

Wiki-based Collaborative Writing in Second Language Classes

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Abstract

Wiki-based collaborative writing has been increasingly implemented in second language (L2) contexts due to its distinctive interactive features. The study reviews 26 empirical studies on wiki-based collaborative writing published from 2010 to 2019 in top-tier SSCI (Social Science Citation Index) journals. Holistic analysis of these articles has been conducted. Through the analysis of these empirical studies, the article provides the pedagogical and empirical rational for the use of collaborative writing activities in L2 classes; meanwhile, it provides some guidelines about how to best implement such activities in both face-to-face and online activities so as to amplify the learning opportunities for L2 learners. Finally the multiple research strands that deserve further examination are presented so as to encourage researchers to continue investigating collaborative writing activities.

Keywords

Wiki, Collaborative Writing, Second Language Classes.

1. Introduction

As the rapid development of Web 2.0 tools that afford participation and collaboration at an unprecedented level, web-based collaborative writing has gained increasing popularity in second/foreign language(L2) learning contexts. Among these tools, wikis, developed by Ward Cunningham in 1994, have become a potentially ideal platform for collaborative writing. It is designed for multiple users to easily build websites and web pages. As Wikis provide an ease of online word processing, it is a useful interface for peer modifying that requires learners to add or delete content and for peer editing that requires learners to attend to linguistic forms and correct the ungrammatical forms. Wikis, a medium to focus on language use, can assist EFL learners to raise metalinguistic awareness in writing, as the "history" function in the Wiki lists. All the edits in which changes are emphasized by highlighting. The result of peer editing is presented in a noticeable form which can help learners to identify changes easily. In addition, the function of discussion in the Wiki offers a writing space for readers to respond. Electronic feedback can assist L2 writers to focus on larger writing blocks. With these technology-enhanced functions, such as tracking, Wiki is particularly appropriate for teaching and learning of writing activities.

Previous studies demonstrate multiple benefits for wiki-based collaborative writing, such as enhancing audience awareness [1], developing communication skills [2], encouraging critical thinking [3], improving language accuracy[4] and so on. Nevertheless, the disadvantages of wiki writing are also obvious. For instance, teachers may have difficulties in assessing individual contribution and engagement in collaborative writing[5]; and it's also possible to reduce competition or individual contribution through use of wikis. By analyzing the existed wiki-based writing studies, the present study aims to provide guidelines about how to best implement collaborative writing activities in L2 classes..

2. Theoretical Background

Collaborative writing was originally defined by Ede and Lunsford [6], who clarified its three distinctive features: first, substantive interaction throughout the writing process; second, shared decision-making and responsibility for the text produced; third, a joint written product. Later, Storch [7] depicted it as an activity in which learners interact, negotiate meaning, and make joint decisions in the whole writing process and produce a single text with shared responsibility and co-ownership. In its broadest sense, collaborative writing means the co-authoring of a text by two or more writers [4]. From this perspective, peer editing and peer planning can be also considered as collaborative writing.

One important theory that informs wiki-based collaborative writing is sociocultural theory or social constructivism, since collaborative writing is considered as a social activity in which learners interact, negotiate meaning, and scaffold each other's learning and writing development. The sociocultural constructs that guide wiki writing primarily include Zone of Proximal Development (ZPD), collective scaffolding, language mediation, activity theory and community of practice [8]. Vygotsky [9] emphasized that collaborative learning is essential for helping each student in advancing through his or her own ZPD, that is to say, the gap between what the learner could accomplish alone and what he or she could fulfil by cooperating with others who are more experienced or skilled. Scaffolding was clarified by Wells [10] as "a way of operationalizing Vygotsky's concept of working in the ZP". Its first step is to provide support with other rules for learners' self-regulation or for exceeding their ability to fulfil a task. Once learners acquire certain knowledge or skills, removing or gradually reducing support is the second step for them to work on independently. Guided by the construct of mediation that posits language, as a critical source of mediation, is a form of social communication that enables the novice and expert to plan, coordinate, and review their actions [10]. Li and Kim [11] analyzed mediating functions of the language used in the wiki communication discourse during negotiation of task, reflected in multiple language functions including acknowledging, agreeing, requesting and eliciting. The activity theory by Leont'ev's [12] also provided guidance for [13], which explored how changing convergent or divergent goals may explain small groups' dynamic interactions in wiki-based collaborative writing. Learning is viewed as increasing participation in the community of practice [14] and as interacting to fulfil tasks together, negotiate and learn from each other. This can inform researchers to explore how learners negotiate meaning and co-construct online texts compared with individual writing, just like the study conducted by Elola and Oskoz [15].

