

Creating a Conscious Effort Among English as Second Language Learners through an Integrated Feedback Loop System via the Philosophical Underpinnings of the Japanese Organizational Concept of “Kaizen”

Ruby Toshimi Ogawa

Abstract: Innovative ideas start with how we organize our daily lives to incorporate task-based learning goals as part of our daily routine. In truth, we need to re-examine how we can achieve a certain level of success through incremental goal-setting communications that can inspire as well as motivate students learning a second language. Specifically, in view of evaluating how Japanese university students acquire English as a Second Language (ESL), there are significant and ongoing developmental methods of communicating to students through feedback loops based on online technological platforms. With these modern capabilities at this time, we can provide guidance and corrective measures that can provide a roadmap for students in reaching these learning goals through small incremental steps based on the Japanese “Kaizen” (改善) organizational model. With the advent of newer technology, newfound research on feedback techniques, and educational policies that support higher learning goals, we can succeed in any given classroom setting.

This paper will discuss the potential for all students who may be able to acquire new knowledge through a feedback loop with the instructor. Each individual student who may or may not display the confidence needed to achieve his/her goals can set their own methods of learning through our communicative means. The ultimate objective is to have students gravitate toward a more self-satisfying levels of achievement through conscientious feedback with the

instructor who can pinpoint areas that need to be corrected, and to furnish goal-setting objectives in moving toward an incremental wave of achievements that can be found in the Japanese concept known as “Kaizen”(改善).

INTRODUCTION: What is the Japanese concept of “Kaizen” (改善) and how can this be linked to giving feedback to students learning a second language? In short, the organizational concept of “Kaizen” is a popular business model for the Japanese philosophy of continuous improvement. In fact, “Kaizen” has become so popular around the world that many businesses outside of Japan are implementing this in their organizational structures to improve areas that may need more improvement.

The original Japanese word “Kaizen” and continuous improvement are related but not exactly the same. The most basic way to define “Kaizen” would be as follows: *change something in one’s behavior to be better*. This may contrast with the English word translation of “*improvement*” which just means to become better than a prior standard of behavior. Just to be clear, this does not necessarily mean something is already bad per se. The original Japanese word “Kaizen” is more focused on the negative aspects of a given business organizational structure and in deciding how to improve the quality of their products and/or to reduce areas of waste. Also, the word does not need to mean that one must continue to improve something indefinitely, but specifically, “Kaizen” means to move in the direction of improvement for oneself as well as in working on teams.

With regard to the “Kaizen” business model as a profound approach to continuous improvement, encompassing various principles and methodologies for teaching and learning may go hand-in-hand in the educational system between instructors and students. For this general overview of “Kaizen” though, the main concept for “improvement” will be the general standard for elevating the communication levels between the instructor and students in a given language learning classroom scenario. While there are business model processes that take place in a “Kaizen” setting, the interactive communication levels through the feedback loop system within a classroom setting and/or through online instructions will be discussed more thoroughly for this paper. At this time, there needs to be more research in view of improving our classroom repertoire, and to create an

learning environment that is more sustainable in the long run, and much more pertinent in today’s modern and highly technological societies of the future.

ASKING THE FUNDAMENTAL QUESTION: WHY DO WE NEED FEEDBACK WITH STUDENTS?

Why do we need feedback in the classroom setting? In fact, feedback communications is a powerful way to achieve improvement in teaching and learning. Essentially, this is an integral part of every teacher’s practice and when used effectively can improve student learning by as much as eight months according to recent research through institutions like Cambridge University Press (2017). As teachers and school leaders, it’s essential to understand evidenced-based feedback if we’re to unlock the greatest possible benefits for our students.

WHAT EXACTLY IS FEEDBACK?

Feedback is an ongoing process of goal setting, gathering evidence about student learning and providing instruction that makes clear the next actions to improve performance. Feedback can be given by the teacher, peers, or the student themselves.

Two evidenced-based models for feedback have been developed by Hattie and Timperley and Black and William. Both models propose important questions for both the student and teacher to consider. Where is the learner going? Students and teachers need to be clear about the learning goals and what success looks like. Goals need to be appropriately challenging so the students can succeed and grow.

FINDING OUT WHERE STUDENTS’ LEVELS ARE AND THE BENEFITS FOR INSTRUCTORS

Where is the learner right now? Evidence is gathered about the students’ knowledge, skills and performance relative to the learning goals and tasks. How does the learner get there? This involves clarifying the steps the student needs to take to achieve learning goals.

If needed, the teacher adapts or changes the teaching and learning activities

to meet the student's needs. Feedback can be directly related to the learning task, which is useful, however, feedback about the processes underlying the task or about how students self-regulate their learning is more powerful.

The most common question from instructors is what are the benefits of effective feedback? Recent research indicates that effective feedback can increase student effort and outcomes, lead to more effective learning strategies and improve students' self-regulation. The benefits for teachers are also significant. Effective feedback practices provide evidence about student learning related to learning goals and the curriculum. This helps teachers understand the impact of their teaching and, if needed, where to adapt strategies to better meet the needs of their students. To improve and sustain good feedback practices is vital so that educators work collaboratively. School leaders can support teachers by prioritizing feedback and implementing a whole school approach, providing access to resources and opportunities for professional learning and collaboration. Teachers can develop their feedback practices by communicating clear learning goals, trial activities that provide evidence of student learning, planning for task process and self-regulated feedback, checking that students understand and act on the feedback provided while working with colleagues to develop and refine feedback practices. Feedback is evidence based and inexpensive to implement. It offers a powerful approach in enriching teacher practice and significantly enhancing student growth. For resources that will help you improve your feedback practices visit aitsl.edu.au. In a very widely-cited educational article, feedback was described as 'one of the most powerful influences on learning' (Hattie & Timperley, 2007, p. 81). This influence can be both positive and negative, and this paper investigates what research can tell us about how feedback may be shaped to be more positive. Feedback is information that a learner receives about their language learning and most commonly refers to information about their language production (speaking and writing), although it can also concern reading and listening, study skills, attitudes, effort and so on.

