome my dear friend :))
Revised text		
→ As a result, you will ~~give you~~ feel~~joy~~ excited.		

Maryam started the episode with the use of *advising/suggesting* to mediate the writer's behaviour (line 1). To mediate Rola's revision behaviour, she also undertook a Google search and typed "the verb feel after an adjective". The embedded links in in the Google search led Maryam to a language website, namely www.ecenglish.com, from which she learned the grammatical rules for linking verbs. Provided with rich information from the online source, Maryam played the role of tutor and externalized her grammar knowledge of the use of linking verbs that she had learned from the website by using *instructing* as a mediating strategy to mediate Rola's revision behaviour (line 2). To support her argument further, Maryam explicitly mentions the tool she used in her comment by incorporating the weblink (line 3). In response, Rola explicitly acknowledges Maryam's comment (line 4) and successfully revises her text.

Excerpt 4.11 [Christine: reviewer; Maya: writer]

Original text		
"Is the Internet useful or harmful?".The internet plays a huge part in our lives. A lot of people depend on it to do a lot of different tasks . It helps people to search things that they want . Some people support the using of the internet, whereas some people against or versus it. So, internet technology has negative sides, but if we use it wisely, it will be useful.		
Line	**Reviewer/ Writer**	**Episode**
1	Christine (R)	may I ask you why you used the quotation marks?
2	Maya (W)	[Searching www.thewritepractice.com] Because quotation marks can be used in the titles of the essay,so I used it to attract reader's attention.
3	Christine (R)	But actually the title should not be written in quotation marks
4	Maya (W)	[Searching www.thewritepractice.com] You can check this website https://thewritepractice.com/when-you-use-quotation-marks/
5	Christine (R)	[Searching Google] this not a port of a work or a poem . We usually use quotation marks to quote dialouges said by famous people or other people. You can check this website also https://www.wikihow.com/Use-Quotation-Marks
6	Maya (W)	[Searching www.wikihow.com/Use-Quotation-Marks] Yes, I checked it.
7	Christine (R)	Ok
Revised text		
→ Is the Internet useful or harmful?.		

The excerpt starts with Christine (the reviewer) probing the writer's intention in using quotation marks in the title (line 1). In response, Maya (the writer) undertakes a Google search and type "when do we use quotation marks", visits the website www.thewritepractice.com, studies the online information very carefully and then *offers a justification to the reviewer* (line 2). Maya's use of the online information allows her to offer a clear and explicit justification to Christine. In response, Christine is observed visiting the website Maya incorporated in her comment (www.thewriterpractice.com). However, she appears unconvinced as she then resorts to a new Google search and types again "when do we use quotation marks". Access to the online source helps her defend

her viewpoint confidently and guide the writer through the use of *instructing* as a mediating strategy, supporting this with explicit mention of the online source to which she referred (line 5). Although at the end of this exchange, it seems that the participants fail to reach a consensus (lines 6 and 7), Maya re-evaluates her initial defensiveness and accepts Christine's suggestion in her final revised text. In the stimulated recall, Maya commented:

> I put the quotation marks to attract the reader's attention, but I did not know that there are specific rules for quotation marks. I was not convinced by her suggestion in the beginning, but when I searched the Internet, I found she was right, and therefore I accepted her suggestion to remove the quotation marks.

The comments in lines 1, 3 and 5 show that the reviewer was making a conscious effort on her part as mediator to influence the writer's decision. With mediation from the online tool, the reviewer had a better chance of challenging the authority of the writer over her text, pushing the writer to give in, accept her suggestion and incorporate it in her revision. This multi-directional mediation allowed both the writer and reviewer to engage in extended negotiation and deeper discussion, which helped reinforce the co-construction of a shared understanding between the parties.

The previous excerpts provide evidence that peer reviewers consult online tools to aid in the retrieval of language items and that doing so allows the reviewers to construct their feedback comments and double check their accuracy before processing them as comments to the writers. This allows the writers to overcome their reluctance in accepting or rejecting feedback. This finding is line with other previous studies that have suggested online resources could be a valuable mediational tool, particularly for less proficient peers in L2 settings (Wu, 2019; Hsieh, 2020; Mavrou, Lewis, & Douglas, 2010). In their interview data, the peer reviewers in the study highlighted how this process of accessing online tools while composing feedback helped them improve their language skills. For example, in the follow-up interview, Sarah particularly commented on the usefulness of online dictionaries in increasing her vocabulary knowledge while reviewing her peers' essays, stating:

> My peer sometimes uses vocabulary items in her text which are unfamiliar to me, and instead of asking her about their meaning every time I review her text, I prefer to look up these vocabulary items in the dictionary myself. This help increases my linguistic competence because by searching them, I learn the new vocabulary items by myself.

Learning from consulting online tools while providing feedback corroborates the claim made by Antes (2017) that "language learning and use can go hand in hand" (p. 119).

Having discussed the various types of online tools and their use by peer reviewers in terms of each feedback area, Table 4.7 presents the frequency counts and the mediating strategies that reviewers employed with the support of various online tools with examples from the data collected from SOM.

Table 4.7 Mediating strategies supported by online tool use

Mediating strategy	Frequency	Percentage	Example
Providing direct feedback	105	47%	**Original text**
			On on hand, travelling on tour or travelling alone both of them have a similarities like: everyone need both to escape from stress or work and to get fun.
			Diana: [*Searching online*] *get fun is meaningless you should say have fun* Nancy: i got it
			Revised text
			→ everyone need both to escape from stress or work and to ~~get~~ have fun.
Providing indirect feedback	24	11%	**Original text**
			When youth do not find a job, they suffer from depression because this breakdowns their dreams
			Monica: [Searching Google][Searching Google Translate]Are you sure this word is correct? Norah: [Searching online] yes, i searched it
Praising	23	10%	**Original text**
			In conclusion, the causes are different, but the problem is one. Therefore, we should do our best to overcome unemployment.
			Lara: [Referring to the peer feedback checklist] effective conclusion, i like essays that ends with pieces of advice Noha: I hope we do it in our society Lara: i hope too
Requesting clarification	15	7%	**Original text**
			Otherwise, it would be fun if you hitchhike, walking in the forests and through small villages to reach your destination.
			Nancy: [Searching Google Docs dictionary] what do you mean by this word? Diana: it is an activity or a sport you do it on foot in the jungles or in the woods Nancy: thank you
Questioning as a hint	13	6%	**Original text**
			Anyone can go to the internet to check about their mistakes, for instance.
			Dora: [Searching Google] do you want to say they can use spell checkers to correct their grammar? Sarah: Yes, that is exactly what I mean. Dora: ok, but you need to add more details to this sentence or restate to help us understand what you mean.

			Revised text
			Anyone can ~~go to~~ check the internet to ~~check~~correct ~~about~~ their mistakes
Instructing	12	6%	**Original text**
			Furthermore, internet nowadays is used to buy a lot of things such as foods, clothes, and so on
			Christine: [Searching www.qoura.com*][Searching* www. www.english.stackexchange.com*]this word may be not suitable here. Food is singular, although it can be used in a plural way, to describe a number of different types of food considered as a group. For example, The grocery store carried a large amount of food, including the foods of a number of Asian countries. You can check this website https://www.quora.com/Is-the-word-food-singular-or-plural* Maya: Yes, I mean that internet can be used to sell different types of foods. Christine: if you meant that, you should mention the group frist
Justifying	13	6%	Its effect is that, they were disappointed, and they lose their desire for work.
			Sarah: Remove thus now. Dora: why i should remove it? *Sarah: [Searching www.tharasuses.com]* *[Searching Google Docs dictionary]* *[Searching* Merriam-Webster Dictionary*]The transition you just added gives the meaning that something has a result.*
			Revised text
			~~Thus~~, its effect is that, the unemployed people may become
Advising/ suggesting	9	4%	**Original text**
			Rola: *[Searching Google]* raise from seems to me like literal translation from the Arabic language. *Rola: [Searching Google] I suggest saying "should encourage them"* *Rola: [Searching Google] or saying uplifting their spirits* Maryam: i like your suggestion, so i will use it. thanks
Reinforcement feedback	3	1%	**Original text**
			that the government is not able to create opportunities for youth.
			Ayat: could you give more explanation? the idea of this is not clear to me. Farah: yes, I cleared it, could you check it again? *Ayat: [Searching www.englishlive.ef.com]Now, it is clearer.*
			Revised text
			→ able to create opportunities for youth because of overpopulation
Clarifying	2	1%	**Original text**
			In conclusion, I think that internet is a double edged weapon.It has many advantages such as connecting with people around the world, acquiring new knowledge, etc.
			Monica: your conclution is very related to the topic , but, if i were you , i will give more a advice .

			Norah: But, I think that I explained it in the previous paragraphs *Monica: [Referring to the peer feedback checklist] I mean your conclusion was not successful in convincing the reader with your argument.*
Persisting	3	1%	**Original text**
			With the help of these technologies, you can see your relatives and loved ones who are living abroad
			Lara: what about saying lovers? Noha: but loved one not wrong Lara: as you want *Lara: [Searching Google Docs dictionary] but it is a very dull and strange use of word order specially after using "ones"*

Note. Percentages are rounded to the closest integer.

As shown in Table 4.7, *providing direct feedback* was the mediating strategy most frequently employed supported by online tool use, accounting for 105 instances (47%). *Providing indirect feedback* was the second most frequently employed strategy (24, 11%) and praising the third (23, 10%), followed by *requesting clarification* (15, 7%). Q*uestioning as a hint*, *instructing*, and *justifying occurred* somewhat less often, comprising only (6%) of the mediating strategies identified, followed by *advising/suggesting* (4%), and finally *justifying*, *clarifying* and *reinforcement* (1%).

Table 4.8 Mediating strategies in language with online tool use per focus

Focus Area	Mediating strategies											
	Providing direct feedback	Providing indirect feedback	Praising	Questioning as a hint	Requesting clarification	Instructing	Reinforcement feedback	Advising/suggesting	Justifying	Clarifying	Persisting	Total
Grammar	43 (62%)	4 (6%)	0 (0%)	4 (6%)	1 (1%)	8 (11%)	2 (3%)	0 (0%)	7 (10%)	0 (0%)	1 (1%)	67 (32%)
Word Choice	31 (43%)	10 (14%)	1 (2%)	5 (7%)	13 (18%)	1 (2%)	0 (0%)	8 (11%)	1 (1%)	1 (1%)	1 (1%)	59 (29%)
Organization	59 (17%)	5 (17%)	17 (58%)	0 (0%)	0 (0%)	1 (4%)	0 (0%)	0 (0%)	1 (4%)	0 (0%)	0 (0%)	29 (14%)
Content	12 (43%)	3 (11%)	5 (18%)	3 (11%)	1 (3%)	1 (3%)	1 (3%)	1 (3%)	1 (3%)	0 (0%)	0 (0%)	28 (14%)
Mechanics	7 (50%)	1 (7%)	0 (0%)	1 (7%)	0 (0%)	1 (7%)	0 (0%)	0 (0%)	3 (22%)	1 (7%)	0 (0%)	14 (7%)
Other	7 (78%)	1 (11%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (11%)	9 (4%)
Total	105 (47%)	24 (11%)	23 (10%)	13 (6%)	15 (7%)	12 (6%)	3 (1%)	9 (4%)	13 (6%)	2 (1%)	3 (1%)	206

Note. Percentages are rounded to the closest integer.

Having presented the frequency counts of the different mediating strategies used with the support of online tools, the following paragraphs present the frequency counts of each of these mediating strategies in relation to each feedback area.

Table 4.8 shows that the highest number of mediating strategies using language supported by online tool use pertained to grammar (67, 32%). In terms of the strategies employed in mediating grammar, *providing direct feedback* constituted about two thirds (43, 62%), following by *instructing* (8, 11%) and *justifying* (7, 10%). Both *providing indirect feedback* and *questioning as a hint* constituted only 6%. *Reinforcement feedback* comprised 3% (2 instances), and both *requesting clarification* and *persisting* amounted to only 1%.

Word choice had the second highest number of mediating strategies using language supported by online tool use (59, 29%). *Providing direct feedback* constituted about two thirds of the strategies (31, 43%), followed by *requesting clarification* (13, 18%), *providing indirect feedback* (10, 14%), *advising/suggesting* (8, 11%) and *questioning as a hint* (5, 7%). The other mediating strategies occurred very rarely, with *instructing* constituting 2%, followed by *advising/suggesting*, *justifying* and *persisting* at only 1%.

In relation to organization, which had the third highest number of mediating strategies, *praising* was the most frequent strategy (17, 58%), followed by both *providing direct feedback* and *providing indirect feedback* (17%). *Instructing* and *justifying* made up only 4%. Concerning content, *providing direct feedback* was the most frequent strategy (12, 43%). This finding suggests that access to online tools enabled the reviewers to be more confident in judging the accuracy of ideas in their peers' essays than when they were relying only on their linguistic background (see Table 4.8). *Praising* was the second most frequent mediating strategy (5, 18%). This indicates that reviewers were not only using online tools besides the language as a mediational tool to provide direct suggestions to their peers, but also to mitigate their direct feedback. The reviewers used *providing indirect feedback* and *questioning as a hint* equally (3, 11%). They employed *requesting clarification*, *instructing*, *reinforcement feedback*, *advising/suggesting* and *justifying* very little (3%).

In relation to mechanics, *providing direct feedback* constituted half of the mediating strategies (7, 50%), followed by *justifying* (22%). The other strategies, *providing indirect feedback*, *questioning as a hint*, *instructing* and *clarifying* constituted 7%. For

the other category, *providing direct feedback* constituted 78%, whereas both *providing indirect feedback* and *persisting* constituted 11%.

These findings show that reviewers' use of online tools in mediating their peer feedback to writers did not result in a change in either the preferred mediating strategy or the emphasis on grammar.

This section has illustrated the types of peer feedback and mediational tools used during the feedback process. The following section discusses the degree of writers' incorporation of their peers' comments in their final drafts and how the mediation by peers and online tools affected the revision process.

4.5 Writers' responses

To determine the extent to which reviewers' comments were accepted and incorporated in drafts, the writers' responses were examined. In other words, the data from the revision history in Google Docs were analysed to identify how much peer feedback writers accepted and incorporated by making revisions. Following Liu and Sadler (2003), only revision-oriented comments in the final drafts were considered. Non-revision-oriented comments (e.g. praise, non-specific or vague comments) were excluded because the analysis of revisions showed no connection between these and the changes made to texts. The accuracy of comments (correct or incorrect) was not investigated as it was beyond the focus of the study.

The section starts with presenting the frequency counts of the overall acceptance of peer feedback (section 4.5.1). This is followed by presenting the frequency counts of acceptance of peer feedback per language focus (section 4.5.2). To establish whether writers' revision behaviour was influenced by consulting online sources or not, further analysis is presented in terms of frequency counts of revision-oriented comments related to online tool use vs. non-tool use and acceptance or rejection of peer feedback (section 4.5.3). In addition, comments that involved traces of online tool use were examined in terms of whether the tools were used by reviewers to mediate writers' behaviour or by writers in response to reviewers and the impact of both on acceptance or rejection of peer feedback. Furthermore, the results of a more in-depth investigation of students' interactions with each other and with online tools using triangulated data collected from SOM, Google Docs and the interviews are discussed (section 4.6).

4.5.1 Acceptance of feedback

As mentioned in Chapter 3 (section 3.10), the writers' responses to their peers' revision-oriented comments were classified into three broad areas: *fully accepted*, *partially accepted* and *rejected*. In the first category, writers accepted and incorporated the reviewers' suggestions in the text without modification. In the second category, the writers accepted the need to revise, but slightly modified their peers' comments in their revised draft. The third category included both the comments that they accepted in their responses but did not incorporate in their revisions and those that they explicitly rejected and did not incorporate.

Overall, the results showed that the student writers generally accepted and incorporated the majority of comments fully in their revisions. Of the 1,041 revision-oriented comments received, writers fully accepted and incorporated 808 (78%), partially accepted 16 (1%) and rejected only 217 (21%) (see Figure 4.1).

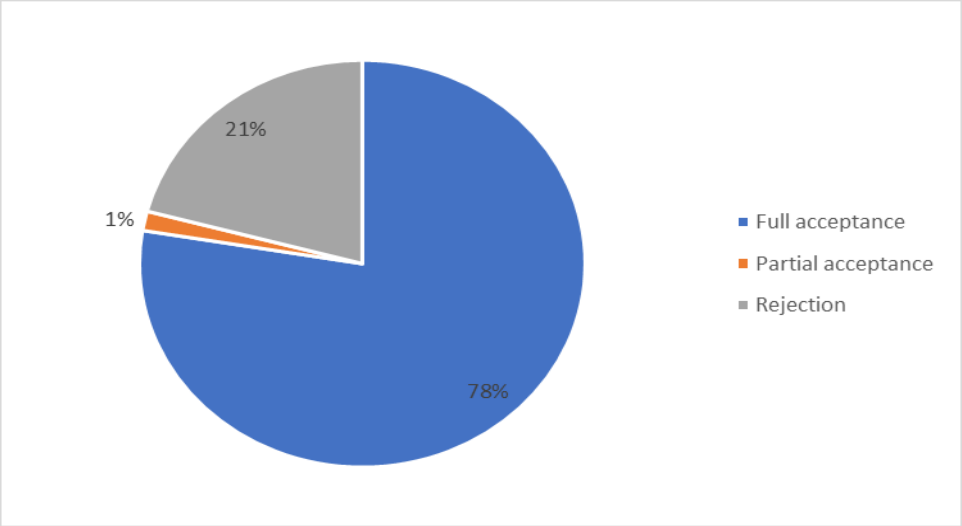


Figure 4.1 Overall acceptance vs rejection of feedback

This finding suggests that writers valued the feedback comments received from reviewers and therefore decided to use them in their revised drafts. However, the high frequency of full acceptance of reviewers' comments cannot serve as the only evidence to explain the success of the application of peer feedback. Nonetheless, it does imply that students were positive about this activity as an important source for improving their texts. The high number of fully accepted and incorporated comments in this study aligns with the results of other studies (e.g. Min, 2006, Ting & Qian, 2010), but conflicts with those of Rodriguez (2003) and Liou and Peng (2009); the former found that more than 50% of revision-oriented comments were not incorporated in revisions and even worse,

the latter found that 70% of revisions were not made. The following section presents the extent of writers' acceptance or rejection of peer feedback in terms of language focus area.

4.5.2 Language focus and acceptance of feedback

It was also important to understand the extent to which the acceptance (or rejection) level varied across the different areas of language focus. Table 4.9 shows the frequency and percentage of fully, partially accepted and rejected comments in relation to the five areas of writing on which this study focused: content, organization, grammar, word choice, mechanics, and other.

Table 4.9 Language focus areas and acceptance of feedback

Language Area	Fully Accepted	Partially Accepted	Rejected	Total
Grammar	336 (89%)	5 (1%)	39 (10%)	380 (37%)
Word Choice	124 (67%)	6 (3%)	56 (30%)	186 (18%)
Content	105 (62%)	1(0%)	64 (%38)	170 (16%)
Mechanics	139 (88%)	3 (2%)	16 (10%)	158 (15%)
Organization	29 (43%)	0 (0%)	38 (57%)	67 (6%)
Other	75 (92%)	1 (6%)	4 (2%)	80 (8%)
Total	808 (78%)	16 (1%)	217 (21%)	1041

Note. Percentages are rounded to the closest integer.

As Table 4.9 shows, the student writers fully accepted the majority of comments concerning grammar (336, 89%), partially accepted only 5 (1%) and rejected 39 (10%). In relation to word choice, nearly half of the comments were fully accepted (124, 67%), whereas 6 (3%) were partially accepted and 56 (30%) were rejected. Nearly half of the comments for content (105, 62%) were fully accepted and the other half were rejected (64, 38%). Similar to grammar, students fully accepted the majority of comments in mechanics (139, 88%), partially accepted only 3 (2%) and rejected 16 (10%). In contrast, rather more than half of the comments for organization were rejected (38, 57%), while the rest (29, 43%) were fully accepted. In the "other" category, the majority of comments were fully accepted (64, 93%), with far fewer partially accepted (1, 6%), and only 2% rejected.

These results show that the students were more willing to accept feedback that targeted language forms than feedback that targeted content and make revisions accordingly. These findings corroborate those in FTF revision environments. For example, Villamil and de Guerrero (1994) found that of the peer feedback comments accepted and

incorporated by writers, “grammar was the most revised aspect whereas organization was the least attended to” (p. 508). Similarly, this finding is similar to that of Connor and Asenavage (1994), whose study concluded that receiving feedback on surface-level aspects may lead writers to emphasize these features when revising their writing. Although feedback on micro-level features does not always lead to an improvement in writing as argued by, for example, Cho and MacArthur (2010), Min (2005) claims that grammatical issues should not be neglected, since for low-proficiency students, who are always struggling to express their ideas in the target language, formal aspects of writing are essential.

As shown in 4.5.2, full acceptance of comments outnumbered rejected comments in all areas of language. In an attempt to relate this finding further to the use of online tools, revision-oriented comments were examined in terms of instances of visiting an online source and their impact on the acceptance or rejection of peer feedback.

4.5.3 Language focus, tool use and acceptance of feedback

As mentioned in 4.4.2, data from SOM showed that peer reviewers used various online tools. Similarly, when they acted as writers, students relied on various online tools, such as dictionaries and language websites, consulting them about different areas of language. Access to these various online tools helped justify their language choices in their texts and validate the feedback they received from reviewers. With a view to relating writers’ acceptance or rejection of peer feedback to the use of online tools, revision-oriented comments made with reference to an online source, whether implicitly or explicitly mentioned in students’ comments, were further examined and analysed. That is, revision-oriented comments involving traces of online source visits, whether from reviewers to writers or from writers in response to reviewers, as recorded by screen capture data were counted and linked to the language focus areas and the three responses: full acceptance, partial acceptance and rejection (see table 4.10). This is followed by more in-depth analysis of the online behaviours frequently observed in students’ interactions with each other and with online tools (see 4.6) drawing on triangulated data collected from SOM, Google Docs and the interviews.

Table 4.10 Language focus, tool use and acceptance of feedback

Language Area	Online Tool Use vs. Non-tool use	Fully Accepted	Partially Accepted	Rejected	Total
Grammar	Tool Use	63 (74%)	0 (0%)	22 (26%)	85 (22%)
	Non-Tool Use	273 (92%)	5 (2%)	17 (6%)	295 (78%)
Total		336 (89%)	5 (1%)	39 (10%)	380
Word Choice	Tool Use	55 (58%)	2 (2%)	38 (40%)	95 (51%)
	Non-Tool Use	69 (76%)	4 (4%)	18 (20%)	91 (49%)
Total		124 (67%)	6 (3%)	56 (30%)	186
Content	Tool Use	11 (44%)	0 (0%)	14 (56%)	25 (15%)
	Non-Tool Use	94 (65%)	0 (0%)	50 (35%)	145 (85%)
Total		105 (62%)	0 (0%)	64 (38%)	170
Mechanics	Tool Use	16 (73%)	0 (0%)	6 (27%)	22 (14%)
	Non-Tool Use	123 (91%)	3 (2%)	10 (7%)	136 (86%)
Total		139 (88%)	3 (2%)	16 (10%)	158
Organization	Tool Use	7 (78%)	0 (0%)	2 (22%)	9 (13%)
	Non-Tool Use	22 (38%)	0 (0%)	36 (62%)	58 (87%)
Total		29 (43%)	0 (0%)	38 (57%)	67
Other	Tool Use	6 (75%)	0 (0%)	2 (25%)	8 (10%)
	Non-Tool Use	70 (96%)	1 (1%)	2 (3%)	72 (90%)
Total		76 (49%)	1 (1%)	4 (5%)	80

Note. Percentages are rounded to the closest integer.

