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State-of-the-Art Article

Social media in second and foreign language teaching and learning: Blogs, wikis, and social networking

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This review surveys and synthesizes the findings of 87 focal pieces, published primarily since 2009 and mid 2018, on the formal and informal use of social media—blogs, wikis, and social networking—for second and foreign language teaching and learning (L2TL), including studies on the use of educational sites like Livemocha and Busuu and vernacular sites like Facebook and Twitter. The article frames the review in the development of social media and the history of social computer-assisted language learning (CALL) research. Synthesis identifies common findings, including that social media can afford the development of intercultural, sociopragmatic, and audience awareness, language learner and user identities, and particular literacies. Presentation of the focal pieces and common findings is intertwined with discussion of problematic issues, and each section concludes with a summary and implications for future research and practice.

1. Introduction

The Internet has greatly impacted language teaching over the past 20 years, as evidenced by a substantial and growing body of research in a variety of fields, including language pedagogy and assessment, second language acquisition (SLA), discourse analysis, literacy studies, computer-mediated communication (CMC), and sociolinguistics. The field of CALL in particular has concerned itself with the potential of the Internet for language learning, starting with the publication of several seminal articles in the mid 1990s that touted the benefits of computer-mediated classroom discussion (e.g. Chun 1994; Kern 1995) and intercultural exchange (e.g. Warschauer 1996). While CALL today spans a range of issues as diverse as online learning, computer adaptive testing, digital gaming, and corpus linguistics (see recent handbooks edited by Farr & Murray 2016 and Chapelle & Sauro 2017), there has been increasing interest in the social aspect of Internet use since SLA has made the 'social turn' (Firth & Wagner 1997; Block 2003) and 'Web 2.0' technologies, along with expanded broadband and mobile accessibility, started supporting new ways of social interaction (Lankshear & Knobel 2006; Warschauer & Grimes 2007). Beginning in the mid 2000s, technologies based on Web 2.0 platforms became popularly known as 'social media', including blogs, wikis, social networking and a variety of related platforms, services, and media technologies.

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By 2009, according to Pew Research, half of US adults used social media, up from one tenth in 2005 and on its way to three-quarters by 2015. The year 2009 also marked a milestone in awareness of social media among CALL practitioners with the publication of two edited volumes: the *Handbook of research on Web 2.0 and second language learning* (Thomas 2009) by IGI Global, and *The next generation: Social networking and online collaboration in foreign language learning* (Lomicka & Lord, eds. 2009) by *CALICO*. It was the cut off year for a 2012 review of 85 pieces on Web 2.0 in CALL (Wang & Vásquez 2012), which found an emerging research focus on identity, collaboration, and community. From 2009 to this writing in 2016 there has been a continued increase in publication on social media in CALL-focused and other journals (e.g. Demaizière & Zourou 2012) and in edited volumes (e.g. Lamy & Zourou 2013; Dixon & Thomas 2015). The purpose of the current article is to synthesize these pieces and present a state-of-the-art review of social media in L2TL.

To conduct the review I followed Norris & Ortega's (2006) procedures for conducting a research synthesis: (1) identify studies and selection criteria; (2) focus on variables and data and draw one's own conclusions, rather than researcher conclusions; (3) examine parameters and categories that cut across studies; and (4) establish super-ordinate heuristics to synthesize conclusions. To identify studies I searched for associated keywords (social media, Web 2.0, blogs, wikis, social networking, Facebook, Twitter, etc.) in the 2009 to mid 2018 issues of the most well-known journals in CALL: *Language Learning and Technology*, *CALICO Journal*, *ReCALL*, *Computer Assisted Language Learning*, *System*, and the *International Journal of Computer-Assisted Language Learning and Teaching*. In addition, I searched the aforementioned edited volumes and special journal issues for key studies prior to 2009. Finally, I checked bibliographies of the most recent articles and chapters for pieces that may have appeared in other journals or volumes. I read 160 pieces to identify research strands into which multiple studies could be categorized over several of the target years. I then chose empirical studies that I judged to be representative of the identified strands as focal pieces, as well as a few pedagogical or 'idea' pieces that I felt useful to frame a particular research strand, totaling 87 pieces. While some of the pieces reviewed under these criteria have low participant numbers or are qualitative in nature, and therefore are not necessarily replicable or scientifically generalizable, they are still important to consider because they are empirically grounded and situated in ecologically valid contexts of implementation. From a phenomenological perspective, consideration of such studies en masse can perhaps better inform pedagogical theorizing and reflective practice because their implementational contexts are more relatable than those of large experimental studies.

The review is divided into three sections: blogs (§2),[1] wikis (§3), and social networking sites and services (SNSs) (§4), which is subdivided into three sections: informal SNS-enhanced L2 use and learning (§4.1), SNS-enhanced L2TL pedagogy (§4.2), and L2TL with SNECSs (social network-enhanced commercial CALL sites and services) (§4.3). There was not enough published empirical research on L2TL with other social media to identify research strands and trends and thus warrant inclusion here. Blogs, wikis, and SNSs are the most researched because they have been around the longest and are most popular, a fact that in no way discounts the necessity for research exploring other social media technologies. Moreover, research on L2TL with other technologies like podcasting (e.g. Rosell-Aguilar 2013), voice

[1] § denotes the relevant section in this state-of-the-art article.

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blogging (e.g. Huang 2015), virtual worlds (e.g. Christensen & Christensen 2015), and digital games (e.g. Thorne & Fischer 2012) was also omitted because their histories and trajectories in CALL are unique and inclusion here would not do them justice, although they may arguably involve social media dynamics. Finally, it should be noted there is considerable work on virtual learning environments (VLEs), informal learning, digital literacies, and learner autonomy that overlaps much of what has been presented here and may be referenced, but is not counted among the focal studies.

1.1 Social media, social networking, and Web 2.0

Since long before inventing the Internet, humans have developed technologies, from writing to calling cards to the telegraph with which they have engaged in social networking, information sharing, and joint creative activity (Standage 2013). In the Internet's early days, Usenet and bulletin board systems supported asynchronous discussion and resource sharing, and graphical webpage software and hosts afforded the creation and hyperlinking of personal homepages. Early web-based services like Compuserve and America On Line offered users a single interface for accessing news, sharing information, and interacting socially with other network users. In the mid to late 1990s, authors of online personal journals began hyperlinking their blogs (from 'weblogs') with others in what became known as the 'blogosphere'. Wikis first appeared at about the same time as a quick means for programmers to share and organize resources collaboratively. In the mid 2000s, Friendster, MySpace, LinkedIn, and Facebook launched social networking sites that allowed individuals to create profiles, to connect to profiles of other users they knew or wanted to know in real life, and to share content with them. Web services that focused on media creation, curation, and sharing, like Flickr and YouTube, gradually integrated social networking elements and by the 2010s became understood as 'social media'.

