

Teaching Technical English: Corrective Feedback Based on Students' and Teachers' Beliefs

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Abstract

The present study investigates the beliefs of students and teachers about corrective feedback (CF) regarding necessity, timing and the most effective types in technical English setting. This study was conducted at the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” with students majoring in Information Technology, Mathematics or Physics ranged between 18 and 22 years of age. Methods included a questionnaire, interviews and classroom observations. The feedback from 55 students and 33 teachers was collected during practical classes in February – March at the beginning of the second semester of 2019-2020 academic year. This research has confirmed the necessity of CF for students and teachers. It also demonstrated the differences regarding timing: teachers preferred delayed to immediate CF, while students equally appreciated both. The research also indicated that both teachers and students preferred indirect types of CF; teachers had stronger attitudes though. The research demonstrated the most effective types of CF for students: meta-linguistic clue and repetition, while for teachers it was elicitation. Completing the survey, both teachers and students chose at least two different types of CF. The necessity of effective CF, which requires learning more about students' and teachers' beliefs, benefits and drawbacks of each CF type, is emphasized. The results of the present research may be used by practitioners, who would like to use CF effectively in teaching technical English. Future studies may explore CF in terms of students' and teachers' beliefs and behavior in different learning environments.

Keywords: Corrective feedback (CF); recast; explicit correction; meta-linguistic clue

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1. Introduction

Interactive nature of learning and teaching foreign languages suggests a two-way flow of information. While communicating, students experiment with a new language inevitably making errors, which makes teachers searching for the best strategy to provide corrective feedback (CF) aiming at activating students' potential (Scrivener, 2005, p. 298). Being treated as indicators of student progress, errors provide valuable information teachers use to meet the needs of learners and adjust the English course accordingly. Kartchava (2016) claims CF is necessary to provide in a language classroom setting, which implies distinguishing between types of errors and corresponding types of CF (p. 36).

Errors may be treated in different ways, therefore, various terms were developed by experts in assessment and practitioners. The term "error correction", which used to be common in traditional pedagogy, means one way of responding to learner errors known as explicit correction. At the same time, the term "corrective feedback" covers various responses, which are classified in many different ways (Li, 2018). Considering active participation of students is impossible without involving them into the learning process by means of interaction and collaboration (Lytovchenko et al., 2018, p. 74). Learner-centeredness is beneficial for adult students in terms of real interaction, meeting students' needs, making them more responsible (Lytovchenko et al., 2020, p. 54). Meeting the needs of learners is possible by trying the eclectic approach and choosing the methods that work in a particular environment (Chugai et al, 2017, p. 76).

Feedback in general is connected with motivation and accuracy: positive feedback indicates that the learner's response is correct, while negative feedback means that the answer is wrong. Corrective feedback is considered to be negative; it aims at indicating an error and improving the language a learner used (Ellis, 2009). CF may be simple or complex, online or offline; direct like recast, explicit correction, meta-linguistic clue, and indirect like repetition, clarification, elicitation and miming (Li, 2013, p. 197). Time constrains make CF even more complicated as it includes noticing an error and taking the decision about ignoring or correcting it. If a teacher decides that an error should be corrected, next steps are related to the agent (who is to correct an error), time (when it is better to correct it), priority (which error to correct) and strategies (how to correct it) (Ellis, 2009).

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Multiple papers which focus on theoretical and practical aspects of CF (Ellis, 2010; Li, 2010), learners' beliefs about CF (Basturkmen, 2012; Dornyei & Ryan, 2015; Horwitz, 2015; Zhang & Rahimi, 2014;), harmful effects of mismatch between students' and teachers' beliefs about CF (Russel, 2009; Horwitz, 1990), prove the importance of further investigations in this area.

Although some studies have considered comparison between students' and teachers' beliefs about CF (Russel, 2009; Horwitz, 1990; Mori, 2002), none has focused on CF related to teaching technical English. The aim of the paper is to investigate the issues related to providing corrective feedback (CF) in technical English setting by means of comparing students' and teachers' perspectives. Considering the design of this study, three research questions were formulated:

1. Is CF necessary to provide?
2. What is the best timing for CF?
3. Which type of CF strategy is more effective?

2. Materials and methods

2.1. Context and participants

This study was conducted at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". University students majoring in Information Technology, Mathematics or Physics ranged between 18 and 22 years of age lived in a foreign language environment in which they shared the same first language (Ukrainian). English was the main language of instruction, but in some classes Ukrainian was still used. There were few foreign students who knew at least two languages at the level of independent users. Participants were not familiar with theoretical part related to CF strategies before. ESP teachers were aware of CF concept and regularly practiced some of CF strategies during classes.