Revision-oriented comments that did not involve online tool use outnumbered those involving online tool use overall and in all areas of feedback except *word choice*, for which online tool use was slightly higher than tool use (51% vs. 49%). In terms of acceptance versus rejection of peer feedback, fully accepted comments involving non-tool use outnumbered both partial acceptance and rejection of peer reviewers' comments overall and in all areas of feedback except for *content*. Rejected comments for *content* that involved online tool use were slightly higher than fully accepted comments (56% vs. 44%). However, fully accepted comments based on online tool use outnumbered both partial acceptance and rejection of peer reviewers' comments overall and in all areas of feedback except for *organization*. Rejected comments involving no tool use for *organization* were higher than fully accepted comments (62% vs. 38%). The high rate of full acceptance for comments mediated by online tool use and those not mediated by online tool use show that writers had positive attitudes towards their reviewers' comments regardless of the source of mediation.

At the surface level, this section may seem to be making a comparison between the impact of students' use of online tools and non-tool use on the acceptance or rejection of peer feedback, but it is not meant to do so. Although this is right if we look at the

numbers of comments involved in each mode (a total of [797,77%] comments involving no tool use as opposed to [244, 23%] involving tool use), this angle would provide solely a linear look at the data and actually misinterpret and decontextualize it from the nature of L2 teaching and feedback practice in the target context.

In this study, the target context is fairly conventional in terms of teaching writing and feedback practice. In other words, teachers and students depend on a class textbook chosen by their teacher and the use of online sources is extremely limited and is generally undertaken by individual students outside the classroom. When the students in this study were given some training on the use of a technological tool (Google Docs) and the opportunity to commit to peer feedback practice, they consulted online sources under their own steam. This means they made online decisions as part of a process, as follows: (i) when their linguistic knowledge was not helping them and there was a need to seek alternative sources they looked online; (ii) reviewers undertook their own searches for sources and chose the relevant feedback; (iii) they provided the sources they used to their peers; (iv) they negotiated in their interactions the comments they provided. In addition, writers also conducted searches for sources and negotiated the results further with the reviewers. Thus, the numbers provided for "tool use" should be seen as a move away from a conventional peer feedback context in which these reviewers would either provide comments of which they were unsure or not provide comments at all because of a lack of linguistic knowledge. Also, they should be viewed as a move away from the common reluctance to accept peers' comments. It is worth noting here that although access to online sources encouraged writers to overcome their reluctance to trust and accept comments made by reviewers, these comments were mainly oriented to language rather than content.

To provide a more in-depth examination of how the use of online tools affected the writers' revision behaviour, the following section presents the common themes observed across the triangulated data from Google Docs, screen capture recordings and stimulated recall interviews.

4.6 Frequently observed online behaviours

To examine in greater depth how the writer–reviewer feedback exchanges with the support of online tools promoted the acceptance or rejection of peer comments in Google Docs, a close qualitative analysis of their online behaviour was employed. The purpose of this section is to understand in detail whether online tools helped reviewers

provide feedback and justify that feedback. Furthermore, it also sheds light on whether the use of online tools boosted reviewers' confidence in their ability to provide feedback which they might not have provided in conventional contexts. In addition, it aims to examine whether the use of online support for comments influenced the writer's acceptance or rejection of peer feedback. The data were collected and triangulated from SOM, Google Docs and the interviews. Three main themes emerged from the triangulated data:

- Show me the proof.
- I conducted a search and you are right.
- I conducted a search and you are wrong!

In the next few paragraphs, the three themes will be discussed one by one with examples from the students' peer feedback exchanges.

4.6.1 Show me the proof

An important theme that emerged across the triangulated data was that some writers showed initial reluctance and mistrust in the reviewer's feedback until the latter provided evidence. This evidence (a link to an online source) that reviewers relied on to justify their own feedback was provided either explicitly (i.e. the weblink was sent) or implicitly (i.e. no weblink was provided). Excerpt 4.12 shows the writer's (Maya's) hesitance in the beginning about accepting the feedback. She therefore asked the reviewer (Christine) to show evidence to decide whether to accept or reject the feedback.

Excerpt 4.12 [Christine: reviewer; Maya: writer]

Original text		
On one hand, people like travelling alone for several reasons. So people want to travel alone because they want to feel more freedom. They want to do anythings. they can go to any places that they want.		
Line	**Reviewer/ Writer**	**Episode**
1	Christine (R)	[Searching Google Translate] [Searching www.learnerdictionary.com] Is it "anythings" or "anything"?
2	Maya (W)	[Searching www.dictionary.com] I think both are correct. Do you have any source?
3	Christine (R)	[Searching Google] It's incorrect. There is no such a word "anythings". You can google the word or even try spell checker in Goole Docs
Revised text		
→ They want to do ~~anythings~~ anything		

In the above episode, Christine was unsure of the word "anythings" in Maya's essay. Before providing her with corrective feedback, Christine visited Google Translate and typed "anythings", but she did not get any results. So, she edited the search again to "anything". After searching Google Translate, she was still uncertain whether the word could end with plural "s" or not. As a result, her second move as a reviewer was to visit an online bilingual dictionary, learnerdictionary.com. Her cross-checking led her to use *questioning as a hint* to draw the writer's attention to the error in the word "anythings" (line 1). Because Christine did not provide Maya with direct corrective feedback, Maya seemed uncertain. Instead of asking Christine to justify her feedback, Maya asked for an online source (line 2). Christine then undertook another final search in Google before responding. Such cross-checking between online sources was often found in Christine's online behaviour as a reviewer. To influence the writer's revision behaviour, Christine used *reinforcing feedback,* asking Maya to search the Internet or to use spell checker in Google Docs to find out if this word was incorrect or not (line 3). Through this behaviour, Christine attempted to maintain a distance that would allow the Maya, as the owner of the text, to make her own decision. Maya did not seek further clarification or make any statements that might indicate her understanding or lack of it. However, she incorporated the revision in her final draft. Interviewing Maya revealed that she failed to find a specific source with clear guidance that could help her correct the error in the word. Therefore, she decided to seek Christine's advice. She stated:

> In the beginning, I did not understand what she meant. I did an online search and found that both words are correct. Therefore, I asked her if she knew any online source that could help validate any of the two options. When she confirmed that it was incorrect, I agreed to correct it to be on the safe side. (Maya, stimulated recall)

Although Christine did not provide Maya with a weblink to explain or justify her feedback, Maya decided to accept the feedback solely because Christine as the one who was responsible for evaluating her work confirmed that she had done an online search. While this behaviour indicates that Maya did not entirely trust Christine's linguistic ability, the phrase "to be on the safe side" shows she had a positive attitude towards her peer's ability to find reliable online sources.

Similarly, in Excerpt 4.13, Christine acknowledged the feedback from Maya only when she confirmed that she had searched on the Internet.

Excerpt 4.13 [Maya: reviewer; Christine: writer]

Original text		
For example, when you are alone you can expose to bullying, but when you are in groups, you are more saver.		
Line	**Reviewer/ Writer**	**Episode**
1	Maya (R)	[Searching Google] you should say can be exposed.
2	Christine (W)	What should I write it in negative?
3	Christine (W)	Sorry, I mean passive.
4	Maya (R)	[Searching www.conjugator.reverso.net] [Searching www.verb2verbe.com/conjugation/english-verb] V. to be should come before expose if you want to say that the person himself/ herself will face bullying
5	Christine (W)	Ok. It's new information for me Thanks.
6	Maya (R)	Check the internet and see examples if you don't trust my suggestion.
7	Christine (W)	Marked as resolved
Revised text		
→ For example, when you are alone, you can be exposed to bullying, but when you are with a group, you are more saver.		

In reviewing Christine's cause-and-effect essay about travelling on a tour vs. travelling in a group, Maya (the reviewer) searched Google and typed "You can expose to stealing", then "you can expose to theft". Looking through the search results, Maya realized that the structure of the sentence was wrong. Therefore, she suggested adding the verb "to be" before "expose" (line 1). Christine seemed unconvinced and therefore requested justification for why she needed to construct the sentence in the passive voice (lines 2 and 3). Before responding, Maya went to Google and typed "the verb expose". The embedded links in in the Google search led Maya to other language-related websites, such as conjugator.reverso.net and verb2verbe.com/conjugation/english-verb, where she read about the conjugation of the verb "expose". Making use of the information she had learned from these online tools, Maya wanted to teach Christine the rule of the passive voice. Therefore, instead of providing Christine with explicit correction, she provided other regulation by *instructing* or giving a minilesson (line 4). Although Christine acknowledged that this was new information (line 5), Maya was still unsure if Christine was willing to incorporate it in her revision. Therefore, she resorted to *reinforcement feedback* in which she confirmed that she had searched the Internet to influence Christine's behaviour. To avoid imposing her opinion, Maya urged Christine to search the Internet to doublecheck the accuracy of her feedback (line 6). This is because Christine, who had the highest number of rejected comments among all the students as writers, seemed to trust feedback only if it was supported by online tool use. Interviewing Maya showed that her familiarity with Christine's constant hesitancy and

reluctance to accept feedback led her first to double check the accuracy of her feedback. In so doing, she attempted to distance herself as a reviewer from imposing her opinion. At the same time, she commented:

> I searched Google and I found that the verb "expose" should be followed by the verb "to be". I asked her to search the Internet if she still did not trust my feedback. She does not usually trust my feedback and therefore I always search the Internet to double-check before I provide it. (Maya, stimulated recall)

Similar to Christine's behaviour as a writer, both Monica and Norah had more trust in online sources than in each other as sources of information. Therefore:

> Both me and Norah do not accept each other's feedback unless it is supported with evidence. (Monica, stimulated recall)

Excerpt 4.14 [Norah: reviewer; Monica: writer]

Original text		
We can gain a new culture of another country through it. There are many types of travelling such as travelling for interesting, for culture, and for remedy etc. But most of them prefer to travel with family or with friends not alone.		
Line	**Reviewer/ Writer**	**Episode**
1	Norah (R)	It would better to say travelling for pleasure not interesting.
2	Monica (W)	no, I disagree with you. I think the both word are correct.
3	Norah (R)	[Searching Google] I search for it. It is not correct
4	Monica (W)	ok Norah.
Revised text		
→ There are many types of travelling such as travelling for ~~interesting~~ pleasure		

The example comes from Norah (the reviewer) and Monica (the writer), in which Norah is reviewing Norah's compare-and-contrast essay about travelling on a tour vs. travelling in a group. Monica used the word "interesting" instead of "pleasure" in the sentence "There are many types of travelling such as travelling for interesting, for culture, and for remedy etc", which is grammatically and semantically incorrect. Norah spotted the mistake in Monica's text and therefore suggested replacing the word "interesting" with "pleasure" and did not provide further explanation or suggestion (line 1). When Monica expressed disagreement with the feedback (line 2), Norah undertook a search in Google and typed "travelling for interesting". After reviewing the example sentences, Norah went back to Google Docs and confidently confirmed that her suggestion was correct, justifying this on the basis that she had searched it (line 3). Although Norah did not provide Monica with an online source or further clarification, Monica accepted the feedback (line 4) and incorporated it in her revision. Therefore, it is not clear whether or not Monica understood the mistake in the phrase.

In the following example, when reviewing Dora's cause-and-effect essay about travelling in a tour vs. travelling in a group, Dora showed acceptance, trusting Sarah's feedback supported with a link to the online tool she used.

Excerpt 4.15 [Sarah: reviewer; Dora: writer]

Original text		
Nowadays the internet plays a vital role in our life. In your opinion how can the internet affect our life?		
Line	**Reviewer/ Writer**	**Episode**
1	Sarah (R)	After in your opinion I think that you have to put a comma. What do you think?
2	Dora (W)	I donot think so because it is a new sentence.
3	Sarah (R)	It is not a full sentence, it is a subordinate clause.
4	Sarah (R)	[Searching www.conjugator.reverso.net] http://theeditorsblog.net/2014/07/30/commas-with-subordinate-clauses-a-readers-question/
5	Dora (W)	Marked as resolved
Revised text		
→ In your opinion**,** how can the internet affect our life?		

In this episode, the reviewer (Sarah) tries to provide the writer (Dora) with implicit hints, asking her to put a comma after "in my opinion" and also attempting to engage Dora in the discussion by asking questions: "What do you think?" (line 1). However, Dora sounds defensive as she writes "I donot think so" (line 2). Her defensiveness prompts Sarah to conduct an online search to find a source that would help her defend her argument. She searches Google and types "using commas with subordinate clauses". The Google search leads Sarah to a blog, www.theeditorsblog.net. Reading multiple examples of comma use with dependent clauses in this blog, she goes back to Google Docs, confidently justifying her point (line 3). In addition, she supports her feedback by incorporating the weblink of the online tool that she used (line 4). Although Dora does not respond to show whether she accepts or rejects the feedback, she fully incorporates the revision in her text and resolves the comment afterwards (line 5).

The previous examples show how peer reviewers access multiple websites and conduct cross-referencing to provide the writers with evidence that will help influence their revision behaviour. Some peer reviewers (e.g. Christine) tended to double- or triple-check using iterative searches to obtain clearer evidence that could help persuade the writer to accept their comments. A possible explanation for this behaviour is that they felt great responsibility when reviewing their peers' essays and therefore did not want to make any incorrect suggestions. This finding is consistent with that of Ryoo and Wing (2012), who observed that the students in their study resorted to meditational tools (e.g.

online dictionaries and social networking sites) when reviewing their peers' essays to seek confirmation, because they thought that if they made any mistakes, their partners would lose confidence in them. This cross checking empowered the peer reviewers and boosted their confidence as providers of feedback. In return, this helped the writers overcome their reluctance to accept their peer's comments. Although sometimes reviewers did not share with writers the weblinks to the online resources they visited and only referred to them implicitly, the writers agreed to revise their work. This theme highlights the role of online sources in helping peer reviewers validate their feedback. The following two themes highlight the role of online tools in helping writers decide whether to accept or reject reviewers' feedback.

4.6.2 I conducted a search and you are right

Another strong theme running through the triangulated data was that the writers sometimes showed initial defensiveness of the text and disagreed with the reviewer's suggestion before conducting their own online search that then helped them decide to accept the suggested feedback. The following examples show how the support from online tools led writers to acknowledge that reviewers were right and therefore accept their feedback.

Excerpt 4.16 [Monica: reviewer; Norah: writer]

Original text		
Internet has many advantages and positive things. There are many people think that internet is very useful for many reasons . First, many students can earn from the internet through bloggers. Nowadays, we have a great number of bloggers on youtube..		
Line	**Reviewer/ Writer**	**Episode**
1	Monica (R)	what is the meaning of this sentence? I can not understand it
2	Norah (W)	Nowadays, there are many people who share videos on youtube.etc to present various subjects. We call these people as bloggers
3	Monica (R)	[Searching Google] ok but we do not call the people who use youtube bloggers
4	Monica (R)	we don't use Yotube to blog, we use it to vlog, check the difference between them.
5	Monica (R)	[Searching Google] we vlog to create blogs that have videos. In, yotube, we post only videos, do you understand what I mean?
6	Norah (W)	ok. i will search it to know the difference between them.
Revised text		
→ Nowadays, we have a great number of ~~b~~ vloggers on youtube ~~on youtube~~		

As shown in the above excerpt, Monica, the reviewer, started by *seeking a clarification* of the word "bloggers" from Norah, who offered her a justification for the use of the word (lines 1 and 2). Monica appeared unconvinced as she was observed referring to an

online source and typing "the meaning of blog". The online source directed her to another more suitable word for Norah's context, that is "vlogger". In response, Monica then resorted to *providing indirect feedback* to Norah to help her revise her work without providing her with an explicit correction (lines 3). She again provided Norah with *indirect feedback* (line 4), followed by *instructing* and a *comprehension check* to mediate Norah's behaviour (line 5).

Through the use of mediating strategies, Monica challenged Norah and tried to activate her ZPD, so that she would reach beyond her current knowledge. Although Norah showed her willingness to accept the correction (line 6), mentioning that she would search the Internet to learn the difference between the two words, screen capture data showed that she accepted the correction only after Monica tackled the same topic: the difference between blogger and vlogger in Excerpt 4.17. In the stimulated recall, Monica commented:

> I did not understand the word blogger here. It made the general meaning unclear. I made a search and realized that there was a difference between "blogger" and "vlogger". The online search helped me learn a new word "vlogger". It means those people who post videos in YouTube. I found it more suitable than blogger and therefore I tried to persuade her to change the word blogger and replace it with vlogger.

In the following excerpt, Monica (the reviewer) noticed that Norah (the writer) had not responded to her previous feedback, despite Monica's continued efforts to convince Norah. To influence her behaviour further, Monica questioned the use of the word "blogger" that Norah had again used in the text.

Excerpt 4.17 [Monica: reviewer; Norah: writer]

Original text		
These bloggers present various subjects in our life such as common trends, makeup brands, recipes, social relations, how to improve English language,etc.		
Line	**Reviewer/ Writer**	**Episode**
1	Monica (R)	Do you want to say channels?
2	Norah (W)	No, people who make channels on youtube,etc.
3	Monica (R)	[Searching Google] or vloggers?
4	Monica (R)	[Searching Google] do you know the difference between blogger and vlogger?
5	Norah (W)	No
6	Monica(R)	search google then to know the difference and correct the sentence
7	Norah (W)	I want to use the word blogger here because it is a real thing that we have a great number of bloggers
8	Monica (R)	check my comment above about the difference between blogger and vlogger
9	Norah (W)	Ok
Revised text		

→ These ~~bloggers~~ vloggers present various subjects in our life such as common trends, makeup brands, recipes, social relations, how to improve English language,etc.

The reviewer (Monica) in this episode strategically use multiple mediating strategies supported with access to online information (line 3) in order to influence the writer's behaviour and push her to replace the word "blogger" with "vlogger". In my view, access to the online information helped her gain confidence and act as a tutor, using *instructing* to mediate the writer's revision behaviour (line 6). Through the use of this mediating strategy in addition to *questioning as a hint* (line 4), Monica tried to act as a tutor and indirectly help Norah learn the difference between the two words. This extract shows how the information she learned from the online tools helped Monica externalize her knowledge of the difference between "blogger" and "vlogger". Consequently, she used this information to help her review the error and accept incorporating it in her revision. This can be considered a sort of justification, as she appears to be persuaded. In the simulated recall, Norah commented:

> Monica did not understand why I was using "blogger" here in this context. She understood the meaning of the word "blogger", but she did not understand why I used it here. I tried to explain to her why I used it but she explained the difference between the two words to me and asked me to make an online search to learn the difference between the words. It was beneficial for me to learn the difference between the words. This helped increased my knowledge of vocabulary.

Excerpt 4.18 [Christine: reviewer; Maya: writer]

Original text		
On one hand, people like travelling alone for several reasons. So people want to travel alone because they want to feel more freedom. They want to do anythings. they can go to any places that they want.		
Line	**Reviewer/ Writer**	**Episode**
1	Christine (R)	In my opinion it's better not to use "SO".
2	Maya (W)	I want to write it this way, but anyway thanks.
3	Christine (R)	We don't start a sentence with "SO" and "And" because they're " conjunctions"
4	Maya (W)	[Searching www.quickdirtytips.com] Are you sure?
5	Christine (R)	yes!
6	Maya (W)	Oki.Thanks.
Revised text		
→ ~~So p~~People want to travel alone because they want to feel more freedom.		

As shown in the excerpt, instead of providing Maya (the writer) with an explicit correction, Christine resorted to *providing indirect feedback* to mediate the writer's revision behaviour (line 1). In response, Maya rejected her feedback and preferred to stick to her original choice (line 2). However, despite explicitly rejecting Christine's

feedback, Maya still seemed uncertain of her response as she was observed undertaking a Google search to double-check the validity of Christine's corrective feedback. In the Google search, she typed "so at the beginning of a sentence", visited the website www.quickdirtytips.com, and studied the online information carefully. Christine resorted to *instructing* as a mediating strategy to influence Maya's decision (line 3). After studying the online information, Maya realized that she had been hasty in her rejection of Christine's advice. Before correcting herself, she sought confirmation from Christine first (line 4), who provided her with *reinforcement feedback* again to mediate her revision behaviour (line 5). Maya successfully attended to the feedback, fully accepting it and incorporating the revision in her final text. In the stimulated recall, Maya commented:

> I was not sure if her suggestion is correct or not, but when I made my search, I found she is correct when she mentioned that we cannot start a sentence with conjunction, and I was wrong when I rejected it at the beginning

Excerpt 4.19 [Nancy: reviewer; Diana: writer]

Original text		
In conclusion, we should all put this an issue in our consideration. We should do our best to reduce the unemployment in our society. Otherwise, we should increase the investment and the industrial work in the meantime.		
Line	**Reviewer/ Writer**	**Episode**
1	Nancy (R)	What do you mean by otherwise here?
2	Diana (W)	i mean in addition
3	Nancy (R)	but otherwise does not mean in addition
4	Diana (W)	[Searching Google docs dictionary] [Searching www.eng.oxforddictionaries.com] [Searching Google translate] sorry, i made a mistake
Revised text		
→ In addition ~~Otherwise,~~ we should increase the investment and the industrial work in the meantime.		

As shown in Excerpt 4.19, in reviewing Diana's argumentative essay about unemployment, Nancy probed Diana's intention in using "otherwise" (line 1) and Diana provided clarification (line 2). Nancy *clarified* that otherwise does not mean in addition (line 3). Before responding, Diana was observed looking up the word "otherwise" in the Google Docs dictionary and cross-referencing with www.eng.oxforddictionaries.com to check the synonym of the word in the L2. As a last resort, Diana referred to Google Translate to verify the meaning of the word by translating it into her L1. Diana's navigation to these different online tools helped her realize that she was wrong and admit that the reviewer was right (line 4). In the stimulated recall, she made it clear that

the access to online information helped her decide if the feedback she had received was right or wrong:

> I used "otherwise" wrongly here as an equivalent for the transition phrase "in addition". I did not know that it meant "in a different way" and not "in addition" until she drew my attention to the fact that it does not mean that. I searched the word in the Internet to double-check if she was right or wrong, and I found that I was wrong. Therefore, I replaced it with "in addition" instead.

The following example shows how access to the online information can help both the writer and reviewer, in this case in recognizing the misspelling of the word "awesome" in Lara's text.

Excerpt 4.20 [Noha: reviewer; Lara: writer]

Original text		
Students need the internet to share the information with each. It give them the chance to gain more and more knowledge even from there original sources. For example, you can learn English from a native English teacher. This a very awsumb advantage of the internet.		
Line	**Reviewer/ Writer**	**Episode**
1	Noha (R)	[Searching Google docs dictionary] What do you mean by this word? I could not find it in the dictionary
2	Lara (W)	[Searching Google docs dictionary] i meant amazing, but you are right i can not find it in the dictionary also
3	Noha (R)	okay never mind
Revised text		
→ This a very ~~awsumb~~amazing advantage of the internet.		