Some estimates were that by 2018, nearly a third of our planet's population, or 2.6 billion people, made some use of social media (Statista 2018). This massive increase in usage is partially due to the 'Web 2.0 turn' in the mid 2000s along with the continued development of affordable, portable, and accessible digital information and communication technology. Coined as a retronym, the term 'Web 2.0' refers to the second generation of worldwide web technologies that allowed more user participation and content sharing than was possible with older Web 1.0 technologies, leading to the profusion of social media. What we recognize as social media today has roots in the technologies of CMC, personal homepage authoring, and cyber-community participation, but it was the capacity of new Web 2.0 technologies starting in the early 2000s to separate content from form that allowed for users to produce content and articulate networks, giving rise to blogs, wikis, and social networking sites.

While a definition is not entirely agreed upon, social media usually refers to any application or technology through which users participate in, create, and share media resources and practices with other users by means of digital networking. Zourou & Lamy (2013) argue that the lack of clarity leads to confusion of all Internet-mediated social interaction as social media practice. They borrow Musser et al.'s (2006; in Zourou & Lamy 2013) description of social media as typified by re-use and sharing of content, openness in structure allowing

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easy and expansive use, and network effects or impact potential of sharing activity. Zhu & Chen (2015) typologize social media as either profile-based or content-based on one axis, and either personalized message or broadcast message on the other, resulting in four types or purposes: to connect to others and build relationships, to collaborate with others, to present or broadcast an identity, or to express creative activity. Nations (2015) defines social media as typified by features such as user accounts, profile pages, network articulation, news feeds and notifications, personalization features, review systems, and feedback systems like 'upvote' or 'like' buttons. SNSs are a type of social media that foreground personal profile and network activity, while other social media applications usually center on content curation. Confusion arises because social media applications, including structured learning applications (see §4.3), are increasingly integrated into SNS interfaces or enhanced with SNS features, and vice-versa, and often sites and services label themselves 'social media' for marketing purposes and to distinguish themselves from their competitors—not because they fit a specific definition.

1.2 Social media in CALL

As long as meaningful social interaction has been understood as necessary for language learning, language educators have sought to integrate a means for communicative practice into teaching. Some of the first Internet applications for synchronous (chat) and asynchronous (email and bulletin board system) communicative exchange were identified as having educational potential, and teachers began implementing them, and researchers investigating them, as soon as it was logistically feasible. Early empirical research (e.g. Beauvois 1992; Chun 1994; Kern 1995; see Ortega 1997 for a summary) found evidence that the various features of CMC led to increased output production, access to a wider range of discourses, equalized participation, and increased fluency—albeit sometimes at the expense of accuracy. These potential affordances are still associated with use of social media in L2TL.

In their research designs, researchers of the social Internet found cognitive and psycholinguistic frameworks insufficient to account for some of the outcomes of technology-mediated discussions and telecollaborations (see Reinhardt 2012). Inspired by the 'social turn' in SLA (Firth & Wagner 1997; Block 2003), many turned to socially-informed theoretical frameworks—for example, sociocultural theory, situated practice, language socialization, or socio-cognitive frameworks that view language development as an essentially social phenomenon. In the introductory chapter to their seminal 2000 edited volume *Network-based language teaching*, Kern & Warschauer explained that:

> Sociocognitive approaches to CALL shift the dynamic from learners' interaction with computers to interaction with other humans via the computer. The basis for this new approach to CALL lies in both theoretical and technological developments. Theoretically, there has been the broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer networking, which allows the computer to be used as a vehicle for interactive human communication. (p. 11)

In other words, well before Web 2.0 and popular conceptualizations of social media, L2 educators and researchers found in socially-informed frameworks theoretical grounding with

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which to leverage the socio-interactional affordances of Internet-mediated communication—email, discussion boards, and chat—for the purpose of language teaching. The potentials for language use and learning, or 'affordances' (Gibson 1979; van Lier 2004), of these tools allowed individual expression through homepage authoring and participation in 'cyber-communities' not bound by physical and temporal immediacy.

Theoretical and methodological foundations for research on what would become social media continued through the 2000s during the Web 2.0 shift. Work on social media in sociology, communication studies, and education (see boyd & Ellison 2007 for a seminal review; also Wilson, Gosling & Graham 2012) inspired new research in L2TL. Lam (2000, 2004) argued that social Internet use was socio-literacy practice, in that online self-presentation and identity work were acts of social semiosis involving symbolic repertoires learned through socialization. In response to Prensky's (2001) 'digital natives' hypothesis, Thorne (2003) offered a sociocultural theoretic interpretation of online behavior as reflective of contextually contingent 'cultures of use'. Studies of telecollaboration identified the potential of CMC for developing intercultural and sociopragmatic competences (e.g. Furstenberg et al. 2001; Belz & Kinginger 2002). As social media tools emerged, Warschauer & Grimes (2007) observed that blogs seemed to highlight authorship as appropriation and reflected a sort of Bakhtinian dialogism, that wikis focused on collaborative text production and reflected socialization into discourse communities, and that social networking de-emphasized authorship and reflected post-structuralist notions of polyvocality and deconstruction. By 2009, researchers had rigorous theoretical bases and methodological examples readily available to examine social media.

While some of the surveyed research is theoretically agnostic, as is sometimes the case with new CALL research (Blyth 2008), most utilize socially-informed frameworks, especially social constructivism, along with commensurable methodologies tending towards the qualitative, emic, and ethnographic. Many use the aforementioned concept of affordance and several explicitly adopt an ecological framework, which is grounded in the notion that affordances and constraints for L2 teaching and learning develop from the dynamic, complex, and emergent interactions of actors and artifacts in a given context. Some (e.g. Lafford 2009; Reinhardt 2012) have argued that because complexity and non-linearity are central to their definitions, ecological perspectives can more easily accommodate the dynamic, networked, multimodal, and multi-node nature of social media use.

