

Technology-Mediated English Grammar Learning by Chinese Learners: A Case Study

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Abstract

Traditional paper-based in-class writing tasks are common when we teach students English grammar in universities. Nowadays, technology including artificial intelligence (AI) can assist students' learning. Using an experiential approach to learning, this study firstly attempts to reveal the extent to which technology-mediated grammar learning across course-topics can be realised. Secondly, it aims to report students' evaluation of this approach of technology-mediated grammar learning. Methodologically, this study embraces a learning model of "experiencing, reflecting, thinking and acting." It integrates technology tools and student-centred activities of a course "English Grammar." At the term-end, 30 year-2 students posted their responses to open-ended questions onto the University's online forum. The technology tools include (a) an in-house online platform, (b) Open AI, c) websites and d) YouTube. The hands-on practices cover topics: (i) thesis statements, (ii) effective writing, (iii) functions of writing, and (iv) parts of speech. Students use their smartphones to (a) post paragraphs onto a university's online forum when elaborating on a topic, (b) use OpenAI to generate myths of effective writing and discuss their flaws, (c) search for fundraiser websites and evaluate functions of writing, and (d) browse YouTube and explore parts of speech in song lyrics. The above has revealed technology-mediated grammar learning across topics can be successfully realised through experiential learning. Students' qualitative comments regarding this integrated approach are: 1) paper-pencil writing tasks are perceived as "old-fashioned," 2) authenticity and interaction through technology meets their expectations, 3) the development of AI causes them to question the significance of grammar learning.

Keywords: technology-mediated grammar learning, experiential learning, L2 English

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Introduction

When it comes to teaching and learning English grammar in higher education, core topics of the course are clearly stated in a course syllabus. Traditionally, those topics include parts of speech, topic sentences and supporting ideas, functions and effectiveness of writing, etc. In today's world, technology develops rapidly, particularly with the prevalent use of Artificial Intelligence (AI), and this definitely has an impact on how our students should learn English grammar through technology. In this study, the first aim is to examine the extent to which technology-mediated grammar learning can be implemented across course topics. That is, course topics can be well-designed to be taught by integrating different technology tools into teaching and learning English grammar; this purposefully embraces both action research approach and an experiential learning theory. The second aim is to present students' qualitative feedback on this integrated approach combining technology-mediated and language learning.

Over the past decades, action research has evolved to incorporate digital technologies, participatory approaches, and applications in multilingual and AI-enhanced learning environments. Action research is widely recognised as a practitioner-driven, cyclical methodology aimed at improving professional practice through systematic inquiry. Originating with Kurt Lewin (1946), who conceptualised research as iterative cycles of planning, action, and evaluation. Anne Burns (1999, 2010, 2019) positions action research in education discipline as a tool for teacher development and classroom innovation. Contemporary studies (Bradbury, 2022; Paulus & Wise, 2019; Stringer, & Aragón, 2021) highlight its value for empowering practitioners, generating context-specific knowledge, and addressing complex educational and social challenges. To comply with action research approach, experiential learning is also key in education. According to Kolb (1984), "experiential learning is the process whereby knowledge is created through the transformation of experience" (p. 41). Beard and Wilson (2013) also state that

experiential learning often has formalized processes where people take time out to reflect on what has happened during an activity.... In effect, formal and experiential learning processes have varying elements of each other and learning might be considered more of a continuum of authenticity. (p. 39)

In this study, the two approaches of action research (see Burns 2010, 2019) and experiential learning (see Beard & Wilson 2013; Boyatzis & Mainemelis 2001; Kolb & Kolb 2009; Kolb, Malinen 2000) are adopted. Specifically, the following two aims of this study are presented below:

1. To examine the extent to which technology-mediated grammar learning can be implemented across course topics.
2. To present students' qualitative feedback on this integrated approach combining technology-mediated and language learning.

Literature Review

Experimental Learning

To begin, Hutton (1989) states that "experiential learning is learning that is rooted in our doing and our experience. It is learning which illuminates that experience and provides direction for the making of judgments as a guide to choice and action" (p. 51). Beard and

Wilson (2013) explain that “The insight gained through the conscious and unconscious internationalization of our own or observed experiences which build upon our past experiences or knowledge” (p. 16; see Norma, 2010; among many others). In experiential learning theory proposed by Kolb and Kolb (2009), there are major propositions that the foundational experiential learning scholars shared. Those major propositions are briefly quoted (2009) as follows.