In addition to the above-mentioned sociocultural theory/socio-constructivism, some other theories such as collaborative learning, autonomous learning, content-based instruction, process writing, and task-based learning, may also guide researchers to design wiki-based collaborative writing activities. Specifically, extending on Littlewood's [16] the autonomous learning behaviors composed of willingness and ability and the role of individuals as communicator and learner, Kessler and Bikowski [17] explored how learners demonstrated collaborative autonomous language learning in the wiki space. Mak and Coniam [18] got insights from the process writing and task-based approach, and designed an effective wiki writing task for secondary school ESL students working in groups and creating a school brochure to be disseminated among parents. Additionally, Arnold, Ducate, and Kost [19] drew on the distinction between cooperation and collaboration in collaborative learning, and investigated students' revision processes, interaction patterns, and task roles in wiki-based collaborative writing.

These theories can provide effective guidance for researchers to design and implement collaborative wiki writing activities.

3. Methodology

3.1. Research Questions

In this study, the following research questions are investigated:

What research contexts and technology tools have been investigated? What online writing tasks have been implemented? What research focuses have been addressed? What research instruments have been adopted?

How do the reviewed studies inform pedagogy and future research?

3.2. Research Procedure

To collect studies for analysis in this paper, the authors reviewed relevant peer-refereed journal articles published over the last decade after keyword searching via Baidu Scholar. Specifically, the authors conducted advanced search on Baidu Scholar, using the combination of key words “Wikis”, “collaborative writing”, and “L2” or “second language” or “foreign language”, with the publication dates set between 2010 and 2019. It should be noted that the term L2 is used as a broad term to refer to both second and foreign languages, although there are actually important differences between second and foreign language contexts.

The authors then examined all the articles (primarily based on titles and abstracts) and narrowed down the selection of articles for inclusion according to the following criteria: 1) studies published in established peer-refereed CALL-centered or L2 learning-focused SSCI journals; 2) empirical studies, excluding those focusing on theoretical analysis or meta-analysis; 3) truly collaborative writing activity using a Wiki. In this review, collaborative writing is adopted in its broad sense. The empirical study addressing the task of peer response (e.g. [20]) was also included. However, the following studies are excluded: (a) studies that focus on first language or native language; (b) studies that are published in languages other than English.

To avoid omitting some relevant studies, the reference lists of the selected papers are also carefully examined. Twenty-six articles were thus selected for close review from the following journals: Computer Assisted Language Learning, Language Learning & Technology, CALICO Journal, Journal of Second Language Writing, System, ReCALL, Foreign Language Annals, English for Specific Purposes, Computers & Education, Educational Technology Research and Development, Interactive Learning Environments, Journal of Educational Technology and Society. Table 1 describes the distribution of empirical studies reviewed in this article.

3.3. Results

The twenty-six articles are thoroughly reviewed and the findings in relation to the first research question are presented. With assistance of illustrative tables, the authors provide a clear picture of the current body of literature by depicting a detailed research matrix and expounding on specific research lines.

3.3.1. Overview of Selected Articles

Using a holistic approach, the authors take an overview of the twenty-six articles by displaying the key information from the aspects of context and technology, theoretical/pedagogical framework, writing task, research focus, and research instruments. In this section, the synthesized findings in relation to all these aspects are discussed. The table attached (see the appendix) displays the matrix of these selected articles. To help understand publication trend over the years, these articles were ordered by years, with the publications of the same year sequenced in an alphabetical order.