Corrective Feedback Instruction. The CF strategies were introduced to the students through teacher's presentation and description in the handouts. Seven types of CF were defined as follows:

1. recasts or reformulating the sentence keeping the same meaning;
2. repetition which means saying the part of the sentence which contains an error again;

3. clarification or making a request to indicate that something is wrong;
4. elicitation which means prompting a learner to identify and correct an error;
5. explicit correction which is about revealing the error and presenting the right variant;
6. meta-linguistic clue is providing extra information related to the error
7. miming involves facial expression, gestures and other kinds of body language with attempts to make a learner correct the error (Li, 2018).

In order to check students' comprehension and provide another opportunity for them to learn more about CF, an activity on matching CF strategies with the examples, which were typed on separate cards, was suggested. For example, "elicitation" was to be matched with "His roles in films.... ?", "explicit correction" with "not "made", it is wrong, "have made" should be used instead", etc. Students worked in pairs and completed the matching by moving the cards. Checking the results provided another opportunity for discussing the differences between some CF strategies, which were new for students. ESP teachers conducted the same matching activity as students, but the aim was to familiarize teachers with the particular terminology used in the questionnaire considering the fact that there are different ways of classifying CF strategies.

2.2. Data collection and Analysis

Overall design. Methods included a questionnaire, interviews and classroom observations with students and teachers of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". The feedback from 55 students and 33 teachers was collected in February – March at the beginning of the second semester of 2019-2020 academic year.

Procedure. The questionnaire was administered to the students and teachers in the middle of the academic year. They were told that it was not a test, they did not have to identify themselves and the results would be treated with confidentiality. The participants were asked to think about their own experience and express their own opinion when responding to the questionnaire. The participants were told that they would be informed about the results of the study shared with an international community of ESP teachers and learners.

Questionnaire. The questionnaire written in English consisted of main questions, which were in the focus of this study: about the best timing for CF and the most effective type of CF strategy. There were three options for the best timing: during the activity, after the activity and at the end of the class. For the second question, the participants could choose some out of seven types of CF strategies by putting ticks in corresponding boxes.

Interviews. In order to compensate for the weaknesses of the questionnaire, the interviews in written form were conducted for the participants to express their opinions and add comments to explain their choices and attitudes towards CF strategies.

Observation. Classroom observations were conducted in order to check how students reacted to different CF strategies used by teachers or their peers, which CF strategies were most common in observed ESP classrooms.

3. Results and Discussion

In spite of the fact that respondents had to tick choices in order to complete the questionnaire, some of them left their comments, ranked the choices by numbering, etc. Technically, it was possible as pen and paper version was used. All the comments were taken into consideration as they provided valuable information related to personal views and opinions.

Research question 1. Is CF necessary to provide? All students and teachers who completed the survey were sure that errors had to be noticed and corrected. Those students who did not get effective feedback on their errors during the lesson, referred to supplementary literature like grammar books, online dictionaries, forums in order to find the explanations. Students often approached a teacher and asked for clarification, which would help them to avoid an error in the future.

Research question 2. What is the best timing for CF? The results of the survey research show that the number of students who prefer being corrected during the activity (49%) is practically the same as the number of those who would like to be corrected after the activity (50%) (Chugai, 2020). Some students added comments that the best timing for CF depended on the subject: during the activity in mathematics, but after the activity in English (Figure 1).

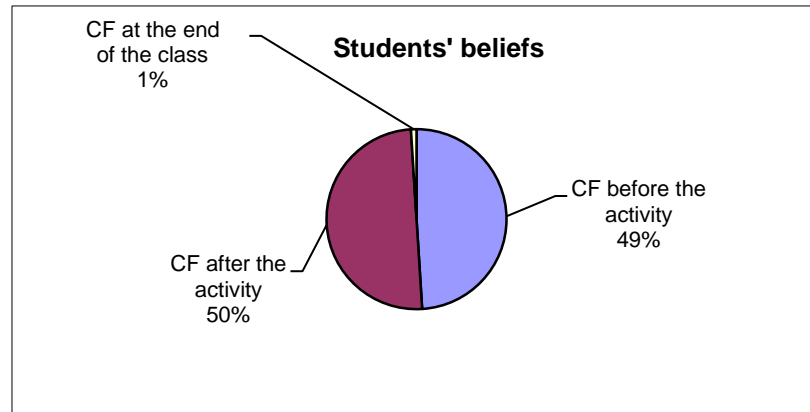


Figure 1. Students' beliefs about the best timing for CF

According to the survey, teachers preferred CF after the activity (70%) to CF during the activity (33%). Some teachers chose “after the activity” but added comments that the best timing for CF depended on the activity and its aim. Choosing doing CF “during the activity”, some teachers added that it is “on-the-spot comprehension of the mistake”. One response combined timing and different types of CF: recasts, repetition, clarification and elicitation were chosen the best to do during the activity, elicitation, explicit correction and meta-linguistic clue to do after the activity, recasts and explicit correction at the end of the class (Figure 2).