In view of all of this, this paper focuses on feedback on speaking and writing, with more attention given to the latter. While some of this is relevant to learners of all ages, feedback with younger learners at less advanced stages of

cognitive, social and emotional growth needs to be approached rather differently. Further feedback can be both summative (an evaluation, typically given by a score, of a student’s work or at the end of a period of study) and formative (information that is intended to help the learner in some way, given continuously during learning) (Lee, 2017, p. 11). This distinction is often captured in the terms ‘assessment of learning (AoL)’ and ‘assessment for learning (AfL)’. In practice, feedback is almost always to some extent judgmental and it is often intended to serve both purposes, but how feedback is given will depend on the relative importance that is given to these broad purposes. This paper is concerned particularly with formative feedback: ‘feed forward’ might be a better term, as this kind of feedback provides information about what the learner can or should do next.

The most common form of feedback in language classes is probably error correction (corrective feedback), where the objective is usually to facilitate improvements in a learner’s accuracy; but feedback in this paper is understood more broadly. Its three fundamental and interrelated purposes are:

- improving the fluency, accuracy or complexity of learners’ speaking and writing,
- motivating learners
- developing learner autonomy.

In light of these objectives, summative feedback in the form of scores is often problematic. It is known that comments and prompts lead to more learning gains than providing scores (Hattie & Timperley, 2007, p. 92), and that comments and prompts are more likely to contribute to learning when they are not accompanied. First, a more detailed discussion of feedback on spoken language can be found in another paper in this series: ‘Giving feedback on speaking’ (Kerr, 2017a). McKay (2006) provides a good overview of the reasons why assessment of young learners (including the giving of feedback) is a ‘special case’. (Lee, 2017, p. 20). If, as is sometimes the case with written work, it is necessary for a teacher to combine the formative and summative functions of feedback. This increases the likelihood of learners’ paying attention to qualitative comments and of promoting a focus on future learning. Also, note that comments and

prompts lead to more learning gains than providing points, and are more likely to contribute to learning when they are not accompanied by scores.

Further, there are often a number of differences between feedback on speaking and on writing. The former is often less direct, more immediate and public than the latter, but it is possible to describe a set of characteristics of effective feedback that are common to both.

1. Effective feedback is about learning tasks. (Hattie and Timperley (2007, p. 90-91) distinguish feedback about the individual learner, specifically, the feedback about the learner's performance on a particular task and feedback about the way that a learner has approached a task. Of these, the first is least likely to contribute to the realization of the goals of feedback. Conversely, it suggests ways that a similar task can be more successfully tackled on a subsequent occasion, offers the greatest potential. In classrooms, teachers often combine these kinds of feedback, but this runs the risk of diluting the power of feedback on task and approaches to task (Hattie & Timperley, 2007, p. 91).
2. Effective feedback is specific and related to learning goals. Successful learning is most likely to take place when learners have clear and specific learning goals. Feedback which provides information about how to achieve these goals (for example, for a particular task) is more effective than general feedback.
3. Effective feedback is appropriately challenging. Effective feedback targets areas where improvement is possible. This is most likely to be the case when a learner has partial understanding or control of an aspect of their learning, rather than a complete lack of understanding or control. As a result, effective feedback typically focuses on things that the learner has studied recently or has previously received feedback on. It is more concerned with what a learner might be able to do better than it is with what a learner needs to get right.
4. Effective feedback entails the active involvement of the learner. One key role of effective feedback is to nudge learners towards greater autonomy. Feedback from a teacher is not the last event in this process (Hyland, 1990, p. 285): To be effective, it needs to prompt a learner to modify their knowledge, language production or learning strategies. Active involvement on the part of the

learner is therefore necessary and this is likely, over time, to entail a change in the teacher’s role, as they become less ‘centre-stage’. The importance of feedback ... receives feedback ... modifies their knowledge ... actively engages with the feedback ... improves their language production.

5. Effective feedback is a combination of the positive and the negative. Although feedback is often seen first and foremost as the drawing of attention to errors, it has been found in general educational contexts that feedback on correct responses is more effective than feedback on incorrect responses (Hattie, 2009, p. 175). It is all too easy in the course of a lesson to focus on errors and miss positive contributions (Dörnyei, 2001, p. 124), but learners need to know when they are doing something well. What is more, when feedback is public (for example, during or after a speaking activity), confirming that a student has produced accurate and appropriate language in a particular instance (such as their having avoided a very common mistake) is likely to benefit both the individual student and others in the class, who will have their attention drawn to the language item in question (Ur, 2012, p. 91).

More generally, it can be said that feedback is most effective when it is given in the context of a supportive, non-threatening learning environment. Teachers have to balance different linguistic and interpersonal objectives when deciding what kind of feedback to give, how to give it and who to give it to (Hyland & Hyland, 2019a, p. 5), so they invariably adopt some sort of stance towards their students. The giving of feedback can be a sensitive moment. Knowing that students will respond to it in different ways (and some will feel threatened), many teachers seek to soften feedback by focusing, in part, on the positive (Rinvolucri, 1994, p. 288). As explained prior, it is all too easy in the course of a lesson to focus on errors and miss positive contributions, but learners need to know when they are doing something well.

Thus, praise is one way in which teachers attempt to build a supportive learning environment and to mitigate the dangers of critical comments, but it needs to be approached with caution. Most, but certainly not all, learners like to be praised, publicly or privately (Hattie & Timperley, 2007, p. 97), but praise may be discounted as ‘mere dressing’ (Hyland & Hyland, 2019b, p. 181). Gen-

eral praise (such as ‘Good work!’) may lead to short-term bursts of motivation, but is more effective in the long-term when it focuses on the process of a learner’s work (for example, their use of strategies or improvement in a specific area) rather than on the end product (Mercer & Ryan, 2013, p. 30).

Teachers may also try to limit the potential damage of negativity by using what is known as the ‘feedback sandwich’, where positive feedback is presented first, followed by more critical comments, before being rounded off with more positive feedback. Although popular as a feedback strategy, there is little evidence that it is effective.

The manner of feedback delivery will also play an important role. Many teachers instinctively feel that it is best to tone down the force of critical comments by using vague language or avoiding personal pronouns and imperatives (Hyland & Hyland, 2019b, p. 168). Desirable as this may be, the danger is that the feedback may be misunderstood. Non-verbal behaviour (facial expressions, eye movements, body postures) may also be used by teachers to soften the directness of feedback, but it is difficult to make clear recommendations in this area, given both the lack of research (Nakatsukasa & Loewen, 2017, p. 169) and the number of individual and cultural variables.

