The Role of Corrective Feedback as a Metacognitive Support in Learning and Assessment: An Interview with Dr. Lawrence Jun Zhang[1]

Mohammad Kazemian[2], Guilan University of Medical Sciences, Rasht, Guilan, Iran
Fatemeh Khonamri[3], University of Mazandaran, Babolsar, Mazandaran, Iran
Danial Babajani Azizi[4], Khazar Institute of Higher Education[5], Mahmoudabad, Mazandaran, Iran

Abstract

A wide array of studies has shown that corrective feedback (CF) in the process of language learning is fruitful. In the present interview Dr. Lawrence J. Zhang, a professor of linguistics-in-Education at The University of Auckland, New Zealand, shares some of his contributions to the role of CF as a metacognitive support in learning and assessment.

Resumen

Una amplia gama de estudios ha demostrado que la retroalimentación correctiva (CF) en el proceso de aprendizaje de idiomas es fructífera. En la presente entrevista, el Dr. Lawrence J. Zhang, profesor de lingüística en educación en la Universidad de Auckland, Nueva Zelanda, comparte algunas de sus contribuciones al papel de la CF como apoyo metacognitivo en el aprendizaje y la evaluación.

Professor Lawrence Zhang's Contribution to the Applied Linguistics Community[6]

Lawrence Jun Zhang, Ph.D., is Professor of Linguistics-in-Education and Associate Dean for the Faculty of Education and Social Work, at The University of Auckland, New Zealand. His major interests and publications are on the psychology of language learning and teaching, especially learner metacognition, L2 reading-writing development and teacher assessment literacy relating to corrective feedback. His publications have appeared in top journals such as *Applied Linguistics* (Oxford), *Applied Linguistics* Review (de Gruyter), *British Journal of Educational Psychology* (Wiley), *Discourse Processes* (Routledge), *Journal of Second Language Writing* (Elsevier), *Journal of Psycholinguistic Research* (Springer), *Modern Language Journal* (Wiley), *TESOL Quarterly* (Wiley), *Language Teaching Research* (Sage), *RELC Journal* (Sage), *System* (Elsevier), *Journal of Multilingual and Multicultural Development* (Routledge), *Frontiers in Psychology* (Frontiers Media), *Current Psychology* (Springer), among others. He serves on editorial boards for *Applied Linguistics Review* (de Gruyter), *Australian Review of Applied Linguistics* (Benjamins), *Chinese Journal of Applied Linguistics* (de Gruyter), *Journal of Second Language Writing* (Elsevier), *Metacognition and Learning* (Springer), *Journal of Second Language Studies* (Benjamins), *Language Teaching for Young Learners* (Benjamins) and *RELC Journal* (Sage). He is Co-Editor-in-Chief for *System* (Elsevier) and Associate Editor for *Frontiers in Psychology* (Frontiers Media). He was honored by the TESOL International Association (USA) in 2016 with the award of "50 at 50", which acknowledged "50 Outstanding Leaders around the world in the field of TESOL". In the Stanford University Rankings 2022, he was listed in the top 2% of Scientists in the World in the disciplinary areas of Linguistics/Applied Linguistics/Language Education. (https://loop.frontiersin.org/people/795735/overview)

Introduction

A great number of studies have demonstrated the effectiveness of corrective feedback (CF) in the process of language learning (e.g., Hamidi, et al., 2022; Jamali & Khonamri, 2014). A key challenge for a lot of teachers is to acknowledge the extent to which their students engage in and learn from the learning processes. According to Daniels and Daniels cited in Wiliam (2010), feedback is one way through which teachers will be able to learn where their students stand in relation to a specific objective and what help they can provide to learners to get there. Different forms of feedback have been proposed and utilized in

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[2] m_kazemiansanati@yahoo.com, 0000-0002-1517-1174
[3] fkhonamri@yahoo.com, 0000-0002-6833-5347
[4] danialbabajani@yahoo.com, 0000-0002-7205-4417
[5] Department of English Language
[6] Photo provided by Dr. Zhang.

language teaching/learning history, which, according to Chong (2019), include direct/indirect (explicit/implicit language error correction), focused/unfocused (selective/comprehensive language error correction), synchronous (real-time or delayed error correction, metalinguistic (correction that offers explanations on the nature of language errors), dynamic (language error correction strategy that is designed based on needs of individual learners), computer-generated/mediated (language error correction assisted by educational technology), and alternative CF (feedback provided by peers). Guided metacognitive feedback has also been recently used to assist student in learning. Moreno (2004) contends that this form of feedback is useful for decreasing the cognitive load of inexperienced students highlighting the belief that when learners actively engage and construct knowledge through meaningful interactions with the materials, teachers and peers, learning happens.