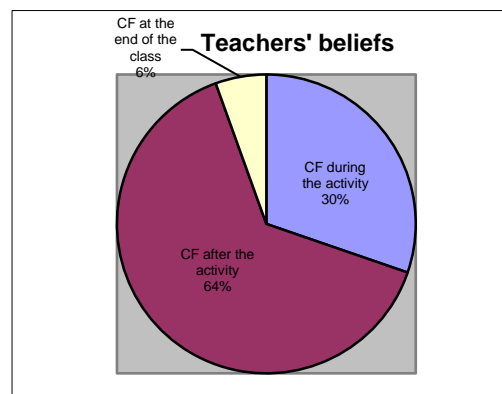


Figure 2. Teachers' beliefs about the best timing for CF

Finally, more teachers (6%) than students (1%) thought it was better to correct errors at the end of the class (Table 1).

Table 1. Students' and teachers' beliefs about best time to correct the error

Time for CF	Students	Teachers
During the activity	49%	33%
After the activity	50%	70%
At the end of the class	1%	6%

Dividing CF into immediate (during the activity) and delayed (after the activity, at the end of the class), we conclude that overall students equally appreciate both types of CF, which differs from teachers who prefer delayed CF (76%) to immediate (33%). These results contrast to those obtained by Li et.al (2016) which demonstrated an advantage of immediate CF. Such result could be explained by intention of students to use the opportunity to apply immediately the knowledge, which was learned in class.

Research question 3. Which type of CF strategy is more effective?

Considering direct (recast, explicit correction and meta-linguistic clue) and indirect CF types (repetition, clarification, elicitation and miming), the results of the research show that both students and teachers demonstrated preferences towards indirect CF. However, teachers had stronger attitudes (Table 2).

Table 2. Students' and teachers' beliefs about direct and indirect CF

Types of CF	Students	Teachers
Direct CF	43%	36%
Indirect CF	57%	63%

The survey indicated that each respondent chose at least two ways of CF, one respondent chose all 7 types of CF. The results showed that meta-linguistic clue (19%) and repetition (18%) were chosen most frequently by students, then came explicit correction (16%) and miming (16%) less frequently chosen clarification (11%) and elicitation (11%), and recasts (8%) were the least frequently chosen (Figure 3).

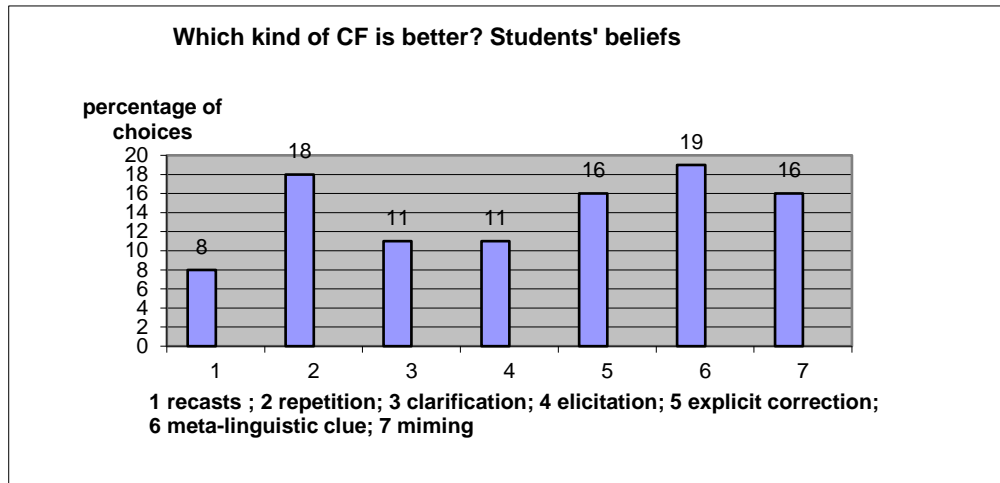


Figure 3. Students' beliefs about the best timing for CF

The most frequently chosen kind of CF by teachers was elicitation (21%), leaving all the others behind (Figure 4).