2. Blogs

A blog, short for 'weblog', is a journal-like website comprised of dated posts, presented in reverse chronological order, often with threaded comments under each post. Blogs offer 'a mixture in unique proportions of links, commentary, and personal thoughts and essays' (Blood 2000) and are thus argued to be ideal spaces for the development and expression of expertise. Blogs are linked to other blogs by their authors, thus creating networked communities of writers and readers, known collectively as the 'blogosphere'. Several genres have emerged over time (Herring et al. 2005, in Warschauer & Grimes 2007), including personal blogs, filter blogs, and knowledge blogs—roughly equivalent to online diaries, news journals, and topical guides,

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respectively. While genres differ according to purpose, audience, and author role, blogging foregrounds the act of individual, nonymous authorship (as opposed to anonymous—see Zhao, Grasmuck & Martin 2008), although some genres, especially filter blogs, allow for multiple authors.

Blogs were arguably the first social media because they were designed to support interactive readership and multimedia embedding from their inception in the late 1990s. Once Web 2.0 allowed individuals with no knowledge of coding to create blogs, the practice boomed—WordPress, only one of many blog hosts, published over 18 million blogs in 2014 alone (Crum 2015). More recently, however, as interactive personal web-based writing has become integrated into social networking and other social media like Twitter (which is sometimes called 'microblogging'—see §4), traditional, single-authored blogging may be waning in general popularity and becoming a niche practice.

Still, as has been noted by many L2 educators and researchers, blogging may continue to hold potential for language learning because of its unique affordances for writing as a social practice. Early pieces were often speculative and exploratory, describing potentials not yet empirically examined. Godwin-Jones (2003), for example, discussed the Web 2.0 origins of blogs and the potential for blogs to serve as personal journals or portfolios, because they seemed to support reflective learning and the development of a sense of ownership or authority. Campbell (2003) offered a framework of blog types for educational application: tutor blogs as instructor-maintained collections of class references and resources, learner blogs as online journals or portfolios for individual students, and class blogs as spaces for collaboration and interaction (cf. Alm 2009, §2.1.3).

Other early pedagogical pieces complement discussion of potentials with examples of application, usually presented in a positive light. As a context for authentic English as a second language (ESL) writing practice, Ward (2004) listed purported affordances, arguing that the blogosphere offers access to a wide variety of topics and registers and that blogging promotes the development of strategies and skills, like skimming, scanning, and critical reading. His application illustrates how ESL students can use blogs to respond to news stories and offer film critiques. In another highly cited early piece, Ducate & Lomicka (2005) described a project where French learners created a blog to communicate with each other and family and friends at home during study abroad, and another project whereby learners used German blogs as input for a variety of reading and writing activities. Many of the ideas they offered have been since implemented and reported by others, including reading blogs in the language of study, posting to a shared class blog, and using blogs as a medium for telecollaborative exchange.

2.1 Notable research on blog-enhanced L2TL

Since the mid 2000s, research on blog-enhanced L2TL has followed several intertwined strands: (1) blogs as media for culture learning and intercultural exchange; (2) blogs as spaces for literacy and identity development; the purported affordances of blogs for developing (3) learner autonomy and (4) audience awareness; and (5) the importance of task design and learner variables, a thread that emerges from and through other strands.

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2.1.1 Culture learning

An important strand of research has recognized that blogs are ideal spaces for culture learning and intercultural exchange, but present some challenges. For example, Ducate & Lomicka (2008) had 9 American university-age learners of French and 20 of German first follow and present on specific bloggers from the target culture and then develop and interact through personal blogs. In their analysis of student work, the researchers found that some students expressed themselves more freely in the blogs than in class or with other assignments. Aligning with future findings in work on learner autonomy (cf. Alm 2009, §2.1.3) and issues of task design (cf. Lin, Groom & Lin 2013; Chen 2015, §2.1.4), however, Ducate & Lomicka uncovered several challenges, including that students reported not reading each others' comments, that some learners complained the target blogs they read weren't always topically related to course content, and that some students wanted more freedom in choosing what to write about on their own blogs.

At the same time, Elola & Oskoz (2008) reported no serious challenges in their telecollaboration project where L2 Spanish learners in the US interacted with L2 Spanish learners studying abroad in Spain in small group blogs, with the students abroad acting as cultural informants. They also found little significant differences in the groups before or after the experience with regards to both intercultural competence and attitudes towards blogs as learning tools. In a similar project, Lee (2009) used blogs and podcasts for a telecollaboration project connecting graduate teacher trainees in Spain with Spanish learners in the US. Lee found students liked having an authentic audience, but because of unequal status regarding language proficiency, some students reported a sense of imbalance—an issue not uncommon to telecollaboration. Lee's later project (2012) combined some of Ducate & Lomicka's (2008) and Elola & Oskoz' (2008) task designs, as well as ethnography-informed interviews of informants and experts. Lee argued there was evidence the blogs supported development of critical intercultural awareness, particularly because students could see how their own perspectives had changed by comparing old with new entries. Task design may be particularly important when using blogs as learning spaces for learners studying abroad. Gabaudan (2016) notes the need for clear task design, guiding rubrics, and consistent teacher feedback, as well as the importance of scaffolding learners into productive L2 reflective writing practices well before departure.

Moving beyond pedagogical innovation, some later work utilized increasingly sophisticated methods to show evidence for blog-enhanced culture learning, with important caveats. For example, Yang (2011) identified tensions and key events in group blogs created telecollaboratively by 9 English as a foreign language (EFL) learners in Japan and 20 in Taiwan. She found most students interpreted the exchanges from commonality perspectives, believing that mutual understandings and shared interests would lead to rapport, and conversely, that lack of commonality would mean there was no basis for building it. In contrast, students coming from relativity perspectives sought connection by interpreting meanings not at face value but by relating to them, finding commonality on a deeper symbolic level. Yang's work shows that whether the blog-enhanced feature of the exchange afforded learning or not is perhaps beside the point, because blogs (and other social media—cf. §4.1.1) have become normalized as interactional spaces. In other words, while technology may offer new means

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of interaction, it may mislead because of mediational effects (Ware 2005; Kern 2014), and transformative learning outcomes are in no way assured.

