ORIGINAL RESEARCH PAPER

Exploring EFL Learners' Peer Feedback Dynamics Using Patterns of Pair Interaction: Written Discourse in Focus

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ABSTRACT

This study aimed to explore critical thinking skills in peer feedback dynamics for improving both peer feedback quality and English writing. Critical peer feedback was conceptualized by integrating critical thinking and feedback to enhance feedback quality. The study examined peer feedback dynamics using pair interaction patterns in written discourse and summarized a critical peer feedback model. A 16-week qualitative case study with 12 EFL learners from Poldokhtar University was conducted. Data from interviews, writing assignments, and peer feedback artifacts were analyzed using QRS NVivo 8. The findings revealed that the Revised Bloom's Taxonomy, introduced in a workshop, was suitable for beginners, offering a six-step critical thinking model. Peer feedback dynamics involved three steps: intake, critical thinking, and output. Pedagogical implications were also discussed.

1. Introduction

In the realm of second/foreign language learning, the development of writing skills has become a widely accepted and non-controversial topic among researchers (Merkel, 2018; Muller & Gregoric, 2017). It is universally acknowledged that writing plays a pivotal role in language acquisition and proficiency (Steinlen, 2018). EFL/ESL learners consistently seek ways to enhance their writing abilities to meet language requirements (Sadiku, 2015). However, teaching methods often fall short in effectively improving the overall quality of students' writing. Consequently, concerted efforts are necessary to elevate the standard of writing and writing instruction through constructive feedback and guidance aimed at fostering the development of learners' writing competence. Notably, changes in writing strategies have revolutionized feedback practices, with teacher feedback being complemented by peer feedback. Therefore, the adoption of peer feedback is an essential element in the multi-draft process-oriented approach to writing instruction in L2 writing (Khalil, 2018).

Farrah (2012) suggests that peer feedback dynamics, involving students in sharing, providing, and receiving constructive feedback, can significantly enhance writing skills. This pedagogically effective method has various benefits in L2 writing. For instance, peer feedback can boost students' confidence and promote critical thinking skills as they read and respond to their peers' texts (Ferris, 1995). Furthermore, the use of peer feedback dynamics encourages learning motivation and enhances social interaction skills, as it is considered a social practice that influences students' behavior and engagement (Hein & Koka, 2006). The theoretical support for peer feedback in the teaching and learning framework emphasizes cooperative and collaborative learning, social interaction, and L2 linguistic acquisition (Kagan & Olsen, 1992; Oxford, 1997, as cited in Kunwongse, 2013). Therefore, peer feedback plays a crucial role in L2 writing and has numerous positive effects on students' writing improvement.

When it comes to peer feedback dynamics in educational settings, Luk and Lin (2007) emphasized the significance of interactions in language settings as crucial social activities for learners. These interactions play a pivotal role in the development of

knowledge, identity, and self-confidence as proficient language users. Utilizing pair interaction patterns, peer feedback dynamics primarily focus on enhancing writing skills through the provision of high-quality feedback.

The study aims to delve into the dynamics of peer feedback in English writing and identify patterns of pair interaction to enhance the quality of both peer feedback and English writing. Furthermore, it seeks to propose effective strategies to bolster students' critical thinking abilities. To accomplish these objectives, the researcher employed a constructivist grounded theory methodology and formulated a model of critical thinking based on learners' perceptions.

2. Literature Review

Peer feedback is underpinned by four key theoretical frameworks: social constructivism, sociocultural theory, Vygotsgy's Zone of Proximal Development, and interaction in second language acquisition (Hyland & Hyland, 2006; Lai, 2016; Topping, 1998). These theories shed light on the various roles peers play in the feedback process. In higher education, peer feedback is regarded as a valuable approach (Lai, 2016), with some researchers asserting that it fosters deep learning, professional development, and self-evaluation skills (Hyland & Hyland, 2006; Lai, 2016; Morris, 2001). Recent studies have even suggested that peer feedback can contribute to greater student autonomy (Yang, et al., 2006). It is evident that students' self-efficacy and knowledge are fundamental to the success of peer feedback.

In the realm of learning, the acquisition of knowledge is heavily influenced by an individual's mental framework. Sociocultural theory (SCT) in linguistics underscores the pivotal role of language communication and learning (Lantolf & Thorne, 2006). Vygotsky (1978), in his exploration of the development of cognitive processes related to writing, contended that interactions with knowledgeable individuals contribute to the advancement of higher-order thinking. He stressed the irreplaceable nature of active sociocultural communication and interaction in knowledge construction. Consequently, higher mental functions stem from both sociocultural exchanges and individual mental structures. Individuals may exhibit varying levels of mental functions, with some

possessing higher capabilities than others. Through sociocultural communication and interaction, individuals with higher mental functions can aid those with lower functions in their learning journey. Those with higher mental functions are often perceived as more adept and intelligent learners (Wang, 2007). Sociocultural theory is recognized as a fundamental framework in the scholarly examination of peer feedback (Wang, 2012).

Peer feedback plays a crucial role in collaborative learning by providing scaffolding for peers to overcome challenges. It involves an active exchange of feedback between students, allowing them to construct knowledge from their learning experiences. This reciprocal process empowers students to both give and receive feedback, fostering a supportive learning environment (Breslin, et al., 2014). In the context of writing, peer scaffolding encompasses error correction, asking questions, repetition, providing explanations and confirmation, and error identification (Lin & Samuel, 2013). In the realm of English language learning, students possess varying thinking abilities and language proficiency. Through peer feedback, students with advanced skills can support those with lower proficiency levels, particularly in process-oriented writing instruction. This collaborative approach enables students to enhance their writing skills and overall language proficiency (Breslin, et al., 2014).