3.3.2. Context and Technology

The studies were predominantly conducted in the higher education L2 context (23 out of 26), including seventeen in the ESL/EFL context. A very few studies were conducted in other

contexts like German as a Foreign Language (GFL) context, Spanish as a Foreign Language (SFL) context, Turkish as a Foreign Language (TFL) context as well as an additional one involving three foreign language classes (German, Spanish, and French). The remaining two studies [21][22] were conducted in primary school ESL/EFL contexts, both in Hong Kong. The majority of the Web 2.0 tools used for collaborative writing primarily include Wikispaces, PBWiki (PBWork) and MediaWiki. Wikispaces are utilized most often by researchers. In particular, a study by Elola & Oskoz [16] explored the use of online chats together with wikis docs for collaborative writing.

Table 1. Distribution of empirical studies on wiki-based writing.

Journal Title	Number of articles	Article
Computer Assisted Language Learning	8	Qing Ma(2019); Alghasab and Handley(2017); Zou, Wang & Xing (2015); Wang (2014) ; Nami, F. , & Marandi, S. S. (2014) ; Li and Zhu (2013); Daniel. Castañeda & Cho . (2013);Kessler and Bikowskl (2010)
Language Learning & Technology	6	Hsu & Lo (2018); Li and Zhu (2017a); King (2015); Aydin & Yildiz (2014); Elola and Oskoz (2010); Kessler(2009)
CALICO Journal	2	Arnold et al. (2012); Kost (2011); Lee (2010)
Journal of Second Language Writing	2	Li and Zhu (2017b); Li and Kim (2016)
System	1	Li (2013)
ReCALL	1	Bradley et al.(2010)
Foreign Language Annals	1	Ducate et al. (2011)
English for Specific Purposes	1	Kuteeva (2011)
Computers & Education	1	Wichmann, A., & Rummel, N. (2013)
Educational Technology Research and Development	1	Woo, Chu & Li (2013)
Interactive Learning Environments	1	Chao and Lo (2011)
Journal of Educational Technology and Society	1	WOO, Chu, Ho & Li (2011)

3.3.3. Writing Tasks

Guided by sociocultural theory, wiki-based collaborative writing tasks draw on the collective efforts within pairs or groups. The majority of studies (e.g. [19][3][23][24]) analyzed collaborative writing activities within small groups (3 to 5 members per group), a few in pairs (e.g. [16] [25])), and one in a large group (e.g. [17]). Connecting to pedagogical frameworks, the writing tasks utilized in these studies included the following four genres: 1) conventional writing genres (such as narration, exposition, summary, comparison/contrast) involved with collaborative autonomous learning (e.g. [2]); 2) academic writing genres (e.g. research proposal and annotated bibliography) related to process writing (e.g. [24]); 3) specific topic-related genres (such as reflection/poster on the topic of culture) that implement content-based instruction and 4) genres in the real-life contexts (such as school brochure) dealing with task-/project-based learning.

3.3.4. Research Instruments

The archives of wiki “history” and “discussion” constituted the major data sources. Most studies (e.g. [26][19][3]) drew on the archives of ‘History’ to track the collaborative writing processes, particularly involving text co-construction and attention to forms. A few studies (e.g. [27]) utilized the discussion records to examine the task and language negotiation during collaborative writing activities. Chat records (including voice chats and written chats) and/or screen records were also utilized to supplement with collaborative writing using wikis/Google-docs (e.g. [15]). Moreover, data such as questionnaire survey, interviews and reflection papers (e.g. [11] [28][29]) were collected in the studies to examine students’ perceptions of peer interaction, computer-mediated collaborative writing, and technology affordances. Furthermore, online essays were collected and graded in the studies that investigated collaborative writing qualities (e.g. [29]), and writing tests were utilized in order to evaluate the effect of wiki-based collaborative writing on students’ learning in L2 writing (e.g. [2]).