There are, however, two areas where researchers are unambivalent. In normal school classroom contexts, rewards (in the form of stickers or badges, for example) correlate negatively with both task performance and enhanced motivation, and should not, perhaps, be thought of as feedback at all (Hattie & Timperley, 2007, p. 84). Likewise, authoritarian feedback, which is negative in content and manner and which discourages discussion, will do little to motivate learners; nor will it help them develop their language proficiency.

The rest of this paper will consider the more detailed questions that need to be considered. These include:

1. What sort of feedback is most beneficial to learners: corrective or non-corrective?
2. Which aspects of a learner’s performance will most benefit from feedback?
3. Who should learners receive their feedback from: teachers or peers?
4. How should feedback be given: directly or indirectly? Orally or in writing?

5. When will learners most benefit from being given feedback?

MOST COMMON FEEDBACK FOR STUDENTS: CORRECTIVE FEEDBACK

The most common type of feedback given by most teachers in most classrooms is corrective feedback, which focuses on learners’ errors (Hattie & Timperley, 2007, p. 91). It has been argued, most notably by Krashen (1982, 1985) and Truscott (1996, 1999), that corrective feedback can be harmful to language acquisition, that it leads to no demonstrable gains in grammatical accuracy and that it can impact negatively on learners’ feelings. Teachers, are advised to consider dropping such feedback altogether.

However, a considerable body of research (at least eighteen meta-analyses to date) now indicates that corrective feedback on both speaking and writing can indeed promote language learning, but will not necessarily do so. This finding, in itself, is not terribly helpful. What is needed is clearer guidance about which kinds of errors should be focused on, which feedback techniques are most effective, when the feedback should be given and who should give it.

WHAT IS THE MAIN FOCUS FOR CORRECTIVE FEEDBACK?

There is evidence that many teachers tend to focus on grammatical issues when giving feedback on their students’ performance (Lyster et al., 2013, p. 22), but grammar is not the only aspect of a learner’s language production that may benefit from feedback.

In feedback on speaking, learners may benefit more, for example, from feedback on their use of speaking strategies (such as checking understanding, buying time or self-correction) than they will from correction of their grammatical errors. Research also suggests that feedback on vocabulary and pronunciation issues may be more helpful than grammar correction because they may lead to greater learning gains (Lyster et al., 2013, p. 22).

Similarly, in discussions about feedback on writing, it is common to differentiate feedback on the content and organization of the writing from feedback on the language forms that have been used. It is generally agreed that feedback on

content is at least as important as feedback on form / accuracy. One meta-analysis (Biber et al., 2011, p. 47) found that there were greater gains in grammatical accuracy when feedback focused on both content and accuracy, than when it focused on accuracy alone. Teachers who focus predominantly on grammatical accuracy in their feedback are well advised to reconsider.

To recap, learners may benefit more from feedback on their use of speaking strategies, such as checking understanding, buying time or self-correction, than from correction of their grammatical errors.

Here are some examples of the range of areas that teachers should consider when deciding on feedback for a speaking and a writing task as found below. These were decided during lesson-planning and, in the lesson, the students were notified that feedback would only be given on these points.

A ROLE PLAY (CEFR LEVEL: B1) FLUENCY AND INTERACTIVE COMMUNICATION

Does the speaker speak fluently and coherently without too much hesitation or repetition? Does the speaker maintain the conversation through appropriate turn-taking (initiating and responding to utterances) and the use of a variety of speaking strategies? Does the speaker make use of a range of discourse markers?

PRONUNCIATION, VOCABULARY AND GRAMMAR: How intelligible is the speaker (i.e. do problems with sounds, stress or intonation cause problems with comprehension?) Consider this: Does the speaker have a wide enough range of vocabulary to express their ideas? Does the speaker use grammar accurately enough to be comprehensible?

WRITING A NARRATIVE (CEFR LEVEL: B1) CONTENT AND COMMUNICATIVE ACHIEVEMENT: Is the story interesting? Does the story hold the reader's attention? See these points: ORGANIZATION: Is the story organized in a clear, readable way? Is the sequence of events in the story easy to follow? Does the story have a clear beginning, middle and end?

IN THE AREA OF LANGUAGE: Does the writing contain a good range of appropriate vocabulary to tell the story?

Does the writer use appropriate past tenses and linking words to help the reader follow the story?

Do errors of grammar, vocabulary, punctuation or spelling make it difficult to understand the story?

Examples of the range of areas for which feedback could be given on a typical speaking or writing task. Both common sense and research suggest that corrective feedback will only be effective if it suits a learner’s level of language development (Sheen, 2011, p. 11), and therefore, their readiness for the feedback.

In spoken language, this means that mistakes caused by time pressure or competing attentional resources are likely to be most appropriate as targets for feedback. In both speaking and writing, forms that a learner has not yet begun to acquire may be better ignored for the time being. Since different students in a class will be at different levels of language development, a degree of personalization in feedback will be necessary. However, judging a learner’s readiness for a particular kind of feedback will remain an art, not a science.

Note that it is common practice to categorize errors as a way of deciding which corrections will be most beneficial. Useful categories include the following:

- ‘Global errors’, i.e. those which interfere with comprehension, rather than ‘local errors’, which do not affect intelligibility,
- Errors that are made frequently by the student(s), rather than infrequent error types,
- ‘Stigmatizing errors’, i.e. those which may offend the target reader or interlocutor,
- Errors that are specific to the kind of spoken interaction that students are engaged in, or to the genre of text they are writing (such as degrees of formality),
- Errors that are specific to the kind of spoken interaction that students are engaged in or to the genre of text they are writing (such as degrees of

formality).

- Errors that are related to areas of language which have recently been studied in class.

In feedback on both spoken and written language, there appears to be a strong preference for indirect feedback on the part of language teaching methodologists and among many teachers. There are two main reasons for this. Firstly, it is thought that indirect feedback may induce less anxiety in learners, especially in the case of feedback on spoken language. Secondly, it is believed that indirect feedback is more likely to lead to learning because it requires learners to do more of the work themselves, in that, they are required to take a more active role in their own learning, and this should help memorization and automatization.

In feedback on writing, correction codes are popular with many teachers (see below). An interesting variation on correction codes has been offered by Valenzuela (2005), who suggests a colour system where good work as well as errors can be highlighted.

G grammar T tense Ø not necessary
 MW missing word WC word choice / start a new sentence
 P punctuation WO word order Λ something is missing
 Sp spelling WW wrong word ??? very unclear.