Learning:

1. is best conceived as a process, not in terms of outcomes. To improve learning in higher education, the primary focus should be on engaging students in a process that best enhances their learning.
2. is best facilitated by a process that draws out the students’ beliefs and ideas about a topic so that they can be examined, tested and integrated with new, more refined ideas.
3. requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.... In the process of learning one is called upon to move back and forth between opposing modes of reflection and action and feeling and thinking.
4. is a holistic process of adaptation. It is not just the result of cognition but involves the integrated functioning of the total person – thinking, feeling, perceiving and behaving.
5. results from synergetic transactions between the person and the environment. (pp. 43-44)

Kolb and Kolb (2009) further elaborate the experiential learning model as (see McLeod 2017)

an idealized learning cycle or spiral where the learner ‘touches all the bases’ – experiencing, reflecting, thinking and acting – in a recursive process that is responsive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and reflections. (p. 44)

To conclude, this section has highlighted those key notions of experiential learning derived by Kolb and Kolb (2009). The notions include: Concrete Experience, Abstract Conceptualization, Reflective Observation and Active Experimentation. When taking those four core notions of an experiential learning framework into account, the method has embedded active experimentation and reflective observation by specific task design and interview questions, embracing the notions of abstract conceptualization and concrete experience.

Methodology

This section is to explain the two methods with specific task design, targeting at achieving the two aims of this study correspondingly.

Method 1: Action-Based and Experiential Learning Approach

This study firstly aims to examine the extent to which technology-mediated grammar learning can be implemented across course topics. As such, this study has purposefully employed four designated technology tools for students in class, and this is basically to have embraced the framework of “experiential learning” – learning from doing (Kolb & Kolb, 2009). Specifically, given four different topics of the course titled “English grammar,” 30 students in class were carefully guided to employ the four specific technology tools when learning the

following course topics. Students in class were expected to use their smartphone or tablet when achieving the following tasks.

Task 1

- Technology tools: in-house online learning platform named “OLE”
- Focused course topic: A topic sentence and supporting ideas
- Activity: In class, students are expected to use their smartphones or iPads to: (a) post “paragraphs in English” onto an in-house online learning platform “OLE” after selecting some random topics such as:
 - What supernatural power would you like to acquire? Why?
 - What would you do if you were at the end-of-life stage and why?
 - What colour would you like to represent you? Why?

Task 2

- Technology tools: University’s supported Azure Open AI
- Focused course topic: Myths of English writing
- Activity: Students are expected to use the University’s Azure OpenAI to and then discuss:

To generate 10 myths about English writing and critique their shortcomings, for instance,

- You must never spilt an infinitive.
- You must never end a sentence with a preposition.

Task 3

- Technology tools: online websites
- Focused course topic: functions of writing – informative, persuasive, etc.
- Activity: Students are expected to use their smartphones or iPads to: c) examine crowdfunding platforms (e.g. kickstarter.com) to assess clarity and persuasive writing functions in texts targeting potential backers
 - To what extent would those selected written descriptions of a product or service strongly appeal to you as a potential backers (as an investor)?
 - Comment on those words or sentences that particularly draw your attention. Why?

Fundraising websites (e.g. kickstarter.com) are introduced to students, and students are asked to browse any projects with descriptions in English that appeal to them.

Task 4

- Technology tools: YouTube
- Focused course topic: Parts of speech

- Activity: Students are expected to use their smartphones or iPads to: (d) watch YouTube film songs, analysing lyrics with respect to parts of speech

Song types include:

- Aladdin – Prince Ali Lyrics
- The Princess and the Frog

Watch a video clip (Aladdin – Prince Ali Lyrics) and find out different parts of speech/phrasal structures

Method 2: Qualitative Student Feedback Through On-line Discussion Platform

To collect data for addressing the second aim of this study, at the end of the term, the cohort of 30 students was invited to voluntarily submit their reflections on the integrated technology-mediated grammar-learning approach via the University's online discussion platform. It should be noted that the sample size is not large, but it is worth investigating and collecting narrative responses from students who experienced the use of all four technology tools namely in-house online learning platform, university-supported Open AI tools, websites and YouTube.

The goal of this method is to collect the users' perceived values when integrating technology into learning English grammar; it is not about evaluating the effectiveness of this teaching and learning method. Those four discussion questions include:

- Do you favour paper-based grammar exercises over technology-mediated tools such as apps or websites in classroom learning? Please explain.
- Do you agree that artificial intelligence (AI) supports learners in producing grammatically accurate English?
- In AI era, how important do you consider English Grammar Course for students?
- Any other comments?