3.3.5. Research Focuses

To figure out the research focuses of these reviewed studies, the author discusses specific research strands regarding three main research themes that have been explored in the previous literature: (a) Interaction/writing processes, (b) Writing products/outcome, and (c) Learners’ perceptions.

Interaction/writing processes

The first research area lies in students’ interaction and writing process in wiki-based collaborative writing. The research has been informed by sociocultural constructs such as scaffolding, language mediation, and activity theory. There are two studies considering factors influencing interaction, such as goals, mode of communication, task representation perception of peer feedback, etc [30]. The rest can be classified into three types as shown in Table 2: (1) revision behaviors, (2) online discussion, (3) patterns of interaction.

Table 2 Studies on interaction process

Research area	Major findings
Revision behaviors	Correcting grammatical or word errors, expanding or reorganizing ideas Providing web links Adding new information, deleting useless information, synthesizing information Rephrasing, reordering, revising Grammatical changes as well as word choice changes Restructuring organization, content Revision on linguistic, stylistic aspects.
online discussion	Expressing disagreement or agreement, planning tasks, assign the task Content discussion, language negotiation Discussing language functions Providing and seeking feedback, requesting clarification
Peer interaction and patterns of interaction	Free rider, team player, leader Collaborative patterns, dominant-dominant, dominant-passive, expert/novice Cooperation vs. Collaboration Collectively contributing/mutually supportive

Writing products/outcome

The second research area lies in the discussion of online writing products. This area can be generally classified into three types: (1) joint writing qualities (e.g. complexity, accuracy, coherence, genre structure), with a few studies comparing the qualities of collaborative writing and those of individual writing; (2) links between writing processes and writing products; and (3) individual writing development.

Most studies have shown the positive effects of collaborative writing on the overall writing qualities. There are also some studies revealing conflicting results. For instance, some studies, such as Elola & Oskoz [15], failed to detect the significant differences in fluency, accuracy and complexity when comparing online group writing and individual writing, but in terms of content selection and organization, the online group score statistically higher. In contrast, a recent study conducted by Hsu and Lo [31] discovered that wiki-mediated collaborative writing had significant positive effects on content quality and linguistic accuracy of learners' individual writing in L2, whereas the obvious effects on the organization and linguistic complexity were not detected.

Learners' perceptions

Learners' perceptions of wiki-based collaborative writing have been widely investigated in these studies, as shown in the following table. It is discussed from the three subcategories as indicated in Table 3, including perceived benefits of wiki-based collaborative writing, perceived challenges, and learners' perceptions of their group work and interaction.

Table 3. Learners' perceptions of wiki-based collaborative writing

Themes	Major findings
Perception of benefits	Improve content quality and linguistic accuracy of individual writing
	Encouraging critical thinking
	Enhancing writing confidence
	Pooling resources and enriching writing perspectives
	Increasing individual autonomy
Perceptions of challenges	Arousing higher motivation
	Inadequate language proficiency
	Unequal participation
	Difficulty in managing time constraints with group members' different opinions
	Difficulty in reaching coownership
Perceptions of group interactions	Learners' reluctance to comment
	Individual contribution not valued
	Sense of accomplishment
	lacking the sense of belonging in some degree
	Significance of both inter-group and intra-group interactions
	Lacking the true collaboration

4. Conclusion

4.1. Pedagogical Implications

The current study shows that wiki is an excellent platform for learners to author content for L2 learning and co-construct meanings by writing collaboratively and learning from each other. However, there are also some obvious difficulties to overcome. To ensure the effectiveness of

wiki-based collaborative activities, the factors such as group size, writing task, evaluation, learner training should be taken into consideration. When grouping students for wiki-based collaborative writing, it is necessary to limit the group size and fully consider the group members' individual language proficiency, that is, balancing strengths and weaknesses and leveling the playing field.