The above is an example of a correction code for giving feedback on written work

A majority of learners, however, both adults and those in secondary education, seem to prefer more direct, explicit feedback (Lyster et al., 2013, p. 7; Zhang & Rahimi, 2014, p. 433; Li & Vuono, 2019, p. 104).

It is possible that students like the idea of direct correction more than the reality of it: for example, when direct correction is too negative and too public, they might in fact prefer something more indirect. In some cases, direct feedback is the only realistic possibility (Ferris, 2002). Another example, there may be occasions when a teacher wishes to correct an error because it interferes with communication, but it is unlikely that the learner will be able to self-correct after

prompting.

Note that direct feedback may also, at times, be preferable to indirect feedback because there is less risk of learners misunderstanding the teacher’s signal.

For these reasons, it is likely that direct feedback will feature more often in classes of lower-level students than with more advanced learners. Researchers are divided on the issue. Some, like Ellis et al. (2006), have found direct correction to be more effective than indirect correction. Others, like Li (2010), have found direct correction to be more effective in the short-term, but less so in the long-term. Still others, like Lyster & Saito (2010), have found little difference between the two. It is unlikely that researchers will ever be able to state that one kind of feedback is always better than another. In the absence of a verdict, practical considerations, specific to particular classroom moments, will inevitably influence the teacher’s approach.

A majority of learners seem to prefer more direct, explicit feedback to more indirect approaches, but research is divided on the issue. It is unlikely that researchers will ever be able to state that one kind of feedback is always better than another.

THE TIMING, AUDIENCE AND CHANNEL OF CORRECTIVE FEEDBACK

The questions of when, to whom (to individuals or to groups) and how (spoken, written or digital) feedback should be given are closely interrelated.

In feedback on spoken language, teachers may choose to wait until the end of an activity or to correct errors immediately. The former is often recommended by methodologists for as follows:

HERE ARE THE REASONS WHY AS FOLLOWS:

- 1, This does not interrupt the flow of communication
2. This will be less likely to cause anxiety (since feedback can be directed towards the whole class rather than one individual)
3. This makes it possible to focus the attention of the whole class on an error and its correction (it allows teachers to be more selective in their choice of

errors to focus on)

- 4, Finally, this will make it easier to combine positive, non-corrective feedback with the error correction. Such feedback can be given via audio or video recordings, as can transcriptions of speech that have been made with speech-to-text software. With smaller classes, individualized feedback sheets may be provided.

IMMEDIATE FEEDBACK IS MORE POTENT AND EFFECTIVE

Researchers, in contrast to methodologists, have shown more interest in immediate feedback than in delayed feedback and have suggested that it may lead to more learning gains (Doughty, 2001). Some research has shown that learners generally prefer immediate feedback (Zhang & Rahimi, 2014, p. 433), but other studies have painted a picture that is less clear. In short, there is no clear consensus about whether immediate or delayed feedback is better (Ellis & Shin-tani, 2013, p. 276). Given the difficulties in separating out the various issues that are involved, it is unlikely that there will ever be a consensus.

As for feedback on written language, this can take place during or after the writing itself. In the former case, teachers may go around the class correcting as students write, but this raises two significant problems. The first is practical: how feasible is it to allocate equal attention to students in a large class? The second concerns the impact on the writing: Will the feedback break a learner's flow or concentration, and might it deprive the learner of the opportunity to self-correct? This is not to say that on-the-spot correction of writing has no value, but it may be better left to occasions when the feedback is requested by the learner or when the learner is off-task. Feedback on written language most often takes place after the writing assignment, but teachers are still faced with a large number of options. Written feedback is probably the most frequently used approach and has the advantage of providing a permanent record, but oral feedback allows for more dialogue and negotiation. Teachers can begin with less direct feedback, encouraging learners to self-correct, before moving on, if necessary, to more direct comments (Nassaji, 2017, p. 120).

Many learners prefer feedback when there is an opportunity to discuss it,

and the more actively they take part in such discussions, the more likely they are to benefit from it. As with delayed feedback on spoken tasks, teachers may choose to give feedback to the whole class (especially if there are common problems); or they may choose to give illustrative feedback. Nation (2009, p. 141) suggests that one way of doing this is by selecting the work of two or three students (with their permission, and, possibly, without naming the students concerned), projecting it on to the board and going through it orally with the whole class, using a combination of direct and indirect comments. Individualized oral feedback may be possible in some contexts, but it is extremely time-consuming.

CONTEMPORARY APPROACH IS “CONFERENCING” WITH STUDENTS

One approach that is widely used in higher education settings is known as ‘conferencing’, where feedback is given on a portfolio containing several pieces of a student’s work. Conferences are usually popular with both teachers and students, but still require a lot of time. In order for them to be time-effective, they require careful planning and a range of interaction skills from both the teacher and the student (Hyland & Hyland, 2019a, p. 6).

In delayed feedback on speaking activities, it is common for teachers to invite all the students in a class to suggest improvements on an error from an anonymized utterance. When working with recordings or transcriptions of speech, it is possible for peer feedback to be more extensive and more independent of the teacher’s promptings, in a very similar way to peer feedback on written work. This can be done with learners working in pairs or in small groups. Both require suitable matches of the attitudes, personalities and interactive skills of the participants. An appropriate match of language proficiency level will also be desirable if the focus of feedback is on accuracy.

Groups may offer a wider and more interesting range of feedback (Burkert & Wally, 2013, p. 75), but pairs are often more manageable, especially with younger learners, as long as both learners get along (Lee, 2017, p. 94). For collaborative writing, this is where two or more learners work together to produce a

jointly composed text, necessarily entails considerable amounts of peer feedback (Alshuraidah & Storch, 2019, p. 166). This may take place in the classroom or with online sharing tools, such as Google Docs and wikis, which are two of the most popular for this purpose, especially in EAP contexts. Since the learners share responsibility for shaping and prioritizing their ideas, and because the dividing line between writing and editing becomes blurred, a greater quantity of more constructive feedback may be offered than in feedback on individually produced texts and the participants are likely to be more motivated by and responsive to it (Tigchelaar & Polio, 2017, p. 108).