Results and Discussion

Implementation of Technology-Mediated L2 English Grammar Learning

Task 1 – Our In-House Online Learning Platform Named “OLE”

Student Sample Work: Topic – What supernatural power would you like to acquire? Why?

If I can have a supernatural power, it will be teleportation. I like to travel around the world but the flight tickets are always expensive. If I possess the ability to teleport to wherever I want, I could save a bunch of money. Moreover, this ability can be very useful in daily life too. I won't have to worry about being late since I can just teleport. No need to go out early for traffic, and save more time for myself.

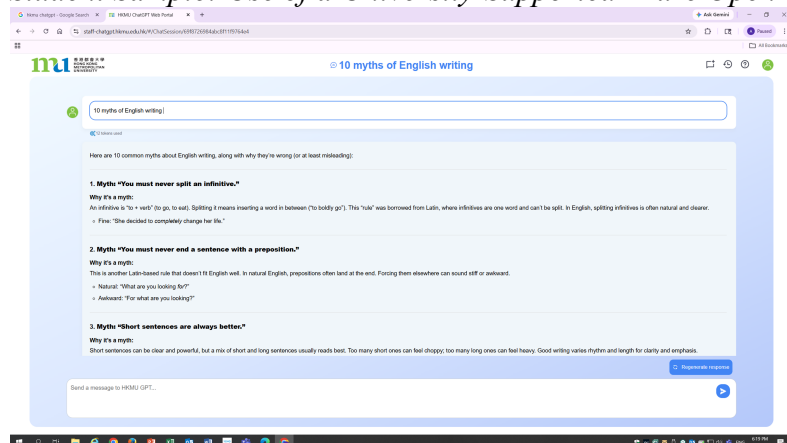
Task 2 – University's Supported Azure Open AI

The following figure is a student sample work when using a university-supported Azure Open AI. Students in class refer to the feedback shown by OpenAI and students discuss whether they fully agree to, particularly with respect to traditional grammar and modern usage approaches to writing.

Feedback from Open AI: Rule 1: You must never spilt an infinitive. This rule was borrowed from Latin, where infinitives are one word and can't be split.

Figure 1

Student Sample: Use of a University-Supported Azure OpenAI Service



Task 3 – Online and Authentic Websites

In class, students are introduced the informative and persuasive functions of writing, and they are trained to learn how to pitch in English so as to attract readers' attention. Traditionally, students are given a writing task and then asked to write on paper for completing a selling task. When integrating technology into teaching and learning this course topic, students were guided to explore authentic fundraising websites and to investigate how appealing a real product or service was. Specifically, one of the authentic fundraising websites among many others is “kickstarter.com” and it is a platform from which the public can read those written descriptions of business products or services. Students in class were expected to find out if the public can be highly convinced to be a “backer” who is willing to back up this business idea. For example, the following is one extract from many business ideas (source: kickstarter.com):

Why This Product?

- LOCKLERY comes as a six-piece set of two knives, two spoons and two forks, all made of high quality stainless steel and FDA grade materials, designed in an elegant shape
- LOCKLERY is also eco-friendly, using sustainable polymers like Polypropylene (PP) and Thermoplastic Rubber (TPR), making it a responsible choice for the environmentally conscious design lover

Students were required to give critical comments on those English descriptions such as the uses of what adjectives, concrete or mass nouns which could lead to a small or big number of backers, with respect to the writing style or other visual communication strategies, etc.

Task 4 – YouTube: Film Extracts

Students in class watched a film extract with song and its lyrics, and they were expected to complete an English grammar worksheet – identifying parts of speech and phrasal structures in English (see Figure 2) while enjoying a film extract. The choice of film songs vary and

they can be musical genre such as Aladdin – Prince Ali lyrics or other genres which students would love to watch.

Figure 2

In-Class English Grammar Worksheet While Watching a Film Extract

The screenshot shows a web browser window with the title 'Aladdin – Prince Ali lyrics'. The lyrics are displayed on the left, and a list of grammar comments is on the right. Red lines connect specific words or phrases in the lyrics to their corresponding comments.