The types of writing tasks are considered as crucial for the effectiveness of wiki-based collaborative writing. The reviewed studies primarily utilized the following four types of tasks: first, the conventional writing genres such as exposition, argumentation, etc.; second, specific topic-related genres such as creative writing based on given literature; third, academic writing genres such as research proposal; finally, project-based real-life contexts. The designed tasks should be goal-oriented and fully consider learners' proficiency and interests. Multimodal writing tasks could be considered further to attract learners' attention.

Carefully-designed training is also essential especially for those novice learners who are not familiar with the technology. Meanwhile, teachers should prepare students: giving them practice, helping them develop common Language, and providing them occasions to make decisions collaboratively. In a word, before the collaborative work, it's necessary to scaffold students to effectively conduct collaborative learning and increase their awareness of the importance of collective efforts.

Evaluation is another important factor to decide the effectiveness of the online collaborative work. The evaluation criteria need to reward both the quality of individual contributions and that of the co-authored text, both the discussion process and the writing quality. It's essential to provide cooperation within groups and competition between groups. The idea of combining collaboration with competition is common in the workplace, and they will benefit from the experience if we give them opportunities to see the benefits and challenges of both approaches in the classroom, especially in the college classroom.

4.2. Implication for Future Research

Firstly, most current studies concentrate on short-term gains with the treatment duration less than a term and the emphasis of the goal is just on improvements in linguistic accuracy. Clearly further research needs to be undertaken on the impact of collaborative writing on L2 learning as well as L2 writing. When writing collaboratively, learners may be exposed to new ways of thinking about a topic, new ways of presenting and organising ideas, and new ways of approaching a writing task. Thus future research on the outcomes of collaborative writing needs to adopt a broader definition of gains, one that considers improvement in linguistic accuracy and complexity and in writing quality as well as in composing processes and confidence. Such investigations need to be longitudinal, because the impact on the writer may not become evident immediately or necessarily after a single collaborative writing experience.

Secondly, the nature of small group relationships in wiki projects needs additional investigation, and the impact such relationships have on learners' contributions and engagement with each other's postings should be also investigated further. We need to gain a greater understanding of why learners form different types of relationships.

Thirdly, the longitudinal studies on learners' attitudes to collaborative writing should be further discussed. It may provide us with a better understanding of learners' observed behaviour in collaborative writing tasks. This research needs to be informed by current approaches to research on language learning beliefs in which beliefs are investigated longitudinally and in context, using a range of tools, beyond surveys, and which take into account the interaction between beliefs and actions.

The last related topic for further investigation in wiki collaborative writing is the notion of text ownership. A sense of a shared ownership of the text produced is one of the defining traits of collaborative writing. Research on wiki writing projects has revealed educational context, a

collective notion of text ownership may take time to develop. In addition, wikis can be combined with other technologies to facilitate the online group collaboration, which should be further explored.

Acknowledgements

This work was supported by Key Fund Project of Sichuan Provincial Department of Education (Grant No. 18SA0297) and National University Foreign Language Teaching and Research Project (Grant No. 2018SC0055A).

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Appendix: The matrix of the 26 empirical studies