THE IMPORTANCE OF TEAMWORK WITHIN THE CLASSROOM SETTING

Researchers have found that collaborative writing leads to more accurate texts than those produced by individuals and that the process of discussing the organization of ideas and issues of language use is likely to be beneficial to language learning more generally. As a follow-up to a collaborative writing task, learners may exchange their work with another pair or group of students to offer and receive further feedback. Researchers have found that collaborative writing leads to more accurate texts than those produced by individuals. It was suggested above that peer feedback may be a valuable stepping-stone on the way towards more independent learning. On the path towards this goal, feedback will need to accommodate individual expectations and this means that some sort of dialogue about the kind of feedback that is desired will be appropriate (Hyland, 2003, p. 180). Nancy Campbell and Jennifer Schumm Fauster (2013) have proposed a system where students prepare a set of questions to guide the feedback from their teachers on a piece of academic writing. Students are given suggestions, ranging from broad questions about the organization of their text or reader-friendliness to more detailed questions about word choice, sentence structure or layout. Although their suggestions and further discussion of these ideas (such as by Maas, 2017) concern teacher feedback on academic writing, the approach may also be used with more advanced learners as a way of structuring peer feedback on spoken as well as written language. For more detailed information about col-

laborative writing, see Storch, N. (2013). *Collaborative Writing in L2 Classrooms*. Bristol: Multilingual Matters. Note that feedback of whatever kind is, of course, of little or no value unless learners learn from it. Some learners, some of the time, pay more attention to feedback than others (see ‘Individual differences,’ below).

CREATING A NATURAL “FEEL” FOR FEEDBACK EXCHANGE IN THE CLASSROOM

Learning from feedback cannot be forced: the teacher’s task is to try to create the right conditions for learning to take place. Direct, explicit feedback in which the teacher provides a corrected reformulation of an error often requires the learner to repeat the correction, especially in feedback on speaking. Since this may be no more than simple parroting, there is little guarantee that benefits will accrue.

More indirect feedback, which requires learners to self-correct, would seem to offer more potential for learning (but see the discussion above in the section ‘Techniques for corrective feedback’). In feedback during or immediately after speaking activities, there is very little delay between the teacher’s prompt and the self-correction.

An alternative to asking a learner to self-correct is a repetition of the task (with a different role, a different partner, or after additional planning time). Learning from feedback cannot be forced: the teacher’s task is to try to create the right conditions for learning to take place. Learners often respond positively to task repetition with speaking activities. But with written work, many students, however, value a teacher’s corrections. They are often reluctant to engage in second or further iterations of their work. Nevertheless, most researchers and methodologists agree that redrafting, or what is known as ‘process writing’, which should form a key part of classroom practice (McGarrel, & Verbeem, 2007, p. 228).

Process writing can be seen as the most effective way of improving learners’ writing skills (Sheen, 2011, p. 35) as it needs considerable amounts of time and takes students through a sequence of planning (brainstorming, evaluating and organising ideas), quick first drafts (leaving gaps or using the first language

if necessary) and subsequent drafts moving towards a final product. The focus at first, for both the learners and for the teacher in giving feedback, is on content and fluency, and only moves towards questions of grammatical accuracy in the later stages.

The feedback on process writing is, therefore, mostly indirect, taking the form of personalized, non-judgmental questions that are designed to help the writer better express their meanings. One of the key objectives of this formative, dialogic strategy is to motivate learners to undertake revisions to their earlier drafts (McGarrel & Verbeem, 2007, p. 229). As such, process writing represents a very significant departure from more traditional approaches to writing instruction where a single draft is evaluated with a grade, accompanied by more detailed feedback comments. As with collaborative writing, which can be combined with process writing, it will lead to greatest learning gains if it becomes a regular feature of classroom practice. Used most frequently with more advanced learners in both face-to-face and online contexts, it also lends itself readily to secondary school contexts, where further motivation may be generated by posting the final product on a blog, wiki or school magazine.

FEEDBACK AND MODERN-DAY TECHNOLOGY

In the last twenty years, we have seen a huge rise in the numbers of learners following English courses partly (blended) or fully online. At the same time, there has been a massive increase in the number of tools that are available to facilitate the provision of feedback on learners' spoken and written English. Any attempt to give recommendations for specific tools is likely to be out of date within a matter of months, so this review will limit itself to more general considerations with only occasional reference to particular products.

The first affordance of digital technology in the area of feedback is the ease with which language can be recorded. Texting and emailing, voice and video messaging, along with automatic transcription of speech on smartphones and laptops, are becoming or have become part of everyday life. These recordings enormously extend the range of feedback possibilities, especially when compared to the short-lived nature of spoken classroom speech. A broad distinction

may be drawn between feedback that is mediated by technology (such as written feedback from a teacher on an electronic document) and feedback that is automated through technology (such as a spellcheck). Once they are accustomed to this, it appears that most students prefer multimedia feedback to purely written comments.

The online equivalent of immediate classroom feedback on spoken language is possible with most platforms (such as Skype or Messenger) where spoken interaction and text comments may be combined. Digital technologies, however, are most often used for asynchronous (or delayed) feedback with both spoken and written English. These may be in the form of text, audio (with or without video), or a combination of the two. When introducing online feedback to learners, it is probably a good idea to begin with text-based feedback before moving onto audio, which, if given in English, may be harder to understand (Olesova & Richardson, 2017, p. 89).

Most text-based feedback is delivered by means of a word processor, such as Microsoft Word or Google Docs, where textual annotations (underlining, highlighting), comment boxes, footnotes, tracked changes and the possibility of comparing two documents are possible. In addition, hyperlinks to useful resources (dictionaries, grammar references or model answers) can easily be included. Audio feedback, using either the sound-recording tool on a mobile phone or laptop, or a more specialized audio recorder like Vocaroo or Audacity, allows for more extensive feedback, since three to four times more feedback can be spoken than written in the same amount of time.

When accompanied by written notes, greater clarity can also be achieved. It also allows teachers to provide a mixture of direct and indirect comments, and to appear more personalized in order to build rapport. Once they are accustomed to this, it appears that most students prefer this kind of feedback to purely written comments (Stannard, 2017, p. 181).

BLENDED LANGUAGE LEARNING

By combining text-based and audio feedback through screencapture software (such as Screencast-O-Matic or Snagit) offers even greater potential. This

allows a video-capture of a teacher's screen as they go through and annotate a student's work whilst recording comments at the same time. It is, as Stannard (2017) observes, comparable to having a teacher sitting in the room next to the student, but with the additional advantage of allowing the student to play back the screen-capture multiple times, offering opportunities for extensive listening and reading practice. The danger of audio- and screen-capture software is that teachers may be encouraged to overload the feedback.