Writing, Critical Thinking, and Feedback

The development of writing skills is closely linked to other essential language skills, such as common sense, vocabulary, spelling, and social knowledge. According to Bayat (2014), the ability to produce texts, language awareness, vocabulary knowledge, and critical thinking are key components of writing. Critical thinking, in particular, plays a significant role in ensuring that the writer's ideas are well-supported within the text.

Critical thinking is the process of evaluating opposing situations or ideas, distinct from other forms of thinking. It involves a combination of knowledge, skills, and attitudes. Critical thinking encompasses recognizing problems, finding evidence for arguments, assessing the accuracy of evidence, and developing an attitude that applies this process (Bayat, 2014). Watson and Glaser (1964) identified five dimensions of critical thinking: inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments. Writing is a form of critical thinking and creation. Empirical

studies on peer feedback suggest that students develop feedback capacity through critical thinking, enabling them to provide more constructive reviews of peers' writing and make objective judgments on their own work (Breslin et al., 2014; Hyland & Hyland, 2006; Jerry, 2012).

Feedback plays a crucial role in the post-response phase of analyzing and evaluating a writer's work. Many researchers have suggested a close relationship between feedback and critical thinking, positing that both involve similar processes of analysis and evaluation. In educational settings, feedback has been shown to enhance critical thinking abilities (Duron et al., 2006; Ertmer & Richardson, 2007). However, there is a lack of comprehensive research on the intersection of critical thinking and feedback in educational contexts.

Critical Peer Feedback Dynamics and Writing

Pearlman (2007) delved into the realm of critical pedagogy to explore how peer feedback can be elevated through critical collaborative assessment, emphasizing the significance of a collaborative learning process infused with critical thinking. Li (2007) delved into the impact of critical assessment training on the quality of peer feedback and the final projects of students engaged in peer assessment. Furthermore, Cox et al. (2013) identified the essential qualities of an ideal preceptor in peer assessment, emphasizing the need to foster critical thinking and problem-solving skills.

Peer feedback dynamics and interaction patterns have been shown to have a positive impact on students' writing skills in the L2 context (Hu & Lam, 2010; Khalil, 2018; Min, 2016). Moreover, peer feedback helps students understand the role of technology in the teaching and learning process, both for students and teachers (Allharbi, 2019). According to Brusa and Harutyunyan (2019), peer feedback is a learning tool rooted in the sociocultural approach, which fosters higher levels of autonomy and critical thinking based on Vygotsky's sociocultural theory, ultimately enhancing students' communicative competence.

Numerous researchers have emphasized the benefits of peer feedback for learners looking to enhance their writing skills. The timely and informative nature of peer feedback allows students to actively engage in offering constructive criticism, providing them with a voice in shaping their writing abilities and expressing their ideas (Lu & Law, 2012; Reynolds, 2009). The dynamics of peer feedback offer students multiple sources of feedback, leading to increased self-awareness, confidence, motivation, and critical thinking skills, while also nurturing social skills (Farrah, 2012; Orsmond, et al., 2013). Additionally, the process of peer feedback empowers students to take charge of their learning journey and develop autonomy, ultimately leading to higher levels of critical thinking. Moreover, it helps students cultivate critical reflection skills, learn to listen, evaluate using clear criteria, and provide high-quality feedback.

In the context of L2 writing, several studies have highlighted the significance of pair interactions in peer feedback, as they contribute to students' social interaction abilities and lead to improvements in their writing skills. Understanding and utilizing patterns of interaction can effectively describe the social dynamics of peer feedback (Ferris, 2003).

The Current Study

According to the Social Cognitive Theory (SCT), peer feedback through interactive patterns fosters mutual communication and collaborative learning. The process of peer feedback using patterns of pair interaction can lead to the construction and enhancement of English writing skills. Furthermore, within the framework of the Zone of Proximal Development (ZPD), students with advanced cognitive abilities can support those with lower cognitive functions through peer feedback. In this context, critical thinking skills are considered as higher mental functions, and their role in enhancing peer feedback in English writing is explored. Peers with advanced writing abilities can assist those with lower proficiency through mutual communication and collaborative learning during peer feedback sessions. This investigation aims to understand how peers with critical thinking skills can contribute to improving the quality of peer feedback and English writing among peers with lower level thinking skills. The concept of critical thinking is

therefore central to the study of peer feedback, aiming to enhance its quality. The purpose of this study was to investigate the process of peer feedback dynamics using patterns of pair interaction to improve the quality of peer feedback and English writing. In this study, the process of critical peer feedback dynamics refers to the critical thinking procedure and steps of peer feedback.

In pursuit of this objective, the research question put forward is:

1. What are the dynamics of peer feedback in the context of English writing among Iranian EFL learners, as manifested through patterns of pair interaction?

3. Method

Research Design

This study was conducted in two phases. The first phase centered on two workshops that introduced critical peer feedback and peer feedback in English writing. Each three-hour workshop was conducted twice and covered the introduction of three critical thinking models: the Paul-Elder Model (2012), Reichenbach's Six-step Model (Reichenbach, 2001), and the Revised Bloom's Taxonomy of critical thinking (Forehand, 2005). The main objectives of these workshops were to equip participants with the knowledge and skills of critical peer feedback. The second phase focused on data collection and analysis, spanning one semester during the first semester of 2023-2024. The data analyzed included semi-structured interview transcripts, six writing assignments, and artifacts of critical peer feedback, which were assessed using QSR NVivo 8.