2.1.2 Literacy and identity development

Another research strand in blog-enhanced L2TL focuses on the development of academic literacy and identity, often using qualitative case study methods in the tradition of Lam's (e.g. 2000) work on CMC-mediated identity development. In a highly cited early piece, Bloch (2007) presents evidence that his focal learner, an adolescent heritage English learner, found space for reflection, self-presentation, and personal expression in the class blog, and thereby developed critical literacy. Similarly, Gebhard, Shin & Seger's (2011) study shows how a young English learner's use of a class blog for a range of academic and social purposes expanded her communicative repertoire, developed literacy skills, and built meta-linguistic and genre awareness. Also using similar methods and asking similar questions, Sun & Chang (2012) examined the role of blog-enhanced collaborative dialogue in developing authorial identity among seven Taiwanese teachers of English as second language (TESL) graduate students. Analysis of language use that indexed identity and positioning showed learners were very self-conscious of their inexperience as academic writing novices, questioning their own competence, but finding inspiration in provided narratives by non-native English speaking TESL professionals. Also exploring teacher identity development, Arshavskaya (2017) found that transformative learning can occur when teacher trainees reflect on triggering episodes and their future identities through blog-enhanced tasks, although some learners may respond better to discussion and more interactive mentorship styles that blogs do not support.

While methodologically rigorous, the facts that Bloch (2007) and Gebhard et al. (2011) presented single case studies and that Sun & Chang's (2012) and Arshavskaya's (2017) participants were teacher trainees and thus perhaps self-selected do not necessarily make the case for wide-scale application of blog-enhanced L2 pedagogy. Still, they are quite rigorous methodologically and serve to inform practice in relatable situations. Also importantly, even though it was not the focus of the research, a common implication is that successful blog-enhanced L2 instruction may depend on complex interactions among task designs and learner variables (cf. §2.1.5). In other words, the most successful blog tasks encourage reflection, self-presentation, deep knowledge investigation, and development of expertise, but learner variables like background and experience with technology, as well as task variables like audience and topic, may impact outcomes.

2.1.3 Learner autonomy

Another strand of research on blog-enhanced L2TL argues that blog-based tasks should support and develop learner autonomy. For example, Alm (2009) designed blog-enhanced German instruction with the goal of enhancing learner autonomy. Her design, informed by self-determination theory (Deci & Ryan 2007, in Alm 2009: 208), sought to provide optimal challenge and reward, afford social interaction, and promote agency by allowing students to

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control privacy settings and decide who their audience would be. In a similar piece, Guth (2009) described a blog-based 'personal learning environment' (PLE) for university EFL learners which could be customized by individual learners, maximizing learner autonomy and serving as a space for collecting, archiving, and managing online learning resources. However, unlike a learning management system, a PLE is open source and designed to be portable and extendable beyond one course, thus promoting informal, autonomous, and lifelong learning.

Later work adds nuance to this understanding with empirical support. For example, Lin, Groom & Lin (2013) sought to discover why many students did not blog more than required by a formal curriculum, and did not continue blogging after instruction. Surveys of eight EFL first-year university students showed that they acknowledged the novel, convenient nature of blogging, but that they were more focused on the assigned, formal nature of the learning tasks rather than their blog-enhanced quality. They felt blogs exposed them to new, useful linguistic input, but they also were troubled by perceived social and time pressure to not make linguistic errors in their posts and to offer peer feedback. Students found blogging in class to be a distraction from valuable face-to-face interaction time, but blogging outside of class to be difficult because of other distractions. To explain the results, the researchers hypothesize that their adolescent students' low proficiency and possibly over-familiarity with social media contributed to dissatisfaction.

2.1.4 Blog-enhanced audience awareness

Another focus of blog-enhanced L2TL research is on development of audience awareness—argued to be an affordance of other social media as well (cf. §3.1.4). In an early piece, Raith (2009) compared the paper-based and blog-based journals of 29 adolescent EFL learners for interactive elements and interpersonal language, finding that the blog writers wrote more, and more interactively. A survey then found evidence the bloggers had a more developed sense of audience, while the paper journalers were more concerned with privacy. Arslan & Sahin-Kizli (2010) compared blog-enhanced process writing instruction with face-to-face process writing. Comparison showed significant differences in improvement by the experimental group, with the biggest differences in content and organization. The researchers explain this finding in terms of audience awareness—that the bloggers benefited from the knowledge of, and experience with, an expanded audience for their compositions.

However, like the aforementioned nuance that Lin et al.'s (2013) work added to understandings about learner autonomy, more recent research also implicates task design in purported affordances for audience awareness. To illustrate, Chen (2015) had 33 Taiwanese, university EFL learners keep personal blogs on topics of their choice, and comment on each others' blogs. Post-instructional analysis showed that learners as a whole were most satisfied with epistemic (knowledge-focused) activities involving form and grammar correction more than social (knower-focused) activities involving communication and interaction—perhaps because blogs support individual expression rather than collaboration (Warschauer & Grimes 2007). However, further analysis showed that results were potentially skewed because the most satisfied learners exhibited more expertise in the topics of their blogs, and more investment in

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self-presentation to an imagined audience, even when their posts received few comments (cf. King 2015, §3.1.4). Unsatisfied learners felt less invested in, or less qualified to write about, their blogs' topics, and were either negatively impacted by audience awareness, like some of Lee's (2009, §2.1.1) students, or convinced there was no audience for their blogs, because they were mere class assignments. In short, tasks that emphasize an external audience seem to be a double-edged sword, because awareness of that audience can both empower and intimidate L2 learners.

2.1.5 Blog-enhanced task design and learner variables

Research on blog-enhanced intercultural exchange, literacy and identity development, learner autonomy, and audience awareness implicates consideration of both task design and learner variables in realizing the learning affordances of blogs. Dippold's (2009) study of peer feedback in blogs illustrates how the two are intertwined. Examining the quality of blog comments advanced German learners provided each other, the researcher found they were rarely critical or focused on form as learners were hesitant because of face issues and insecurities about language abilities. In an advanced academic EFL course with 11 students, Vurdien (2013) found evidence that well-designed blog-enhanced writing tasks complemented by face-to-face discussion led to self-assessed learning gains. While most students appreciated the compositional and reflection time afforded by asynchronous pre-writing and feedback tasks, a few disliked their structured, imposed nature, and felt more open-ended discussion activities related to the current issues they wrote about would have been more motivating. Implications from Dippold and Vurdien's studies are that learners should have some choice in the topical focus of social media activities, in addition to some control over audience (cf. Chen 2015, §2.1.4) to alleviate possible face issues.

