

Institution: University of Edinburgh		
Unit of Assessment: 4		
Title of case study: E: A novel teaching method based on the theory of Interactive Alignment is in widespread use in schools and universities in China and results in improved levels of English		
Period when the underpinning research was undertaken: 2000 – 2016		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Holly Branigan	Personal Chair in Psychology of Language and Cognition	1999 – present
Martin Pickering	Personal Chair in Psychology of Language and Communication	2000 – present
Period when the claimed impact occurred: 2016 – 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>Underpinning Research: Edinburgh Neuroscience researchers developed the psychological theory of Interactive Alignment, which states that during dialogue, speakers spontaneously converge on the same words and grammar (i.e. “align” their language). This leads to alignment of their representations of the situation and underlies mutual understanding. The same process takes place whether speakers use their native language or a second language.</p> <p>Significance and Reach of Impact: Based on the theory of Interactive Alignment, the Continuation Task was developed for teaching English as a second language in China. The Continuation Task is now in widespread use in middle schools and universities in at least 8 provinces in China, reaching more than 3,000,000 students. The Continuation Task has since 2016 formed part of the key national university entrance exam Gaokao (taken by 600,000 students each year), is used in a standard textbook bought by 26 universities since 2016 and has been recognised in 2 prestigious teaching awards. Students taught by this method achieve significantly (16%) higher levels of English writing proficiency than students taught by traditional methods.</p>		
2. Underpinning Research		
The Challenge: How do speakers align their grammar and word choices?		
<p>It is well known that when two people interact, they come to express themselves in similar ways. Edinburgh Neuroscience researchers Branigan and Pickering have led the way in elucidating the psychological basis of this tendency and providing experimental evidence for it.</p> <p>Branigan and Pickering were the first to discover that English-speaking adults spontaneously adopt the same grammatical structures, i.e. show ‘syntactic alignment’, in dialogue. Using experiments where two people played a game in which they described and matched pictures representing events, the researchers found that the interlocutors (people taking part in the dialogue) repeated each other’s grammatical (i.e. syntactic) choices; for example, if one partner had just described a picture using one syntactic structure, the other partner regularly described the next picture of an unrelated event using the same structure [3.1].</p> <p>Branigan and Pickering’s work has demonstrated that this strong and largely unconscious tendency to align occurs in both speech [3.1] and writing [3.2], and also in other languages including Mandarin and Cantonese Chinese [3.3]. They also showed that alignment results in long-term learning: English-speaking children syntactically align during conversation with an adult, and this alignment persists over time and helps them to learn and master complex syntactic structures that they would otherwise be unable to use independently [3.4].</p>		
Interactive Alignment underlies mutual understanding during dialogue		

In a seminal paper in 2004, Pickering, together with Professor Garrod (University of Glasgow) proposed the theory of Interactive Alignment, which argues that interlocutors *automatically* align their representations at *all* linguistic levels [3.5]. They used their earlier work as the basis for syntactic alignment, and in addition synthesised evidence for alignment of sounds, words, and aspects of meaning. In summary, interlocutors align all these representations, and alignment at one level (such as word choices) enhances alignment at other levels (such as syntax). This, in turn, leads to alignment of the interlocutors' situation models (representations of the situation under discussion) and constitutes a key mechanism of mutual understanding [3.5].

Applications of Interactive Alignment in second language use and learning

The novel insight that alignment occurs at all linguistic levels, with the levels reinforcing each other, and that this alignment mediates both understanding and long-term learning, readily lends itself to teaching of foreign languages. The Edinburgh Neuroscience researchers studied the role of Interactive Alignment in dialogue involving at least one non-native speaker of the dialogue language, and theorised that the core principle of alignment would apply in second language *use*, but with a greater role for conscious decisions about what to say [3.6]. In addition, the theory of Interactive Alignment was applied to second language *learning* by an independent group, who assumed that the tendency to repeat words and syntax would lead to language learning, and used this to develop an academic tool to study the mechanisms of second language acquisition (McDonough, K. and A. Mackey. 2006. *Language Learning* [doi: 10.1111/j.1467-9922.2006.00393.x](https://doi.org/10.1111/j.1467-9922.2006.00393.x)).

The theory of Interactive Alignment [3.5] and its subsequent considerations of its use in both second language use [3.6] and acquisition now form the basis of a novel method of second language teaching whereby learners are presented with a passage of text and actively encouraged to engage with it (see section 4 below).