Studies	Learner types and context	Technology	Theoretical framework	Writing task	Research focus	Research instruments
Qing Ma(2019)	37 first year students in a university in Hongkong	Wiki website	Sociocultural theory	Each group co-planned and cowrote a book chapter with each member contributing around 900 words.A total of nine wiki chapters were produced by the students.	How inter-group peer online feedback provided on a wiki EAP writing assignment could contribute to students' writing processes and improve the quality of their final versions.	peer online comments (inter-group feedback),teacher comments, wiki writing, online survey
Hsu & Lo (2018)	52 EFL students, junior in University, Taiwan	Wikispaces	social-constructivism	Expository prose Essays in pairs (out-of-class wiki-mediated collaborative writing)	Effects of wiki writing on individual writing development	pre- and post-test design (Colla vs individual),Archives of Wiki 'Discussion',
Alghasab and Handley(2017)	EFL students (No. not specified), high school, Kuwait	PBWiki	Sociocultural theory: collective scaffolding	A poster of Kuwait with different sub-topics in 4-member small groups	Peer interaction; collaboration behaviors	Archives of Wiki 'History' and 'Discussion'
Li and Zhu (2017a)	Twelve ESL students, post-graduate, USA	Wikispaces	Sociocultural theory; activity theory	Two academic writing tasks in 3-member small groups.	Sociocultural factors explaining interaction dynamics	Interviews; reflection papers; archives of wiki discourse
Li and Zhu (2017b)	Twelve ESL students, post-graduate, USA	Wikispaces	Sociocultural theory	Research proposal in 3-member small groups	Wiki writing qualities (rhetorical structure, coherence, and accuracy)	Wiki papers; archives of wiki 'Discussion','Comment' and 'History'
Li and Kim (2016)	Twelve ESL students, post-graduate level, USA	Wikispaces	Sociocultural theory: language as mediation and scaffolding	Two academic writing tasks (research proposal and annotated bibliography) in 3-member small groups.	Patterns of interaction; group dynamics across tasks	Archives of Wiki 'History', 'Discussion', 'Comment' and 'History'
King (2015)	323 first-year university students	WIKIpedia	Second Language Socialization and Language Learning and Identity; social-constructivism	Writing collaboratively by groups of 4-5 students who first drafted and edited an article together on Google Drive before publishing it on the Wikipedia site.	Development of participant identities as valid writers of English texts for a perceived mass public	Student reflective essays; focus group interviews; ethnographic field notes; Wikipedia talk pages

Studies	Learner types and context	Technology	Theoretical framework	Writing task	Research focus	Research instruments
Zou, Wang & Xing (2015)	32 Chinese students learning EFL; 32 CFL; 34 control group	Wikispaces	Collaborative learning and motivation	Writing a piece of news or a report for newspaper and TV; a job applications; an essay of 400 words	Effects of collaborative task in error correction	Students' language corrections and comments on the Wiki platform, interviews, and pre- and post-tests
Wang (2015)	Forty-eight EFL/ESP students, tertiary, Taiwan	Wiki	Not specified	Two business letters in small groups	Influence of wiki writing on students' writing skills	Writing test and survey
Aydin & Yildiz (2014).	34 intermediate level university EFL students, Istanbul (L1: Turkish)	Wiki	Sociocultural theory	Three collaborative writing tasks, (argumentative, informative and decision-making) working 4-member group.	Thread mode wiki	Archives of Wiki 'History', 'Discussion', focus-group interviews and questionnaires
Nami, F., & Marandi, S. S. (2014)	20 female, Iranian EFL learners, Tehran	PBwiki, Wikispaces, and Zohowiki	Vygotsky's (1978) ZPD, collective scaffolding	Reading and analyzing sample essays in pairs, identifying writing problems, and sharing the results with peers; essay writing practice	Student interaction and their attention to form when contributing to a	The log of posts; slanguage related episodes
Daniel. Castañeda & Cho . (2013)	53 SSL Students (age 23.81)	Wikispaces	ZPD	Write four stories collaboratively based on four different YouTube videos	Students' grammatical knowledge of the preterite and imperfect in Spanish; perceptions of wiki writing	A Spanish grammar test; survey
Li (2013)	Three EFL students, tertiary, China	Wikispaces	ZPD; scaffolding; collective scaffolding	Narrative, exposition, and argumentative essay in 3-member small groups	Writing processes: task negotiation and text co-construction	Archives of Wiki 'Discussion' and 'History'; interviews
Li and Zhu (2013)	Nine EFL students, tertiary, China	Wikispaces	Sociocultural theory; collective scaffolding	Narrative, expository, and argumentative essay in 3-member small groups	Patterns of interactions; students' perceptions	Archives of Wiki 'Discussion' and 'History'; interviews
Studies	Learner types and context	Technology	Theoretical framework	Writing task	Research focus	Research instruments