The study employed a qualitative approach to explore the dynamics of peer feedback among students and its impact on their writing skills. The participants were introduced to key concepts such as critical thinking, critical peer feedback, a critical thinking model, and rubrics for critical peer feedback in English writing. The researcher not only facilitated the training sessions but also observed the peer feedback process and conducted interviews for the research. The training materials emphasized the application of critical peer feedback and the development of knowledge and techniques

through written discourse. The audience was familiarized with various concepts including peer feedback, critical thinking, patterns of interaction, English writing, and critical peer feedback. Additionally, the participants were introduced to the Revised Bloom's Taxonomy of critical thinking (Forehand, 2005).

Participants

The study was embedded in an English Paragraph writing course at Poldokhtar University in Iran during the first semester of 2023 academic year. The main teaching approach was peer feedback dynamics using patterns of pair interaction with collaborative learning. This course was scheduled once a week (90 minutes) for 16 weeks. Three weeks prior to the commencement of the research, the concept of critical thinking, critical peer feedback, critical thinking model, and rubrics of peer feedback dynamics for English writing were introduced and explained to the participants to enlighten their cognition of critical thinking in feedback. It is necessary to mention that these three sessions were apart from the main sessions of the course. Altogether, 18 male students aged 18-22 years enrolled in the course. Therefore, six pairs who had actively participated in lessons and pair work based on willingness to participate in the study, assertiveness, and the researcher's observation for three weeks before starting data collection were chosen, because the researcher as a lecturer was uniquely positioned to judge students' learning attitudes regarding peer feedback process. The students shared Persian as their native language and were majoring in English Language Teaching. The participants were allowed to work in the same self-selected pairs throughout the whole semester. The researcher notified the students that the data collected from the peer feedback process, stimulated recalls, interviews, and classroom observation would be kept confidential, and the students' consent before the research was obtained. These twelve case participants agreed to attend the study and fulfill the requirements of consent form. Written consent was obtained from all participants. Before the study started, the participants signed a consent form in which all the details of the ethical issues were explained. The consent form provided the information participants needed to know in order to make a good decision about study participation. Major ethical procedures included: (a) participants are informed of what they are

supposed to do in the study, (b) pseudonyms are used in all written and published data, and (c) participation is voluntary.

Instruments and Materials

In this study, different instruments and materials were utilized in data collection and analysis:

In-depth Interview. In-depth interviews were conducted three times one-to-one with each case participant to elicit the process of peer feedback dynamics, which needed to be transcribed before the data analysis. Before each interview, the participants were informed to reflect their ideas in-depth. The three-time interviews started from week 7 to week 16 which aimed for a reliable and continuous data, and a comparative data of peer feedback dynamics in different section of the study, which were conducted based on the three different interview protocols. Each interview lasted 30 to 45 minutes. The interviews were conducted at the researcher's office at School of Foreign Languages, Poldokhtar University. The interviews were conducted at the after-work and after-class hours. The free and leisure environment helped the interviewer to ask questions and reach the research objectives.

A Digital Voice Recorder. To record the sounds of interviewees, the researcher applied a digital voice recorder (a mobile set). According to Bernard (2011), the interviewers should not rely on their memory during the interview.

QRS NVivo Software. The QRS NVivo software version 8.0 was run to analyze the data. The QRS NVivo software is a kind of computer-assisted qualitative data analysis software (CAQDAS).

Writing Assignment and Artifacts of Peer Feedback Dynamics. Writing Assignment and Artifacts of Peer Feedback Dynamics. The writing assignments are based on the syllabus of English writing. There are six writing assignments for each participant. The re-writing after reviewing critical peers' feedback dynamics were also collected to study effectiveness of peer feedback dynamics using patterns of pair interaction. The documents collection started based on the time span of this study from week 2 to week 16. The conversation of documents and audio records were also

concerned with the ethical in this research. After the submission of English writing assignments, the twelve participants offered their critical peer feedback using patterns of pair interaction. The data were collected through two methods:

First, the data from each English writing assignments were collected in a document file. The data were used to compare the whole outcomes of critical peer feedback dynamics in a writing among peers and judge their quality of critical peer feedback dynamics, compare critical peer feedback dynamics in the same writing assignment among the twelve case participants, and study the effectiveness of peer feedback dynamics using patterns of pair interaction to improve the quality of English writing.

Second, the data from each participant were collected wholly on other peers' document files during this study. The data were used to study one peer's content of peer feedback dynamics, process of peer feedback dynamics, language character of his peer feedback dynamics, quality of his peer feedback dynamics, and development of his critical peer feedback dynamics using patterns of pair interaction.

Data Collection Procedure

The researcher organized and conducted two workshops, taking on the role of trainer in the first phase and transitioning to an observer of critical peer feedback and interviewer of research questions in the second phase. The lecturer, with eight years of experience, conducted the workshops at the research setting.

The first step in this study involved training participants in peer feedback dynamics, serving as the preparation stage. Throughout the two workshops, the researcher acted as a trainer, covering the use of peer feedback techniques, critical thinking concepts, and peer feedback dynamics in the first three sections. Twelve undergraduates took part in the training workshop during the first phase, with English as the primary language and Persian used to clarify main concepts and key works, aiming to eliminate ambiguity. The interpretation of peer feedback dynamics was available to participants throughout the study.