In a recent study, however, Chong (2022) argues for the need to change the focus of investigation from feedback information to feedback process and feedback ecology. This means that instead of focusing on the impact of feedback, now we need to mainly focus on learners' and teachers' perceptions of feedback and then move on to focus on learners' and teachers' engagement with feedback and influences of such engagement on their learning. In other words, there has been a paradigm shift of CF research from a more "positivistic worldview" which is concerned with whether CF works to a more "social constructivist" viewpoint which investigates how learners understand and engage with CF (Chong, 2022). Such paradigm shift means it is required to rethink and re-examine the concept of CF with the purpose of bringing vast improvements to the teaching/learning process.

Moreover, the concept of metacognition has been identified as a key element of support in student learning and problem solving (Bransford, et al.,1999). Flavell (1987) introduces two important processes closely associated with metacognition: (1) monitoring one's cognitive activities; and (2) doing appropriate regulatory measures when encountering trouble. Both of these abilities can increase with maturation, yet the role of appropriate educational opportunities that can prompt metacognitive development and in turn enhance subsequent learning is undeniable (e.g., Sun & L. J. Zhang, 2022). An interview with Dr. Lawrence Zhang was conducted to gain a better insight into this matter and understand how corrective feedback has evolved over time, and also to find in what ways feedback and metacognition can support each other and learners. In answering several questions about the above-mentioned issues and concepts with a special focus on CF in writing courses, Zhang clarifies with vivid examples from several research studies how and why the corrective feedback has moved the way it has. This interview was carried out via email correspondence.

Interview

Interviewers: *According to Hyland and Hyland (2006), how does feedback alter the cognitive process?*

Zhang: It requires two parties for feedback to take effect: the feedback provider and in most cases, they are teachers in the context of language teaching and learning, and the student, the recipient of such feedback. Because the process involves both parties, indeed, in a way, the student's cognitive processes could be altered by the teacher's feedback. In other words, students may think of their writing processes somewhat differently. This is also what I believe as the pedagogical effects of teacher intervention. If we often direct students to the areas in which they need to improve for producing better pieces of writing, then feedback provision is significant (L. J. Zhang & Cheng, 2021). As you also notice, the way feedback is provided differs among teachers, given that we are all individuals who have our own lived experiences as regards how our own teachers provided feedback to us and how we finally go away with the uptake (L. J. Zhang, 2016). Cheng and I have investigated this phenomenon among EFL teachers in China (see Cheng & Liu, 2022; Cheng & L. J. Zhang, 2021b). That said, I have to point out that in order for feedback to take effect, the process must be reciprocal. In other words, students are expected to respond to feedback and then there will be uptake. Otherwise, the feedback the teacher provides/offers becomes futile. In our review of Hyland and Hyland (2019), we thought this is an important aspect in second language writing pedagogy (see Xu & L. J. Zhang, 2020).

Interviewers: *Do you see a relationship between metacognition and corrective feedback? I mean, do you think that metacognitive instruction will improve the effectiveness of corrective feedback?*

Zhang: Before we move on to discuss the relationship between metacognition and corrective feedback, we need to have a good understanding of the two notions. The reciprocity of the relationship between the two has been found in empirical studies (e.g., J. Zhang & L. J. Zhang, 2022). It is generally agreed that feedback is indispensable in the process of teaching and learning writing, especially in the English as a foreign

language (EFL) context (Zhang, 2022). So, I strongly believe that learners who have developed a solid base of metacognitive knowledge are better informed of the strategies to use for taking up corrective feedback. They are also better able to appropriate teachers' corrective feedback in their revisions of the texts they produce. The more often they adopt various feedback strategies, the better able they become in understanding the what, how, when, and where of feedback use. First, what is metacognition? Our quick search of the literature tells us that metacognition is crucial to effective learning. In my own work (L. J. Zhang & D. Zhang, 2018), I regard metacognition as vital to foreign language learning, including learning how to write in other foreign/second languages. When Flavell (1979) proposed the notion, he was aware that it is about an individual's "knowledge and cognition about cognitive phenomena" (p. 906). This construct is now mainly divided into metacognitive knowledge and metacognitive regulation. The former is about our "knowledge of cognition" and "awareness of our cognition" and the latter embraces 'consciously planning, monitoring, and evaluating cognitive activities' (Harris et al., 2010, p. 231). These authors think that metacognitive regulation works as "potent catalysts for developing competence and promoting performance in writing" (p. 231) and I cannot agree more. In the latest work with my PhD student, we have elaborated on the notion of metacognitive regulation and metacognitive experiences in relation to foreign/second language writing research (Sun et al., 2021). Given the important role of metacognitive knowledge and metacognitive regulation, I can say that learners will benefit from developing such metacognitive knowledge and strategies in using corrective feedback. Teachers who know what to do and how to provide feedback will equally benefit from such pedagogical efforts. Researchers have found that planning, monitoring and evaluation are the core elements of metacognitive strategy use. Planning is a series of action learners could employ to predict, allocate time and effort, select strategies, set goals, and make plans to achieve these goals (Brown, 1987; Pintrich, 2004; Schraw et al., 2006).