3. References to the research

[3.1] [Branigan, H. P., Pickering, M. J., & Cleland, A. A. \(2000\). Syntactic co-ordination in dialogue. *Cognition*, 75\(2\), B13-B25. \[doi: 10.1016/S0010-0277\\(99\\)00081-5\]\(https://doi.org/10.1016/S0010-0277\(99\)00081-5\)](#)

[3.2] [Branigan, H. P., Pickering, M. J., Pearson, J., McLean, J. F., & Nass, C. I. \(2003\). Syntactic Alignment Between Computers and People : The Role of Belief about Mental States. *Proceedings of the Cognitive Science Society*, 28\(9\), 186–191.](#)

[3.3] [Cai, Z. G., Pickering, M. J., Yan, H., & Branigan, H. P. \(2011\). Lexical and syntactic representations in closely related languages: Evidence from Cantonese-Mandarin bilinguals. *Journal of Memory and Language*, 65\(4\), 431–445. \[doi: 10.1016/j.jml.2011.05.003\]\(https://doi.org/10.1016/j.jml.2011.05.003\)](#)

[3.4] [Branigan, H. P., & Messenger, K. \(2016\). Consistent and cumulative effects of syntactic experience in children's sentence production: Evidence for error-based implicit learning. *Cognition*, 157, 250–256. \[doi: 10.1016/j.cognition.2016.09.004\]\(https://doi.org/10.1016/j.cognition.2016.09.004\)](#)

[3.5] [Pickering, M. J., & Garrod, S. \(2004\). Toward a mechanistic psychology of dialogue. *The Behavioral and Brain Sciences*, 27\(2\), 169-190; discussion 190-226. \[doi: 10.1017/S0140525X04000056\]\(https://doi.org/10.1017/S0140525X04000056\)](#)

[3.6] [Costa, A., Pickering, M. J., & Sorace, A. \(2008\). Alignment in second language dialogue. *Language and cognitive processes*, 23\(4\), 528-556. \[doi: 10.1080/01690960801920545\]\(https://doi.org/10.1080/01690960801920545\)](#)

4. Details of the impact

Development of the Continuation Task based on theory of Interactive Alignment

In 2015, prominent applied linguists in China, Professors Chuming Wang and Min Wang, used the theory of Interactive Alignment as the basis of a new method for teaching a foreign

language: the Continuation Task [5.1]. This method builds on the core idea of the theory of Interactive Alignment – that alignment mediates mutual understanding during dialogue – and extends it further by postulating that the same process of alignment can be harnessed to facilitate second language acquisition through the tendency of learners to align to the language of competent speakers.

Wang and Wang suggested that, in a learning context, a passage of text in the target language can provide both the language and the situation to which to align. When the task instruction is to continue the incomplete story in the passage in the most logical way possible, the learner must consciously align with the situation in order to conceive of an ending, and can simultaneously pick up linguistic elements from the text provided, thus aligning with the language. The two forms of alignment would reinforce each other, as predicted by the model of Interactive Alignment, and thus yield improved ability in the language [5.1].

The paper publishing the Continuation task [5.1] cites 6 papers from the Edinburgh Neuroscience group (out of 29 references). Furthermore, Professor Min Wang states that the Continuation Task “*drew heavily on the body of work from University of Edinburgh researchers, specifically the theory of Interactive Alignment (Pickering & Garrod, 2004) [3.5] and the underlying experimental work conducted by Branigan, Pickering and colleagues (such as Branigan, Pickering, & Cleland, 2000) [3.1]. The core premise of the Continuation Task is drawn directly from the theory of Interactive Alignment, and as such, the Continuation Task could not exist in its present form if the theory of Interactive Alignment and its associated empirical underpinnings had not been published*” [5.2].

Impact on educational policy

In the mid-2010s, the Chinese Ministry of Education (MoE) led a programme to revise the secondary school curriculum to cultivate higher-level thinking and learning skills. This led the National Education Examinations Authority (NEEA) to reform the national university entrance exam (the Gaokao, taken by 600,000 students each year), to better reflect the new teaching objectives. Since proficiency in foreign languages, and English in particular, is considered a highly valuable skill in China, there was a particular openness to improved practices in teaching English. To identify suitable new tasks for this purpose, the NEEA consulted educationalists and linguists and commissioned research. Following an MoE review of the task, the Continuation Task was adopted into the Gaokao in 2016 [5.3].

Dr Jie Zheng, leader of the research project that validated ratings for the new Gaokao tasks noted: the Continuation Task “*fits the objectives of the revised teaching syllabus very well. [...] Students need to fully understand the given text and take notice of important messages in order to extend the story [...]. They can also, consciously or unconsciously, pick up linguistic resources in the original text to help them continue writing. The creation of proper content requires creative and logical thinking. These skills are very important in the new teaching syllabus and will be helpful for their further academic studies in university*” [5.3].

Dr Zheng furthermore highlights that “*The psychological theory underpinning the task was an important consideration when adopting the task, as it provides a strong scientific basis for the cognitive processes that the task completion engages*”. [5.3].

Zhejiang Province adopted the Continuation Task during the new Gaokao’s pilot stage (2016-2019). By the end of 2020, 5 x 600,000 = 3,000,000 students had been tested using the task. Further provinces including Shandong, Yunnan, Beijing and Tianjin adopted the task during the second stage, which began in 2020 [5.3].

Impact on educational practice

As the Gaokao effectively determines admission to tertiary education in China, considerable importance is placed upon it by teachers and students. To ensure students are appropriately prepared, all 591 secondary schools in Zhejiang Province now use the Continuation Task in daily teaching.