As shown in Excerpt 4.20, in reviewing Lara's argumentative essay about the Internet as a double-edged weapon, Noha questions the correctness of the spelling of the word "awsume". She referred to the Google Docs dictionary but got no results. Although she admitted in the stimulated recall that the word was misspelled when she stated "I looked up the word in the dictionary, but could not find it because it was misspelled", she did not resort to *providing direct feedback* by correcting the word for Lara. Instead, she resorted to *seeking clarification* as a mediating strategy and explained that she could not find the word in the dictionary to influence the writer's decision (line 1). In response, Noha spell-checked the word using the built-in spell-checker in Google Docs, but could not find any results. She then cross-checked the word in Google Translate, which is helpful in providing a context-based translation. Due to the misspelling of the word, she could not find it. Lara stated that she meant amazing, but admitted that Noha was right because she could not find the word in the dictionary (line 2), which indicated that the word was wrong. Accordingly, she revised the text and replaced the word "awsume" with the word "amazing". In the stimulated recall, Lara stated:

I wanted to write awesome, but I did not know the right spelling of this word. I justified to Noha that I meant amazing when I first wrote this word. However, I realized that she was right that there is no such a word when I looked up it in Google Docs dictionary and then searched it again in Google Translate but could not find the word, so I replaced it with the word (amazing) which I found it more suitable.

4.6.3 I conducted a search and you are wrong!

Students as writers were also sometimes observed rejecting peer feedback after conducting their own online search which they considered more trustworthy than the feedback they received from their peers. The following examples are illustrative of this theme.

Excerpt 4.21 [Maya: reviewer; Christine: writer]

Original text		
Using technology and surfing the internet at early age definitely can isolate children. They prefer spending their time playing games or watching cartoons and because of this, there is no need to play .with other kids		
Line	**Reviewer/ Writer**	**Episode**
1	Maya (R)	Allow them to surf not surfing:-)
2	Christine (W)	[Searching www.stackexchange.com] Both are correct you can check this website https://ell.stackexchange.com/questions/11193/allow-to-infinitive-substantive-verb-ing
3	Maya (R)	I know that allow can be followed by verb with ing but give here is infintive. So I think surf should also be infintive too.
4	Christine (W)	I don't think so
5	Maya (R)	You can search the internet.
6	Christine (W)	I searched before and both are correct

As shown in Excerpt 4.21, in reviewing Christine's argumentative essay about the Internet as a double-edged weapon, Maya resorted to *providing direct feedback* as mediating strategy, asking Christine to put the verb "surf" in the infinitive form instead of the gerund. To alleviate the critical tone in her direct feedback comment, she used a smiley face emoji (line 1). However, rather than blindly accepting the suggestion to put the verb "surf" in the infinitive, Christine was observed searching the Internet first to double-check the accuracy of Maya's feedback. In the language website www.stackexchange.com, she typed "allow+ing" and read the example sentences. Provided with useful grammatical information from the website about allow (to) infinitive, substantive, verb+ing, Christine confidently affirmed that both the gerund and infinitive forms of the verb "surf" were correct and provided the link to the website she had consulted to support her viewpoint (line 2). Maya attempted to influence her behaviour by *justifying* her feedback (line 3). However, Christine insisted on the

validity of her opinion (line 4). The use of the singular pronoun in "I don't think" shows her insistence on her opinion. As a way out of the conflict and in a desperate attempt to influence Christine's defensive behaviour, Maya *persisted* in asking Christine to search the Internet (line 5). However, Christine confirmed again that she already done a search and found that both verb forms were correct (line 6). In the interview, Christine supported her observed online behaviour:

> I rejected Maya's feedback because I was totally convinced that both "surf" and "surfing" here in the sentence were correct. I shared a website with her to confirm my point of view. (Christine, stimulated recall)

Excerpt 4.22 [Ayat reviewer; Farah: writer]

Original text		
On one hand, when travelling alone instead of travelling on a tour, you can meet new people, be more free and manage your time by yourself.		
Line	**Reviewer/ Writer**	**Episode**
1	Ayat (R)	Here you didn't put sub+verb to complete the meaning for me as a reader.
2	Farah (W)	If you mean something else, tell me yoyo
3	Ayat (R)	[Searching www.qoura.com] [Searching www.usingenglish.com/forum] But I am not wrong, please visit this link. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiMr-Tm7bzaAhXjFZoKHRVKAdwQFggiMAA&url=https%3A%2F%2Fwww.usingenglish.com%2Fforum%2Fthreads%2F101065-when-ing-whilst-ing&usg=AOvVaw1oU3QAG2wMjifjDRJbWSaW
4	Farah (W)	Oh you're right, I visited the website

As shown in Excerpt 4.22, when reviewing Ayat's compare-and-contrast essay on travelling with a tour vs. travelling alone, Farah doubted the grammaticality of the phrase "when travelling alone instead of travelling on a tour". Although the gerund phrase "when travelling" was functioning as the subject, she considered the subject missing and therefore resorted to *providing direct feedback*, asking Ayat to use a subject and verb after "when" instead of the gerund to complete the sentence (line 1). However, she seemed uncertain about the feedback she had provided and therefore resorted to *seeking clarification* from Ayat (line 2). To defend her choice, Ayat was observed referring to Google search and typing "clauses start with when". She visited the website www.qoura.com and carefully read the page entitled "can you start a sentence with when?". In addition, she edited the search to "when+ing" and opened www.usingenglish.com/forum, linking to a thread "when+ing / whilst+ing". After studying the multiple examples in the webpage, Ayat confidently responded to Farah,

confirming that her choice was not wrong and she incorporated the weblink in her response to justify her rejection of the feedback (line 3). The interview with both Ayat and Farah clarified their online behaviour:

> I did not know that when can be followed by (ing) and this can be the subject. I thought the subject was missing in her sentence, but when she sent me the weblink, I found that it could be a correct structure for the sentence. (Farah, stimulated recall)

> Farah was doubting the use of when+ing, but I was confident that it was correct. I searched it for validation too and sent to her the link to show her the example sentences from the Internet. (Ayat, stimulated recall)

Excerpt 4.23 [Maryam: reviewer; Rola: writer]

Original text		
There are those persons in your life who can improve your mood and share their enjoyment during the trip with you.		
Line	**Reviewer/ Writer**	**Episode**
1	Maryam (R)	I guess that you used literal translation from Arabic to English here, am I right?
2	Rola (W)	i do not think so.do you have any suggestions?
3	Maryam(R)	ahhh, for example, can make you in a good mood
4	Rola (W)	[Searching www.collinsdictionary.com] i have just checked it. and mine is not a literal one.It is completely correct
5	Maryam(R)	oh so I am wrong here, sorry for interruption :)))
6	Rola (W)	nevermind dear
7	Maryam(R)	Marked as resolved

In this episode, when reviewing Rola's compare-and-contrast essay about travelling with a tour vs. travelling alone, Maryam considered the phrase "improve your mood" to be a literal translation from Arabic but seemed unsure if she was right or wrong. Her uncertainty was expressed by the phrases "I guess" and "am I right?" Although Maryam sounded unconvinced, she asked Rola to provide her with another suggestion (line 2). In response, Maryam proceeded to suggest replacing the phrase "improve your mood" with "make you in a good mood" (line 3). Before deciding whether to accept or reject Maryam's suggestion, Rola was observed using Google search and typing "improve your mood", which led her to sample sentences in www.collinsdictionary.com. Rola confidently affirmed that she had checked the Internet and found the phrase she wrote was completely correct (line 4). The confidence in her affirmative response made Maryam realize that she was wrong and therefore she apologized for the confusion (line 5).

Excerpt 4.24 [Monica: reviewer; Norah: writer]

Original text		
There are many effects of unemployment such as mental health,crime, violence, and suicide cases etc.		
Line	**Reviewer/ Writer**	**Episode**
1	Noha (R)	It should be on
2	Monica (W)	[Searching Google] no , it is correct. search about it .
3	Noha (R)	[Searching Google] Sorry, I searched it . You are right.
4	Monica (W)	never mind .

In reviewing Monica's cause-and-effect essay on unemployment, Noha resorted to *providing direct feedback*, asking Monica to replace the preposition "of" with "on" in the phrase "effects of unemployment" (line1). Before responding, Monica searched Google, typing "effect of unemployment" and scrolling up and down to read the results, but without opening specific websites. Reading multiple examples from different contexts in Google search, she went back to Google Docs and confidently rejected Noha's comment (line 2), asking her to search the Internet in order to verify the point. As a result, Noha consulted Google search, typing "effect of". Like Monica, Noha was observed reading multiple sentences from Google without opening a specific weblink. She then apologized, confirming that she had also searched and found that she was wrong and Monica was right (line 3). She realized that she rushed in giving Monica incorrect feedback.

Excerpt 4.25 [Lara: reviewer; Noha: writer]

Original Text		
Nowadays, we are able to connect with anybody from any place thanks to the internet technology.		
Line	**Reviewer/ Writer**	**Episode**
1	Lara (R)	check this phrase, dear.
2	Noha (W)	what is the problem with it?
3	Lara (R)	i think it is communicate with- or contact with or connect only without adding wit
4	Noha (W)	[Searching www.theraus.com] [Searching www.thefreedictionary.com.] I checked it and found that it is right
5	Lara (R)	Ok

In Excerpt 4.27, Lara was reviewing Noha's argumentative essay about the Internet as a double-edged weapon and started off by *providing indirect feedback* to Noha, asking her to check a phrase without pointing out the problem (line 1). Noha sought clarification from Lara (line 2). In response, Lara *clarified* that the verb "connect" should not be followed by the preposition "with" and therefore suggested replacing it

with “communicate or contact with” or simply remove the preposition “with” (line 3). However, Noha did not rush to accept or reject Lara’s suggestion. Instead, she typed in Google search “connect with”. This led her to www.theraus.com and www.thefreedictionary.com. Based on her online search, Noha rejected Lara’s feedback and confirmed that she had checked the Internet and found her choice was right (line 4).

> I am not familiar with the phrase verb “connect with”. I have never heard of it. In the beginning, I asked her to doublecheck this verb, but I felt that she did not search it and that is why I searched the word and I found it was correct so I changed my mind. (Lara, follow-up interview)

Excerpt 4.26 [Nancy: reviewer; Diana: writer]

Original Text		
You can google any topic you want and in a matter of seconds you got a thousands of links where you can get the data you need		
Line	**Reviewer/ Writer**	**Episode**
1	Nancy (R)	i think you should say a couple of seconds. this sounds Arabic
2	Diana (W)	[Searching www.conjugator.reverso.net] no, it is a expression, used in Amr. English you can check this webside https://dictionary.cambridge.org/dictionary/english/a-matter-of-something
3	Nancy (R)	yes, i searched it and found it correct but it is unfamiliar for me
4	Diana (W)	not a big deal dude :D

As shown in the above excerpt, Nancy seemed unfamiliar with the phrase “a matter of seconds”. Therefore, she resorted to *providing direct feedback* to Diana, asking her to replace this expression with “a couple of seconds”, which seemed more familiar to her. She justified her feedback with the fact that the phrase “a matter of seconds” is a literal translation from L1 to L2 (line 1). Diana doubted the accuracy of this feedback and therefore referred to the *Cambridge Dictionary* to double-check the validity of Nancy’s feedback. After studying the information in the online dictionary, Diana realized that the phrase she had written was correct and Nancy was wrong. Therefore, she expressed the knowledge she had learned from the online dictionary, disagreeing with Nancy in her response and supporting this with an explicit mention of the online tool she used to validate Nancy’s comment (line 2). Nancy admitted that she had also conducted a search and realized that the phrase “a matter of seconds” was correct (line 3). To avoid a threat to face, Diana closed the episode by joking with the reviewer (line 4). In the stimulated recall, Diana commented:

> I know that there is an expression “in a matter of seconds”, but she was not convinced that it was correct. I searched it to prove it to her and I found it was right, so I put it to her to know that I was right.

The previous paragraphs have shown evidence that peer feedback supported with online tools provides students with opportunities to co-construct knowledge and pool their linguistic resources and thus make more accurate linguistic decisions. They also show how access to online tools enabled the peer reviewers in this study to be self-regulated learners and learn from online tools while at the same time giving feedback and providing mediated assistance to writers. Similar results were reported in a study conducted by Hsieh (2017), who found that access to online tools helped students accommodate their different learning needs and facilitated progress within their ZPD. Hsieh (2017) classified the dynamics of students' peer scaffolding with the support of online sources into three distinctive scaffolding patterns: peer-to-peer scaffolding, multi-directional scaffolding and individual scaffolding.

In this study, similar patterns of student interactions with online tools have emerged. More specifically, reviewers' and writers' interactions with each other and with online tools were either bi-directional or multi-directional. In light of the Vygotskian concept of mediation, Hsieh's (2017) classification has been adapted in this study to refer to mediation as either bi-directional (see Figure 4.2) or multi-directional (see Figure 4.3). Bi-directional mediation comprised either reviewer-to-writer or writer-to-reviewer mediation. In reviewer-to-writer mediation, reviewers sought support from online tools to validate their comments and mediate the writer's revision behaviour, whereas in writer-to-reviewer mediation, the writers referred to online tools to double-check the validity of the comments they received from reviewers and defend their writing choices in their responses to the reviewers.

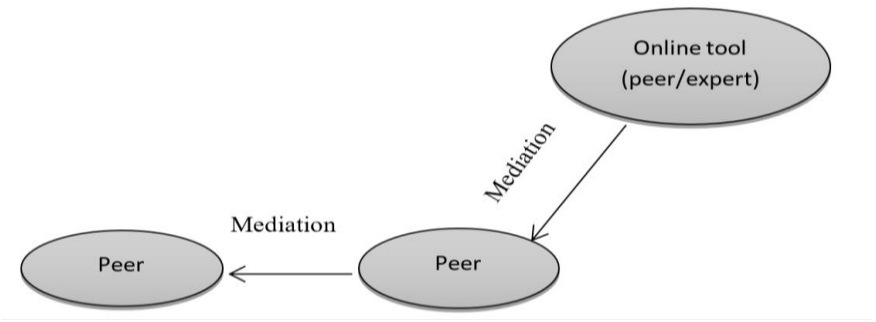


Figure 4.2 Bi-directional mediation

There were also patterns of multi-directional mediation, in which both writers and reviewers used both the language and online tools, whether implicitly or explicitly mentioned in their comments, to support their arguments and reach consensus.

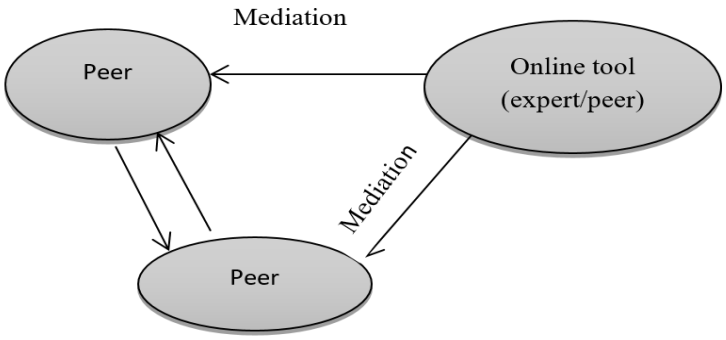


Figure 4.3 Multi-directional mediation

From the SCT perspective, multi-directional mediation occurs when the knowledge in question occur outside both writers' and reviewers' ZPDs. This is the place in which both writers and reviewers sought assistance from online tools in order to mediate their discussion. In so doing, multi-directional mediation lead to an expanded discussion among three parties: the reviewers, the writers and the expert (online tool). In this study, both multi-directional mediation writers and reviewers were able to meaningfully navigate the conversation with the support of online sources that helped extend their reflection and finally enabled them to reach consensus, as shown in Excerpt 4.11. Thus, mediation from online tools helped both the reviewer and the writer co-construct knowledge and create mutual thinking as they interacted with each other while revising the text with the backup of the online tools.

4.7 Further perceptions

As mentioned in Chapter 3, the interviews attempted to gain insights into the participants' views and reflections on conducting the peer feedback activities in the new context of Google Docs on the one hand and provide further support for the findings on the other. Students' attitudes towards peer feedback may play a role in how they participate in this activity (e.g. Rollinson, 2004). In what follows, further perceptions of the students' experiences using Google Docs are reported with examples from the participants' responses.

4.7.1 Online vs. traditional peer feedback

As mentioned previously, all participants in this study experienced the use of technology for peer feedback activities for the first time. When asked to share their perceptions of this new experience, they emphasized comparisons between the online and face-to-face contexts. They all expressed a preference for the online peer feedback

over traditional peer feedback for various reasons. All the participants noted the less stressful environment that technology affords in comparison to traditional peer feedback. They stated that it was difficult being explicit when exchanging peer comments with peer partners face to face. That is, they were always concerned about hurting each other's feelings when they exchanged peer feedback face to face. For example, Norah noted:

> I do not like to exchange peer review comments face to face; we feel shy critiquing each other's essays face to face and therefore we try not to hurt each other's feelings, but in the online mode, we express our opinions more freely. I personally do not feel shy when I receive critical comments online, because neither me nor the reviewer see each other and therefore we tend to become more brave.

Other students highlighted that online peer feedback allowed them to read essays at their own pace, with no place or time restrictions, whereas in the traditional face-to-face classroom, they might not get to read others' essays due to time constraints:

> Online peer feedback is definitely better than traditional peer feedback. Instead of swapping our paper drafts, we were sharing our written work and discussing our essays online at the same time. I could even give her permission to access my essay from her place and edit it. We could also do this while in different places or countries and at different times. (Noha, follow-up interview)

Some students noted that online peer feedback afforded opportunities to share their writing with multiple audiences beyond the classroom, including experts and more knowledgeable others, whereas it was not feasible to do the same in face-to-face mode. For example, Farah commented:

> Through a technological tool like Google Docs, I can share my writing with more than one person, like the teacher or any other more knowledgeable and expert audience, who can critically read and give more quality feedback on my essays in case I'm paired up with a peer who is not proficient enough to provide good feedback on my writing. As such, I would collect as much useful feedback as I can through technology. In the paper-based version, however, I can share my writing with only one audience. (Farah, follow-up interview)

Some students reported that in the traditional paper-pen peer feedback, they tend to cross out words and phrases when they find writing issues in their peer's essays and this was not a good experience for them. They view this a direct interference in the writer' essay. In contrast, Google Docs helped them provide feedback without violating the writer's territory using the commenting function. For example, Christine commented:

> To be honest, I hate how the paper looks like when errors are crossed out when giving feedback in a paper format. For me, using the suggesting mode in Google Docs was similar because I also used it to cross out words or phrases in my peer's text. That's why I rarely used it because I do not like someone to interfere in my text. Similarly, I do not like to do the same to another writer's text. It makes me feel frustrated when someone interferes in my text and crosses out words or phrases. It reminds me of those paper exams with red ink correcting mistakes. In addition, if I want to discuss the mistakes with my partner, there is no commenting function in paper-based feedback. (Christine, follow-up interview)

Some students also appreciated that Google Docs helped them revise their essays easily because they did not need to rewrite the whole essay again from the beginning, as was the case if they were revising their essays in paper mode. Diana explained that the relaxed and less threatening atmosphere of online peer feedback gave her a sense of openness and the freedom to discuss all the writing issues in her peer's essay:

> My feedback to my peer did not focus on a single language aspect. In fact, it targeted all aspects, such as grammar, spelling, development of ideas, organizational issues, such as whether the intro started with a grabbing sentence or not, the thesis statement was relevant or not, and so on. For me, the free and relaxing atmosphere in the online discussion I was engaged in with my peer motivated me to me target all writing aspects. I was not afraid or restricted. Google Docs allowed learners to share their writing with their peers more easily to edit, modify and revise texts. (Diana, follow-up interview)

4.7.2 Benefits to the reviewers

One of the perceived benefits of providing peer feedback most frequently reported by students was that reading and commenting on their peers' writing helped them recognize their own writing problems and avoid making them again in their future writing. Comments below from two students are illustrative:

> It was useful for me as a reviewer to give feedback in Google Docs because when I found a mistake in my peer's essay, I remembered the mistakes I always made as well and I paid attention to them and this helped me avoid making such mistakes in the future. (Farah)

> Sometimes I do not pay attention to my mistakes unless I see them in my peer's essay. If I were in her place, I would make these mistakes. (Aya)

This finding in particular is similar to that reported by a number of researchers (e.g. Carless & Boud, 2018; Kulsirisawad, 2012; McConlogue, 2015), who have found that reviewing the written work of peers helps students self-evaluate their own written work more effectively because they are constantly comparing their own work with that of others.

The reviewers expressed positive experiences concerning the improvement of their critical thinking skills when providing feedback to their peers. For example, Rola noted:

> The positive thing was that I became more critical. At the beginning, I used to provide superficial comments about local issues, like spelling, or full stops. But now I focus more on comments and her ideas, word choice. I suggest another idea or another word if I find the word is unsuitable in the context., issues in organization also. This has helped me become more critical in my writing too. I critique my writing with the same critical perspective. (Rola, stimulated recall)

Some students preferred their roles as reviewers rather than as writers. For example, Christine stated that her role reviewing motivated her to seek support through online searches, which helped her advance her understanding:

> Providing feedback on my peer's essay is more useful for me as a reviewer than as a writer, because every time I spot a mistake in her essay I search it online, I learn not to make it again myself because I might sometimes make the same mistakes she makes. (Christine, follow-up interview)

This finding aligns with Lundstrom and Baker's (2008) study, which surprisingly showed that students found providing feedback more beneficial than just receiving it.

In addition, students reported that reviewing their peers' written work helped them learn new vocabulary and improve their language skills, as noted by Maya:

> Reviewing my partner's essay has increased my language and cognitive skills. My language improved as I acquired new vocabulary from my peer. She was using a good wide variety of vocabulary and transitional words and phrases that were useful for me to learn and I used them in my essay too. I also learned some ideas from her essay that I added in my essay too (Maya, follow-up interview)

4.7.3 Benefits to the writer

Similar to students' positive responses concerning the value of providing peer feedback to their peers, the majority of students valued receiving feedback on their written work. They mentioned that receiving feedback helped raise their awareness of the issues in their writing. For example:

> Receiving feedback on my written work was a really useful experience because my partner could draw my attention to things that I had missed. It was like having a second eye reading my work and drawing my attention to my mistakes. It helped me think about the next sentence that I had to write, and also what I was writing at the time. I would leave sentences incomplete and go write another new sentence then go back and this caused me to make mistakes. (Lara, follow-up interview)

In addition, students mentioned that receiving peer feedback on their written work helped improve their grammar, mechanics, vocabulary and even ideas. Some examples are given below:

> It was helpful to receive feedback from my peer. I used to make spelling mistakes and she corrected these mistakes. Also, when she was discussing ideas with me, that was useful too. I used to write unclear sentences sometimes and she helped me in this. (Nancy, follow-up interview)

> I used to make mistakes with prepositions, write very long sentences, or unclear sentences and Basma helped me with this when she asked me to add examples, or a piece of information. After that, I considered all these mistakes when I wrote. I started focusing on writing connected ideas. (Diana, follow-up interview)

> My background in language has improved a lot because of online peer feedback. When sometimes my peer makes a comment that includes some words which are unfamiliar to me, I ask her about their meaning and she explains them to me, or when she asks me to search the Internet to find out the meaning of a word or search for a piece of information, it helps increase my vocabulary, my background information, and my ability to critique an essay too. (Norah, follow-up interview)

4.7.4 Benefits of Google Docs

When asked to provide specific comments on the ease of use of Google for online feedback, the students reported positive views about its feasibility and convenience as a platform for peer feedback activities. Although all the participants were unfamiliar with Google Docs prior to the study, the students reported that they found it relatively easy to use because it was quite similar to other word-processing programs, like Microsoft Word. For example:

> Although we did not have prior knowledge of using Google Docs, we found it pretty easy and straightforward because it is very similar to Microsoft Word. We are used to Word in our university assignments. (Diana, follow-up interview)

Similarly, Farah commented:

> Google Docs was easy for me because it shares similar features with Microsoft Word which we are trained to use, and gradually we got used to the features in Google Docs that are different from those in Microsoft Word. (Farah, follow-up interview)

> It's easy in terms of the feasibility of the direct highlighting and provision of the comments on the specific parts of the text I want to discuss with the writer. (Ayat, stimulated recall interview)

As stated in section 4.3, some students specifically praised the possibility of providing targeted in-text comments in Google Docs. Similarly, Monica, in the follow-up interview, praised how the commenting function facilitated spotting mistakes when she was revising them in her essay.