In the second phase of the study, we focused on analyzing the dynamics of peer feedback within the context of teaching English paragraph writing. This involved observing patterns of pair interaction, collecting data, and conducting thorough data analysis. As part of the study design, participants were instructed to maintain their writing assignments in student portfolio folders and files and provide feedback within a week. The six writing assignments completed by the participants aligned with the syllabus for English Paragraph Writing. We systematically gathered the outcomes of critical peer feedback for each writing assignment, which were stored in the students' portfolio folders and files. The collection of documents commenced in week 4 and continued until week 16, encompassing the participants' writing assignments and critical peer feedback dynamics, in line with the English writing syllabus. It was essential to preserve the writing works and participants' critical peer feedback dynamics in their respective documents.

Throughout the research, ethical considerations were given to the conservation of documents and audio recordings. During the study of peer feedback dynamics, data was collected through interviews and document analysis. The researcher conducted semi-structured interviews, refining the interview questions as the study progressed. The three in-depth interviews, held between weeks 7 and 16, were based on evolving interview protocols, tailored to the development of the research and new findings. These interviews took place at the School of English Languages, during after-work and after-class hours, to ensure the participants had experienced critical peer feedback dynamics in English writing. Each participant was seated face-to-face with the interviewer, and a record player was prepared for recording. Additionally, hard copies of the interview protocols were provided to reduce any anxiety or uncertainty.

To understand the dynamics of peer feedback, I conducted in-depth one-on-one interviews with each participant three times. These interviews were transcribed before data analysis. Prior to each interview, participants were encouraged to express their thoughts thoroughly. The questions were posed in a semi-structured format, creating a comfortable and relaxed environment for face-to-face interaction. The aim of the three interviews was to gather reliable and continuous data, as well as to compare peer

feedback dynamics across different sections of the study, using three distinct interview protocols.

Furthermore, document analysis involved a systematic study of critical peer feedback dynamics in written texts. Data collection included six English writing assignments with each participant, as per the Academic English Writing Syllabus. The artifacts of critical peer feedback dynamics from each writing assignment were categorized for further analysis.

Data Analysis Procedures

In this study, qualitative data analysis was conducted using three types of data: in-depth interviews, artifacts from English writing assignments, and critical peer feedback artifacts. The analysis involved transcribing the interviews and collecting documents. The computer-assisted qualitative data analysis software QRS NVivo 8 was employed to code and categorize the data sources. This software offers five key features for data analysis, including data and ideas management, querying data, and modeling and reporting from the data (Bazeley, 2007). Since the research data consisted entirely of text, such as interview transcripts and artifacts from English writing assignments and peer feedback dynamics, the use of QRS NVivo 8 made the data analysis process manageable and efficient. This study adopted QRS NVivo 8.0 due to its potential for analyzing text data.

The QRS NVivo software offers five key features for data analysis: data management, ideas management, query data, modeling from data, and reporting from the data (Bazeley, 2007). Utilizing QRS NVivo 8, a new project titled 'Peer Feedback Dynamics to Improve English Writing' (abbreviated as 'PFD to improve EW') was established. The primary sources included three internal folders: 'EW Artifacts', 'PFD Artifacts', and 'Interviews'.After importing the internal sources into each folder and document, the data underwent multiple readings to identify specific words, phrases, behavior patterns, participants' thought processes, and recurring or amplified events (Bogdan & Biklen, 2003). During the free coding process, the sources were meticulously and reflectively read through line by line to uncover concepts and consider all potential meanings in both free codes and memos (Bazeley, 2007). The data
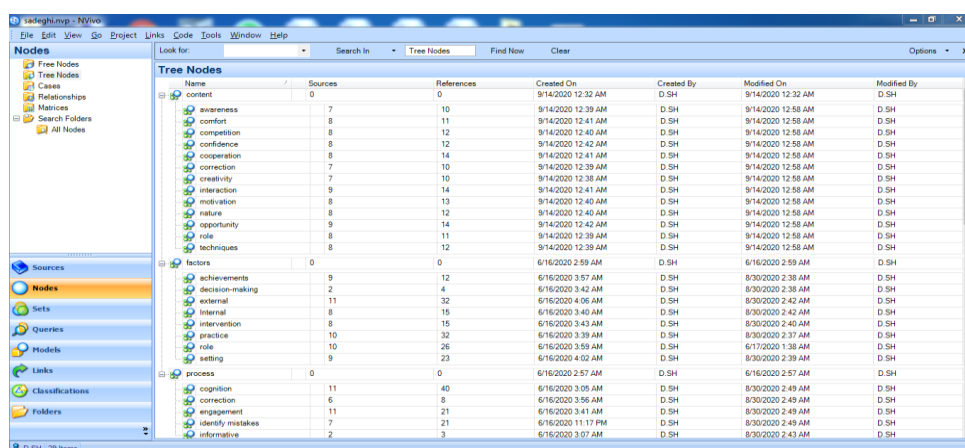
underwent three rounds of coding. In the first round, the raw data sources were categorized as 'Free Nodes,' widely coded based on the research conceptual framework and the new insights discovered during coding. During the second phase of coding, the 'Free Nodes' were restructured into 'Tree Nodes'. As part of the 'Tree Node' analysis, the source data was recoded to complement the 'Tree Nodes'. In the final phase of coding, the 'Free Nodes' were integrated into the 'Tree Nodes'. Following the categorization of the 'Tree Nodes' in QRS NVivo 8, these nodes underwent thorough validation, and reliability checks by data examiners, including third-party experts, case participants, and the lecturer. Based on their feedback, "Tree Nodes" were re-evaluated and adjusted. Subsequently, the "Free Nodes" were reassessed by the data examiners. The "Tree Nodes" were ultimately finalized with the approval of the data examiners and the researcher in this study.