Use of the Continuation Task in secondary school teaching also extends beyond Zhejiang Province. A conference on the task was held in Guangzhou Province in 2015 [5.4], attended by 140 English teachers. A subsequent survey revealed that at least 50 primary and secondary school teachers had implemented the Continuation Task into their everyday teaching [5.5]. Further uptake of the task in secondary school teaching is enabled by its inclusion in professional development courses; for example, Prof Min Wang has lectured on the use of the task to approximately 90 secondary English teachers from Shaanxi Province every year since 2014, and thus had reached approximately 540 teachers by 2019 [5.2].

The Continuation Task has also been incorporated into routine language teaching practice in University courses. 8 universities (Dalian, Ji'nan, Suzhou, Xi'an Jiaotong, Northwest, Chongqing, Guangdong and Sun Yat-Sen) have provided certificates attesting to using the task for teaching foreign languages, with Dalian praising the “*strong operability*” of the task and stating that it has “*facilitated students’ English learning effectively and efficiently*” [5.6]. At Xi'an Jiaotong University alone, approximately 5,040 students have already benefited from this method (3 teachers * 8 classes per teacher * 35 students per class * 6 years).

Use of the Continuation Task in universities is facilitated by a series of textbooks (authored by Prof Min Wang; ISBN 978-7-5135-7944-5) focused on teaching written English, which provide students with exercises based on the Continuation Task. According to the publisher’s information in August 2020, the series has sold 23,008 copies since publication in 2016, and been purchased by 26 universities [5.7].

The success of the Continuation Task in improving foreign language teaching was recognised in Education and Teaching Achievement awards in Guangdong and Shaanxi Provinces in 2018. These prizes are awarded to teams and individuals who have greatly improved teaching quality through original and practical methods [5.8]. Such prizes are important criteria for promotion, and as such, demonstrate the prestige with which the method is considered.

Impact on students’ English ability and career prospects

In their original publication introducing the Continuation Task, Professors Wang and Wang demonstrated that Chinese students made 32% fewer grammatical errors and used a wider vocabulary in English when producing a completion to a story presented in English (i.e. allowing Interactive Alignment) than when the same story was presented in Chinese (not allowing Interactive Alignment) [5.1]. Moreover, a recent study of 131 Chinese undergraduate students with comparable baseline ability demonstrated that when taught using a method based on the theory of Interactive Alignment and using the Continuation Task, students achieved a 16% improvement from the baseline test scores in writing proficiency, compared with 3% improvement in students who had been taught using the traditional method ($p < 0.001$) [5.9].

The higher English proficiency achieved by the students taught using the Continuation Task [5.9] will not only help them communicate better with English speakers, but also confer improved career and economic opportunities, as proficiency in English can lead to demonstrable advantages on the Chinese job market. Published studies have shown that English proficiency has positive effects on college graduates’ starting salary, probability of changing permanent residence status from rural to urban and on future earnings potential. These returns are even higher for women than for men [5.10a, b].

5. Sources to corroborate the impact

[5.1] Wang, C., & Wang, M. (2015). Effect of Alignment on L2 Written Production. *Applied Linguistics*, 36(5), 503–526. [doi: 10.1093/applin/amt051](https://doi.org/10.1093/applin/amt051)

[5.2] Testimonial from Professor Min Wang attesting to the influence of the theory of Interactive Alignment on the rationale and formulation of the Continuation Task, dated 30th June 2020

[5.3] Testimonial from Leader of research project Validation of Rating Scales for the Integrated Tasks in Gaokao English Test

[5.4] Details of the 2015 conference on using the Continuation Task

[5.5] List of secondary school teachers contacted

[5.6] Certificates by 12 Chinese universities, secondary schools and primary schools using the continuation task (all in Chinese; 3 have been translated as an example). Quote is from Dalian University of Foreign Languages.

[5.7] Textbook sales figures from publisher Foreign Language Teaching and Research Press
a. Letter from publisher providing sales figures up to 28th May 2019; in Chinese
b. Translation of May 2019 letter from publisher
c. Updated figures provided by publisher in August 2020 to Professor Min Wang via Wechat

[5.8] Education and Teaching Achievement Awards in a. Guangdong b. Shaanxi Provinces

[5.9] Wang, M., Cai, Z.G., Branigan H.P. & Pickering, M.J. (2021) Encouraging alignment in instructed second language learning improves learners' language production proficiency. Submitted to *Psychological Science* in February 2021.

[5.10] Published papers showing advantages of proficiency in English in the Chinese job market

a. Guo, Q. & Sun, W. (2014). Economic returns to English proficiency for college graduates in mainland China. *China Economic Review*, 30, 290-300 [doi: 10.1016/j.chieco.2014.07.014](https://doi.org/10.1016/j.chieco.2014.07.014)
b. Wang, H., Smyth, R., & Cheng, Z. (2017). The economic returns to proficiency in English in China. *China Economic Review*, 43, 91-104 [doi: 10.1016/j.chieco.2017.01.004](https://doi.org/10.1016/j.chieco.2017.01.004)