> I really liked the marginal comment bubble with this highlighting line that shows up in Google Docs whenever I make a comment about a specific part in my peer's essay. This made the writer's job of revising the text much easier because once they click the comment, they go directly to the part in the text that I mean.

In addition, students praised the handiness of built-in functions in Google Docs, such as the dictionary, which saved time instead of having to refer to dictionaries outside Goggle Docs or ask their partners. In the follow-up interview, Nancy commented:

> I used the Google dictionary. It was helpful instead of asking her about the meaning of some words every time or getting out of Google every time. It has everything in the same platform.

The majority of students also liked the way in which all changes they made in their drafts in Google Docs were automatically saved. This particular function saved them the worry of writing a draft and forgetting to save it or losing work in the case of the Internet connection dropping. For example, Maryam commented:

> Exchanging peer feedback through Google Docs is much better than using paper because the paper may get lost and it is a very old-fashioned technique, while in Google Docs my essay is automatically saved and I can go back to it at any time.

4.7.5 Drawbacks of Google Docs

Despite the perceived value and appreciation of Google Docs among participants, they reported experiencing technical difficulties in its use. Most of the participants experienced some difficulties in using Google Docs at the very beginning because of their insufficient technological skills, which hindered them from using certain features in the initial stage. For example, Sarah reflected:

> Since I had no prior knowledge of Google Docs, it was difficult to use the platform at the beginning. I did not know how to use it in writing, or in giving or responding to feedback, or using the built-in features in Google Docs like the dictionary. From the second task and with practice, it became easier and more convenient for the peer review task. (Sarah, follow-up interview)

Similarly, Maya stated:

> I had difficulty using it at the very beginning because I had not used it before, but after I had become familiar with its different features, I got used to it over time and found it straightforward and very easy to use. (Maya, follow-up interview)

One participant had difficulty using the Google Docs dictionary at the beginning:

> I did not know how to use the Google Docs dictionary, despite the training I received. I tried to open it and put in the word I was looking for. I was able to use it only by the end of the second session. (Maryam, follow-up interview)

A technical challenge that students faced when reviewing their partners' essays was that they could not copy words from the writer's text and paste them in the Google Docs dictionary to double-check the meaning before commenting on the writer's text:

> One of the potential problems that I faced in Google Docs was that when I was reviewing my comment before posting it to my partner, I could not copy a word when I wanted to double-check the meaning and paste it into the Google Docs dictionary to check its meaning. Therefore, I had to go out of Google Docs and use Google search a lot as an alternative option. This copy and paste function from the comment only worked when I was writing and not when I was reviewing my partner's essay. (Sarah, follow-up interview)

Also, some students experienced formatting issues in Google Docs. More specifically, one of the formatting issues they faced was odd spacing. That is, spaces between words seemed to be larger than normal spaces:

> I had formatting problems when I was writing my essay, like the inability to get rid of appropriate spaces between words. Every time I wrote a word and left a space, it gave a three-word sentence in which the spaces between words were much too big. This led to me receiving critical comments from my peer asking me to fix the spacing in my essay. When I tried to fix the issue by decreasing the wide spaces between words in response to her feedback, I found the words stuck together with the spaces eliminated. I do not know the reason for this issue, but I guess it's a technical issue in Google Docs. (Maya)

This section has shown that the students felt positive about giving and receiving peer feedback in Google Docs. While previous studies in peer feedback that have explored ESL/EFL learners from different cultural backgrounds, particularly Asian students (e.g. Carson & Nelson, 1996, 1998; Guardado & Shi, 2007), have reported negative attitudes towards this activity in both online and FTF contexts, the results of this study show that Arab EFL students are much more positive about peer feedback as a learning activity in L2 writing. The positive attitudes of the students towards Google Docs are also somewhat similar to reports in some other studies (Ebadi & Rahimi, 2017;

Seyyedrezaie, Ghonsooly, Shahriari, & Fatemi, 2016; Suwantarathip & Wichadee, 2014; Woodard & Babcock, 2014).

4.8 Summary of findings

The findings of this study show the impact of language and access to online resources as mediational tools on reviewers' and writers' performance in the provision of peer feedback and their text revisions. In terms of addressing the research questions, the main arguments emphasized are as follows: (i) students' negotiation and mediation through language and the use of online tools in the peer feedback process may contribute to the high frequency of full acceptance of peer feedback and thus trust in the application of peer feedback; (ii) reviewers' lack of confidence in themselves in giving feedback can be compensated by seeking support from online tools; (iii) writers' reluctance to accept their peers' feedback can be overcome through negotiation with peer reviewers and access to online tools. Similar gains from technology affordances for peer feedback were revealed in a study conducted by Wu (2019), who found that technology artefacts contributed to students' feedback quality because they used them to compensate for their limited English proficiency in peer feedback.

From an SCT perspective, the findings reveal the important role of language as a mediational tool in peer feedback, enabling reviewers to employ different types of mediating strategies and focus on various aspects of language, such as content, organization, word choice, etc. The crucial role of language as a symbolic tool in peer feedback has been identified in other previous research (e.g. Yang, 2014; Zhao, 2010). The reviewers in this study provided direct and reinforcement feedback and offered instruction in the form of mini lessons. In addition, to mitigate the serious atmosphere in peer feedback, they used strategies such as praising, advising and suggesting, as well as providing indirect feedback. The use of mitigating language in peer feedback that shows the value of using praise is consistent with Nelson & Schunn's (2009) findings, namely that praise and mitigation increase the likelihood of feedback implementation. These mediating strategies facilitated advancement within the writer's ZPD through the provision of assistance in the task and guided them to focus on particular writing issues that needed to be resolved (de Guerrero & Villamil, 2000).

This study has found that comments based on reviewers' own linguistic resources outnumbered those adopted or adapted from online resources due to their limited access

to technology in their particular context. However, the findings of this study showed that the online environment empowered reviewers and provided them with opportunities to double-check the peer feedback they provided through external tools (i.e. tools outside Google Docs), such as Google Translate, Oxford online dictionaries, etc., as well as using the built-in functions in Google Docs, such as the dictionary and spell checker. By observing peer reviewers' feedback provision with the support from online resources, it was found that they primarily opted to use search engines (e.g. Google search) due to their familiarity with this tool. The peer reviewers and writers used these online tools for various purposes in relation to different areas of feedback, such as searching for grammatically correct sentence structures and finding example sentences, checking the appropriateness of word use, and searching for synonyms and unknown words.

Owing to the synchronous line-in commenting function in Google Docs, which is next to the draft text, the findings of the study showed that reviewers and writers remained focused and on task most of the time. This finding is in contrast to other synchronous peer feedback studies occurred through the chat (e.g. Liang, 2010), which found that found higher focus on social conversations in synchronous interactions. Reviewers tended to focus on language issues (i.e. mainly grammar) rather than on content/meaning in providing feedback to their peers in Google Docs. This finding is consistent with Liu and Sadler's (2000) study, which found more online peer feedback on local areas than on global areas. However, this is in contrast to other studies, such as those of Jones et al. (2006), Pham and Usaha (2016), and Saeed and Ghazali (2016). This may be due to the EFL form-based writing instruction in the setting of this study. In terms of the quality of reviewers' comments, the findings show that most comments were revision oriented, similar to (Liou & Peng, 2009; Pham & Usaha, 2015). In addition, the findings showed that writers fully accepted and incorporated most of their peers' comments, consistent with Ting and Qian (2010), who found that 84.7% of revisions resulted from peer feedback.

Furthermore, the study provided insights into students' perceptions of using Google Docs for peer feedback in L2 writing. They all valued giving and receiving online peer feedback as a learning activity and therefore they were actively engaged in the peer feedback activities. As reviewers, the students noted that providing peer feedback helped give them a different perspective on their own written work, recognize the mistakes in their writing, get new ideas, etc. As writers, the students stated that

receiving feedback on their written work helped them improve their essays. The students' positive attitudes regarding the usefulness of peer feedback in this study influenced their acceptance of peer feedback in their subsequent drafts. Indeed, de Guerrero and Villamil (2000) argued that students' positive attitudes towards peer feedback as a learning activity could play a role in the establishment and maintenance of "intersubjectivity", i.e. sharing common perspectives and an equal degree of commitment to the peer feedback task, which is a vital condition for learning to occur within learners' ZPDs. Agreeing with Yu & Hu's (2016) view, this study found that when writers have positive attitudes towards peer feedback, they tend to engage in and benefit from this activity. This was achieved through various ways through seeking mediated assistance from peers as well as external online tools.

In terms of using Google Docs for peer feedback, it was perceived by students as a user-friendly tool due to its similarity with Microsoft Word. In addition, the students appreciated certain functions in Google Docs, such as the line-in commenting function that enabled them to target specific issues in their peers' drafts. However, some reviewers were not comfortable commenting on their peers' texts using the suggesting mode because they perceived this function amounted to direct interference in their text. They preferred using the chat function to remind each other to revise their essays or reply to their comments.

Chapter 5. Conclusion

5.1 Overview

Inspired by the SCT and the role of technology in mediating students' peer feedback activities, this multi-case study explored how Egyptian EFL students their learning when exchanging peer comments in Google Docs with the support of online tools such as language websites and dictionaries. As mentioned in Chapter 2, implementing peer feedback activity can be problematic in L2 contexts. One of the potential problems hindering the application of this activity is that reviewers do not feel sufficiently competent to give feedback to their peers and the comments provided are not always accepted or used by reviewees. Access to the Internet in online peer feedback has the potential to overcome these problems by providing reviewers and writers access to a range of online tools (e.g. online dictionaries and spelling and grammar checkers) while interacting with each other in giving and receiving feedback on their written work. Bearing this in mind, this study argued that online peer feedback scenarios in which students could produce comments enhanced by support from online tools would help empower peer reviewers to provide valid feedback comments and encourage writers to trust and accept their peers' comments. Accordingly, the aim of the study was to identify the affordances of Google Docs and use of online sources for peer feedback activities among Egyptian EFL university students. More specifically, it aimed to: (a) examine the types of peer feedback comments provided by reviewers in Google Docs; (b) consider how students mediated their peer feedback comments through the use of language and various online resources; (c) address how such mediation influenced the acceptance or rejection of feedback by the writers.

5.2 Summary of findings

The study highlighted the role of mediating tools or agents on which the Egyptian EFL students relied when participating in giving and receiving feedback on their written work through Google Docs. The Egyptian EFL peer reviewers relied mainly on language as an important tool that facilitated the process of providing peer feedback comments to the writers. The use of language enabled the reviewers to draw the writers' attention to errors in different language areas, in line with Min's (2005) description of

language as a useful tool for "constantly grappling with English in expressing […] ideas while composing academic essays" (p. 305). This is also supported by the suggestion that through using the language during peer feedback, students engage in "verbalization" or "languaging" (Knouzi, Swain, Lapkin, & Brooks, 2010; Swain, 2006; Swain & Lapkin, 2000), which is useful for students' language development.

In processing their peer feedback comments, the findings of the study showed that the reviewers employed various types of mediating strategies, such as clarifying, justifying, and providing direct feedback. Martin-Beltrán et al. (2018) found that peer feedback served as a mediational tool that facilitated the social process of writing when reviewers sought clarification or asked confirmation questions to ensure common understanding and writers disagreed or expressed misunderstanding and unshared knowledge. Among the mediating strategies that the reviewers employed, *providing direct feedback* was the one most commonly employed. The tendency to provide direct feedback was perhaps due to the fact that this is the kind of feedback they receive from their teacher in this particular context.

The findings of this study contribute to the broad area of technology use in peer feedback practice in more ways than one. For a start, research in the general area of feedback in second language learning has often identified the role of the more knowledgeable other and this has traditionally been the teacher. Peer feedback research suggests that students rely on their linguistic resources to interact and provide peer comments and it has been claimed that the nature of interaction and comments is generally governed by intervening factors, such as learners' language proficiency level, friendship and other factors. Studies have also reported low activity and sometimes unequal participation in peer feedback groups and dyads. In traditional peer feedback contexts, writers and reviewers rely primarily on their own linguistic background and possibly restricted discussions with their peers to resolve any uncertainties. The use of online resources opened up a window for both more and less knowledgeable peer reviewers and both skilled and less skilled writers to engage. As for reviewers, access to various web materials perhaps induced more knowledgeable reviewers to consolidate their linguistic resources before and during the process of peer commenting. In addition, less knowledgeable reviewers could consult various sources to make sure their

comments were accurate. This could minimize non-participation on the side of hesitant reviewers. Furthermore, consulting these sources also created opportunities for uptake when they read through online sources. Although examining the time taken in consulting online sources was beyond the scope of this study, it was clear that some reviewers spent time searching and checking more than one online source for each single comment (e.g. Christine). This observation was informally followed up in the stimulated recall. As for less skilled writers, the opportunity to check various sources potentially help them make an informed choice in terms of accepting or rejecting the comments on their work. Thus, the mediation afforded by online tools during the provision and processing of peer feedback seems to address some of the challenges of implementing peer feedback activities that have been identified in previous studies, including limited proficiency levels and lack of trust in reviewers' comments (e.g. Guardado & Shi, 2007). This observation is similar to that of Yim and Warschauer (2019), who argued that the affordances of technology provide an effective medium that helps compensate for students' limited L2 capacities.

The findings of the study also revealed that the unique design of the Google Docs platform influenced students' task orientation and commenting behaviour. Unlike the majority of synchronous online peer feedback studies that have utilized chat (e.g. Chang 2012; Ho, 2015; Liang, 2010), which is typically separate from the draft tool, the line-in commenting function in Google Docs provided next to the writing tool helped reviewers stay on task and generate more specific and revision-oriented comments that addressed specific problems in the writers' texts. Unsurprisingly though, the majority of the online revision-oriented comments generated by the Egyptian EFL students focused on issues of form rather than content and organization, with grammar dominating the majority of the comments. This finding aligns with previous research (Ge, 2011; Hanjani & Li, 2014) indicating a strong tendency among L2 students to focus on micro-level features such as grammar and mechanics during peer feedback.

An unanticipated finding was that the Egyptian EFL students who were used to a teacher-centred classroom and therefore were expected not to feel comfortable interacting with one another in a more student-centred environment, were generally positive in terms of their perceptions of online peer feedback. This finding suggests that

negative affective attitudes towards peer feedback are not a great source of concern in this context. The Egyptian EFL students' acceptance of a technology-mediated environment should be used to add to the pedagogical benefits of peer feedback. Students' positive attitudes in this study are in contrast to the negative perceptions often reported in previous FTF peer feedback studies (e.g. Deni & Zainal, 2011; F. Hyland 2000). The fact that the writers fully accepted and incorporated the majority of their peers' comments suggests they valued the feedback received from reviewers and trusted this activity.

The strength of this in-depth case study lies in the use and triangulation of multiple data sources, which provided contextualized insights into how the Egyptian EFL students conducted and perceived giving and receiving online peer comments in Google Docs. Unlike many previous peer feedback studies that relied on an experimental research design (e.g. Canham, 2018; Chen, Liu, Shih, Wu, & Yuan, 2011; Diab, 2011; Pham & Usaha, 2016; Rouhi & Azizian, 2013; Woo et al., 2013), this study's qualitative research approach helped provide an in-depth examination of how students' mediated their learning while giving and receiving peer feedback in Google Docs.

A methodological contribution of the study lies in its use of screen capture technology (SOM in this case), which was used to document the moment-by-moment on-screen actions performed by L2 students while engaged in online peer feedback activities as they unfolded in real time. This data collection tool was also used in the subsequent stimulated recall sessions and to triangulate and counter-check the authenticity of the data from other sources. Thus, a comprehensive analytical approach was used to capture students' complex peer feedback interactions in Google Docs and their access to online resources through the use of screen capture recordings (SOM). When complemented by the built-in functions in Google Docs, this innovative way of analysing the tangible peer feedback data captured the nuances and dynamics of the feedback processes and the use of online tools. Arguably, relying solely on data from Google Docs in the analysis would have meant that information on the influence of online tools in helping reviewers diagnose language problems and affecting the writers' revision behaviour would have been missed. In addition, complementing the analysis of students' interactions with the interview data enhanced the understanding of students' online behaviours.

5.3 Limitations and future research directions

This study has investigated students' interactions during the peer feedback process in Google Docs and the role of online resources in mediating their learning while engaged in giving and receiving online peer comments. The findings suggest that there are many other aspects and issues that await further investigation. In addition, the study unavoidably has some limitations. The following paragraphs acknowledge the limitations found in the study and, at the same time, proposes some suggested directions for researchers who might wish to extend understanding of the role of technology in mediating feedback and revision activities in future work.

The study adopted a small-scale design with a limited number of students (N = 14), who participated in this study on a voluntary basis. This small sample size may lead to a relatively limited observation of EFL students' behaviours and perceptions in writing contexts. There is a need to conduct replication studies that increase the sample size of participants in the Egyptian EFL context or other Arabic contexts to ensure the generalizability of the findings. In addition, the participants in this study were of the same proficiency level in English. Future studies could examine learners with different levels of proficiency. For example, a study involving advanced learners or mixed proficiency levels might yield different results.

Although the study did not aim to provide a full picture of peer feedback processes supported by access to multiple sources in online contexts, it adds to the existing literature on peer feedback by innovatively triangulating data from the built-in functions in Google Docs and screen capture recordings, which provided some insights into the complexity of the processes involved.

The study was exclusively limited to investigating online peer feedback activities concerning writing in a particular university-level context (in this case, the EFL university context in Egypt). Therefore, the findings might not be directly applicable to other language learning contexts. However, it is hoped that by adopting a case study approach, which allows for thick description of the participants' experiences, readers will be able to judge the transferability of the study. This limitation could be addressed

by conducting other studies in other contexts, in particular targeting a larger population over a longer period of time to enhance the generalizability of the findings.

The study did not use statistical analyses to measure the effectiveness of peer feedback and the use of online resources on students' writing development. This is because measuring whether or not students' writing performance improved as a result of participation in peer feedback activities in Google Docs was beyond the focus of this thesis. However, future studies could investigate how the online tools that students used affected the writing quality and the relationship between feedback quality and revision quality.

A further limitation was that the study relied mainly on the built-in functions in Google Docs, supported by screen capture recordings, to gather information on students' online behaviours within and outside Google Docs. The use of eye-tracking technology could have generated more detailed and interesting data regarding students' reading behaviours. Indeed, it could have added valuable data to the study in more ways than one. For a start, with regard to the reviewers, the use of eye tracking could have provided more details about the reading strategies that individual reviewers adopted, such as reading line by line or reading the whole text prior to producing local or global comments. Furthermore, eye tracking reviewers' fixations could have shown possible regions of interest and this would have helped understand why local comments were predominant among the pairs involved in this study. Similarly, this type of technology would have been informative in understanding how the writers read their reviewers' comments, i.e. which comments they seemed to read and how long their eyes rested on particular comments. This could also help understand writers' behaviours in subsequent drafts.

Although the students in this study undertook tasks in three different genres of writing, the study did not set out to examine the connection between the different task types and revision outcomes. Such an investigation would be helpful in deepening understanding of peer feedback in future research.

This research did not consider the different dynamics during their peer feedback interactions. Studies in peer feedback (e.g. Min, 2008) have shown that peer dynamics

have an impact on their revision outcomes. Future research could also highlight how students' stances influence their use of online resources in the peer feedback process and the impact of this interplay between students' stances and their use of online tools on revisions and writing quality.

The impact of screen capture recording on the students' performance during the online peer feedback interactions cannot be overlooked. The fact that the students were aware their interactions were being screen recorded could have affected their performance during the tasks. There was perhaps an element of social desirability, which "occurs when a respondent provides an answer which is more socially acceptable than his/her true attitude or behaviour" (Kaminska & Foulsham, 2014, p.3). In the follow-up interviews, one of the students commented: "I usually resolve the comments in grammar and spelling after I receive them from my peer, because I do not like them to be captured by the screen capturing recorder".

The study employed online peer feedback in the synchronous mode. Future studies could examine how mixed modes of communication (synchronous and asynchronous), employing chat tools (audio or video) and review features (comment and suggesting mode) in Google Docs might be used to provide peer feedback. These data could assist teachers in making better informed decisions by addressing the extent to which the design of the application can affect the quality of feedback and its uptake.

A key limitation was the exclusion of teacher feedback from the investigation. More knowledge of the teachers' roles in facilitating the pre-, during and post-stages of online peer feedback is needed. In particular, research could explore the types of comments generated by both teachers and students in Google Docs, their use of online tools in facilitating students' learning, their impact on revision and students' writing quality.

5.4 Implications

Despite the limitations, the study findings have significant pedagogical implications for effective integration of technology in peer feedback activities in L2 writing classes. This section discusses measures that could improve teachers' practices in using Google Docs for L2 peer feedback. The use of Google Docs technology and support from online tools proved to be valuable in facilitating the peer feedback activities undertaken in the

Egyptian EFL university writing classrooms. However, no technology can ultimately guarantee the success of peer feedback activities potentially conducive to language learning. In this study, the students' active participation and positive perceptions of the activities helped with their acceptance of and trust in the peer feedback process. Based on the findings of this study, the pedagogical implications for EFL teachers are highlighted in the following sub-sections.

5.4.1 Usefulness of Google Docs

One of the important implications of this study is the feasibility of undertaking online peer feedback in a foreign language teaching context that has often been described as exam-oriented, suffering from large classes and having limited resources. Teacher feedback on students' written work in these classrooms is often very limited. Therefore, in such a context, involvement in peer feedback is clearly better than only rare teacher feedback. As mentioned in Chapter 1, in the Egyptian EFL context, teacher-centered lectures and a focus on accuracy in language use continue to prevail. The emphasis on accuracy may be attributed to the examination-oriented culture. In such large classes (50 plus students), one instructor cannot manage instruction on a one-to-one basis. Providing feedback on the written work of each individual student is simply not a possibility. The implementation of conventional classroom-based peer feedback activities in these classes is problematic.

Furthermore, the usefulness of Google Docs as evidenced in this study argues for a more general call in the EFL context to introduce its use as a collaborative tool in peer feedback practice. The fact that this tool is very similar to Microsoft Word, which is familiar to instructors and students, means there is no need for intensive technical training, rather familiarization with how the tool can be employed by instructors to provide collaborative opportunities for students enrolled in such large classes. Incorporating peer feedback practice using Google Docs in writing classes could offer a rich new learning environment. This study has shown the usefulness of the Google Docs application as a tool that could help alleviate the pressure of teachers' workloads by increasing student-centred peer feedback practices. By facilitating the process of mediation between peers and exploiting the use of technology, learners are given opportunities to become competent reviewers of each other's work and this can

gradually reduce their overreliance on teachers. Indeed, the participants in this study showed enthusiasm for engaging in peer feedback and there were no dropouts, which suggests that students value peer feedback practice. Indeed, although this study did not investigate the impact of peer feedback on the individual writing ability of the participants in the study, their positive attitudes towards this activity encourage further research in relation to the impact of online peer feedback on students' academic writing performance.