Interviewers: *What about the other way round? Does feedback contribute to the development of metacognitive skills and metacognitive knowledge? And if so, how?*

Zhang*:* Understandably, research has confirmed the role that feedback plays in promoting L2 or EFL Writing development (e.g., Ferris & Roberts, 2001; Hyland & Hyland, 2019; Yang et al., 2013; Zhang & Cheng, 2021). Feedback is a common pedagogical strategy used in classrooms by teachers for improving learning. Hattie and Timperly (2007) argue that "feedback is one of the most powerful influences on learning and achievement, but this impact can be either positive or negative. Its power is frequently mentioned in articles about learning and teaching, but surprisingly few recent studies have systematically investigated its meaning" (p. 27). Their review and conceptual discussion of feedback in educational settings in relation to its evidence on learning shows that feedback is among the major influences, but "the type of feedback and the way it is given can be differentially effective" (p. 102). In their view,

> *feedback is … information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding. A teacher or parent can provide corrective information, a peer can provide an alternative strategy, a book can provide information to clarify ideas, a parent can provide encouragement, and a learner can look up the answer to evaluate the correctness of a response. Feedback thus is a consequence of performance. (p. 102).*

In teaching L2 writing, teachers' wise or appropriate use of feedback with their students will have an impact on how these students conceptualize feedback and its functions in improving their learning and/or writing development. Over time, the different kinds of feedback teachers provide to their students will help ameliorate students' knowledge base about what is good writing and the effective ways of improving writing. The two main types of feedback that we know about when we go into any English writing class, teacher feedback and peer feedback, are the means by which students are scaffolded to develop their writing proficiency. In the long run, students will enhance their metacognition of writing, particularly L2 or EFL writing by virtue of their frequent use of feedback as a powerful strategy for writing improvement.

Interviewers: *Research has indicated that guided metacognitive feedback is effective in preparing students for future learning. What is your opinion about this?*

Zhang: I cannot agree more on this point. The key point is about how, when, and where such metacognitive feedback should be provided. Given the mutually beneficial roles of feedback and metacognition, provide feedback with metalinguistic explanation is a way of enhancing students' metacognition and the feedback becomes "metacognitive" in nature. If we go back to Flavell (1979) again, we see that "metacognitive knowledge is that segment of … stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions, and experiences…. Metacognitive experiences are any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise … metacognitive knowledge and metacognitive experiences differ from other kinds only in their content and

function, not in their form or quality… Metacognitive experiences can activate strategies aimed at either of two types of goals—cognitive or metacognitive" (pp. 906–907). Reading Flavell again makes our thinking much clearer in that if students reap the benefit of metacognitive feedback, they realize its value. As a result, they are better prepared for future learning. Having said this, we need to bear in mind that metacognition should be construed as something embedded in language learning, which is intertwined with many variables, both cognitive and sociocultural. As I wrote in L. J. Zhang (2010) and L. J. Zhang and D. Zhang (2013), "being complex and dynamic, metacognition entails that learners' metacognition has to undergo continuous change and adaptation with respect to their different metacognitive experiences, which are to be enacted upon by learners and induced by the learning tasks, task environments, and sociocultural-sociopolitical contexts, where learning takes place in its 'situated' locales (p. 115). T. F. Zhang's (2021) recent study has further clarified the role that highly-focused vs mid-focused teacher written feedback played in helping students develop explicit and implicit knowledge, which is a kind of metacognitive understanding of learning, and more specifically, about the utility of written corrective feedback.