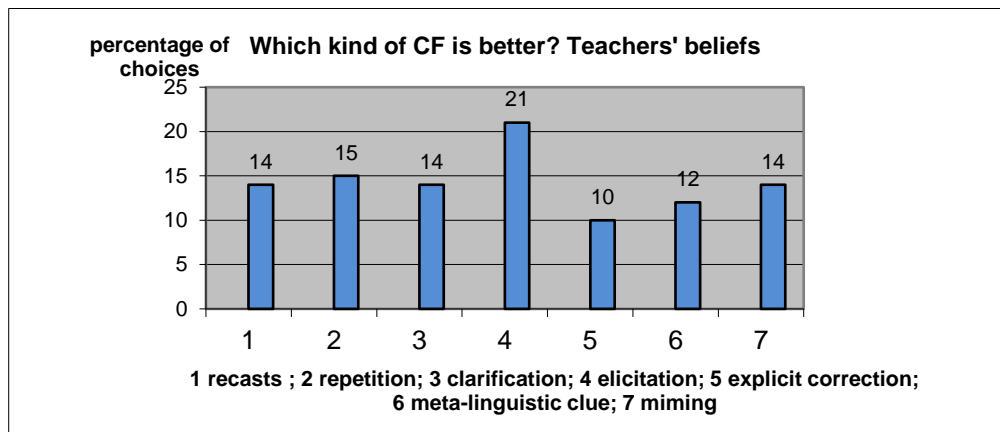


Figure 4. Teachers' beliefs about the best timing for CF

Some teachers indicated their individual preferences by numbering the choices, for example: elicitation as the first choice, meta-linguistic clue as the second, and explicit correction as the third (Table 3).

Table 3. Students and teachers beliefs about the best kind of CF

Types of CF	Students	Teachers
1 recasts	8%	14%
2 repetition	18%	15%
3 clarification	11%	14%
4 elicitation	11%	21%
5 explicit correction	16%	10%
6 meta-linguistic clue	19%	12%
7 miming	16%	14%

These findings are in keeping with the studies conducted by Schulz (2001), who claimed that learners and teachers had different beliefs about providing CF: the majority of students expected feedback on their spoken errors while prevailing number of teachers did not meet those expectations. However, the results of this study differ from those reported by Yoshida (2008), Brown (2009), Kartchava (2016) who claimed that learners expected teachers to use prompts and recasts. Kartchava (2016) writes about the respondents' experiences as passive recipients being unaware of other education systems, which determine the preferable CF type (p. 34). Thus, recast may be chosen because respondents were exposed to it before or because they would like to try it in the future, while prompts appeal to students because they call for students' autonomy, interactive nature (Kartchava, 2016, p. 32-33).

According to the approach called "prompt-then-provide", CF should be applied only when necessary and be used individually (Lantolf, 2000). Therefore, teacher correction should be preceded by self-correction (Ellis, 2010). Moreover, indirect CF like repetition, clarification, elicitation and miming, should prevail due to the fact that direct CF like recast, explicit correction and meta-linguistic clue maybe harmful for learner autonomy (Li, 2013, p. 197).

Such incentives as participants' experience in general, their previous beliefs, their own learning experience when they encountered a particular CF may influence the results of the research (Schulz, 2001; Loewen et al., 2009). The results need to be interpreted with caution taking into the account some limitations like new terms for some participants, which they could not fully

understand. Despite these drawbacks, the results of this research represent real tendencies in students' and teachers' beliefs.

4. Conclusions

This research has confirmed the necessity of CF for students and teachers. At the same time, it demonstrated the differences in timing preferences: students expressed the same preferences about being corrected before and during activities, while teachers preferred doing CF after activities. In addition, more teachers than students thought it was possible to do CF at the end of the lesson. Overall, students equally appreciated both types of CF, which differs from teachers who prefer delayed to immediate CF. The research also indicated that both teachers and students preferred indirect types of CF; teachers had stronger attitudes though. The research also demonstrated that meta-linguistic clue and repetition were the most frequently chosen by students, while for teachers it was elicitation. Completing the survey, both teachers and students chose at least two different types of CF. In conclusion, effective CF suggests learning more about students' and teachers' beliefs, benefits and drawbacks of each CF type.

The results of the present research may be used by practitioners, who would like to use CF effectively in teaching technical English. Future studies may explore CF in terms of students' and teachers' beliefs and behavior in different learning environments.

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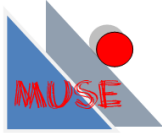
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