5.4.2 Importance of well-structured training

To facilitate effective peer feedback, it would be beneficial for teachers to organize explicit well-structured training sessions on peer feedback and integrate them as part of the classroom culture before introducing the technology to the students. It is important to ensure students understand the process and are accepting by providing real examples of the potential value of peer feedback. Raising students' awareness of the potential value of peer feedback can encourage students to engage fully in the activities (Yu & Hu, 2016). Students not only need to be trained to provide feedback to peers, but particularly how to provide specific and constructive feedback that could lead to revisions. This can be achieved through modelling peer feedback as recommended by previous studies (e.g. Chang, 2015; Ferris & Hedgcock, 2005; Jacobs et al., 1998). In addition, the findings showed that the students focused more on language issues than content and organization. Research has suggested that peer feedback on micro-level features (e.g. grammar, mechanics) does not necessarily result in improvements in writing (e.g. Cho & MacArthur, 2010). Hence, it is crucial during the training that teachers highlight how to focus on the global areas of writing (content, idea development, rhetoric, organization) and emphasize the positive effects. Pham (2019) found that the number of online peer comments focused on local issues continued to reduce throughout the training and peer feedback activities.

In addition, well-structured technical training sessions in Google Docs can be introduced after the peer feedback training. Instructors will need to show students how the Google Docs platform aligns with the training they have received in peer feedback. This link is important to help students understand the purpose of using Google Docs for peer feedback and how it could support their learning. At the beginning of the Google

Docs training, the instructors may carefully explain the different features available in Google Docs (e.g. commenting, suggesting, chat, revision history) for peer feedback and model giving feedback in a Google document. In particular, it is strongly recommended that EFL teachers train learners to create Google Docs, write drafts and share them with their peers to exchange comments.

In addition, training should not be limited to the students. It is crucial to organize peer feedback training for writing instructors so that they can help students engage in effective peer feedback. They need to be oriented to students' commenting patterns and their writing problems. They also need to be trained in technology-enhanced platforms, Google Docs in particular. Teacher guidance is essential to address the challenges faced by peer feedback providers, such as how to comment on macro-level features (content and organization) across multiple writing tasks. Moreover, once made aware of the significant role that online tools can play as additional experts in the peer feedback process, teachers should raise students' awareness of the implementation and advantages of these tools. They should understand the theoretical underpinnings of the integration of peer feedback in writing instruction generally and the integration of technology for peer feedback specifically. This will help enable students to participate fully in online peer feedback.

5.4.3 Reconsidering teacher and student roles

The interplay between students' interactions and their use of online tools in this study may inform instructors seeking to integrate technology in peer feedback implementation in terms of reconsidering both their roles and their students' roles. As mentioned in Chapter 1, the Egyptian EFL context is still oriented to teacher-based lectures and a focus on accuracy. However, in line with SCT, course instructors should understand that they are not the only source of knowledge or necessarily best able to mediate student learning. It would be beneficial to help students trust their abilities as peer reviewers and give them opportunities to learn from each other, giving them greater autonomy. Hsieh (2017) noted that students' strategical use of online resources to accommodate their own learning needs could help promote such autonomy. Indeed, by integrating peer feedback supported by online tools, teachers can help encourage student-centred

practices and promote learner autonomy, which entails reducing their authoritative role in the writing classroom.

It also seems important for students to reconsider their roles in the writing class. They need to know that they should play an active role in the learning process by engaging as active peer reviewers and valuing their peers' comments and knowledge. Students in online peer feedback need to understand that they can seek support and help from different online sources that could affect their feedback quality and revision behaviour. They need to view themselves as active constructors of knowledge and to trust in this.

5.4.4 Developing literacy skills for effective use of online tools

In addition to highlighting the need for well-structured training in peer feedback and the use of online technology (Google Docs) (see section 5.4.3), to maximize the benefits of online feedback, teachers need to provide complementary instruction on the use of online resources such as dictionaries, thesauruses, translation tools and so on. Teachers, once aware of the role that access to online tools can play in students' interactions and revisions, should increase students' awareness and open up discussion about the implementation and advantages of these tools. They can foster successful mediation during peer feedback activities by supplying students with appropriate online resources, as well as guiding students in their use to facilitate writing development.

In this study, when seeking support from online tools during the peer feedback process, the students opted for open search engines, such as Google search, because they did not have sufficient knowledge of specific linguistic online tools that might have helped them locate the information they needed. In addition, as shown in excerpt 4.9, they tended to provide vague or incorrect comments, even after consulting online tools, which sometimes resulted in incorrect revisions. This finding suggests the need for teachers to guide students in locating online tools that they can use to find accurate information. In other words, there is a need for teachers to provide support with online sources, rather than leaving students to surf the Internet and search for content that might or might not be relevant. Teachers could compile a list of suitable sources for the students to consult.

Wuttikrikunlaya, Singhasiri, and Keyuravong, (2018) argue that low-proficiency students in particular should be guided on how to use different kinds of tool, such as monolingual dictionaries, search engines and encyclopaedias, and to use various strategies, not simply translating and checking the meaning of words/phrases/sentences. Teachers need to direct students' attention and show them how to synthesize information from websites. This also echoes the work of Coiro, Knobel, Lankshear, and Leu (2008), Hsieh (2020), and Hughes (2013), who proposed providing formal instruction in new literacy skills necessary in the information age. This could be done before students start the peer feedback activities to increase their ability to locate information effectively from specific linguistic resources and critically synthesize useful information that would help support their feedback provision and the revision process. As Lai, Yeung, and Hu (2016) note, teachers' training in the use of online resources to improve language learning and recommendations of useful resources can promote learners' self-directed use of online resources to maximize the potential of technology for language learning.

5.5 Final considerations

The study was carried out to respond to challenging issues frequently reported in implementing peer feedback in L2 contexts. As mentioned in Chapter 1, in a traditional teacher-centred context such as that in Egypt, implementing peer feedback activities can be problematic. This study has shown that when implemented electronically, peer feedback can be an effective hands-on experience that addresses these challenges and facilitates student learning. With a focus on mediational tool use, the study has also highlighted the role of language as a symbolic tool in peer feedback. The study has shown how online resources can play role of another expert peer interacting with writers and reviewers and providing them with extra support that could help mitigate the language proficiency gap. The findings enhance understanding of the processes involved in peer feedback and could also help classroom instructors consider the role that online sources might play in adding to both writers' and reviewers' learning experiences.

Appendix A: Information Sheets

Dear Participant,

My name is Yara Abdelaty and I am a PhD student in the Department of Education at the University of York in the UK. I am currently carrying out a PhD project exploring how EFL students perform when engaged in peer feedback activities in Google Docs.

You are being invited to take part in this research. However, it is important for you to read and understand why this research is being done and what it will involve. If you are happy to participate, you will be asked to sign a consent form.

I am particularly interested in exploring how you interact with your peers when engaged in synchronous online peer feedback activities in which you and your partner exchange comments on each other's writing through Google Docs, and your perceptions and experiences of interacting via this particular technology. If you participate in this research, you will learn how to use this technology. Furthermore, you will have the opportunity to practice writing in the Google Docs platform. Also, you have the opportunity to receive constructive feedback on your writing from your peers.

What will be involved in participation?

If you wish to participate in this research, you will be asked to:

- Fill out a short background questionnaire.
- Participate in an interview (approximately 25 minutes).
- Participate in online peer feedback activities in Google Docs in the university lab as part of the regularly scheduled writing course you are currently attending.
- Allow a screen capture software to record your on-screen behaviour while providing feedback on your peers' writing.
- Participate in a stimulated recall interview (approximately 15 to 20 minutes).
- Participate in a follow-up group interview (approximately 20 minutes) to help the researcher understand your perception and experiences.

Will my participation be confidential?

Any information you provide will remain confidential and all the data will be anonymised within two weeks after data collection and before it is communicated to anyone else, including my thesis advisory panel. The anonymised data will only be used for research purposes, and will be presented at conferences, in academic research journals, and other academic publications. Your confidentiality as a participant in this study will always remain secure.

How will you use my data?

Data will be stored on a password-protected computer and only the researcher and her supervisors will have access to it. Any identifying information will be destroyed at graduation and the anonymised data will be archived. The anonymous data might be used for research purposes and for academic conferences and publications. As a participant, you will have the right to request a copy of the transcript of the interview to review, comment, and delete items and information that you do not want me to include in the final report within three weeks after the interview. If you do not want your data to be included in any information shared as a result of this research, please do not sign this form.

Do I have to take part?

Your participation is completely voluntary. You can withdraw at any time during data collection and up to two weeks after the data have been collected by sending an email to the researcher by email (ysma500@york.ac.uk) who will remove any data collected from you.

Who can I contact if I have more questions?

If you have any questions about the study that you would like to ask before giving consent or after the data collection, please feel free to contact the researcher by email(ysma500@york.ac.uk), or the supervisors Zöe Handley (zoe.handley@york.ac.uk), or the Chair of Ethics Committee (education-research-administrator@york.ac.uk).

If you are happy to participate, please confirm by initialling the appropriate boxes and by signing your name at the end.

Please keep this information sheet for your own records.

Thank you for taking the time to read this information.

Yours sincerely,

Yara Abdelaty

Email: ysma500@york.ac.uk

Appendix B: Consent Form

Please initial each box if you are happy to take part in this research.

I confirm that I have read and understood the information given to me about the above named research project and I understand that this will involve me taking part as described in the information Sheet.	☐
I understand that the purpose of the research is to investigate how EFL students interact when engaged in peer feedback activities in Google Docs.	☐
I understand I can request a copy of the transcript of my interview to review And make any changes that I do not want the researcher to include in the final report within two weeks after the interview	☐
I understand that data will be stored securely on a password protected computer and only the researcher and her supervisors will have access to the anonymous data provided.	☐
I understand that the anonymous data will be used for research purposes, and for academic conferences and publications.	☐
I understand that my participation is voluntary and that I can withdraw at any time during data collection and up to two weeks after the data have been collected by sending an email to the researcher who will remove any data collected from me.	☐
I understand that any information which can be used to identify participants, will not be used in any way that can enable tracing responses to individual participants.	☐
I understand that this research has been reviewed by, and received ethics clearance from, the Ethics Committee at the Department of Education, University of York.	☐

Signature …… Date……

Appendix C: Student Background Questionnaire

Dear Students,

This questionnaire aims to gather some information about your English language level, prior experience of computer use, and experience of written Feedback. The answers that you provide here will be used for my research purposes and your personal information and all other information will be anonymized.

Section 1: Personal information:

Your name:…….
Your age:…….
Year of study: ……

Section 2: English language background:

Please tick (√) the best option that fits you for each item below?

1. How many years have you studied English?

❑ less than one year ❑ 1-3 years ❑ 3-5 years ❑ more than 5 years

2. **Was English major your first choice?**

❑ Yes ❑ No

3-How do you evaluate your English language skills in general?

❑ Poor ❑ Good ❑ Adequate ❑ Excellent

4- How would you evaluate your writing skill in English?

❑ Poor ❑ Good ❑ Adequate ❑ Excellent

5- Have you ever attended any English writing courses rather than the current course?

❑ Yes ❑ No

6. If your answer to question 5 is yes, what kind of activities were conducted in these writing courses?

❑ writing essays.
❑ instructor provides feedback on written work.
❑ peer feedback.
❑ multiple drafts.
❑ others, please identify what other activities you participated in ----------
---

Section 3: Background in Technology:

7- Do you own a computer at home?

❑ Yes ❑ No

8- Do you own an internet access at home?

❑ Yes ❑ No

9- How long have you been using the computer?

(Please choose the closest answer to your usage)

❑ Less than an hour
❑ Between 1 to 3 hours
❑ More than 3 hours
❑ Other (please tell me how many hours……)

10. How many hours a day do you spend using a computer (at home)?

(Please choose whichever category comes closest to the number of hours you spend on a computer)

❑ One year or less
❑ Between 2 to 5 years
❑ Between 6 to 9 years
❑ 10 years and more.

11. How would you rate your own computer/internet skills?

❑ Poor ❑ Good ❑ Adequate ❑ Excellent

12- How would you rate your typing skills?

❑ Poor ❑ Good ❑ Adequate ❑ Excellent

Section 4: Experiences with Peer Feedback

13- How often do you review and give feedback to a peer's written work?

❑ Frequently ❑ Occasionally ❑ Rarely ❑ Never

14- How would describe your attitude towards peer feedback in the writing course?

❑ Positive ❑ Negative ❑ Neutral ❑ Not Sure

15- Have you been trained on how to provide comments to a peer's written work?

❑ Yes ❑ No

16- Please indicate your degree of agreement against each statement by checking/ticking against one of the seven columns: SA = Strongly Agree, A = Agree, NS = Not Sure, D = Disagree, SD = Strongly Disagree

Question	Strongly agree	Disagree	Neutral	Agree	Strongly disagree
1. Peer Feedback is helpful in improving the quality of my written work.					
2. Writing multiple drafts of an essay is useful for developing my writing skills.					
3. I am confident in my ability to provide feedback to a peer's written work.					
4. I am confident in a peer's ability to provide feedback to my written work.					
5. Peer feedback can help facilitate the interaction between me and my peer					
6. Using a checklist for peer feedback helps me to provide useful feedback.					

Please answer the following questions:

17- In your opinion, what are the advantages of incorporating peer feedback in your English writing course?

……
……
……

18-In your opinion, what are the limitations of incorporating peer feedback in your English writing course?

……
……
……..

Thanks for your time!

Appendix D: Background Semi-Structured Interview Schedule

Topic	Examples of questions
The course	• How was the course? Did you enjoy your writing classes so far?
English language learning history	• Where did you study English? (e.g. at preparatory school, high school, and/or study abroad) • How have you studied English until now?
Own English language proficiency	• What do you think about your own English language proficiency?
Background in English writing	• Could you tell me about your experience of writing in English? How do you feel about writing in English? Prompts: What type of writing do you usually do in English? What are your strengths and weaknesses when writing in English? • Can you tell me what you usually do to write an essay? Prompts: Do you have any strategies you use when writing? Do you usually plan before you write?
Use of technology	• Do you have a computer at home? If yes, how do you evaluate your computer skills? Are you an internet user? If yes, how many hours a day do you spend using the internet? what technology do you regularly use? Prompt: Do you use technology such as email, blogs etc. /Can you tell me how you usually use them? (i.e., for what purpose)? Do you use technology such as Facebook, blogs, wikis etc./For what purpose? • What do you think of integrating technology in your current EFL writing course? Prompts: What technology do you think is beneficial for you as a student? What benefits do you see in the use of technology? What limitations do you see in the use of technology? • What is your understanding of Google Docs? Prompts: To what extent do you think you are familiar with Google Docs? Do you know how it works? Can you explain it?

Writing pedagogy and feedback practice and perception	• How is writing being taught in your current course? Prompts: Can you describe what activities you do in the current writing course? Does your instructor give feedback to your written work? If yes, … -how often? - what do your instructor emphasize? - How useful you find such instructor feedback? what limitation do you see? • Is peer feedback used in your writing course? Prompts: -Have you ever been asked to give feedback on an essay written by one of your peers? -If yes, when? -If no, • What do you think of integrating peer feedback into your current writing course? Prompts: Do you feel confident in your ability to provide feedback to a peer's written work? What benefits do you see in implementing peer feedback for you as a student? What limitation do you see?
Concluding marks	Do you have anything else you would like to say?

Appendix E: Follow-up Interview Schedule

Topic	Examples of questions
Overall experience	• Please tell me about your overall experience of giving and receiving peer feedback in Google Docs?
Use of Google Docs	• Was the use of Google Docs for giving and receiving feedbacks useful experience? Why and why not? • What did you like most about Google Docs? • What did you like the least? • Did you experience any difficulties in using with Google Docs?
Giving Peer feedback	• Did providing comments on your partner's written work useful to you? If so, how? If not, why not? • When you were providing feedback to your partner's written work, to what aspects such as content, organization, grammar, and word choice did you pay attention? • Why did you focus on content/organization/grammar etc? • When you were providing feedback to your partner's written work, did you use any online tools such as dictionaries or language websites? If yes, which online tools you found useful and why? • What challenges did you face while you are reviewing your peers' written work? How did you overcome them?
Responding to Peer feedback	• What do you think about your peer's comments during peer feedback? • When you were responding to your partner's comments, what type of comments you usually accept/reject and why? • What type of comments you found useful and why? • When you were responding to your partner's comments on your writing, did you use any online tools such as dictionaries or language websites? If yes, which online tools you found useful and why?
Concluding marks	Do you have anything else you would like to say?

Appendix F: Stimulated Recall Interview

A sample of stimulated recall interview schedule

Instructions

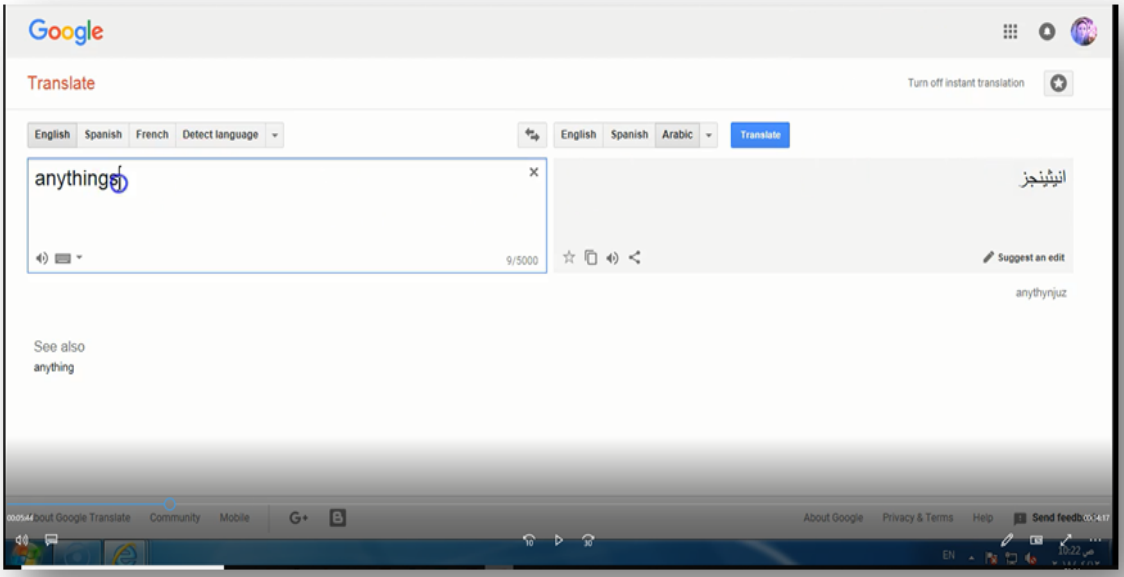
What we're going to do now is watch the video recording of what you were been doing in this peer feedback session. I am interested in what you were thinking while participating in this session. I am interested in your thoughts about giving feedback to your partner's essay, and also your thoughts about using your partner's feedback to revise. I can see what you were doing by looking at the video, but we don't know what you were thinking. So, what I'd like you to do is tell me what you were thinking, what was in your mind at that time while you writing. You can pause the video any time that you want by hitting the space bar. So, if you want to tell me something about what you were thinking, you can push pause. If I have a question about what you were thinking, then I will push pause and ask you to talk about that part of the video

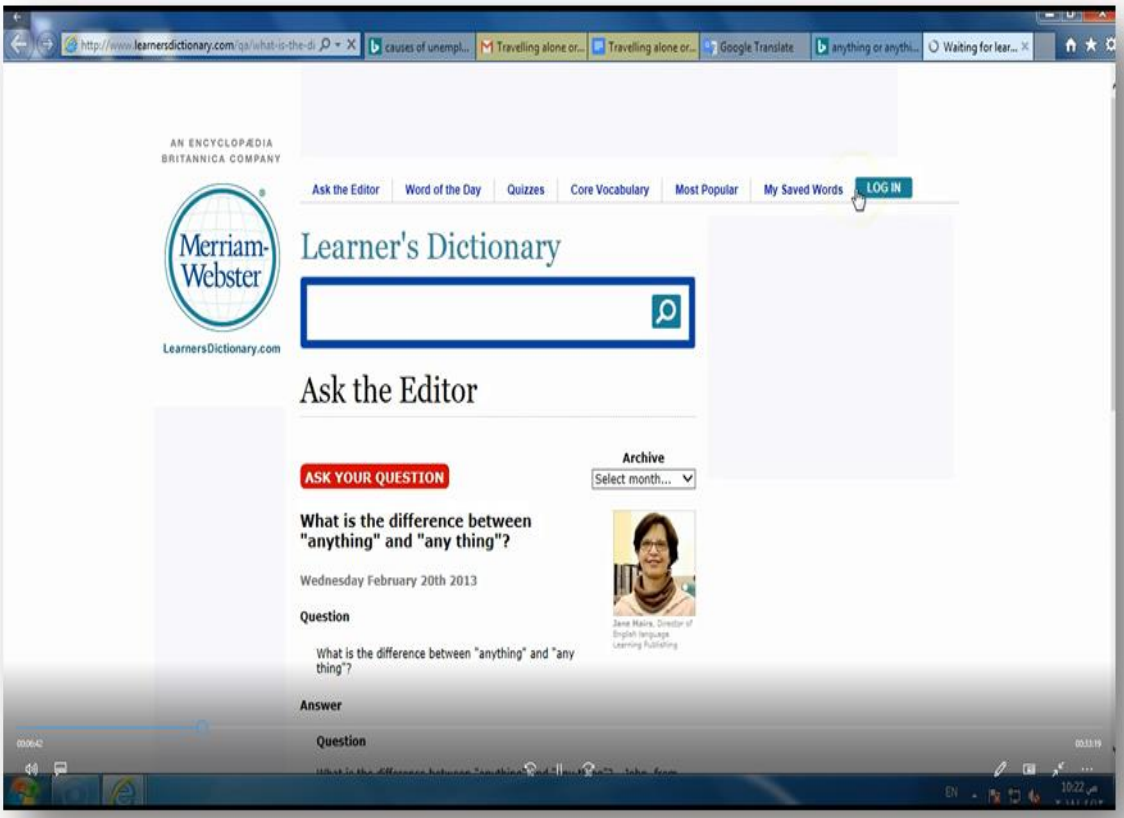
General Questions:

1. What do you think about you're your performance during this peer feedback session?
2. Do you remember encountering any specific problems? If so, how did you deal with these problems?
3. What do you think about your peer's comments during this peer feedback session?
4. What did you focus on in your peer feedback comments? Why did you focus on content/organization/grammar/mechanics/word choice?
5. Did you use any online tools (e.g. dictionaries, language websites, etc.) while giving feedback? If so, what were they?
6. Did you use any online tools (e.g. dictionaries, language websites, etc.) while receiving feedback? If so, what were they?

Sample screenshots of clips and questions from two different dyads.