Chen, Shih & Liu (2015) focused directly on blog-enhanced L2 learning task design, which they argue may be responsible for some negative findings, like those of Krause (2005), who found that vague task parameters demotivated students, blogs were often used where other simpler technologies would do, and blog-enhanced peer feedback was ineffectual. Working with 17 student dyads in an intra-national Taiwanese EFL telecollaboration partnership, they compared open and closed dialogue tasks—the former does not require negotiation or decision making, while the latter requires a single joint product as an outcome. Closed tasks elicited more frequent generation of idea units and were preferred by students, even though they felt the blog was a better medium for open tasks that supported divergent thought and depth of opinion. In other words, learners themselves recognize when blog-based tasks do not align with blog affordances, even if the tasks align with their own learning styles and preferences.

2.1.6 Summary and future directions: Blog-enhanced L2TL

In short, findings from early studies on the affordances of blog-enhanced L2TL have become more nuanced over time with caveats from later studies, especially regarding task design

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and the influence of learner variables. Research has shown some evidence that blogs may serve as spaces for culture learning and intercultural exchange, as well as for reflection, self-presentation, and the development and expression of deep knowledge and expertise on topics in which the learner has had some say. Later research has found that tasks which force particular topics, require form-focused peer review, restrict audience, broaden audience, or are closed in nature may restrict learner autonomy and not support the learning potentials of blogs, even though those tasks might more align with curricular objectives and learner expectations.

In the future blogs may continue to serve as learning spaces for writing oneself into multilingual and intercultural identities. In addition, there are research lacunae on multimodal composition and digital storytelling, as blogging overlaps and integrates with image sharing social media like Instagram, Pinterest, and Tumblr. As new areas are explored, it should be noted that in general, because of familiarity with everyday social media, learners may have experiences and dispositions that should be taken into consideration when designing and implementing instruction. On the other hand, as blogging becomes a niche practice, like wikis, it may require more explicit instruction, at the same time its novelty offers advantages as a sort of *tabula rasa*.

3. Wikis

According to the Wiktionary, a wiki is 'a collaborative website which can be directly edited merely by using a web browser, often by anyone with access to it'. Named by inventor Ward Cunningham after the Hawaiian word *wiki-wiki* for 'quick' (Wikipedia: History of wikis), wikis purportedly facilitate collaboration by simplifying contribution, recording revision histories, and de-emphasizing individual author identities, which makes them ideal media for multi-authored, highly edited reference documents. Wikipedia itself, launched in 1998, offers over 7 million entries in nearly 300 languages, receives over 3 million visits a day, and is updated 10 times every second (Wikipedia: About Wikipedia). While many wikis are used by closed communities and organizations, a survey of the 82 open wikis listed on Wikimedia's 'List of wikis' shows encyclopedias, dictionaries, travel guides, fictional universe guides, gaming guides, manuals, handbooks, almanacs, and music score repositories—indeed, anything one traditionally finds in the reference section of a library. Unlike traditional reference works, however, wikis usually have no centralized editors, and instead rely on contributors for both authoring and editing.

Warschauer & Grimes (2007) argue that unlike blogs, which highlight self-presentation, voice, and individual authorship, wikis seem to promote collaborative, distributed authorship. To generalize, SNSs and wikis afford focus on sharing and networking, while blogs promote, but do not necessarily require, dialogic interaction and collaboration. Blogs and wikis afford resource production and idea generation, while SNSs allow for focus as much on sharing across networks as on original production. Because of their designs, blogs and SNSs seem to highlight individual authorship, while wikis de-emphasize the identities of individual contributors. Similar to wikis, collaborative documents like Google Docs have emerged as an

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object of CALL research recently (e.g. Kessler, Bikowski & Boggs 2012; Bikowski & Vithanage 2016), but they are not included in this review because unlike wikis, they are not normally used for public documents or resources and so do not function as social media. As with blogs, a main social learning affordance argued by wiki-enhanced instruction advocates is increased audience awareness, since learners recognize their work is publicly accessible.

When Web 2.0 technologies made wikis a practically feasible reality in the mid 2000s, new perspectives and speculations on their potential for collaborative writing began to emerge in the literature (Godwin-Jones 2003), based on the state of L2 writing research at the time. It focused on the learning potential of computer-mediated peer review (e.g. Ho & Savignon 2007) using commercially available tools available to a group of users on a closed, local network—the Daedalus Integrated Writing Environment, for example, has been available since the early 1990s. Research on classroom-based collaborative writing was focused on the social potential of writing in synchronous (chat) and asynchronous (email and discussion boards) CMC contexts (Kern 1995).

3.1 Notable research on wiki-enhanced L2TL

Since 2008, research on wiki-enhanced L2TL has continued and expanded research strands begun in CMC and collaborative writing circles by focusing on wiki affordances. Although most studies cover several areas, they can be categorized according to their focus on purported affordances for (1) meaning over form, (2) collective activity, collaboration, and cooperation, and serving as (3) VLEs. As with blogs, wikis are also claimed to support development of (4) awareness of genuine and imagined audiences, although again (5) task design parameters and learner variables play key roles.

3.1.1 Meaning over form

The first strand of research has been on whether wikis are appropriate for focus on accuracy of form, since in non-educational, informal contexts they function as tools for collaborative knowledge building and communication where focus on meaning is paramount. In one of the first studies to ask the question, Kessler (2009) reports on a project involving a wiki created by 40 L2 English teacher trainees, without any instructor involvement, that was supplemental to a course on culture. Analysis of the wiki content and version history showed that the students focused far less on accuracy of form than on meaning in peer corrections, which Kessler reasons was due to the informal nature of the task and the wiki environment, and to the inconsequential nature of the errors for effective communication. Kessler's results have been cited frequently as evidence that without intervention, wikis do not promote focus on form.