4. Results

The study encompassed a comprehensive analysis of themes and codes derived from 116 Free Nodes and 3 Tree Nodes. Notably, it incorporated a tree node addressing the research question and main findings. Furthermore, it delved into the dynamics of peer feedback, examining patterns of pair interaction in English writing.

Figure 1

Peer Feedback Dynamics in QRS NVivo 8

Based on the findings from the analysis conducted using QSR NVivo 8, it was observed that the participants opted for the Revised Bloom's Taxonomy to facilitate critical peer feedback dynamics. These dynamics encompassed three key elements:

awareness, interaction, and cooperation. Preceding the critical peer feedback, the participants leveraged their existing knowledge of English writing for remembering, understanding, and applying their peers' writing. Subsequently, they endeavored to provide critical peer feedback on their peers' writings.

The participants expressed that engaging in critical peer feedback equips them with a higher-order strategy for enhancing their English writing skills.

Example 1:

It seems that our feedback has evolved to become more critical peer feedback. While our comments may be more advanced, comprehensive, and logical, we still need to work on eliminating grammar errors. I believe our capacity for critical peer feedback has improved, allowing us to identify the specific areas that need to be addressed in our feedback. As a result, our ability to provide peer feedback has become more impactful. (Interview Transcript

In example 1, CP6 highlighted the significance of critical peer feedback and demonstrated an understanding of its reflective aspects. He contended that critical peer feedback represents a higher-order form of feedback. Additionally, other participants expressed a strong belief in the value of critical peer feedback as a strategy for elevating the quality of peer feedback in English writing. The twelve case participants acknowledged that their previous peer feedback primarily revolved around correcting grammar, spelling, and punctuation errors. They admitted to lacking the knowledge and skills required to provide higher-order peer feedback beyond error correction. They perceived error correction as a lower-order form of peer feedback, more suitable for elementary and middle school EFL teachers and students. Apart from error correction, they expressed a lack of clarity regarding the content, structure, and techniques for peer feedback in advanced writing, such as English writing.

Example 2:

It's evident that our peer feedback goes beyond mere error correction. Critical peer feedback allows us to identify numerous issues and then proceed to analyze, summarize, evaluate, and rewrite the content. This approach greatly enhances the quality of feedback. (Interview Transcript/CP1)

In the context of peer feedback, critical thinking represents a transition from lower-order thinking to higher-order thinking. Engaging in critical peer feedback involves higher-order critical thinking. It entails reading the title, comprehending it, and then delving into analysis, evaluation, and the generation of new ideas. It's a holistic process. (Interview Transcript/CP2)

I have come to realize that critical thinking emphasizes the creation of new ideas and logical reasoning. It's a systematic and comprehensive approach to addressing a problem. Only through this logical process can we gain a deeper understanding of the issue at hand and effectively tackle it. (Interview Transcript/CP3)

In the second example from the initial interviews, the participants demonstrated a basic understanding of critical thinking skills such as understanding, application, awareness, interaction, and cooperation, all of which are aligned with the principles of the Revised Bloom's Taxonomy. A word frequency analysis of the interview data using QSR NVivo 8.0 revealed that these six key words—remembering, understanding, applying, awareness, interaction, and cooperation—were among the top 100 words mentioned. This suggests that the participants frequently referenced these key words associated with the Revised Bloom's Taxonomy. Furthermore, all participants concurred that the critical thinking skills outlined in the Revised Bloom's Taxonomy are particularly suitable for receiving constructive peer feedback.

Example 3

I adopt the steps of Revised Bloom's model in peer feedback dynamics process. As my understanding, peer feedback dynamics using patterns of pair interaction has a step-by-step process. Nowadays, my critical peer feedback is at the low level of remembering, understanding, and applying. I still cannot reach a high

level of self-awareness, engagement, and cognition. (Cited from Interview transcript/ CP5)

Peer feedback dynamics using patterns of pair interaction increase engagement, self-awareness, and self-confidence. This strategy can develop critical thinking and enhance learner's autonomy and social interaction. It promotes collaboration and cooperative learning.

Peer interaction is an essential factor in enhancing students' learning experiences. It enables students to construct knowledge through social sharing and collaboration, thereby improving their grammatical knowledge, oral engagement, and writing skills in terms of complexity, accuracy, and fluency. This assertion is supported by Vygotsky's theory, which posits that learning occurs in two stages: first through interaction with others and then through integration into an individual's mental structure.

Critical peer feedback operates on two levels: the interaction with peers and the mental process of critical peer feedback. Without peer interaction and feedback, critical thinking and subsequent critical peer feedback are not possible. The mental structure of critical thinking, developed through reading and writing, leads to the outcome of critical peer feedback. It is important to note that critical peer feedback is not only the product of feedback but also a process of critical thinking.

The participants in the study emphasized the importance of awareness in critical peer feedback for English writing, focusing on aspects such as wording, sentence structure, logic, cohesion, and communication skills. Through their exploration of critical peer feedback, they discovered a new strategy for peer feedback that incorporates critical thinking skills, enabling them to provide higher-order peer feedback, including aspects such as awareness, interaction, and cooperation.

The participants strongly endorsed the Revised Bloom's Taxonomy Model of critical thinking, recognizing the importance of critical thinking skills such as awareness, interaction, and cooperation in enhancing the quality of peer feedback.

Based on the findings, it is concluded that the twelve case participants primarily utilized the Revised Bloom's Taxonomy to facilitate peer feedback dynamics through patterns of pair interaction. The interview transcripts were subjected to free coding

using QRS NVivo 8.0, resulting in the illustration of tree nodes representing the 'Process of PFD' with Free Nodes depicting the process of peer feedback dynamics. The process of PFD was visually represented in Figure 2.