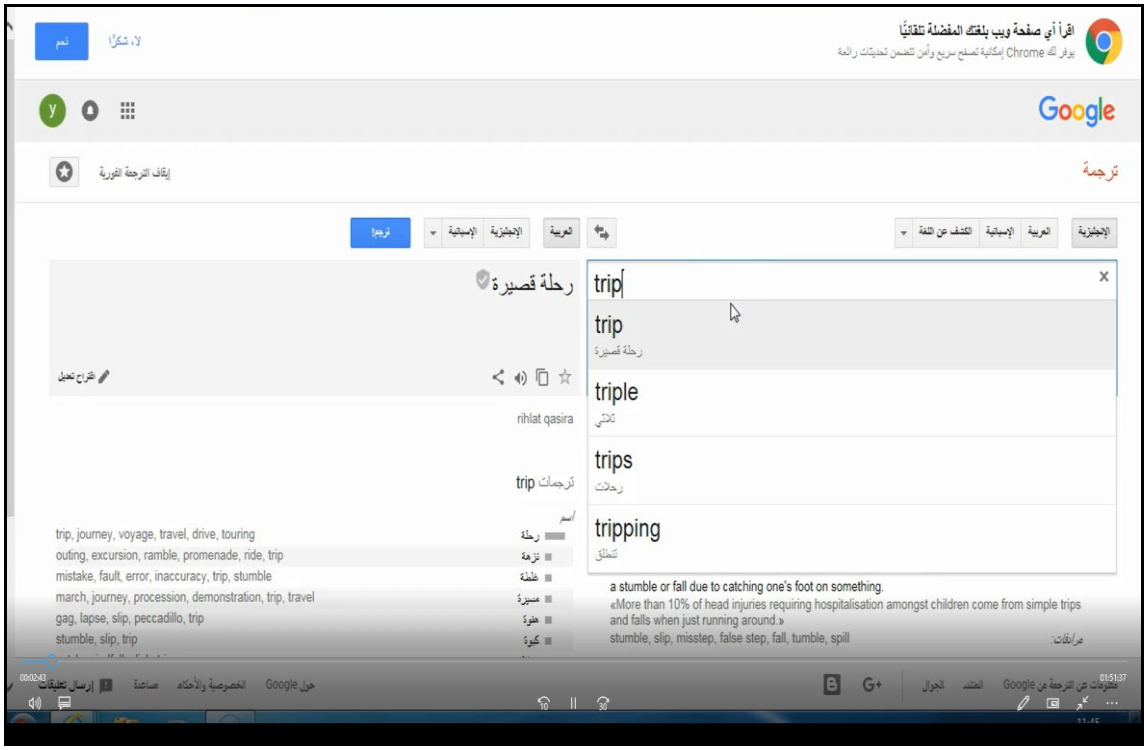
Dyad 1: Christine (the reviewer); Maya (the writer)





On-screen behaviour/Peer Review Interaction	**R/W**	**Timestamp**	**Stimulated Recall Questions**
[Searching Google Translate] [Searching www.learnerdictionary.com] Is it “anythings” or “anything”?	Christine (R)	10:23	Q1- I observed you searching the internet here. Can you explain why? Q2- I have a follow up question; I can see you cross-checking between different websites. Is there a reason for that?
[Searching www.dictionary.com] I think both are correct. Do you have any source?	Maya (W)	11:45	Q3- I can see you visiting this dictionary. Can you explain why? I observed
[Searching Google] It's incorrect. There is no such a word “anythings”. You can google the word or even try spell checker in Goole Docs	Christine (R)	11:48	Q4- Why did you search the internet here again?
Revised text → They want to do ~~anythings~~ anything	Maya (W)	11:57	Q5- What made you accept the feedback and revise the error here?

Dyad 2: Lara (the reviewer); Noha (the writer)



On-screen behaviour/Peer Review Interaction	**R/W**	**Timestamp**	**Stimulated Recall Questions**
[Searching Google Translate] delete (e) and weite (trip) https://translate.google.com/?hl=ar#en/ar/trip	Lara (R)	11:46	Q1- I observed you resorting to Google Translate. Can you explain why?
trip رحلة tripe امعاء	Lara (R)	11:46	Q2- Why did you use L1 here?
okay sorry i wrote it by mistake	Noha(W)	12:57	
never mind	Lara (R)	12:58	
Revised text	Noha (W)	11:57	Q3- Why did you accept to revise the error?
→ It was nice tripe, as I visited many places, and took a lot of photos. Have you ever travelled to any place?			

Appendix G: Training Hand-outs

Google Docs Training Handouts

Creating a Google Account

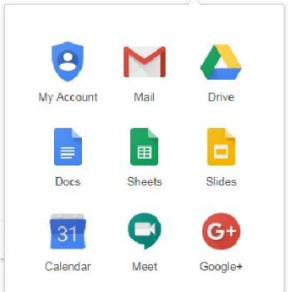
a) Go to http://www.google.com.
b) You will see the following page.

c) **If you have an existing Google account,** sign into Google Docs by simply enter your personal username and password, and then press Sign in

d) If you don't have a Google Account, click don't have a Google account below

Creating a New Document

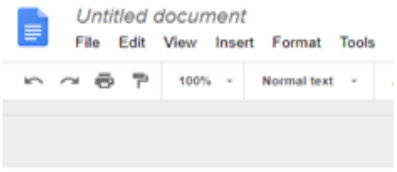
e) Once you have clicked on **Sign in**, you will see the Google search page. To access the Google Docs portion, click on **grid icon in the upper right.** Click the blue Docs icon



a. You are now ready to begin using Google Docs!

Renaming your Documents

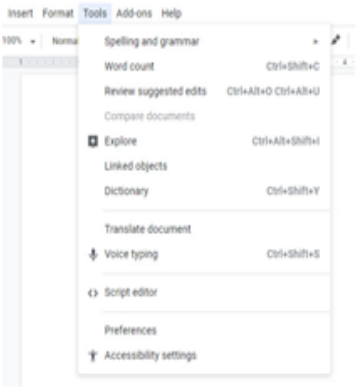
Click **untitled document** to name your doc.



Working with your Documents

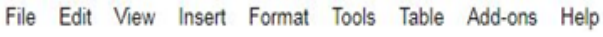
Like a **Microsoft Word**, there are many ways to edit your document with the edit toolbar.

In the menu bar, click on "**Tools**" that include running a spelling and grammar check, and dictionary. **You** can also **check** or uncheck the **options** to hide **spelling and grammar** errors



Insert Menu

The **Insert** menu in Google Docs gives you options to insert images, add links, comments, table, headers and footers. (You can also insert a table using the Table menu)

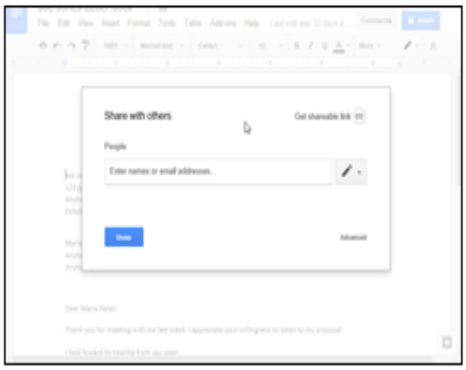


Sharing

Click the 

button in the upper right corner (below your email address)

You will see the following box



Type in the email address of the peer you would like to share your document with. Then, click the red circled icon to choose whether the people you shared your document with can either edit, only comment on, or only view your document

Get shareable link

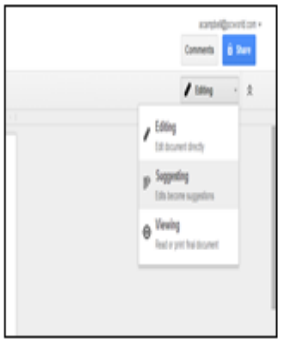
Commenting

To add a comment to your partner's essay, highlight or place your cursor next to text. Click either the comment icon in the toolbar or the one that appears on the righthand side of the document

A comment box opens up. Type in your comment and then click "Comment" to submit your notes.

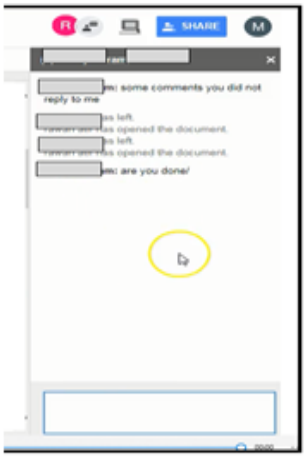
Suggesting

To turn on "**Suggesting" mode** in Google Docs, click the "Editing" button near the top. This function allows you to edit the text of a your peer, but only as a suggestion.



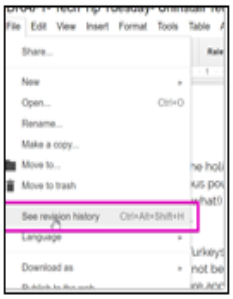
Chat Tool

To use the chat tool in **Google Docs**, click the chat icon next to the list of users. After clicking on the chat icon, a chat window will appear on the right of your screen.



Revision history

To check all the revisions you made in your document, click file, see revision history. A sidebar will open on the right side, detailing all of the recent document changes.

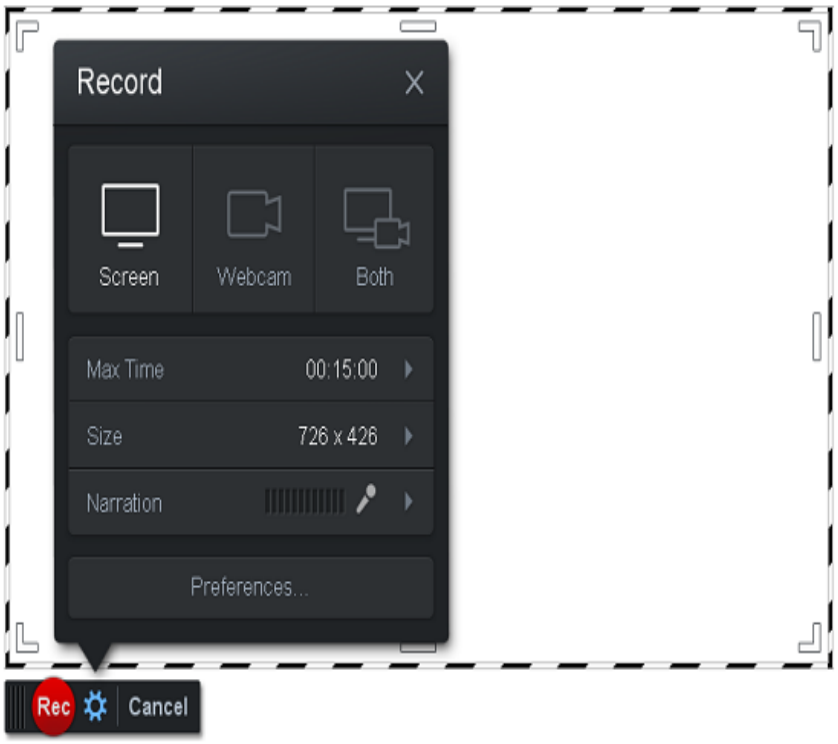


Screen -O-Matiac Training Handout

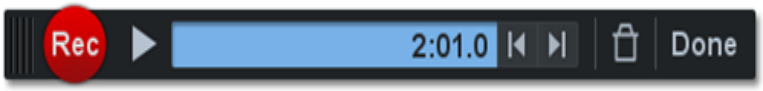
Step 1: Head to Start menu in Windows and open up **Screencast-O-Matic's Screen Recorder**.

Step 2. Click on **Start Recording**

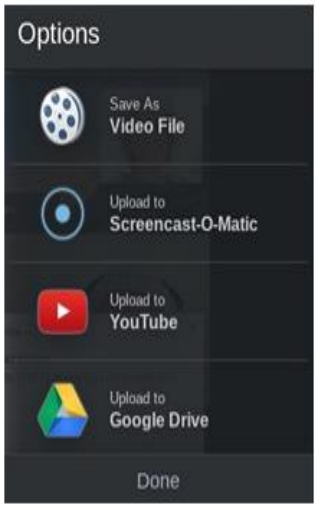
Step 3: Adjust the recording dotted frame to record the entire screen. All your actions within this frame will be recorded. You can pause the recording **by clicking the pause button.** You can also continue to record (by clicking on **Rec**)



Step 4: After you finish the task, click the Red Rec button at the left bottom corner and select Done.



Step 5: After you click Done, the new window will show to let you save your recording. Save File as mp4 video file and upload to your Google Drive with your Gmail account for easy sharing later.



Appendix H: Peer Feedback Checklists

Peer Feedback Checklist 1- Compare-and-Contrast Essay

Directions:

Read your partner's essay carefully focusing on the questions below (peer feedback questions). These questions will help you evaluate your partner's draft and suggest ways to improve his/her piece of work. Read the essay to the end before you start critiquing to get a sense of the essay. On the second reading, start giving comments to your partner's draft. Once you have finished reading and writing, have a discussion.

When you are the reviewer:

Start with a positive comment. Then be more critical because your aim is to help your partner improves her/his essay. Give enough feedback so that your partner knows you have read his/her work carefully. Revise your comments before posting them to your peer's draft. Make sure all your comments make sense and are easy to follow. If you think that there is a problem with the writing but are unsure, feel free to refer the writer to other online resources such as the Writing Studio, the OWL, Writing.com, etc.

When you are the writer:

Respond to your partner's comments about your essay. Ask questions if there is something you do not understand.

Peer Feedback Questions

The following questions will guide you to evaluate your partner's draft. The purpose of answering these questions is to suggest ways to make his/her writing better.

A. Content

- Is the whole content clear?
- Is the content logical? In other words, does each sentence lead smoothly to the next one?
- Is the main idea clear?
- Does the writer provide sufficient and relevant information or evidence for each topic?
- Does all the information relate to your main idea? Does the writer eliminate all redundant and irrelevant material?
- Is the purpose for a comparison or contrast evident and convincing?
- Does it address a specific audience?
- Are the words and sentences used appropriate for the intended audience and purpose?

B. Organization

I. Introduction:

- Does the writer provide a clearly a clearly defined introduction that grabs the readers' attention?
- Does the introduction lead smoothly to this thesis statement?
- Does the thesis statement clearly identify the focus of the essay—similarities or differences—and, if appropriate, contain clear, effective, and appropriate bases of comparison or contrast?

II. Body Paragraphs

- Does each body paragraph treat only ONE main idea?
- Does each paragraph contain a topic sentence that clearly states and identifies the specific topic to be addressed in this body paragraph and the focus of the paragraph –similarities (comparing), differences (contrasting), or both?
- Is it clear that each paragraph discusses similarities (comparing), differences (contrasting), or both?
- Does each paragraph end with a logical concluding sentence?
- Does the author use transition signals within and between the body paragraphs to help ideas flow smoothly from one to the next?
- Do the body paragraphs all relate to and support the essay's thesis statement?
- Are all of the supporting sentences in the body paragraphs RELEVANT to the topic? That is, do they have unity?
- Does the writer give a plenty of details, facts, and examples to help back up the topic and make significant points of comparison and/or contrast?
- Are the body paragraphs arranged in a logical order? That is, do they have coherence?

III. Conclusion

- Does the conclusion successfully signal the end of the essay?
- Does the conclusion restate the essay thesis?
- Does the conclusion summarize the topics being compared and/or contrasted?
- Does the conclusion leave the reader with the author's final opinion?

C. Vocabulary

- Does the writer use appropriate words and idioms?
- Does the writer use correct word forms?
- Does the writer use a wide range of vocabulary?
- Does the writer use words that enhance meaning?

D. Mechanics of Writing

- Does the writer spell word correctly?
- Have punctuation marks been used correctly?
- Do all sentences begin with a capital letter?
- Does the essay use correct paragraphing and indentation?

E. Grammar

- Does the writer use tenses correctly?
- Do subjects agree with verbs?
- Is the verb form used correctly?
- Does the writer use prepositions appropriately?
- Does the writer use articles correctly?

Peer Feedback Checklist (2): Cause-and-Effect Essay

Directions:

Read your partner's essay carefully focusing on the questions below (peer feedback questions). These questions will help you evaluate your partner's draft and suggest ways to improve his/her piece of work. Read the essay to the end before you start critiquing to get a sense of the essay. On the second reading, start giving comments to your partner's draft. Once you have finished reading and writing, have a discussion.

When you are the reviewer:

Start with a positive comment. Then be more critical because your aim is to help your partner improves her/his essay. Give enough feedback so that your partner knows you have read his/her work carefully. Revise your comments before posting them to your peer's draft. Make sure all your comments make sense and are easy to follow. If you think that there is a problem with the writing but are unsure, feel free to refer the writer to other online resources such as the Writing Studio, the OWL, Writing.com, etc.

When you are the writer:

Respond to your partner's comments about your essay. Ask questions if there is something you do not understand

Peer Review Questions

The following questions will guide you to evaluate your partner's draft. The purpose of answering these questions is to suggest ways to make his/her writing better.

A. Content

- Is the content clear?
- Do details follow a logical order?
- Is the main idea clear?
- Does all the information relate to your main idea? Does the writer eliminate all redundant and irrelevant material?
- Does the writer provide sufficient and relevant information?
- Does the essay have a clear and meaningful purpose?
- Does it speak to a specific audience?
- Are the words and sentences used appropriate for the intended audience and purpose?

B. Organization

I. Introduction:

- Does the writer provide a clearly defined introduction that grabs the readers' attention?
- Does the introduction state whether you are discussing the causes or effects?
- Does the introduction lead smoothly to the thesis statement?
- Does the thesis statement identify the main causes or effects?

II. Body Paragraphs

- Does each paragraph discuss only one cause (or effect) as stated in the thesis statement and is the order of the paragraphs the same as the thesis statement?
- Does each paragraph contain a topic sentence that clearly identifies either a cause or an effect?
- Is support for the causes (or effects) supported by facts, examples, or quotations?
- Does each paragraph end with a logical concluding sentence?
- Are appropriate transition signals used to indicate the relationship between a cause and an effect?
- Do the body paragraphs all relate to and support the essay's thesis statement?
- Are all of the supporting sentences in the body paragraphs RELEVANT to the topic? That is, do they have unity?
- Are the body paragraphs arranged in a logical order? That is, do they have coherence?

III. Conclusion

- Does the conclusion contain a suggested recommendation or prediction about the topic?
- Does the conclusion summarize the main causes or effects?
- Does the conclusion restate the thesis statement?
- Does the conclusion leave the reader with the author's final opinion?

A. Vocabulary

- Does the writer use appropriate words and idioms?
- Does the writer use correct word forms?
- Does the writer use a wide range of vocabulary?
- Does the writer use words that enhance meaning?

C. Mechanics of Writing

- Does the writer spell word correctly?
- Have punctuation marks been used correctly?
- Do all sentences begin with a capital letter?
- Does the essay use correct paragraphing and indentation?

D. Grammar

- Does the writer use tenses correctly?
- Do subjects agree with verbs?
- Is the verb form used correctly?
- Does the writer use prepositions appropriately?
- Does the writer use articles correctly?

Peer feedback Checklist (3): Argumentative Essay Writing

Directions:

Read your partner's essay carefully focusing on the questions below (peer feedback questions). These questions will help you evaluate your partner's draft and suggest ways to improve his/her piece of work. Read the essay to the end before you start critiquing to get a sense of the essay. On the second reading, start giving comments to your partner's draft. Once you have finished reading and writing, have a discussion.

When you are the reviewer:

Start with a positive comment. Then be more critical because your aim is to help your partner improves her/his essay. Give enough feedback so that your partner knows you have read his/her work carefully. Revise your comments before posting them to your peer's draft. Make sure all your comments make sense and are easy to follow If you think that there is a problem with the writing but are unsure, feel free to refer the writer to other online resources such as the Writing Studio, the OWL, Writing.com, etc.

When you are the writer:

Respond to your partner's comments about your essay. Ask questions if there is something you do not understand

Peer Review Questions

The following questions will guide you to evaluate your partner's draft. The purpose of answering these questions is to suggest ways to make his/her writing better.

A. Content

- Is the content clear?
- Do details follow a logical order?
- Is the main idea clear?
- Does all the information relate to your main idea? Does the writer eliminate all redundant and irrelevant material?
- Does the writer provide sufficient and relevant information?
- Does the essay have a clear and meaningful purpose?
- Does it speak to a specific audience?
- Are the words and sentences used appropriate for the intended audience and purpose?

B. Organization

I. Introduction:

- Does the writer provide a clearly defined introduction that grabs the readers' attention?
- Does the introduction lead smoothly to the thesis statement?
- Does the thesis statement clearly state both claim and counter claim of the debated issue?

II. Body Paragraphs

- Has the author acknowledged the opposing point of view in each of the supporting paragraphs?
- Has the author provided convincing evidence (facts, statistics, examples, quotations) to support his/her argument?
- Does each paragraph end with a logical concluding sentence?
- Are transition words (signals) used properly and do they help the paper move smoothly from one idea to another? Can you follow the writer's train of thought with ease?
- Do the body paragraphs all relate to and support the essay's thesis statement?
- Are all of the supporting sentences in the body paragraphs RELEVANT to the topic? That is, do they have unity?
- Are the body paragraphs arranged in a logical order? That is, do they have coherence?

III. Conclusion

- Has the writer restated his/her claim (position) in the conclusion?
- Does the conclusion summarize the author's main argument?
- Does the conclusion ultimately successful in convincing the reader to believe the writer's argument?
- Does the conclusion leave the reader with the author's final opinion?

C. Vocabulary

- Does the writer use appropriate words and idioms?
- Does the writer use correct word forms?
- Does the writer use a wide range of vocabulary?
- Does the writer use words that enhance meaning?

D. Mechanics of Writing

- Does the writer spell word correctly?
- Have punctuation marks been used correctly?
- Do all sentences begin with a capital letter?
- Does the essay use correct paragraphing and indentation?

E. Grammar

- Does the writer use tenses correctly?
- Do subjects agree with verbs?
- Is the verb form used correctly?
- Does the writer use prepositions appropriately?
- Does the writer use articles correctly?

References

AbuSeileek, A. & Abualsha'r, A. (2014). Using peer computer-mediated corrective feedback to support EFL learners' writing. *Language Learning & Technology, 18*(1), 76–95.

Achmad, D., & Yusuf, Y. Q. (2014). Observing Pair-Work Task in an English Speaking Class. *International Journal of Instruction, 7*(1), 151-164.

Ahmed, A., & Abouabdelkader, H. (Eds.). (2016). *Teaching EFL writing in the 21st century Arab world: Realities and challenges* (1ed). London: Palgrave Macmillan.

Ahmed, A., & Troudi, S. (2018). Exploring EFL writing assessment in an Egyptian university context: Teachers and students' perspectives. *Journal of Language Teaching and Research, 9*(6), 1229-1242.

Ahmed, A. M., Troudi, S., & Riley, S. (Eds.). (2020). Feedback in L2 English Writing in the Arab World: Inside the Black Box. Switzerland: Springer Nature.

Aldossary, M. (2017). *Peer feedback and the L2 writing of givers and receivers: a quantitative and qualitative longitudinal study involving Saudi students*. (Un published doctoral dissertation). The University of Melbourne, Australia.

Alghasab, M. (2015). *Student-Student collaboration in wiki mediated collaborative writing activities: Exploring EFL teachers' roles in the collaborative process.* (Unpublished doctoral dissertation). The University of York, United Kingdom.

Aljaafreh, A., & Lantolf, J. P. (1994). Negative feedback as regulation and second language learning in the zone of proximal development. *The Modern Language Journal, 78*(4), 465-483.

Allen, D., & Katayama, A. (2016). Relative second language proficiency and the giving and receiving of written peer feedback. *System, 56,* 96-106.

Allen, D., & Mills, A. (2014). The impact of second language proficiency in dyadic peer feedback. Language Teaching Research, 1-16.

Alnasser, S. M., & Alyousef, H. S. (2015). Improving the effectiveness of the peer feedback technique: The impact of focusing EFL student-writers on macro level features. *International Journal of English Language Education, 3*(1), 92-112.