As noted earlier, less is often more. Decisions taken beforehand about what type of feedback to focus on may help to prevent overload. With all the options for technologically mediated feedback (whether it is teacher- or peer-led), feedbackgivers will benefit from training, in terms of both the focus of their feedback and its delivery (tone of voice, speed and clarity, and the ordering of ideas).

In addition, training may be needed for the practical side of the technology and to avoid distractions while using it. In recent years, automated feedback have also seen rapid advances in technologies. Using a combination of computational linguistics and artificial intelligence, Automated Writing Evaluation (AWE) systems scan a text (either a written text or a transcription of spoken language) in order to find possible errors.

Most of these systems have not been designed for English language learners and are not really suitable for them. One example of an automated feedback tool that has been developed for this purpose is Write & Improve. Learners copy and paste a text they have written into a box and receive a grade (using the Common European Framework) for their work, along with suggestions for improvement.

After making revisions, the text can be resubmitted as often as desired. Under development from the same team is Speak & Improve, where learners communicate with a speech robot and receive feedback on their language. Automatic writing evaluation systems are best used in combination with teacher and peer feedback. AWE systems are not foolproof and will sometimes suggest modifications to correct language that is already appropriate or miss some errors, but their accuracy is improving. It is unlikely, however, that AWE will ever be 100% reliable.

These systems typically use a probability score to calculate the likelihood of

an error and offer indirect, semi-directive feedback. They are more effective at picking up lower-level errors than they are at identifying problems with content, organization or style (Stevenson & Phakiti, 2019, p. 134). Due to these limitations, AWE is best used in combination with teacher and peer feedback, in the context, for example, of a process writing approach. It may free teachers from some of their workload, but, if used as a replacement for other forms of feedback, risks promoting a restricted view of language proficiency as concerned primarily with grammatical and collocational accuracy.

We can expect AWE systems to develop further for the purposes of summative evaluation (in formal examinations, for example), but successful automation of the complex interrelations of formative feedback (intended to promote individual learning) may not be achievable (Ferreira, et al., 2007, p. 398).

As we have seen, research findings may help us to move in the direction of an appropriate policy towards feedback but they need to be considered in combination with an understanding of individual differences. Feedback is ‘a highly complex psychological and social activity’ (Sheen, 2011: 16) and individual learner differences of the kind listed below will impact on the way that learners respond to it. For age, level and cognitive differences, very little research has been carried out into the significance of a learner’s age in their response to feedback. Learners’ level has been studied more often, but the findings are contradictory. For writing, one meta-analysis found that the accuracy of lower-level learners improved more with feedback, while another found that more advanced learners benefited more. For speaking, the picture is no clearer. Besides age and level, it is likely that cognitive differences, such as language learning aptitude and working memory, will also play a role.

CONSIDERING AFFECTIVE DIFFERENCES AMONG INDIVIDUAL STUDENTS

One of the most important affective differences is the anxiety levels of the learner. Low anxiety will almost certainly help learners to benefit from corrective feedback on their speaking (Zhang & Rahimi, 2014), but may be less significant with their writing, as the feedback is usually delayed. Also, note that motivation

will affect the degree to which a learner attends to feedback, and personal learning goals will play a part here.

EMPHASIZING LESS ACCURACY, BUT IN DEVELOPING “SURVIVAL” ENGLISH SKILLS

A learner who needs immediate ‘survival English’, for example, may well be less interested in accuracy than another who is preparing for an examination. For one, learners will also bring different sets of beliefs and attitudes to feedback. To a certain extent, these will be shaped by previous learning experiences, and it is not uncommon for students in secondary education to be accustomed to having all their errors corrected. The somewhat problematic result of this practice may be that learners come to associate good speaking or writing with good grammar (Hyland, 2019, p. 270-271). Research (Li & Vuono, 2019) has repeatedly shown that most students expect and want to be corrected (comprehensively, directly and by the teacher) and that they are more interested in grades than they are in formative comments (Lam & Lee, 2010). Paradoxically, of course, they may not be happy with the actual feedback that they receive! The research referred to here can be found in Biber et al. (2011) and Kang & Han (2015). A third factor of importance is the context in which feedback is given and received. Schools and colleges, and the classes in them, vary in the extent to which accuracy is prioritized over communicative competence. In addition, social relationships in the classroom between students and between a student and a teacher are also likely to influence the extent to which feedback (both non-corrective and corrective) leads to learning gains. Icy Lee (2011) has suggested that feedback strategies will only work if teachers believe they can work. However, it would seem that that mismatches between teachers’ beliefs and their feedback approaches are common (Sheen, 2011, p. 49). Researchers have found, for example, that although teachers may believe that the awarding of grades may detract attention away from other comments, they often continue to score students’ work. Likewise, although they may have doubts about the payoff from detailed feedback, they often continue to provide it.

In order to minimize these mismatches, teacher education may be helpful,

but institutional support and allowing teachers to be more autonomous in their classrooms will also be necessary (Lee, 2011). All of these factors interact in complex, inter-related and dynamic ways (Bitchener & Storch, 2016, p. 26), meaning that it is very difficult to predict how a particular learner will react to a particular piece of feedback on a particular aspect of their performance. Clearly, the better teachers and their students know each other, the more likely it is that reaction to feedback will be as hoped for and needed to make our future brighter for students on the road for higher learning goals.

CONCLUSION

The book entitled, “THE JAPANESE EDUCATIONAL CHALLENGE” (1987) by Merry White is a commentary on Japanese elementary school pedagogy. “Maternal socialization is based on the belief that the teacher’s job is to get all children to commit themselves wholeheartedly to hard work. In the United States, a teacher is expected to evaluate individual ability and to praise any level of accomplishment, even in the face of mistakes. In Japan, if the child gets 99 out of 100 right, the teacher will still say, “Not perfect, but it could be so if you REALLY pay attention.”