Interviewers: *In writing classes, does feedback contribute more to summative assessment or formative assessment of students' writing ability? And why or why not?*

Zhang*:* Both summative assessment and formative assessment should serve the purpose of assessment for learning (AfL). Unfortunately, in summative assessment, most teachers are more concerned about students' performance marks seen in grades and scores in their writing outputs. If we read closely, we see that AfL has five core AfL strategies: Clarifying goals and criteria; making use of classroom discussion and questions to elicit evidence of learning; providing effective teacher feedback; peer-assessment; and self-assessment (Wiliam, 2010). These strategies are important, but they should not be understood as isolated or stand-alone entities (Wu et al., 2021). Having such an understanding means that these strategies should be incorporated in assessment practice that can play out the AfL functions for promote learning and self-regulation (Hawe & Dixon, 2017). In the case of written feedback provision, in my view, formative assessment goes hand in hand with corrective feedback, which should be expected to help leaners develop their L2 writing ability. It is worth noting that written feedback does not only refer to the provision of very local, grammatically-driven pedagogical practices but also global or text-level feedback that guides students to produce coherent pieces of writing expected to express their ideas logically as well as grammatically correctly.

Interviewers: *Why is it better to accompany teacher feedback with peer feedback in writing classes?*

Zhang: Classroom dynamics are driven by many factors, one of which is learner agency. If the whole class is dominated by teacher feedback, learner agency is dimmed, and as a result, teacher monologue and student inertia are typical patterns of classroom pedagogical procedures. We all know that the best practice should be a harmonious collaboration between the teacher and the students. Inviting peers to participate in the feedback provision practice not only promotes students' motivation to learn but also consciously or subconsciously raises their awareness of various aspects of learning to write and the written texts as well.

Interviewers: *Do you think that due to more technological advancements in the near future, automated feedback will become more prevalent in writing classes? If so, why?*

Zhang: Automated feedback has recently become popular and research on its effect has also been growing (Jiang et al., 2022; Ranalli, 2018; Sarré et al., 2021; Tian & Zhou, 2020, Zhu et al., 2020;). Ranalli (2018) explored the factors that might affect L2 writers' use of automated feedback for correction purposes. He found that higher perceptions of mental-effort expenditure, lower ratings of clarity and helpfulness and specific feedback might enable L2 writers to successfully correct errors in their writings than generic feedback. Zhu et al. (2020) investigated the effect of automated feedback on young L1 learners' revision behavior and learning gains in argumentative writing. They revealed that contextualized feedback was more effective in facilitating young learners' writing. Barrot (2021) investigated the effect of automated feedback on L2 writing accuracy, showing that automated feedback could improve L2 writers' writing accuracy through promoting their noticing, offering an adaptive metalinguistic explanation, and facilitating their engagement in self-directed learning. The utility of automated feedback in comparison to teacher feedback and/or peer feedback, in my view, is relative to writing task design and student engagement. For example, Wu and W. Zhang (2016) found that EFL learners preferred teacher feedback to automated feedback and that automated feedback might induce more self-revision. So, each type of feedback has its own role to play and I wouldn't say that automated feedback is what I prefer, but if teachers are really overwhelmed with marking students' writing assignments, then using automated feedback can be a solution. Otherwise, I think rotating use of these types of feedback will create more learning opportunities for students. After all, teachers as

human beings are the real agents for change, who also exhibit individual differences in the way they perceive the usefulness of automated feedback and enact in their teaching practice, as shown in Jiang et al. (2022).

Interviewers: *To what extent does technological literacy lead teachers to utilize automated feedback?*

Zhang: Teachers' decision on using automated feedback obviously requires a good command of useful technologies or software programs/platforms. In other words, technological literacy is fundamental to their motivation to engage their students with automated feedback. Their belief in the value of such technologies will also be a determining factor, I think.

Interviewers: *Which factors do affect L2 writers' use of automated feedback for correction purposes?*

Zhang: Research has shown, and what we know from our common knowledge, is that that all technologies are created by humans. As we see in many professions and platforms, AI does really play a significant role, but the real accuracy and adequacy of correction and feedback need experienced and knowledgeable people to make judgement. I would like to assume that automated feedback, teacher feedback and peer feedback play complementary roles in L2 writers' choices. Some factors are personal others are environmental and the complexity of L2 writing *per se* is the main factor that affects L2 writers' decision on whether to use automated feedback.

Interviewers: *Could automated feedback substitute for human correction?*

Zhang: Like any other profession, humans cannot be substituted, and as explained above, I believe we as teachers cannot be replaced given the complexity of L2 writing and the wide array of individual differences among L2 writers and learners. Learning to write is not simply a technical process but also a process of dynamic interactions among all possible factors involved in the writing process and the act of writing itself. I have elaborated on this point in my recent work (Zhang, 2022).