Figure 2

Nodes of Process in Peer Feedback Dynamics for English writing
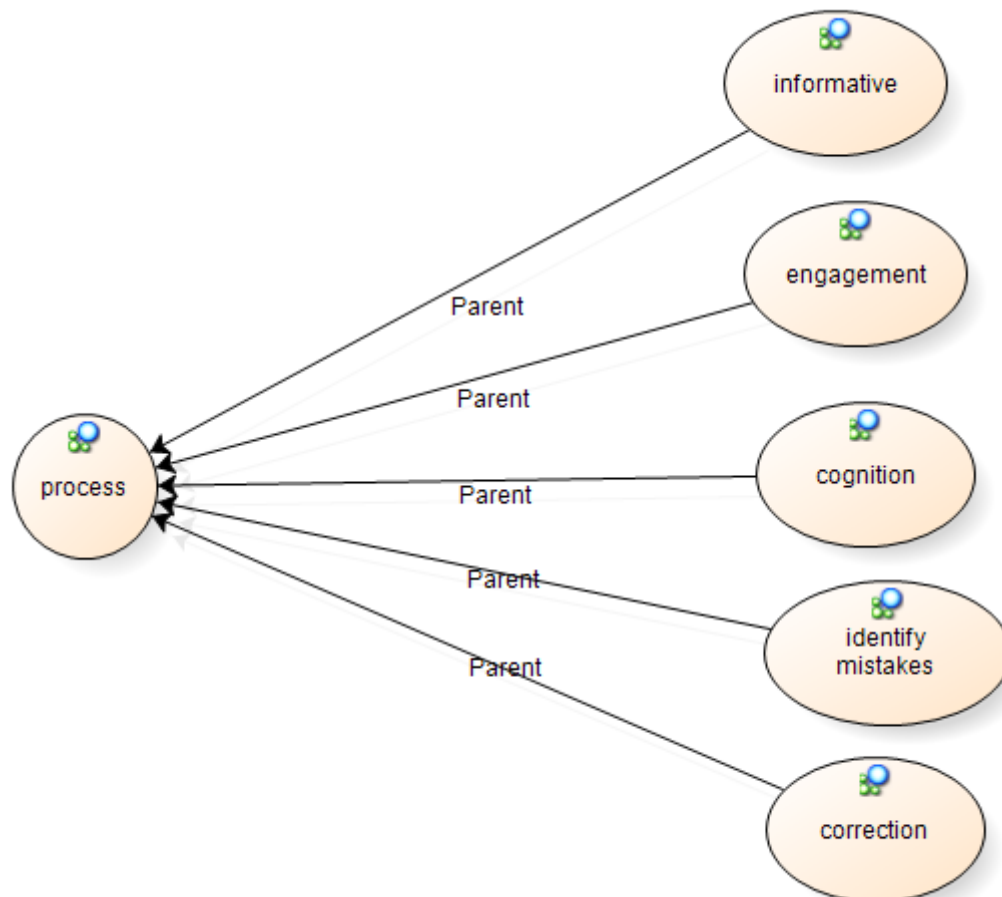
According to Figure 2, the process involved five key nodes: identifying mistakes, error correction, providing information, fostering engagement, and enhancing cognition. The study's twelve participants followed a five-step process for peer feedback dynamics, utilizing patterns of pair interaction specifically tailored for English writing: 1. identify and assess the errors of grammar and sentences 2. correct the errors of grammar, spelling, and punctuation in text 3. employ necessary strategies to solve problems more easily and use practical problem-solving skills to resolve learning difficulties 4. the ability to comprehend, mental act, or process of knowing 5. finally, it is important to

offer suggestions on how to enhance writing to ensure successful communication. This can be achieved by using clear and engaging language, structuring the content effectively, and incorporating relevant examples to support key points. This five-step process is the concrete output of peer feedback dynamics using patterns of pair interaction.

Learners' mental process of peer feedback dynamics using patterns of pair interaction in English writing can be categorized into three steps in this study.

When evaluating a peer's writing, it is crucial for the reviewer to thoroughly analyze the writing tasks, language usage, and overall organization. This initial assessment sets the stage for a comprehensive review process. This process of assessment aligns with the lower order thinking stage (LOTs) of Revised Bloom's Taxonomy, encompassing remembering, understanding, and applying. The term "intake" refers to the internal understanding of input by an individual in second language learning (Pawlak, 2011; Rast, 2008). In this context, a peer's intake in peer feedback dynamics involves the actual activities of remembering, understanding, and applying English writing. During the intake process, students may focus on one, two, or all three aspects at a time, and they may transition between them. At the intake stage, which is a critical phase in peer feedback dynamics, these three activities of remembering, understanding, and applying English writing do not occur in a linear sequence of thinking activities.

Second, after the initial intake stage, the focus shifted to critical thinking, involving activities centered on awareness, cooperation, and interaction. All the participants in the case study embraced a three-step model of critical thinking, emphasizing the importance of awareness, cooperation, and interaction. They found this model to be concrete, clear, and accessible for novice participants in peer feedback dynamics using pair interaction patterns, particularly underscoring the significance of interaction in the context of English writing. Engaging in peer activities allows students to assess their own work and that of their peers using teacher-provided rubrics, thereby enhancing their critical thinking awareness, especially when employing interaction patterns. Through peer activities, students can evaluate their learning process and outcomes by appraising others' work and accepting their feedback, facilitating the

identification of their learning blind spots and the restructuring of their learning objectives and plans. Additionally, various researchers have highlighted that utilizing peer feedback dynamics can foster students' critical thinking awareness (Wang, Huang, & Hwang, 2016).