Further, Merry White invokes the concept of how our rhetoric can affect learning. She clarifies by this comparison, “American educational rhetoric does invoke the idea of “the whole child,” values “self-expression” and promotes emotional engagement to discovery learning.” However, Japanese teaching style, at least in primary schools employs all three in a way that surpasses efforts. White was struck by the spontaneity, excitement (to American eyes) unruly dedication of the children to the new idea. She was similarly impressed with the teacher’s ability to create the mood and cultural assumptions. American pedagogy usually separates cognition and emotional affect, and then creates artificial means for reintroducing “feeling” into abstract mastery. It is rather like the way canned fruit juices are produced—first denatured by the preserving process and then injected with vitamins to replace what is lost. In comparison, Japanese culture is more holistic.” (p. 121-122)

In conclusion, although the feedback process can be a daunting challenge

for most instructors, the ideal goal is to have each student regulate their own levels of improvements. While the concept of the Japanese “Kaizen” may be something to think about here, it is only a stepping stone towards creating a learning environment for Japanese university students to become more independent in their mindset to become the person they are seeking to be in the near future. For the feedback sessions between the instructor through peer and/or individual levels of interaction, the most important aspect of the whole learning experience is to have each student enjoy what they are learning in their coursework to be applied in some future setting at a workplace scenario. In this way, they can work in team-related projects in moving toward the step ladder of success and accomplishments yet to be seen in their future career goals after graduating from the university programs.

As “Kaizen” stands as a dynamic philosophy that permeates through Japanese culture which has gone beyond Japan’s borders, this concept emphasizes the relentless pursuit of continuous improvement. Rooted in the principles of efficiency, waste reduction, and a commitment to ongoing enhancement, “Kaizen” transcends mere methodologies—it becomes a way of life. As we delve deeper into the Japanese ethos, and its dedication to quality and improvement, another concept, “Kodawari” emerges. Kodawari encapsulates a meticulous attention to detail, a devotion to perfection, and an unwavering dedication to craftsmanship. Together, “Kaizen” and “Kodawari” form a harmonious duo, showcasing the Japanese commitment to excellence in both the incremental refinements of processes and the uncompromising pursuit of perfection in every detail. These principles not only shape industries but also reflect a profound cultural mindset that continuously strives for embracing the beauty of refinement and the pursuit of excellence. Keeping this in mind, the feedback communications are the key to the betterment of our educational system for the future.

BIBLIOGRAPHY

- Alshuraidah, A. and Storch, N. (2019). Investigating a collaborative approach to feedback. *ELT Journal*, 73(2), pp. 166-174.
- Bartram, M. and Walton, R. (1991). *Correction*. Hove, Sussex: LTP.
- Biber, D., Nekrasova, T., and Horn, B. (2011). *The Effectiveness of Feedback for L1-English*

- and L2-Writing Development: A Meta-Analysis, TOEFL iBT RR-11-05. Princeton: Educational Testing Service. Available at: [https://www.ets.org/Media/ Research/pdf/RR-11-05.pdf](https://www.ets.org/Media/Research/pdf/RR-11-05.pdf) [Accessed 30 November 2019]
- Bitchener, J. and Storch, N. (2016). *Written Corrective Feedback for L2 Development*. Bristol: Multilingual Matters.
- Burkert, A. and Wally, J. (2013). Peer-reviewing in a collaborative teaching and learning environment. In Reitbauer, M., Campbell, N., Mercer, S., Schumm Fauster, J. and Vaupetitsch, R. (Eds.) *Feedback Matters*. Frankfurt am Main: Peter Lang, pp. 69-85.
- Campbell, N. and Schumm Fauster, J. (2013). Learner-centred feedback on writing: Feedback as dialogue. In Reitbauer, M., Campbell, N., Mercer, S., Schumm Fauster, J. and Vaupetitsch, R. (Eds.) *Feedback Matters*. Frankfurt am Main: Peter Lang, pp. 55-67.
- Dörnyei, Z. (2001). *Motivational Strategies in the Language Classroom*. Cambridge: Cambridge University Press. Doughty, C. (2001). Cognitive underpinnings of focus on form. In Robinson, P. (Ed.) *Cognition and Second Language Instruction*. Cambridge: Cambridge University Press, pp. 206-257.
- Edge, J. (1990). *Mistakes and Correction*. London: Longman.
- Ellis, R. (2009). A typology of corrective feedback types. *ELT Journal*, 63(2), pp. 97-107. Ellis, R., Loewen, S. and Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition*, 28(2), pp. 339-368.
- Ellis, R. and Shintani, N. (2013). *Exploring Language Pedagogy through Second Language Acquisition Research*. Abingdon, Oxon.: Routledge.
- Fanselow, J. (1987). *Breaking Rules: Generating and Exploring Alternatives in Language Teaching*. New York: Longman.
- Ferreira, A., Moore, J. D. and Mellish, C. (2007). A study of feedback strategies in foreign language classrooms and tutorials with implications for intelligent computerassisted language learning systems. *International Journal of Artificial Intelligence in Education*, 17, pp. 389-422.
- Ferris, D. (2002). *Treatment of Error in Second Language Writing Classes*. Ann Arbor: University of Michigan Press.
- Harmer, J. (2015). *The Practice of English Language Teaching* 5th Edition. Harlow: Pearson Education.
- Hattie, J.A.C. (2009). *Visible Learning*. Abingdon, Oxon.: Routledge.
- Hattie, J. and Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), pp. 81-112.
- Hendrickson, J. M. (1978). Error correction in foreign language teaching: Recent research and practice. *The Modern Language Journal* 62, pp. 387-398.
- Hyland, K. (1990). Providing productive feedback. *ELT Journal*, 44(4), pp. 279-285.
- Hyland, K. (2003). *Second Language Writing*. Cambridge: Cambridge University Press.
- Hyland, K. (2019). What messages do students take from teacher feedback? In Hyland, K. and Hyland, F. (Eds.) *Feedback in Second Language Writing*. Cambridge: Cambridge University Press, pp. 265-284. 24
- Hyland, K. and Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching*, 39, pp. 83-101.
- Hyland K. and Hyland, F. (2019a). Contexts and issues in feedback on L2 writing. In Hyland K.