In a study of the wiki revising activity of three classes of 54 L2 German learners, Arnold, Ducate & Kost (2009) found that the learners made more meaning-focused changes than accuracy-focused changes overall, while making formal revisions to their own work and leaving others' work untouched. While the learners corrected about three-quarters of their own errors autonomously and revised their wikis much more frequently than studies of paper-

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based revising had found, the two classes that received more teacher guidance produced more successful revisions than the other section. In other words, students may not offer revisions to peers unless instructed to do so, especially when they perceive their teacher is the true audience—a finding echoed in research on other social media (cf. Dippold 2009, §2.1.5; Chen 2015, §2.1.4). While Arnold et al.'s (2009) work complements Kessler's, it is sometimes cited as evidence that learners can, and do, focus on form in wikis, although the pivotal role of teacher guidance is sometimes glossed over.

Finally, in a study reporting on the same intervention as Kessler's aforementioned earlier work (2009), Kessler & Bikowski (2010) examined the kinds of meaning-focused changes their participants made in their wiki. They found that only five of the 40 students made more than three changes, with about half making only one, and that most changes involved creation, deletion, or elaboration rather than synthesis. The researchers conclude that while there was some indication of what they call 'collaborative autonomous learning', many students used the wiki only intermittently, making edits that required little critical thinking, and that most used it only because it was a requirement. Echoing other findings with wikis (cf. Bradley, Lindstrom & Rystedt 2010, §3.1.2) and other social media (e.g. Vurdien 2013, §2.1.4), they suggest that for wikis to support development of learner autonomy, activities should be flexible and student-directed, even though participation may be uneven and outcomes unpredictable.

3.1.2 Collective activity, collaboration, and cooperation

Since a major purported affordance of wiki-enhanced L2TL is for collaborative writing (Storch 2011), a second point of investigation has operationalized and contrasted the concepts of collective activity, collaboration, and cooperation. In one of the first widely cited studies on the topic, Lund (2008) offered a sociocultural account of how collective activity emerges as 30 English learners in Norway planned and created a class wiki. In his analysis of two dyadic interactions, Lund described how the unfolding activity shifted from localized, individual ownership to collective, interdependent production reflecting values of reciprocity, multi-voicedness, and trust. Lund clearly situates his study in sociocultural theory and methodology, being careful not to conflate the terms 'collective' and 'collaboration', and in fact never uses either 'collaboration' or 'cooperation'—a nuance not always recognized by subsequent researchers citing him as evidence for the purported collaborative benefits of wikis.

Bradley et al. (2010) note critically that 'the potential of the wiki concept as a writing tool is frequently assumed' (p. 249). They had 25 dyads and triads of university-level English learners in Sweden complete wiki-based writing tasks designed to practice differing genres and registers. Analysis of the wikis shows varying degrees of cooperation and collaboration, with 10 groups showing only cooperation or no interaction at all, and 15 showing collaboration as evidenced by true joint authoring and mutual feedback on both form and meaning. The authors imply that collaboration can be encouraged through situated learning task design but that for students to remain motivated and retain agency, variance in participation levels should be anticipated and permitted—an important caveat that mirrors similar findings on blogs.

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Arnold, Ducate & Kost (2012) examined their aforementioned 2009 data for examples of true collaboration as opposed to cooperation, defining the former as unified attention by all participants on the same work, and the latter as separate work in unified spaces. In their new analysis, the researchers found evidence for four assumed roles: free rider, social loafer, team player, and leader. They found these assumed roles may lead to uneven distribution of work and lack of collaboration, sometimes precipitated by the 'first responder' phenomenon where the work of the author first to contribute to a wiki is least likely to be altered.

True collaboration may also depend on willingness to share tasks and shift roles between tasks. In a study of 90 university EFL learners in China, Lai, Lei & Liu (2016) found groups who chose to share both wiki composing and co-revising tasks—rather than some composing and some revising—were more satisfied overall with their experiences than those who did the tasks individually. Li & Zhu (2017) examined the interactions of two groups of three ESL learners through and around two wiki-based collaborative assignments for evidence of equality and mutuality, finding variance in the groups as individual motivations, roles, and emotional stances shifted between tasks. Pedagogical implications are to have groups self-assess their collaborative efforts in terms of these aspects throughout the process.

3.1.3 VLEs

Because wikis are easily customizable, they can be used as VLEs that provide supplemental resources and scaffolding on how and why to use wikis for L2 learning. For example, deHaan et al. (2012) had 13 university-level English learners in Japan use a wiki to prepare, transcribe, discuss, and practice spoken role plays, focusing on interactional competence and fluency. The researchers report overall improvements in grammar, pragmatics, vocabulary, and learner confidence. Even though tasks were highly structured and the wiki did not have an external audience, the project was perhaps successful because students saw themselves as the wiki's audience and recognized that the task parameters aligned with what the wiki could do (cf. Pellet 2012, §3.1.4).

However, projects may fail if the tasks are not perceived as aligned with learner needs and wiki affordances. For example, while most wiki projects are implemented at the intermediate level or above, Kennedy & Miceli (2013) sought to use a wiki for their university-level beginning Italian learners at three Australian campuses. The wiki served as a common space for notice boards, discussion, social networking, and resource sharing. A post-instructional survey showed that only a minority of the 79 students enjoyed the wiki and felt it was beneficial to their learning. Qualitative responses showed appreciation for interaction, but frustration at technical problems, lack of training, wiki etiquette, division of labor, and lack of teacher presence. The researchers implicate the inclusion in any wiki-based VLE of resources that focus on reflective practice and critical awareness about collaboration in language learning, especially when beginning level learners are involved.

Recounting similar projects, Rott & Weber (2013) offer suggestions based on their experiences using wikis in L2 German and French instruction. They explain that guided discussion and exploration of an example wiki along with templates can give students a better understanding of wiki structures, while requiring reading of each others' contributions can

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help build awareness of audience. They also maintain that students benefit from discussion of different genre types found in wikis—descriptive, interpretive, and summative writing—as well as how to use wiki software, how to exploit in-wiki communication tools, how to take and share notes, and how, when, and when not to use translation tools. In short, their piece offers guidelines for situated and awareness-focused instruction—approaches found effective in the development of literacies in other social media as well (cf. §4.2.3 and §4.2.4).