In the final stage of peer feedback dynamics using patterns of pair interaction, known as the output stage, participants utilized their acquired knowledge to critically evaluate their peers' writing and then provided constructive feedback. In this context, "output" refers to the language generated by a language learner in the field of linguistics (Zhang, 2009). Specifically, in this study on peer feedback dynamics using patterns of pair interaction, "output" pertains to the written feedback language produced by a peer for their counterpart's writing. This concluding stage can be considered the culmination of the peer feedback dynamics using patterns of pair interaction for English writing in this particular study.

Based on the tree nodes of peer feedback dynamics process using patterns of pair interaction in Figure 2, the output of peer feedback dynamics usually includes five parts: identify mistakes, error correcting, informative, engagement, and cognition. The detailed process can be illustrated in the following figure (see Figure 3).

Figure 3

Process of Peer Feedback Dynamics in English Writing
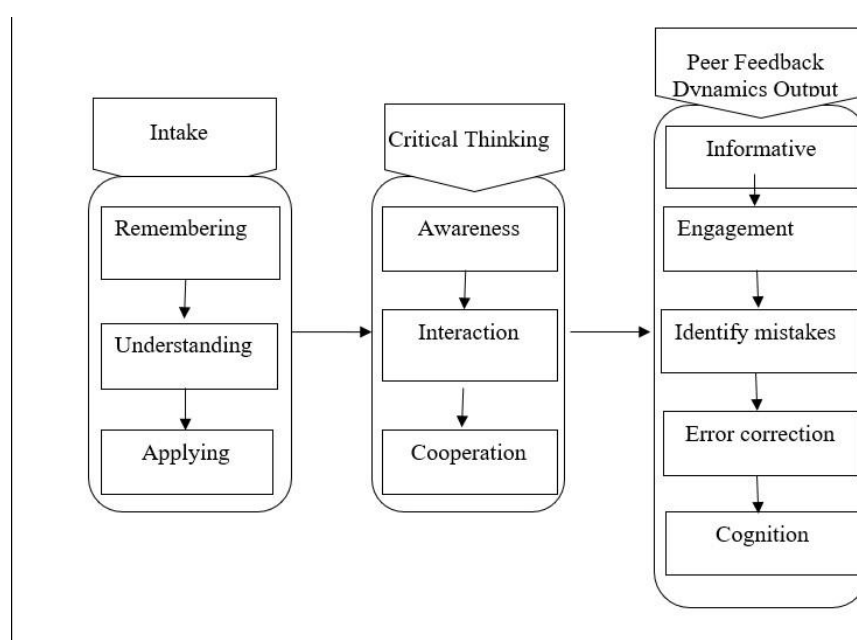
During the PFD output process, the first step involved a peer providing valuable strategic information to guide their counterpart towards successfully completing the task. This information focused on helping the peer detect errors, overcome obstacles, and apply more efficient strategies to solve the learning tasks. Informative feedback was used to inform learners why their responses were correct or incorrect, providing them with task-related information.

The next step focused on engagement, which is defined as a psychological process involving the attention, interest, investment, and effort that students put into their learning. This definition implied both affective and behavioral participation in the learning experience. Creating a classroom environment that encouraged students to make meaningful connections by thinking critically and reflecting on their experiences helped to engage the participants in classroom activities. The use of peer feedback dynamics increased engagement and enhanced critical thinking skills in the writing classroom.

Higher-level thinking in peer feedback dynamics contributed to the development of critical thinking skills and heightened students' interest and engagement in lessons, ultimately improving the quality of peer feedback and English writing. The third step involved analyzing the English writing tasks and requirements and checking the items of each writing requirement. Next, error correction was addressed, which is not typically considered a part of higher-level peer feedback in English writing but is a form of meta-cognition for Iranian students. This step involved correcting grammar, spelling, and punctuation errors, as well as assessing the fulfillment of the writing task, cohesion, coherence, and logic of syntax, pragmatics, and discourse.

Finally, the last step involved studying cognition, which refers to the ability to comprehend mental acts or processes of knowing. This encompasses the brain's acquisition, processing, storage, and retrieval of information, as well as integrative neuropsychological processes such as mental imaging, problem solving, and perception, and is pertinent to emotion and affect. These five steps form the basic cognitive process of peer feedback dynamics.

The mental process of critical peer feedback is rooted in the Model of Revised Bloom's Taxonomy (Krathwohl et al., 2001), which serves as a fundamental model for critical thinking. This approach to critical peer feedback is also supported by the "intake," "reaction," "input," and "output" hypothesis in second language acquisition (Pawlak, 2011; Rast, 2008; Zhang, 2009), demonstrating its logical and reasonable nature. Unlike previous studies that primarily focused on the physical activities involved in peer feedback, such as reading, commenting, discussing, and writing (Asikainen et al., 2014; Lee, 2015; Lai, 2016; Pol et al., 2008), this process emphasizes the mental and psychological aspects of critical thinking during peer feedback. It's important to note that different models of critical thinking may lead to diverse approaches to critical peer feedback.