- & Hyland, F. (Eds.) *Feedback in Second Language Writing*. Cambridge: Cambridge University Press, pp. 1-22.
- Hyland, K. & Hyland, F. (2019b). Interpersonality and teacher-written feedback. In Hyland K. & Hyland, F. (Eds.) *Feedback in Second Language Writing*. Cambridge: Cambridge University Press, pp. 165-183.
- Kang, E., and Han, Z. (2015). The efficacy of written corrective feedback in improving L2 written accuracy: A meta - analysis. *The Modern Language Journal*, 99(1), pp. 1-18.
- Kerr, P. (2017a). Giving feedback on speaking. Part of the Cambridge Papers in ELT series. [pdf] Cambridge: Cambridge University Press. Available at https://www.cambridge.org/gb/files/4515/7488/5712/CambridgePapersinELT_FeedbackOnSpeaking_2018_ONLINE.pdf [Accessed 25 February 2020]
- Kerr, P. (2017b). How much time should we give to speaking practice? Part of the Cambridge Papers in ELT series. [pdf] Cambridge: Cambridge University Press. Available at https://www.cambridge.org/gb/files/8415/7488/4554/CambridgePapersinELT_TimeForSpeaking_2017_ONLINE.pdf [Accessed 25 February 2020]
- King, A. (2016). Blended language learning. Part of the Cambridge Papers in ELT series. [pdf] Cambridge: Cambridge University Press. Available at https://www.cambridge.org/gb/files/2115/7488/8334/CambridgePapersinELT_BlendedLearning_2016_ONLINE.pdf [Accessed 25 February 2020]
- Krashen, S. (1982). *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon Press.
- Krashen, S. (1985). *The Input Hypothesis: Issues and Implications*. New York: Longman ELT.
- Lam, R. and Lee, I. (2010) Balancing the dual functions of portfolio assessment. *English Language Teaching Journal* 64(1), pp. 54-64.
- Lee, I. (2011). Feedback Revolution: What Gets in the Way? *ELT Journal*, 65(1), pp. 1-12.
- Lee, I. (2017). *Classroom Writing Assessment and Feedback in L2 School Contexts*. Singapore: Springer.
- Lee, I. (2019). Teacher written corrective feedback: Less is more. *Language Teaching*, 52(4), pp. 524-536.
- Li, S. (2010). The effectiveness of corrective feedback in SLA: a meta-analysis. *Language Learning*, 60(2), pp. 309-365.
- Li, S. and Vuono, A. (2019). Twenty-five years of research on oral and written corrective feedback in System. *System*, 84, pp. 93-109.
- Lyster, R. and Saito, K. (2010). Oral feedback in classroom SLA. *Studies in Second Language Acquisition*, 28(2), pp. 265-302.
- Lyster, R., Saito, K. and Sato, M. (2013). Oral corrective feedback in second language classrooms. *Language Teaching*, 46(1), pp. 1-40.
- Maas, C. (2017). Receptivity to learner-driven feedback. *ELT Journal*, 71(2), pp. 127-140.
- McGarrel, H. and Verbeem, J. (2007). Motivating revision of drafts through formative feedback. *ELT Journal*, 61(3), pp. 228-236.
- McKay, P. (2006). *Assessing Young Language Learners*. Cambridge: Cambridge University Press.
- Mercer, S. and Ryan, S. (2013). Praising to learn: Learning to praise. In Reitbauer, M., Campbell, N., Mercer, S., Schumm Fauster, J. and Vaupeitsch, R. (Eds.) *Feedback Matters*. Frankfurt am Main: Peter Lang, pp. 21-36.
- Nakatsukasa, K. and Loewen, S. (2017). Non-verbal feedback. In Nassaji, H. and Kartchava, E. (Eds.) *Corrective Feedback in Second Language Teaching and Learning*. New York, NY: Routledge, pp. 158-173.
- Nassaji, H. (2017). Oral feedback in response to written errors. In Nassaji, H. and Kartchava, E.

- (Eds.) *Corrective Feedback in Second Language Teaching and Learning*. New York, NY: Routledge, pp. 114-128.
- Nation, I. S. P. (2009). *Teaching ESL / EFL Reading and Writing*. New York: Routledge.
- Olesova, L. and Richardson, J. (2017). The effectiveness of feedback in asynchronous online courses for non-native speakers of English. In Carrier, M., Damerow, R.M. and Bailey, K.M. (Eds.) *Digital Language Learning and Teaching*. New York: Routledge. pp. 79-92.
- Rinvoluceri, M. (1994). Key concepts in ELT: Feedback. *ELT Journal*, 48(3), pp. 287-288. Bibliography 25
- Scrivener, J. (2012). *Classroom Management Techniques*. Cambridge: Cambridge University Press.
- Sheen, Y. (2011). *Corrective Feedback, Individual Differences and Second Language Learning*. Dordrecht: Springer.
- Stannard, R. (2017). A genuine innovation in the delivery and form of feedback on students' written work. In Carrier, M., Damerow, R.M. and Bailey, K.M. (Eds.) *Digital Language Learning and Teaching*. New York: Routledge, pp. 179-187.
- Stevenson, M. and Phakiti, A. (2019). Automated feedback and second language writing. In Hyland, K. and Hyland, F. (Eds.) *Feedback in Second Language Writing*. Cambridge: Cambridge University Press, pp. 125-141.
- Storch, N. (2013). *Collaborative Writing in L2 Classrooms*. Bristol: Multilingual Matters.
- Storch, N. and Aldossary, K. (2019). Peer Feedback: An activity theory perspective on givers' and receivers' stances. In Sato, M. and Loewen, S. (Eds.) *Evidence-based Second Language Pedagogy*. New York: Routledge, pp. 123-144.
- Tigchelaar, M. and Polio, C. (2017). Language-focused peer corrective feedback in second language writing. In Nassaji, H. and Kartchava, E. (Eds.) *Corrective Feedback in Second Language Teaching and Learning*. New York, NY: Routledge, pp. 98-113.
- Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language Learning*, 46(2), pp. 327-369.
- Truscott, J. (1999). What's wrong with oral grammar correction. *The Canadian Modern Language Review*, 55(4), pp. 437-456.
- Ur, P. (2012). *A Course in English Language Teaching*. Cambridge: Cambridge University Press.
- Valenzuela, H. (2005). Colourful Correction. *Modern English Teacher* 14(2), pp. 42-44.
- White, Merry (1987) *The Japanese Educational Challenge: A Commentary about Children*, p.121-122.
- White, R. V. & Arndt, V. (1991). *Process Writing*. London: Longman.
- Zhang, L. J. and Rahimi, M. (2014). EFL Learners' Anxiety Level and their Beliefs about Corrective Feedback in Oral Communication Classes. *System*, 42, pp. 429-439