3.1.4 Wiki-enhanced audience awareness

Like findings regarding the potential of blogs to develop audience awareness (§2.1.4), findings on audience awareness in wikis come with caveats. An early piece on awareness in wikis that is cited widely, although not always critically, is Mak & Coniam (2008), who had Hong Kong high school EFL learners use a wiki to develop a school brochure for their parents. The researchers found that over the course of the project, focal students on average produced far more language output in the wiki than the minimum required, and that the output was longer in terms of t-units. They explain the improvement in terms of wiki affordances for collaboration and processes of revising, expanding, reorganizing, and correcting, with the motivation of a potentially real audience of readers. The results should be taken judiciously, however, since Mak & Coniam presented results only from 4 of 24 students, chosen because their wiki was voted best by teachers (p. 444); it is unknown how the project went with the majority of the students.

There may be potential when students understand themselves as their own wiki audience (cf. deHaan et al. 2012, §3.1.3). For example, Pellet (2012) had 30 advanced French sociolinguistics undergraduate students create wikis to build, manage, and share course content knowledge—in French, directed by the students, without focus on grammatical accuracy (perhaps taking Kessler 2009, §3.1.1 into account). Students responded very positively to the project, and recognized the wiki's role as a collaborative, agency-rich space for critical discussion and knowledge building. It is worth noting that this purpose—using a wiki as a shared knowledge resource or repository like a dictionary, glossary, guidebook, or encyclopedia—is also the most common outside of educational contexts. It should also be noted that as advanced French majors at a small liberal arts college, Pellet's students were also self-selected and highly motivated.

Incorporating this authentic purpose may account also for the successes of King's project (2015), where university-level Hong Kong English learners collaboratively contributed Wikipedia entries on various Hong Kong subjects and reflected on how the experience impacted their identities as English users. Some students reported feeling a sense of writer responsibility, obligation to a wider Wikipedia community, and satisfaction when their entries were not deleted, while others demonstrated a sense of legitimate participation when discussing with other Wikipedians the status of their contributions. King argues that even just the potential of a genuine public audience afforded users the development of authorial identities in imagined communities, and while Wikipedia has since replaced or deleted all of the student entries, the experience for some may have been transformative. As King only presented selected case studies, however, it remains unknown whether any students felt

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intimidated, rather than empowered, by a potential external audience, as has been found is possible with blogs (cf. Chen 2015, §2.1.4).

3.1.5 Wiki-enhanced task design and learner variables

As research on focus on form and collaboration in blogs has found (§2.1.5), task design and learner variables also play a major part in realization of wiki learning affordances. Elola & Oskoz (2010) had eight advanced Spanish learners use wikis and chat to complete both individual and group assignments, and compared outcomes from different conditions. Differences emerged in how individuals and groups structured and organized essays, and at what stages in the writing process they made local edits. While students recognized the value that collaborative writing afforded in terms of learning structure and organization, they felt the wiki was less useful for learning grammar than initially expected—not particularly surprising considering other findings (cf. Kessler 2009, §3.1.1), but notable in that students' own expectations were not met, perhaps because in this case they did not have previous wiki experience.

In a similar study, Lee & Wang (2013) analyzed the wiki project participation of 103 English learners at two different Taiwanese universities over 18 weeks to determine what factors facilitated and hindered participation, including the nature of the task, student working style preference and orientation towards peer review, and instructor attitudes towards technology. Quantitative and qualitative analysis of student work, surveys, and interviews showed findings similar to Arnold et al. (2012, §3.1.2), where successful groups exhibited even workload distribution, mutual respect of opinion, and sustained interaction. Hindrances to success included the opposite—uneven distribution, lack of mutual respect, and unsustained interaction—and were partially attributed to technological and contextual constraints like time delays.

As would be expected, task type also plays a role in the type and amount of collaboration. Building on the aforementioned work of Kessler, Arnold, and others (§3.1.1), Aydin & Yildiz (2014) compared the meaning and form-related changes made by 34 Turkish university-level intermediate English learners in argumentative, informative, and decision-making wiki-based tasks. More changes of both types were found in argumentative tasks, while there were fewest form-related changes in informative tasks, and nearly equal numbers of both in decision-making tasks. Most peer corrections were found in argumentative tasks, while most self corrections were in the informative ones. In their interpretation, the researchers conclude that argumentative tasks were more conducive to collaboration and correction because students felt more compelled to improve opinions with which they agreed, while collaborative negotiation was unnecessary in informative tasks because their outcomes were factual and not contentious. They also observed, although over 90% of the corrections were accurate, that there were very few changes involving synthesis, the hallmark of true collaboration (cf. Kessler & Bikowski 2010, §3.1.1). Moreover, they found half of the students didn't enjoy the tasks—perhaps like Chen et al.'s (2015, §2.1.4) blogging students they would have preferred closed tasks, or like Chen's (2015, §2.1.5) students, only information tasks.

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3.1.6 Summary and future directions: Wiki-enhanced L2TL

In sum, research on wiki-enhanced L2TL has shown that wikis do not necessarily promote focus on formal revision and the development of accuracy, especially without instructional intervention. As group learning tools, wikis may afford cooperation and shared authorship, but not necessarily true collaboration, and variability in participation and role assumption should be anticipated. Wikis may serve as VLEs, as long as needs and tasks are truly enhanced by wiki structures and awareness of how and why to use wikis is addressed through situated and explicit instruction. Wiki-enhanced instruction may help develop audience awareness if learners believe their collective expertise is worth sharing—with each other or with broader audiences. As with blogs, formal wiki tasks may be more effective if they are authentic and are similar to naturalistic, informal wiki authoring activities, although some learners may prefer traditional activities that align with their expectations of formal learning.

Future research on wikis should continue to examine the potential affordances wikis offer for collaborative authorship and the influence of different task parameters and learner variables on outcomes. Mixed method research techniques that combine analysis of wiki changes (e.g. Yim & Warschauer 2017) alongside consideration of learner motivation and stance promise to better capture the dynamic nature of collaboration (e.g. Alghasab & Handley 2017; Li & Zhu 2017). Most L2 learners will have very little, if any, experience creating wikis, unlike SNS profiles, and will probably have used *Wikipedia* much less than they have used SNSs. For that reason, explicit scaffolding and instruction is warranted with wikis, including awareness building regarding their utility as learning and collaboration tools. Building awareness might involve exploring with students the concepts of collective intelligence and crowdsourced wisdom, for example in social media like Reddit or Digg—two popular tools whose application to L2TL has yet to be explored fully.