Interviewers: *As you know corrective feedback is developed cognitively in social-cultural theory (SCT) and Dynamic Assessment (DA) is rooted in SCT, what are the commonalities of hints and prompts that we provide in each of them to the students? How are the hints and prompts in DA different from corrective feedback?*

Zhang*:* Teachers who have their students in mind in order to help them grow in language proficiency or writing development know that any theory undergirding their pedagogical decision-making must serve the purpose of serving their students' needs. I think the two theoretical perspectives are best reflected in the extent of explicitness in teachers' pedagogical behavior. Corrective feedback can be said to be more explicit and Dynamic Assessment might be more implicit, with an intention of drawing out the best from students' performance. But, as the saying goes, "all roads lead to Rome". So, teachers are the best agents for change, and their actions depend on their decision to make choices among the options available.

Interviewers: *Which feedback type, among self, peer, teacher, and automated, do you prefer? Why?*

Zhang: The available studies contributed tremendously to our understanding of the role of automated feedback, teacher feedback, and peer feedback in L2/EFL writing. Teachers' feedback in writing instructions is to facilitate students to grow into more independent writers. I do not have any particular preference. Instead, I would like to use any of the feedback type on the basis of what I need on a particular day in completing a specific writing task. In other words, my decision will be really task-specific instead of one that is made a priority.

Conclusion

In this interview, we discussed the role of corrective feedback as a metacognitive support in learning and assessment with Professor Lawrence Zhang. Our discussions were based on a number of inquiries: first, to the question of whether feedback altered the cognitive process, he responded that the process needed to be reciprocal so that feedback would be beneficial. Then, we asked whether metacognitive instruction would improve the effectiveness of corrective feedback (CF). Zhang believes that learners with a thorough grounding in metacognition are better equipped with the strategies to use for taking up CF.

Regarding whether feedback contributes to the development of metacognitive skills and metacognitive knowledge, Zhang said feedback is a means of developing performance which effectively impacts on learners' writing skill. He also stated that two possibilities exist with regard to its agency such as teacher and peer. When it comes to metacognitive skills and knowledge, the frequent use of feedback and the way it is expressed in conceptualization on the part of the learners are also of importance.

The fourth concern of the interview was to explore whether guided metacognitive feedback was effective in preparing students for future learning or not. He wholeheartedly agreed on the point. He highlighted the

importance of the number of Wh-questions in metacognitive feedback which should be provided. Considering the mutually prominent roles of feedback and metacognition, we therefore need to make provisions for feedback- along with metalinguistic explanation.

Another question was related to understanding whether feedback contributed more to summative assessment or formative assessment of students' writing ability. Zhang argued that formative assessment and CF are intertwined with each other.

The next question sought the reasons for why it was better to accompany teacher feedback with peer feedback in writing classes. He said that not only does peer feedback promote students' motivation, but it also consciously or subconsciously helps them develop a sense of awareness of different components of learning in a written form of the language.

The seventh concern was related to whether Zhang thought that due to more technological advancements in the near future, automated feedback would become more prevalent in writing classes. He asserted that the prevalence of automotive feedback compared with teacher feedback or peer feedback has something to do with writing task design and student engagement. Moreover, each type of feedback has its own function. Zhang also added that cyclical use of the types of feedback will create the chance of more learning for students.

The eighth question explored the extent to which technological literacy led teachers to utilize automated feedback. His response was that computer literacy is a must for those teachers who intend to implement automated feedback.

The ninth inquiry revolved around those factors which affected L2 writers' use of automated feedback for correction purposes. He said that different types of feedback, that is, automated feedback, teacher feedback, and peer feedback, played supporting roles in L2. When asked whether automated feedback could substitute for human correction, he stated that teachers cannot be replaced with automated feedback due to the complexity of L2 writing and wide difference of learners. About the commonalities of hints and prompts of CF and dynamic assessment (DA), Zhang mentioned that CF can be considered more explicit and DA might be more implicit. Lastly, in terms of which feedback type (self, peer, teacher, automated) Zhang preferred, he chose task-specific feedback regarding a certain situation.

In conclusion, as stated earlier in the Introduction, even though corrective feedback has been prolifically investigated, there are still many doubts about the what, how, when and who aspects of the process. Reading Zhang's viewpoints as an expert in this area would definitely be enlightening for many teachers who have their reservations and uncertainties about the concept.

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