Wichmann, A., & Rummel, N. (2013)	73 first-year students enrolled in Bachelor of Arts programs (in an academic writing course)	MediaWiki; Wikipedia	Sociocognitive theory	Write a summary on the topic of "School's contribution to student development". Students were asked to write no more than 1000 words in the entire assignment.	Investigated whether collaboration scripts can help to improve students' revision activities and overall text quality.	Pre- and post-questionnaire; Revisions, text quality of the wiki-page
Woo, Chu & Li (2013) -	119 ESL students in primary school (age 11.6 years) 5--6 years' English learning 4-member group	Wiki	Not specified	A biography of a famous person and a poster, an information report on earth pollution and a narrative	The role of a wiki in the revision process; Effects of comments on students' writing performance	Posted edits and comments, Archives of Wiki 'History' records, students' group writings, interviews
Arnold et al. (2012)	Fifty-three German FL students, tertiary, USA	Wiki	Collaborative learning: cooperation vs. collaboration	Exposition on a cultural/historical topic in 2-4 member small groups	Revision behaviors; patterns of interaction	Archives of Wiki 'History' records
Kost (2011)	Eight German as FL students, tertiary, Canada	PB Wiki	Socio-constructivism; scaffolding	Narrative and expository essay in pairs	Phase of collaboration; revision behaviors; students' perceptions	Archives of Wiki 'History'; questionnaire survey
Kuteeva (2011)	Fourteen EFL students, tertiary, Sweden	Media Wiki	ZPD; genre analysis (metadiscourse)	Exposition and argumentation	Writing products: discourse features, accuracy, and organization; patterns of interaction	Archives of Wiki 'Page'; questionnaire survey
Chao and Lo (2011)	51 EFL students, tertiary 14 groups (4-5 member group) Taiwan	Wikispaces	ZPD; Scaffolding	Narrative style of writing: create a story script (5 stages)	Students' perceptions	Cross-referencing questionnaire survey (5-pointed Likert scale & open-ended q)
Studies	Learner types and context	Technology	Theoretical framework	Writing task	Research focus	Research instruments
Ducate et al. (2011)	Ten Spanish, ten German, ten French as a FL students, tertiary, USA	Wikispaces	Autonomous learning; sociocultural learning	Micropedia of a book (French), interactive children's book (Spanish), Synthesis of historical/cultural terms from a novel (German)	Students' perception	Questionnaire surveys
Woo, Chu, Ho & Li (2011)	38 primary school students in Hongkong (10-11) (4-	PBWiki	Constructivism; Sociocultural theory	A non-fiction text on a topic of their choice from different animals and illustrate their work	Challenges and potential benefits of a wiki for	Student and teacher questionnaires, interviews, student focus-group

	6 member group)			with photos and graphics	students and teachers and how the wiki's key affordances might help in scaffolding students in collaborative writing projects.	discussions, edits, group writings
Lee (2010)	Thirty-five Spanish FL students, tertiary, USA	Wikispaces	Socio-constructivism ; ZPD and Collective scaffolding; Task-based learning	Various tasks in 4 or 5-member groups, including creative writing, problem-solution, and travel plan	Students' perceptions and peer interactions in the revision process	Wiki records, survey, and interviews
Bradley et al.(2010)	Eight-six English for Specific Purposes (ESP) students, tertiary level, Sweden	Wikispaces	Multi-literacies	Summary and argumentative writing within small groups	Patterns of interaction	Archives of Wiki 'History'
Elola and Oskoz (2010)	Eight Spanish as a foreign language students, tertiary, USA	PB wiki and chats (written or oral)	Sociocultural theory: language mediation and community of practice	Argumentative writing in pairs	Interaction regarding writing conventions; students' perceptions	Wiki essays, chats records; questionnaire
Kessler and Bikowski (2010)	Forty EFL, pre-service teachers, tertiary, Mexico	Wiki embedded in Moodle	Learning autonomy	Reflection paper on a course topic composed by a large group	Language acts; phase of collaboration; students' perceptions	Archives of Wiki 'Page' and 'History'; interviews