5. **Discussion**

The research findings indicate that students can comprehend the concepts of critical thinking and critical peer feedback dynamics through workshops. The study utilized the Revised Bloom's Taxonomy for the critical peer feedback dynamics, considering its six-step model as suitable for beginners in peer feedback. The process involved adapting the first three steps of remembering, understanding, and applying to analyze peers' writing, followed by employing higher-order critical thinking through interaction, cooperation, and awareness to provide critical peer feedback. It is believed that critical peer feedback serves as an effective strategy for enhancing higher-level writing, aligning with existing literature on the role of critical thinking in improving peer feedback and writing (Bloom et al., 1956; Duron, Limbach & Waugh, 2006; Paul & Elder, 2002; Reichenbach, 2001). The study emphasized the importance of interaction in critical peer feedback for successful communication in English writing. The findings suggest that critical peer feedback, critical thinking, and English writing can mutually benefit from the practice of critical peer feedback dynamics (Bayat, 2014; Duron, Limbach & Waugh, 2006; Ertmer et al., 2007).

The study's findings revealed that the participants were unfamiliar with peer feedback dynamics beyond error correction before the study, highlighting the need for training in EFL writing (Lai, 2016). The participants considered themselves to be

advanced English writers and recognized the necessity for advanced peer feedback skills to achieve successful communication and collaborative learning in class. They also believed that critical peer feedback dynamics enhance the quality of peer feedback and subsequently improve English writing, as supported by interview data. This aligns with existing literature suggesting that critical feedback can enhance both peer feedback and writing quality (Cox et al., 2013; Forster, 2007; Li, 2007; Ruggiero, 2012; Zhao, 1996).

The mental process of peer feedback dynamics, characterized by patterns of pair interaction, serves as a representative model of critical thinking. This process demonstrates its logical and reasonable nature through the 'intake', 'reaction', 'input', and 'output' hypothesis in second language acquisition (Pawlak, 2011; Rast. 2008; Zhang, 2009). It can be deduced that critical peer feedback dynamics represent a higher-order assessment, incorporating critical thinking skills such as awareness, cooperation, and interaction. These skills are built upon the foundational lower-order thinking skills of remembering, understanding, and applying writing. The Revised Bloom's Taxonomy of critical thinking is recognized as a suitable model for critical peer feedback dynamics, offering an efficient way to enhance English writing through collaborative learning.

Critical peer feedback presents a strategy for higher-order mental activity in formative assessment of higher-level writing, where the ability for critical peer feedback dynamics can be nurtured through teaching and practical exercises. The mental activities of critical peer feedback encompass three main parts: 1. intake of the writing through remembering, understanding, and applying with lower-order thinking; 2. employing critical thinking for awareness, interaction, and cooperation; 3. and finally, outputting their critical peer feedback in written form.

Following the output of critical peer feedback, there are five post-activities aimed at enhancing writing and facilitating further critical peer feedback, including proofreading, re-editing, self-reflection, and rewriting. While these post-activities are not mental activities per se, they represent reactions to the output. Subsequently, after self-reflection, the next cycle of critical peer feedback may be conducted to evaluate the rewriting. This process can logically be repeated until the writing is perfected or

accepted by peers. This study demonstrates that peers with higher-order thinking skills can effectively support those with lower-order thinking skills. Additionally, peers with higher-order thinking skills are able to provide higher-quality peer feedback compared to those with lower-order thinking skills. Furthermore, individuals with critical thinking abilities exhibit greater efficiency in delivering peer feedback.

6. Conclusion and Pedagogical Implications

The ability to think critically is crucial for success in today's world. Both teachers and learners play essential roles in education and should be well-versed in the concept of critical thinking. This study aims to investigate critical thinking skills in peer feedback dynamics for English writing, with the goal of enhancing the quality of peer feedback and English writing. Additionally, the study explores the process of peer feedback dynamics using patterns of pair interaction through written discourse and presents a model of critical peer feedback.The findings of this study suggest important implications for EFL teachers, learners, curriculum developers, and syllabus designers. By incorporating critical thinking skills into peer feedback dynamics through pair interaction patterns, students can effectively identify focal points, maintain open-mindedness, critically evaluate the work of their peers, engage in metacognition, and draw inferences. These findings underscore the substantial impact of integrating critical thinking into peer feedback dynamics using pair interaction patterns to enhance the quality of peer feedback and English writing. In today's world, there is a growing need for individuals who can think deeply, solve problems effectively, and communicate and collaborate more proficiently in both personal and professional settings.It is crucial for educators to take a leading role in transforming the traditional spoon-feeding approach to education, where knowledge is simply imparted from teachers to students, and instead focus on fostering critical thinking skills through peer feedback interactions. Additionally, given the significance of critical thinking in education, those responsible for designing curricula and syllabi should integrate programs that promote critical thinking. This could involve incorporating practical and authentic tasks, creative writing exercises, and providing support for teachers through in-service training on effective critical thinking strategies.

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Appendix

INTERVIEW PROTOCOL FOR THE PARTICIPANTS (Original was in Persian)

1. Could you please provide your understanding of critical thinking?

2. How do you understand critical peer feedback dynamics using patterns of pair interaction?

3. How do you use critical peer feedback dynamics using patterns of pair interaction in English Writing?

4. What difficulties do you have at your critical peer feedback dynamics using patterns of pair interaction?

5. How do critical peer feedback dynamics using patterns of pair interaction improve your quality of feedback in English Writing?

6. What is your process of critical thinking in English Writing?

7. What is your process of peer feedback dynamics using patterns of pair interaction in English Writing?

8. What are the advantages and disadvantages of peer feedback dynamics using patterns of pair interaction in English writing?

9. What are the contents of peer feedback dynamics using patterns of pair interaction in English writing?

10. How do peer feedback dynamics using patterns of pair interaction improve your English writing?