Al Shahrani, A. & N. Storch. (2014). 'Investigating teachers' written corrective feedback practices in a Saudi EFL context: how do they align with their beliefs, institutional guidelines, and students' preferences?' Australian Review of Applied Linguistics 37/1: 101–22.

Alshuraidah, A., & Storch, N. (2019). Investigating a collaborative approach to peer feedback. *ELT Journal*, *73*(2), 166-174.

Amores, M. J. (1997). A new perspective on peer editing. *Foreign Language Annals, 30* (4), 513–523.

Anderson, P., Bergman, B., Bradley, L., Gustafsson, M., & Matzke, A. (2010). Peer reviewing across the Atlantic: Patterns and trends in L1 and L2 comments made in an asynchronous online collaborative learning exchange between technical communication students in Sweden and in the United States. *Journal of Business and Technical Communication*, *24*(3), 296-322.

Antes, T. A. (2017). Audio glosses as a participant in L2 dialogues: Evidence of mediation and microgenesis during information-gap activities. *Language and Sociocultural Theory*, *4*(2), 101-123.

Arndt, V. (1993). Response to writing: Using feedback to inform the writing process. In M. Brook & L. Walters (eds.), Teaching composition around the Pacific rim: Politics and pedagogy. Clevedon: Multilingual Matters, 90–116.

Aufa, F. (2019). *An Investigation of Blended Collaborative L2 Writing: A Focused Ethnographic Case Study in Indonesia*. Unpublished doctoral dissertation, University of Melbourne, Australia.

Badger, R., & White, G. (2000). A process genre approach to teaching writing. *ELT journal*, *54*(2), 153-160.

Baker, K. M. (2016). Peer review as a strategy for improving students' writing process. *Active Learning in Higher Education, 17*(3), 179-192.

Barbour, R. (2008). *Introducing qualitative research: A student guide to the craft of doing qualitative research.* London: Sage.

Baxter, S., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13*(4), 544-559.

Berg, E. C. (1999). The effects of trained peer response on ESL students' revision types and writing quality. *Journal of second language writing*, *8*(3), 215-241.

Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. Qualitative Research, 15(2), 219-234.

Berninger, V. W., Fuller, F., & Whitaker, D. (1996). A process model of writing development across the life span. *Educational Psychology Review*, *8*(3), 193-218.

Birjandi, P., & Hadidi Tamjid, N. (2012). The role of self-, peer and teacher assessment in promoting Iranian EFL learners' writing performance. *Assessment & Evaluation in Higher Education*, *37*(5), 513-533.

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qualitative health research*, *26*(13), 1802-1811.

Bitchener, J. (2012). A reflection on 'the language learning potential'of written CF. *Journal of Second Language Writing*, *21*(4), 348-363.

Bitchener, J., & Knoch, U. (2010). The contribution of written corrective feedback to language development: A ten-month investigation. *Applied linguistics*, *31*(2), 193-214.

Bitchener, J., & Storch, N. (2016). Written corrective feedback for L2 development. Bristol: Multilingual Matters.

Bradley, L. (2014). Peer-reviewing in an intercultural wiki environment-student interaction and reflections. *Computers and Composition*, *34*, 80-95.

Bradley, L., & Thouësny, S. (2017). Students' collaborative peer reviewing in an online writing environment. *Themes in Science and Technology Education*, *10*(2), 69-83.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Brine, J., Wilson, I., & Roy, D. (2007). Using Moodle and other software tools in EFL courses in a Japanese IT University. In 2007. 7th IEEE International Conference on Computer and Information Technology (pp. 1059–1064). IEEE.

Brooks, L., & Swain, M. (2009). Languaging in collaborative writing: Creation of and response to expertise. In A. Mackey & C. Polio (Eds.), Multiple perspectives on interaction (pp. 58–89). Mahwah, NJ: Erlbaum.

Brown. (2007). Teaching by Principles: an interactive approach to language pedagogy (3rd.Ed.). White Plains, New York: Pearson Education.

Byram, M. (2012). Intercultural competence. In C. A. Chapelle (Ed.), The encyclopaedia of applied linguistics: Blackwell Publishing Ltd.

Cao, Z., Yu, S., & Huang, J. (2019). A qualitative inquiry into undergraduates' learning from giving and receiving peer feedback in L2 writing: Insights from a case study. *Studies in Educational Evaluation*, *63*, 102-112.

Canham, N. (2017). Comparing Web 2.0 applications for peer feedback in language teaching: Google Docs, the Sakai VLE, and the Sakai Wiki. *Writing & Pedagogy*, *9*(3).

Carless, D., & Boud, D. (2018). The development of student feedback literacy: enabling uptake of feedback. *Assessment & Evaluation in Higher Education*, *43*(8), 1315-1325.

Cha, Y., & Park, L. E. (2010). An analysis of synchronous interaction and its influence on EFL writers' revisions. *Multimedia Assisted Language Learning*, *13*(2), 9–36.

Chang, C. F. (2009). Peer review through synchronous and asynchronous CMC modes: A case study in a Taiwanese college English writing course. *The JALTCALL Journal*, *5*(1), 45-64.

Chang, C. F. (2012). Peer review via three modes in an EFL writing course. *Computers and Composition 29(1)*, 63–78.

Chang, C. K., Chen, G. D., & Hsu, C. K. (2011). Providing Adequate Interactions in Online Discussion Forums Using Few Teaching Assistants. *Turkish Online Journal of Educational Technology-TOJET*, *10*(3), 193-202.

Chang, C. Y. H. (2015). Teacher modelling on EFL reviewers' audience-aware feedback and affectivity in L2 peer review. *Assessing Writing*, *25*, 2-21.

Chapelle, C. A., & Sauro, S. (2017). *Introduction to the handbook of technology and second language teaching and learning* (pp. 1-9). Oxford: Wiley-Blackwell.

Chen, K. T. C. (2012). Blog-based peer reviewing in EFL writing classrooms for Chinese speakers. *Computers and Composition-An International Journal for Teachers of Writing*, *29*(4), 280.

Chen, Y. L., Liu, E. Z. F., Shih, R. C., Wu, C. T., & Yuan, S. M. (2011). Use of peer feedback to enhance elementary students' writing through blogging. *British Journal of Educational Technology*, *42*(1), E1-E4.

Chen, P. J. (2014). *A case study on a cross-context asynchronous online writing tutorial: The mediated learning process for US-based tutors and L2 writers in Taiwan.* (Unpublished doctoral dissertation). University of Maryland, College Park.

Chi, M. T., Bassok, M., Lewis, M. W., Reimann, P., & Glaser, R. (1989). Self-explanations: How students study and use examples in learning to solve problems. *Cognitive science*, *13*(2), 145-182.

Cho, H. Y. (2018). *Synchronous small-group collaborative writing via web-based word processing: What facilitates or constrains learners to achieve their goals in summary reports?* (Unpublished doctoral dissertation). University of Toronto, Toronto, Canada.

Cho, K., Schunn, C. D., & Charney, D. (2006). Commenting on writing: Typology and perceived helpfulness of comments from novice peer reviewers and subject matter experts. *Written communication*, *23*(3), 260-294.

Ciftci, H. & Z. Kocoglu (2012). Effects of peer e-feedback on Turkish EFL students' writing performance. Journal of Educational Computing Research 46.1, 61–84.

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five designs* (2nd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into practice*, *39*(3), 124-130.

Coiro, J., Knobel, M., Lankshear, C., & Leu, D. J. (2008). Central issues in new literacies and new literacies research. *Handbook of research on new literacies*, 1-21.

Colpitts, B. D., & Past, T. H. (2019). A Comparison of Computer-Mediated Peer Corrective Feedback between High and Low-Proficiency Learners in a Japanese EFL Writing Classroom. *JALT CALL Journal*, *15*(2), 23-39.

Darwish, H. (2016). Teachers' attitudes and techniques towards EFL writing in Egyptian secondary schools. International Journal for 21st Century Education, 3(1), 37–5

De Guerrero, M. C. M., & Villamil, O. S. (2000). Activating the ZPD: Mutual scaffolding in L2 peer revision. *The Modern Language Journal, 84*(1), 51-68.

Deni, A., & Zainal, Z. (2011). Peer-editing practice in the writing classroom: Benefits and drawbacks. *Advances in language and literary studies*, *2* (2), 92-107.

Denzin, N. (1978). *The research art: A theoretical introduction to sociological methods*. New York: Praeger.

Diab, N. M. (2010). Effects of peer-versus self-editing on students' revision of language errors in revised drafts. *System, 38*(1), 85-95.

Diab, N. M. (2011). Assessing the relationship between different types of student feedback and the quality of revised writing. *Assessing Writing, 16* (4), 274–292.

Donato, R. (1994). Collective scaffolding in second language learning. In J. P. Lantolf and G. Appel (Eds.), Vygotskian approaches to second language research (pp. 33–56). Norwood, NJ: Ablex.

Donato, R. (2000). Sociocultural contributions to understanding the foreign and second language classroom. In J. P. Lantolf (Ed.), *Sociocultural theory and second langauge learning* (pp. 27-50). Oxford, UK: Oxford University Press.

Dornyei, Z., & Taguchi, T. (2010). Questionnaires in Second Language Research Construction, Administration and Processing (2nd ed.). New York Routledge.

Duff, P. (2008). *Case study in applied linguistics*. New York: Lawrence Erlbaum.

Ebadi, S., & Rahimi, M. (2017). Exploring the impact of online peer-editing using Google Docs on EFL learners' academic writing skills: A mixed methods study. *Computer Assisted Language Learning*, *30*(8), 787-815.

Ebener, S. (2017). Using Google tools to enhance secondary writing instruction. (Unpublished Master's thesis). Graduate Research Papers, University of Northern Iowa, USA.

Ellis, R., & Barkhuizen, G. (2005). Analysing Learner Language (pp. 253-277). New York: Oxford University Press.

El Ebyary, K. (2010). *Computer-based Feedback on Students' Written Work: The Washback Impact on Students and on Formative Assessment Practices* (Unpublished doctoral dissertation). University of Newcastle upon Tyne, United Kingdom.

Ene, E., & Upton, T. A. (2018). Synchronous and asynchronous teacher electronic feedback and learner uptake in ESL composition. *Journal of Second Language Writing*, *41*, 1-13.

Eu, J. (2017). Patterns of Google use in language reference and learning: a user survey. *Journal of Computers in Education*, *4*(4), 419-439.

Farrokh, P., & Rahmani, A. (2017). Dynamic assessment of writing ability in transcendence tasks based on Vygotskian perspective. *Asian-Pacific Journal of Second and Foreign Language Education, 2*(1), 10.

Fei, H. (2006). Students perceptions of peer response activity in English writing instruction. *Teaching English in China*, *29*(4), 48-52.

Ferris, D. (2005). Tricks of the trade: The nuts and bolts of L2 writing research. *Second language writing research: Perspectives on the process of knowledge construction*, 223-234.

Ferris, D. R. (1999). The case of grammar correction in L2 writing classes: A response to Truscott (1996). *Journal of Second Language Writing, 8*(1), 1–11.

Ferris, D. R. (2003). Response to student writing: Implications for second language students. London: Routledge.

Ferris, D. R. (2010). Second language writing research and written corrective feedback in SLA: Intersections and practical applications. *Studies in Second Language Acquisition*, *32*(2), 181-201.

Ferris, D. R., & Hedgcock, J. (2004). *Teaching ESL composition: Purpose, process, and practice*(2ned). New Jersey: Lawrence Erlbaum Associates.

Fitzgerald, J., & Markham, L. R. (1987). Teaching children about revision in writing. *Cognition and Instruction, 4*(1), 3–24.

Flower, L., & Hayes, J. R. (1980). The cognition of discovery: Defining a rhetorical problem. *College composition and communication, 31*(1), 21-32.

Flower, L., & Hayes, J. R. (1981). A Cognitive Process Theory of Writing. College *Composition and Communication, 32*(4), 365-387.

Fuccio (2014). Cloud power: Shifting L2 writing feedback paradigms via Google Docs. *Journal of Global Literacies, Technologies, and Emerging Pedagogies, 2*(4), 202-233.

Gabarre, C. & S. Gabarre (2012). Criteria for successfully recruiting online peer-tutors in foreign languages. *Asia Pacific Journal of Education, 32*(2), 197–223.

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). Educational research: An introduction (7th ed.). Boston, MA: Pearson.

Gass, S., & Mackey, A. (2000). *Stimulated recall methodology in second langauge research*. Mahwah, NJ: Lawrence Erlbaum Associates.

Ge, Z. G. (2011). Exploring e-learners' perceptions of net-based peer-reviewed English writing. *International Journal of Computer-Supported Collaborative Learning, 6* (1), 75–91.

Geiller, L. (2014). How EFL students can use Google to correct their ''untreatable'' written errors. *European Association for Computer Assisted Language Learning, 22*(2), 26–45.

Gere, A. R., & Stevens, R. S. (1985). The language of writing groups: How oral response shapes revision. In S. W. Freedman (Ed.), The acquisition of written language: Response and revision (pp. 85-105). Norwood, NJ: Ablex.

Grabe, W., & Kaplan, R. B. (1996). Theory and practice of writing: An applied linguistics perspective. Harlow: Pearson Education.

Große, C. S., & Renkl, A. (2007). Finding and fixing errors in worked examples: Can this foster learning outcomes?. *Learning and instruction*, *17*(6), 612-634.

Guardado, M., & Shi, L. (2007). ESL students' experiences of online peer feedback. *Computers and Composition*, *24*(4), 443-461.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, *2*(163-194), 105.

Hammond, J. (2001). *Scaffolding: Teaching and learning in language and literacy education*. Primary English Teaching Assoc., PO Box 3106, Marrickville, New South Wales, 2204, Australia.

Hanjani, A. M., & Li, L. (2014). Exploring L2 writers' collaborative revision interactions and their writing performance. *System*, *44*, 101-114.

Hansen, J. G., & Liu, J. (2005). Guiding principles for effective peer response. *ELT journal*, *59*(1), 31-38.

Hargreaves, A. (1997). Cultures of teaching and educational change. In *International handbook of teachers and teaching* (pp. 1297-1319). Springer, Dordrecht.

Harrell, E.(2012). Screencast-o-matic: www.screencast-o-matic.com. *Public Services Quarterly*, *8*(1), 62-63.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of educational research*, *77*(1), 81-112.

Harvey, L. (2015). Beyond member-checking: a dialogic approach to the research interview. *International Journal of Research & Method in Education, 38(1),* 23-38.

Hayes, J. R. (2000). A New Framework for Understanding Cognition and. *Perspectives on writing: Research, theory, and practice*. In R. Indrisano & J. R. Squire (Eds.), Perspectives on writing: Research, theory and practice (pp. 6-44).

Hewett, B. L. (2000). Characteristics of interactive oral and computer-mediated peer group talk and its influence on revision. *Computers and Composition*, *17*(3), 265-288.

Ho, M. C (2012). The efficacy of electronic peer feedback: from Taiwanese EFL students' perspectives. *International Journal of Arts & Sciences,* 5, 423-428.

Ho, M. C. (2015). The effects of face-to-face and computer-mediated peer review on EFL writers' comments and revisions. *Australasian Journal of Educational Technology*, *31*(1).

Ho, M., & Savignon, S. (2007). Face to face and computer-mediated peer review in EFL writing. *CALICO Journal*, *24*(2), 269-290.

Ho, P. V. P., Phung, L. T. K., Oanh, T. T. T., & Giao, N. Q. (2020). Should Peer E-Comments Replace Traditional Peer Comments? *International Journal of Instruction*, *13*(1), 295-314.

Hojeij, Z., & Baroudi, S. (2018). Student perceptions on peer feedback training using a blended method: A UAE case. *Issues in Educational Research*, *28*(3), 655-678.

Hsieh, Y. C. (2017). A case study of the dynamics of scaffolding among ESL learners and online resources in collaborative learning. *Computer Assisted Language Learning*, *30*(1-2), 115-132.

Hsieh, Y. C. (2020). Learner interactions in face-to-face collaborative writing with the support of online resources. *ReCALL*, *32*(1), 85-105.

Ho, M. C. (2015). The effects of face-to-face and computer-mediated peer review on EFL writers' comments and revisions. Australasian Journal of Educational Technology, 31(1), 1–15.

Hu, G. (2005). Using peer review with Chinese ESL student writers. *Language teaching research, 9*(3), 321-342.

Hu, G. & S. T. E. Lam (2010). Issues of cultural appropriateness and pedagogical efficacy: Exploring peer review in a second language writing class. *Instructional Science ,38*, 371–394.

Hughes, H. (2013). International students using online information resources to learn: Complex experience and learning needs. *Journal of Further and Higher Education, 35*(1), 126-146.

Huisman, B., Saab, N., Van Driel, J., & Van Den Broek, P. (2018). Peer feedback on academic writing: undergraduate students' peer feedback role, peer feedback perceptions and essay performance. *Assessment & Evaluation in Higher Education*, *43*(6), 955-968.

Hyland, F. (2000). ESL writers and feedback: Giving more autonomy to students. *Language teaching research, 4*(1), 33-54.

Hyland, K. (2003). *Second language writing*. Ernst Klett Sprachen. Cambridge: Cambridge University Press.

Hyland, K., & Hyland, F. (2006a). Feedback in second language writing: Contexts and issues. New York: Cambridge University Press.

Hyland, K., & Hyland, F. (2006b). Interpersonal aspects of response: Constructing and interpreting teacher written feedback. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 206-224). New York: Cambridge University Press.

Jacobs, G. M., Curtis, A., Braine, G., & Huang, S. Y. (1998). Feedback on student writing: Taking the middle path. *Journal of second language writing*, *7*(3), 307-317.

Jacobs, H. L., Zinkgraf, S. A., Wormuth, D. R., Hearfiel, V. F., and Hughey, J. B. (1981). *Testing ESL Composition: A Practical Approach. English Composition Program*. Rowley, MA: Newbury House Publishers, Inc.

Jalalifarahani, M., and Azizi, H. (2012). The Efficacy of Peer vs. Teacher Response in Enhancing Grammatical Accuracy & General Writing Quality of Advanced vs. Elementary proficiency EFL Learners. International Conference on Language, Medias and Culture, 33(2012), 88-92.

Jiang, Y. (2005). The Role of online peer review in learners' writing ability development. *Foreign language Teaching and Research*, *37*(3), 226-230.

Jiang, W., & Ribeiro, A. (2017). Effect of computer-mediated peer written feedback on ESL/EFL writing: A systematic literature review. *Electronic International Journal of Education, Arts, and Science (EIJEAS), 3*(6).

Jin, L. (2007). *Computer-mediated peer response in a level-IV ESL academic writing class: A cultural historical activity theoretical perspective.* (Unpublished Doctoral dissertation). University of South Florida, USA.

Jin, L. and Zhu, W. (2010) Dynamic motives in ESL computer-mediated peer response. *Computers and Composition, 27*(4): 284—303.

John-Steiner, V., & Mahn, H. (1996). Sociocultural approaches to learning and development: A Vygotskian framework. *Educational Psychologist, 31*(3-4), 191–206 Retrieved September 30, 2019, from https://doi.org/10.1207/s15326985ep3103&4_4

Johnson, D. M. (1992). Approaches to research in second language learning. New York: Longman.

Johnson, S., & Rasulova, S. (2017). Qualitative research and the evaluation of development impact: incorporating authenticity into the assessment of rigour. *Journal of Development Effectiveness*, *9*(2), 263-276.

Jones, R. H., Garralda, A., Li, C. S. D., & Lock, G. (2006). Interactional dynamics in on-line and face-to face peer-tutoring sessions for second language writers. *Journal of Second Language Writing*, *15*, 1–23.

Ibiamke, A., & Ajekwe, C. C. (2017). On Ensuring Rigour in Accounting Research. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *7*(3), 157-170.

Kamimura, T. (2006). Effects of peer feedback on EFL student writers at different levels of English proficiency: A Japanese context. *TESL Canada Journal*, 12-39.

Kang, Y.-S., & Pyun, D. O. (2013). Mediation strategies in L2 writing processes: A case study of two Korean language learners. *Language, Culture and Curriculum, 26*(1), 52–67.

Kellogg, R. T. (1990). Effectiveness of prewriting strategies as a function of task demands. *American Journal of Psychology, 103*, 327–342.

Kern, R. (2006). Perspectives on technology in learning and teaching languages. *TESOL Quarterly, 40* (1), 183-205.

Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. *Language Learning & Technology, 16*(1), 91-109.

Kim, M. (2018). A Case Study of Korean EFL Middle School Students' L2 Writing Assisted by Online Resources. (Unpublished Master's Thesis). Graduate School of Seoul National University, Seoul.

Knouzi, I., Swain, M., Lapkin, S., & Brooks, L. (2010). Self-scaffolding mediated by languaging: microgenetic analysis of high and low performers. *International Journal of Applied Linguistics, 20*(1), 23-49.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120-124.

Kowal, M., & Swain, M. (1994). Using collaborative language production tasks to promote students' language awareness. *Language awareness, 3*(2), 73-93.

Kubota, M. (2001). Error correction strategies used by learners of Japanese when revising a writing task. *System, 29*, 467–480.

Kulsirisawad, P. (2012). Developing learner autonomy in EFL writing classrooms via peer feedback. CULI National seminar 2012, Bangkok Thailand, November 19-20, 2012.

Kurihara, N. (2017). Peer review in an EFL classroom: Impact on the improvement of student writing abilities. *The Asian Journal of Applied Linguistics, 4*(1), 58-72.

Lai, C., Yeung, Y., & Hu, J. (2016). University student and teacher perceptions of teacher roles in promoting autonomous language learning with technology outside the classroom. *Computer Assisted Language Learning, 29*(4), 703-723.

Lam, R. (2010). A peer review training workshop: Coaching students to give and evaluate peer feedback. *TESL Canada Journal*, 114-114.

Lantolf, J. (2000a). Introducing sociocultural theory. In J. Lantolf (Ed.), *Sociocultural theory and second language learning*. Oxford, UK: Oxford University Press.

Lantolf, J. (2000b). Second language learning as a mediated process. *Language Teaching*, *33*(02), 79-96.

Lantolf, J. P., & Pavlenko, A. (1995). Sociocultural theory and second language acquisition. *Annual Review of Applied Linguistics*, *15*, 108-124.

Lantolf, J., & Thorne, S. (2006). *Sociocultural theory and the genesis of second language development*. Oxford, UK: Oxford University Press.

Lantolf, J., & Thorne, S. (2007). Sociocultural theory and second language acquisition. In B. V. Patten & J. Williams (Eds.), *Theories in second language acquisition* (pp. 201-224). Mahwah,NJ: Erlbaum.

Lantolf, J., Thorne, S. L., & Poehner, M. E. (2015). Sociocultural Theory and Second Language Development. In B. van Patten & J. Williams (Eds.), Theories in Second Language Acquisition (pp. 207–226). New York: Routledge.

Lee, I. (2008). Understanding teachers' written feedback practices in Hong Kong secondary classrooms. *Journal of second language writing*, *17*(2), 69-85.

Lee, J. Y. (2015). Collaborative Dialogues of Korean High School EFL Learners in Pair Writing. (Unpublished Master's Thesis). Graduate School of Seoul National University, Seoul.

Lee, M. K. (2015). Peer feedback in second language writing: Investigating junior secondary students' perspectives on inter-feedback and intra-feedback. *System*, *55*, 1-10.

Leeser, M. J. (2004). Learner proficiency and focus on form during collaborative dialogue. Language Teaching Research, 8, 55–81.

Lei, X. (2008). Exploring a sociocultural approach to writing strategy research: Mediated actions in writing activities. *Journal of Second Language Writing*, *17*(4), 217-236.