Aladdin – Prince Ali lyrics

<https://www.bing.com/videos/search?q=youtube+whole+song+musical+aladdin+prince+ali+&view=detail&mid=9B7144A5BDF45751462F9B7144A5BDF45751462F&FORM=VRDGAR>

Prince Ali! Fabulous he!
 Ali Ababwa
 Genueflect, show some respect
 Boy, genueflect

[genuflect: lower one's body briefly by bending one knee to the ground]

Down on one kneel
 Now, try your best to stay calm
 Brush up your Sunday salaam
 Then come and meet his spectacular coterie

[coterie: a small group of people with shared interests or tastes]

Prince Ali!
 Mighty is he!
 Ali Ababwa
 Strong as ten regular men, definitely!
 He faced the galloping hordes
 A hundred bad guys with swords
 Who sent those goons to their lords?

Comments:

- Comment [01]:** Noun phrase
- Comment [02]:** Verb phrase
- Comment [03]:** Verb
- Comment [04]:** Now = adverb
- Comment [05]:** Noun phrase – Sunday salaam
- Comment [06]:** Verb phrase – brush up your Sunday salaam
- Comment [07]:** Noun phrase – your Sunday salaam
- Comment [08]:** Verb phrase – come and meet...
- Comment [09]:** Inverted sentence: He is Mighty vs Mighty is he; Knocking at the door is Mary vs Mary is knocking at the door. Another example: Down the street lived the man
- Comment [10]:** Adjective phrase: Strong (adjective) as (preposition) ten regular men

Note.

<https://www.bing.com/videos/riverview/relatedvideo?q=youtube%20aladdin%20songs&mid=F417180850603F37FECBF417180850603F37FECB&ajaxhist=0>

To conclude, the above section has clearly showcased the implementation of those L2 English grammar learning tasks via the uses of four specific technology tools namely in-house online learning platform, university-supported Open AI tool, websites and YouTube.

Students' Qualitative Feedback on This Technology-Mediated L2 English Learning

To recap, there are four discussion questions (see below) for our students, and they aim to collect qualitative feedback on this technology-mediated L2 English learning through the University's online learning discussion platform. Out of 30 respondents, the respondent rate is 67% (20).

1. Do you favour paper-based grammar exercises over technology-mediated tools such as apps or websites in classroom learning? Please explain.
2. Do you agree that artificial intelligence (AI) supports learners in producing grammatically accurate English?
3. In AI era, how important do you consider English Grammar Course for students?
4. Any other comments?

Students' Representative Direct Quotes

It's boring to only use paper-pen to write in class. It's old fashioned!

The use of technology appeals to most of us because I can type and browse through some apps and websites. Class time seems to move fast.

It's more authentic to use websites or apps or AI when working out our in-class exercises.

The use of technology when learning grammar should be promoted because we prefer not to sit and write in class.

AI is very useful when writing anything, and their English is of course better than our standard.

I like using AI to correct my writing and I found that they have clear explanations on what is wrong and what is correct.

AI is great! It's quick to produce good English. My concern is that I cannot write properly when there is no AI available.

English grammar learning is just one subject and I just want to get better scores.

AI develops superfast, we can simply ask AI to write and I don't think English grammar class is important.

Concluding the above section, the results of qualitative feedback have revealed that: a) paper-based writing tasks are perceived as “old fashioned,” b) authenticity and interaction through technology tools meet students' expectations, and c) the development of AI causes them to question about the significance of grammar learning. Specifically, students responded that they perceive that implementing technology-mediated L2 English grammar learning is what they expect, and traditional paper-pen writing in class is counted as boring or old fashioned. Students reveal that they would use their smartphones or tablets to browse authentic materials from the real-world, rather than from textbooks. All in all, most students accepted this kind of hands-on experiential learning approach to learning. It should be also noted that some students' qualitative feedback cast some doubts on significance of their learning English grammar in university due to rapid AI development.

Conclusion

In summary, this qualitative study has clearly pointed to the results that students' experimental learning of L2 English grammar via numerous technology tools can be implemented across different course topics. Conventional paper-based writing approach in class should not be counted as an only way of teaching English grammar. Clearly, technology-mediated English grammar learning is well-accepted by our target university students and the technology tools include in-house university's learning platform, Open AI, websites and YouTube, etc. Throughout this study, students' hands-on experiential learning with the effective use of smartphones or tablets in class can be demonstrated. Students' qualitative comments have also revealed that: a) paper-based writing tasks are perceived as “old fashioned,” b) authenticity and interaction through technology while learning are expected, and c) casting doubts on significance of students' grammar learning due to AI development is found. Admittedly, the sample size of this study is small and the findings have limited generalizability.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that no AI or AI-assisted technologies have been used to generate, refine or correct the content in the manuscript.

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