Lei, X. (2016). Understanding writing strategy use from a sociocultural perspective: The case of skilled and less skilled writers. *System*, *60*, 105-116.

Leki, I. (1990). Coaching from the margins: Issues in written response. In B. Kroll (Ed.), Second Language Writing: Research Insights for the Classroom (pp. 5768). New York: Cambridge University Press.

Lin, G. H. C., & Chien, P. S. C. (2009). An Investigation into Effectiveness of Peer Feedback. *Online Submission*, *3*, 79-87.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Liou, H. C., & Peng, Z. Y. (2009). Training effects on computer-mediated peer review. *System*, *37*, 514–525.

Liu, J., & Sadler, R. W. (2003). The effect and affect of peer review in electronic versus traditional modes on L2 writing. *Journal of English for Academic Purposes*, *2*, 193–227.

Lewis-Beck, M., Bryman, A. E., & Liao, T. F. (2003). *The Sage encyclopedia of social science research methods*. Sage Publications.Vol.2. Thousand Oaks, California: Sage Publications, Inc.

Lin, W. C., & Yang, S. C. (2011). Exploring students' perceptions of integrating Wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique*, *10*(2), 88-103.

Lin, W. C., & Yang, S. C. (2013). Exploring the Roles of Google. doc and Peer e-Tutors in English Writing. *English Teaching: Practice and Critique*, *12*(1), 79-90.

Liou, H. C., & Peng, Z. Y. (2009). Training effects on computer-mediated peer review. *System*, *37*, 514–525.

Liu, J., & Sadler, R. (2003). The effect and affect of peer review in electronic versus traditional modes on L2 writing. *Journal of English for academic purposes, 2*(3) 193-227.

Lundstrom, K., & Baker, W. (2009). To give is better than to receive: The benefits of peer review to the reviewer's own writing. Journal of Second Language Writing, 18, 30–43.

Ma, Q. (2017). A multi-case study of university students' language-learning experience mediated by mobile technologies: a socio-cultural perspective. *computer assisted language learning*, *30*(3-4), 183-203.

Mackey, A., & Gass, S.M. (2015). Second language research: Methodology and design (2nd ed.). London: Routledge.

Mangelsdorf, K. (1992). Peer reviews in the ESL composition classroom: What do the students think?. *ELT journal*, *46*(3), 274-284.

Marshall, C., & Rossman, G. (1989). *Designing qualitative research*. Newbury Park, CA: Sage.

Martin-Beltrán, M., Chen, P. J., & Guzman, N. (2018). Negotiating peer feedback as a reciprocal learning tool for adolescent multilingual learners. *Writing & Pedagogy*, *10*(1-2), 1-29.

Mavrou, K., Lewis, A. & Douglas, G. (2010) Researching computer-based collaborative learning in inclusive classrooms in Cyprus: The role of the computer in pupils' interaction. *British Journal of Educational Technology, 41*(3): 486–501.

Maxwell, J.A. (2013). Qualitative research design: An interactive approach, 3rd ed. Los Angeles: Sage.

Merriam, S.B. (1988a). *Case study research in education: A qualitative approach* (2nd ed.). San Francisco, CA: Jossey-Bass.

McConlogue, T. (2015). Making judgements: investigating the process of composing and receiving peer feedback. *Studies in Higher education*, *40*(9), 1495-1506.

Memari Hanjani, A. (2013). *Peer review, collaborative revision, and genre in L2 writing*. (Unpublished doctoral dissertation). University of Exeter, United Kingdom.

Merriam, S.B.(1998b). *Qualitative Research and Case Study Applications in Education. Revised and Expanded from" Case Study Research in Education."* Jossey-Bass Publishers, 350 Sansome St, San Francisco, CA 94104.

Mertens, D. M. (2010). Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods (3rd ed.). Thousand Oaks, CA: Sage.

Mertens, D. M., & McLaughlin, J. A. (2004). Research and evaluation methods in special education. Thousand Oaks, Calif.: Corwin Press.

Miles, M., & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.

Miles, M.B., Huberman, A.M. and Saldana, J. (2014) Qualitative Data Analysis A Methods Sourcebook. Sage, London.

Milton, J. (2006). Resource-rich web-based feedback: Helping learners become independent writers. *Feedback in second language writing: Contexts and issues*, 123-139.

Min, H. T. (2005). Training students to become successful peer reviewers. *System (33*) 2, 293–308.

Min, T. (2006). The effects of trained peer review on EFL students' revision types and writing quality. *Journal of second language writing, 15*, 118-141

Min, H-T. (2008). Reviewer stances and writer perceptions in EFL peer review training. *English for Specific Purposes,* 27, 285–305.

Moon, K., Brewer, T., Januchowski-Hartley, S., Adams, V., & Blackman, D. (2016). A guideline to improve qualitative social science publishing in ecology and conservation journals. *Ecology and Society*, *21*(3). Retrieved June 29, 2019, from www.jstor.org/stable/26269983.

Nelson, G. L., & Carson, J. (1998). ESL students' perceptions of effectiveness in peer response groups. *Journal of second language writing,7*, 113-132.

Nelson, G. L., & Murphy, J. M. (1993). Peer response groups: Do L2 writers use peer comments in revising their drafts? *TESOL Quarterly*, *27*(1), 135-141.

Nelson, M. M., & Schunn, C. D. (2009). The nature of feedback: How different types of peer feedback affect writing performance. *Instructional Science*, *37*(4), 375-401.

Nystrand, M. (1984). Learning to Write by Talking about Writing: A Summary of Research on Intensive Peer Review in Expository Writing Instruction at the University of Wisconsin-Madison.

Ohta, A. (2000). Re-thinking interaction in SLA: Develop-mentally appropriate assistance in the zone of proximal development and the acquisition of L2 grammar. In J. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 51-78). Oxford, UK: Oxford University Press.

Ohta, A. (2001). *Second language acquisition processes in the classroom: Learning Japanese.* Mahwah, NJ: Lawrence Erlbaum.

Padgett, D. (2008). Qualitative methods in social work research. Los Angeles: Sage Publications.

Partington, G. (2001). Qualitative research interviews: Identifying problems in technique. *Issues In Educational Research, 11*(2001), 32–44.

Patton, M. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.

Paulus, T. (1999). The effect of peer and teacher feedback on student writing. *Journal of Second Language Writing, 8(3),* 265-289.

Pham, V. H. (2019). The effects of lecturer's model e-comments on graduate students' peer e-comments and writing revision. *Computer Assisted Language Learning*, 1-34.

Pham, V. P. H., & Usaha, S. (2016). Blog-based peer response for L2 writing revision. *Computer Assisted Language Learning, 29*(4), 724–748.

Pham, T. N., Lin, M., Trinh, V. Q., & Bui, L. T. P. (2020). Electronic Peer Feedback, EFL Academic Writing and Reflective Thinking: Evidence from a Confucian Context. *SAGE Open*, *10*(1),1-20.

Pincas, A. (1982). Writing in English. London: Macmillan.

Prior, P. (2006). A sociocultural theory of writing. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), The handbook of writing re-search (pp. 54-66). New York, Guilford Press.

Qi, D. S. (1998). An inquiry into language-switching in second language composing processes. *The Canadian Modern Language Review, 54*, 413-435.

Rabiee, M. (2010). Iranian EFL Learners' Reactions to Different Feedbacks in Writing Classrooms: Teacher Written Comments (TWC) vs. Peer Written Comments. *The Journal of Applied Linguistics, 3*(2),176-207.

Rahimi, M. (2013). Is training students' reviewers worth its while? A study of how training influences the quality of students' feedback and writing. Language Teaching Research 17, 67–89.

Rahimi, M., & Noroozisiam, E. (2013). The effect of strategies-based instruction on the improvement of EFL learners' writing quality a sociocultural approach. *SAGE Open, 3*(2).

Richards, J. C. (2002). 30 years of TEFL/TESL: A personal reflection. RELC journal, 33(2), 1-35.

Richards, J. C., & Renandya, W. A. (Eds.). (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge university press.

Roberson, A. P. (2014). *Patterns of interaction in peer response: the relationship between pair dynamics and revision outcomes* (Unpublished doctoral dissertation). Georgia State University, Atlanta, Georgia.

Roux-Rodriguez, R. R. (2003). *Computer-mediated peer response and its impact on revision in the College Spanish Classroom: A case study*. (Unpublished doctoral Dissertation). University of South Florida, USA.

Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT journal*, *59*(1), 23-30.

Rouhi, A., & Azizian, E. (2013). Peer review: Is giving corrective feedback better than receiving it in L2 writing?. *Procedia-Social and Behavioral Sciences*, *93*, 1349-1354.

Ryoo, M. L., & Wing, M. L. (2012). Skill Level Based Cooperative Peer Feedback in EFL Writing Students. *Journal of Asia TEFL*, *9*(1).

Saeed, M. A., & Ghazali, K. (2017). Asynchronous group review of EFL writing: Interactions and text revisions. *Language Learning & Technology*, *21*(2), 200-226.

Saeed, M. A., Ghazali, K., & Aljaberi, M. A. (2018). A review of previous studies on ESL/EFL learners' interactional feedback exchanges in face-to-face and computer-assisted peer review of writing. *International Journal of Educational Technology in Higher Education*, *15*(1), 6.

Sawaya, Y., & Yokoyama, Y. (2013). The role of L2 learners' writing ability in peer review sessions from the perspectives of a reviewer and a writer. *ARELE: Annual Review of English Language Education in Japan*, *24*, 235-249.

Sayed, O. H. (2010). Developing Business Management Students' Persuasive Writing through Blog-Based Peer-Feedback. *English Language Teaching*, *3*(3), 54-66.

Seedhouse, P., & Almutairi, S. (2009). A holistic approach to task-based interaction. *International Journal of Applied Linguistics*, *19*(3), 311-338.

Seror, J. (2011). Alternative sources of feedback and second language writing development in university content courses. *Canadian Journal of Applied Linguistics, 14*(1), 118–143

Séror, J. (2013). Show me! Enhanced feedback through screencasting technology. *TESL Canada Journal, 30*(1), 104-116.

Seyyedrezaie, Z. S., Ghonsooly, B., Shahriari, H., & Fatemi, H. H. (2016). A Mixed Methods Analysis of the Effect of Google Docs Environment on EFL Learners' Writing Performance and Causal Attributions for Success and Failure. *Turkish Online Journal of Distance Education, 17*(3), 90-110.

Schaub, M. (2000). English in the Arab republic of Egypt. *World Englishes*, *19*(2), 225-238.

Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New directions for evaluation*, *2007*(114), 11-25.

Sengupta, S. (2001). Exchanging ideas with peers in network-based classrooms: An aid or a pain? *Language, Learning & Technology*, *5*, 103–134.

Sha, G. (2010). Using Google as a super corpus to drive written language learning: A comparison with the British National Corpus. *Computer Assisted Language Learning*, *23*(5), 377–393.

Shang, H. F. (2019). Exploring online peer feedback and automated corrective feedback on EFL writing performance. *Interactive Learning Environments*, 1-13.

Shih, R. C. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology, 27*(5), 829–845.

Skinner, J., Edwards, A., & Corbett, B. (2015). *Research methods for Sport Management*. (Foundations of Sport Management). London, UK: Routledge.

Slavkov, N. (2015). Sociocultural Theory, the L2 Writing Process, and Google Drive: Strange Bedfellows?. *TESL Canada Journal*, *32*(2), 80-94.

Sleim, S. & Ahmed, A. (2009). *Missing Electronic Feedback in Egyptian EFL Essay Writing Classes*. Online Submission, Paper presented at the Centre for Developing English Language Teaching (CDELT) Conference, Cairo, Egypt.

Smith, V. (1994). Thinking in a foreign language: An investigation into essay writing and translation by L2 learners. Tübingen, Germany: Verlag.

Srichanyachon, N. (2012). An investigation of university EFL students attitudes toward peer and teacher feedback. *Educational Research and Reviews*, *7*(26), 558-562.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.

Stake, R. E. (2006). *Multiple case study analysis*. New York, NY: Guilford.

Stanley, J. (1992). Coaching student writers to be effective peer evaluators. *Journal of Second Language Writing, 1*(3), 217-233.

Storch, N. (2001a). An investigation into the nature of pair work in an ESL classroom and its effect on grammatical development. PhD thesis, Department of Linguistics and Applied Linguistics, The University of Melbourne.

Storch, N. (2001b). How collaborative is pair work? ESL tertiary students composing in pairs. *Language Research Forum, 5*(1), 29-53.

Storch, N. (2002). Patterns of interaction in ESL pair work. *Language learning*, *52*(1), 119-158.

Strobl, C., & Satar, H. M. (2017). Spoilt for choice: A plethora of modes for electronic feedback on second language writing. *Writing & Pedagogy, 9* (3), 393-403.

Suryani, R. W., Rozimela, Y., & Anwar, D. (2019). Exploring the Effect of Peer Feedback and the Students' Perceptions of the Feedback on Students' Writing Skill. *International Journal of Secondary Education*, *7*(4), 116.

Suwantarathip, O., & Wichadee, S. (2014). The Effects of Collaborative Writing Activity Using Google Docs on Students' Writing Abilities. *Turkish Online Journal of Educational Technology-TOJET, 13*(2), 148-156.

Swain, M. (1998). Focus on form through conscious reflection. In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition*(pp.64-81). Cambridge, UK: Cambridge University Press.

Swain , M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 97-114). Oxford, UK: Oxford University Press.

Swain , M. (2006). Languaging, agency and collaboration In H. Byrnes (Ed.), *Advanced langauge learning: The contribution of Holliday and Vygotsky* (pp. 95-108). London: Continuum.

Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *Modern Language Journal*, 82, 320– 337.

Swain , M., & Watanabe , Y. (2013). Languaging: Collaborative dialogue as a source of second language learning. In C. Chapelle (Ed.), *The encyclopedia of applied linguistics*: Blackwell publishing.

Taprial, V. & Kanwar, P. (2012). Understanding social media. E-books Directory. Retrieved from www.bookboon.com.

Thompson, I. (2013). The mediation of learning in the zone of proximal development through a co-constructed writing activity. *Research in the Teaching of English*, 247-276.

Ting, M. E. I., & Qian, Y. (2010). A Case Study of Peer Feedback in a Chinese EFL Writing Classroom. *Chinese Journal of Applied Linguistics (Foreign Language Teaching & Research Press)*, *33*(4),87-98.

Tribble, C. (1996). Writing. Oxford: Oxford University Press.

Tsui, A., & Ng, M. (2000). Do secondary L2 writers benefit from peer comments? *Journal of second language writing, 9* (2), 147-170.

Vaezi, S., & Abbaspour, E. (2014). Implementing CLT in the Iranian context:"Reality" versus Theory. *Procedia-Social and Behavioral Sciences, 98*, 1905-1911.

Vaezi, S., & Abbaspour, E. (2015). Asynchronous online peer written corrective feedback: effects and affects. In *Handbook of research on individual differences in computer-assisted language learning* (pp. 271-297). IGI Global.

Van Steendam, E., Rijlaarsdam, G., Sercu, L., & Van den Bergh, H. (2010). The effect of instruction type and dyadic or individual emulation on the quality of higher-order peer feedback in EFL. *Learning and Instruction*, *20*(4), 316-327.

Villamil, O. S. (1994). Social-cognitive dimensions of interaction in L2 peer revision. *The Modern Language Journal*, *78*(4), 484-496.

Villamil, O. S., & De Guerrero, M. C. (1996). Peer revision in the L2 classroom: Social-cognitive activities, mediating strategies, and aspects of social behavior. Journal of Second Language Writing, 5(1), 51–75

Villamil, O. S., & De Guerrero, M. C. (1998). Assessing the impact of peer revision on L2 writing. *Applied Linguistics, 19*(4), 491-514.

Villamil, O. S., & de Guerrero, M. C. (2006). Sociocultural theory: A framework for understanding the social-cognitive dimensions of peer feedback. *Feedback in second language writing: Contexts and issues*, 23-41.

Vygotsky, L. (1978). *Mind in society. The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wakabayashi, R. (2013). The Effects of the Peer Feedback Process on Reviewers' Own Writing. *English Language Teaching*, *6*(9), 177-192.

Wang, H-C. (2007). Using weblogs as a peer review platform in an EFL writing class. Proceeding of the 24th international conference on English teaching and learning in ROC. National Chengchi University.

Wang, W. (2014). Students' perceptions of rubric-referenced peer feedback on EFL writing: A longitudinal inquiry. *Assessing Writing, 19*(0), 80–96.

Ware, P. D. (2004). Confidence and competition online: ESL student perspectives on web-based discussions in the classroom. Computers and Composition, 21(4),451-468.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. Modern Language Journal, 81(4), 470–481.

Warschauer, M. (2002). Networking into academic discourse. Journal of English for Academic Purposes, 1(1), 45-58.

Watanabe, Y. (2008). Peer–peer interaction between L2 learners of different proficiency levels: Their interactions and reflections. *Canadian modern language review*, *64*(4), 605-635.

Wei, X. Q. (2016). An Investigation into Scaffolding Functions of Learners' Dictionaries in L2 Writing Teaching. Journal of Lexicography, 3, 1-10.

Wertsch, J. V. (1998). Mind as action. New York: Oxford University Press. Chicago.

Wertsch, J. V. (2007) 'Mediation', in H. Daniels, M. Cole and J. V. Wertsch (eds) The Cambridge Companion to Vygotsky. New York: Cambridge University Press, pp. 178–92

White, R., & Arndt, V. (1991). Process Writing. Harlow, UK: Longman.

Wigglesworth, G., & Storch, N. (2009). Pairs versus individual writing: Effects on fluency, complexity and accuracy. *Language Testing*, *26*, 445-466.

Wolfersberger, M. (2003). L1 to L2 writing process and strategy transfer: A look at lower proficiency writers. *TESL-EJ, 7*(2), 1-12.

Woo, M., Chu, S., & Li, X. (2013). Peer-feedback and revision process in a wiki mediated collaborative writing. *Educational Technology Research and Development, 61*(2), 279-309.

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of child psychology and psychiatry*, *17*(2), 89-100.

Wu, Z. (2019). Lower English proficiency means poorer feedback performance? A mixed-methods study. *Assessing Writing*, *41*, 14–24.

Wuttikrikunlaya, P., Singhasiri, W., & Keyuravong, S. (2018). The use of online tools in L2 writing: A study of Thai university students. *Journal of English Language Teaching and English Linguistics*, *30*(1), 107-148.

Xiao, Y., & Lucking, R. (2008). The impact of two types of peer assessment on students' performance and satisfaction within a Wiki environment. *The Internet and Higher Education*, *11*(3-4), 186-193.

Xu, Y. & Liu, J. (2010). An investigation into anonymous peer feedback. *Foreign Language Teaching and Practice, 3,* 44–49.

Yang, L. (2014). Examining the mediational means in collaborative writing: Case studies of undergraduate ESL students in business courses. *Journal of Second Language Writing*, *23*, 74-89.

Yang, M., Badger, R., & Yu, Z. (2006). A comparative study of peer and teacher feedback in a Chinese EFL writing class. *Journal of second language writing, 15*, 179-200.

Yang, C. C. R. (2010). Using Google Docs to facilitate collaborative writing in an English language. *TESL-EJ*, *14*(3), 1-8.

Yang, Y. F. & Wu, S. P. (2011). A collective case study of online interaction patterns in text revisions. *Educational Technology & Society, 14,* 1–15.

Yeh, H. C. (2014). Exploring how collaborative dialogues facilitate synchronous collaborative writing. *Language Learning & Technology, 18*(1), 23-37.

Yim, S., Warschauer, M., Hyland, K., & Shaw, P. (2019). Student Initiating Feedback: The Potential of Social Media. *Feedback in Second Language Writing: Contexts and Issues, Cambridge*, 285-304.

Yim, S., Zheng, B., & Warschauer, M. (2017). Feedback and revision in cloud-based writing: Variations across feedback source and task type. *Writing & Pedagogy, 9*(3), 517–553.

Yin, R. (2003). Designing case studies. In L. Maruster & M. J. Gijsenberg (Eds.), Qualitative Research Methods (pp. 359–386). London: Sage.

Yin R. (2014). Case study research: design and methods (5th ed.). Thousand Oaks, CA: Sage.

Yu, S. (2019). Learning from giving peer feedback on postgraduate theses: Voices from Master's students in the Macau EFL context. *Assessing Writing, 40,* 42-52.

Yu, S., & Hu, G. (2017). Can higher-proficiency L2 learners benefit from working with lower-proficiency partners in peer feedback?. *Teaching in Higher Education*, *22*(2), 178-192.

Yu, S. & I. Lee (2014). An analysis of EFL students' use of first language in peer feedback of L2 writing. *System, 47*, 28–38.

Yu, S. & I. Lee (2015). Understanding EFL students' participation in group peer feedback of L2 writing: A case study from an activity theory perspective. Language Teaching Research 19, 572–593.

Yu, S., & Lee, I. (2016a). Exploring Chinese students' strategy use in a cooperative peer feedback writing group. *System, 58,* 1–11.

Yu, S., & Lee, I. (2016b). Peer feedback in second language writing (2005–2014). *Language Teaching*, *49*(4), 461-493.

Yu, S., Lee, I., & Mak, P. (2016). Revisiting Chinese cultural issues in peer feedback in EFL writing: Insights from a multiple case study. *The Asia-Pacific Education Researcher*, *25*(2), 295-304.

Zamel, V. (1983). The composing processes of advanced ESL students: Six case studies. *TESOL quarterly*, *17*(2), 165-188.

Zamel, V. (1985). Responding to student writing. *TESOL Quarterly, 19*(1), 79-101.

Zamel, V. (1987). Recent research on writing pedagogy. *TESOL quarterly*, *21*(4), 697-715.

Zhang, X. (2018). Innovating Selection and Use of Online Writing Resources for EFL Students: A Systemic Functional Linguistic Perspective. *International Journal of Emerging Technologies in Learning (iJET)*, *13*(09), 136-147.

Zhang, X., & McEneaney, J. E. (2019). What Is the Influence of Peer Feedback and Author Response on Chinese University Students' English Writing Performance?. *Reading Research Quarterly*, *55*(1), 123-146.

Zhang, H., Song, W., Shen, S., & Huang, R. (2014). The effects of blog-mediated peer feedback on learners' motivation, collaboration, and course satisfaction in a

second language writing course. *Australasian Journal of Educational Technology*, *30*(6).

Zhao, H. (2010). Investigating learners' use and understanding of peer and teacher feedback on writing: A comparative study in a Chinese English writing classroom. *Assessing writing*, *15*(1), 3-17.

Zhao, H. (2014). Investigating teacher-supported peer assessment for EFL writing. ELT Journal 68.2, 155–168.

Zhao, H. (2018). New insights into the process of peer review for EFL writing: A process-oriented socio-cultural perspective. *Learning and Instruction*, *58*, 263-273.

Zhou, W., Simpson, E., & Domizi, D. P. (2012). Google Docs in an out-of-class collaborative writing activity. *International Journal of Teaching and Learning in Higher Education*, *24*(3), 359-375.

Zhu, W. (2001). Interaction and Feedback in Mixed Peer Response Groups. *Journal of Second Language Writing*, *10*, 186.

Zhu, W., & Mitchell, D. A. (2012). Participation in peer response as activity: An examination of peer response stances from an activity theory perspective. *TESOL Quarterly*, *46*(2), 362-386.

Zue, W. (1995). Effects of training for peer response on students' comments and interaction. *Written Communication, 1*, 492–528.