4. SNSs

SNSs can be defined as social media that foreground personal profile curation, network traversing, and network articulation (boyd & Ellison 2007; Ellison & boyd 2013)—in contrast to a primary emphasis on content creation, which typifies blogs, wikis, and other sorts of social media. However, as the technologies of social networking, the Web, broadband, and mobile and smartphones continue to evolve, functional distributions among different platforms and tools have blurred. While SNSs are typified by user status updates presented in reverse chronological order, which function somewhat like short blog posts with threaded discussions, they integrate functions like photo hosting, multimedia sharing, chatting or messaging, and a variety of third-party applications. Some SNSs are now so integrated with mobile and smartphone computing technologies like cameras (e.g. Instagram or SnapChat) and location-based services (e.g. Foursquare) that they have limited use without them.

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Sometimes termed a 'microblog', Twitter was intentionally designed as a means for quick dissemination of news headlines or gossip by allowing users to subscribe to the feeds of, or 'follow', people they did not know personally and to track and browse information using 'hashtags'. Until very recently, tweets were limited to 140 characters, which made content easily sharable but perhaps superficial—unlike blogs and wikis, which afforded lengthier authorship and collaboration. Now, however, by allowing longer tweets and the embedding of images and videos, Twitter has become more like Facebook, while Facebook has recently incorporated the concepts of followers and hashtags, becoming more like Twitter.

Early Internet-based SNSs evolved out of comprehensive Internet services like Compuserve and America OnLine. Because they were centered on profile creation and networking with other users, the first SNSs in the 1990s were initially designed as dating, class reunion (Classmates.com), and business networking services (LinkedIn). Leveraging Web 2.0 capabilities, the first generation of SNSs like Sixdegrees.com, Friendster, MySpace, and eventually Facebook used a 'degree of separation' concept (Shah 2016) that allowed users to build networks through other users. This allowed networks to emerge from and through existing social connections (e.g. friendships), rather than through affiliations, interests, or purposes supposed and imposed by website developers. As of March 2018, Facebook is the SNS par excellence, with 1.45 billion using the service daily (Facebook 2018). Of note to L2 educators, the popularity of different SNSs varies according to country—as of this writing, for example, Mixi is quite popular in Japan, vKontakte in Russia, and QZone in China.

As SNS use has become global and mainstream, academia has taken interest. Education scholars (e.g. Selwyn 2008) have argued that SNSs can facilitate the development of collaborative and participatory learning communities, as well as opportunities for informal and unstructured learning. In a review of over 400 studies on Facebook, Wilson et al. (2012) identified five major areas of research focus: descriptive analysis of users, motivations for using Facebook, identity presentation, the role of Facebook in social interactions, and privacy and information disclosure. In line with education, communications, and social science research, L2TL researchers and practitioners have explored informal L2 use and learning using vernacular SNSs like Facebook (§4.1), formal pedagogical applications of vernacular SNSs like Facebook and Twitter (§4.2), and the informal but intentional use of educational SNSs or SNECSs (social network-enhanced commercial CALL sites and services) like Livemocha and Busuu (§4.3).

4.1 Informal L2 use and learning in SNSs

Studies of informal SNS-enhanced L2 use and learning outside of, or peripheral to formal instructional contexts have found evidence these SNSs are used for (1) the learning, practicing, and maintenance of home, heritage, and new languages and (2) strategic self-directed learning. Research has also shown considerable (3) theoretical and methodological innovation, informed by trends in related fields like Internet sociolinguistics, communication, and new media studies.

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4.1.1 Strategic maintenance and learning of heritage languages

Researchers have argued that multilingual users and L2 learners find in SNSs tools effective and strategic means for learning and using languages, practicing heritage identities, and maintaining home connections. In one of the first studies along these lines, Lee (2006) presented two case studies of the electronic literacy practices of two adolescent female heritage speakers of Korean in the US who used the Korean SNS Cyworld to practice their language informally through interaction with friends. Research on heritage learners' use of SNSs has also included bilingual English-Spanish speakers in Puerto Rico (Carroll 2008), and Welsh users in the UK (e.g. Cunliffe, Morris & Prys 2013; Jones 2015). In general, findings are that users strategically consider addressee and purpose in choice of language when code mixing or shifting, and they find community in SNSs among geographically dispersed populations.

The common implication that L2 learners and users find empowerment and voice in informal but strategic SNS use is echoed in other studies that focus more intently on identity and literacy development. For example, in case studies of three college L2 writers, DePew & Miller-Cochran (2010) show how each participant used different SNSs for different purposes, demonstrating varying degrees of symbolic and social networking literacies, including audience awareness. Using similar methods, DePew (2011) offers three more case studies of the extramural Facebook practices of lower proficiency L2 writers, who demonstrated facility with different registers and audiences and mixing languages to present heritage identities. DePew argues that even though L2 writers may be construed as deficient in English proficiency, their highly sophisticated and strategic use of social media is seldom recognized by their schools as a legitimate sort of literacy. Pedagogical implications are to acknowledge these new literacies and to leverage them by somehow integrating SNSs into formal instruction (cf. §4.2.4).

4.1.2 Self-directed learning of foreign languages

Building on the notion that vernacular SNSs are used strategically, another strand focuses on the self-directed, or deliberate and intentional, foreign language learning that they mediate. For example, Pasfield-Neofitou (2011) analyzed the online SNS, blog, and email-mediated writings of 12 Australian learners of Japanese and their contacts over 4 years. She examined how language and topic choice indexed identity presentation, conceptions of nationality, and the perceived ownership of online spaces. Participants used their Japanese non-native user/learner and English speaker identities strategically according to interactional purpose, and found some SNSs more accommodating to their learner identities than others. Back (2013) analyzed the daily Facebook posts of three learners of Portuguese studying abroad in Brazil and found considerable differences in number, length, and change in length of posts in Portuguese over time. Interpretation implicates the development of audience and register awareness afforded by SNS use, albeit via different pathways, at differing rates, and to different degrees for individual learners. Jin (2018) showed how two L2 Chinese learners studying abroad in Shanghai utilized the ecological affordances of WeChat in different beneficial ways. For example, the lower proficiency learner leveraged the tool's multimodal

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resources like stickers and memes to scaffold his L2 use, while the higher proficiency learner accessed vernacular registers by virtue of being part of a network of other learners, L1 speakers, and instructors. A common implication of research in this strand is to advocate the use of vernacular SNSs extramurally and to teach explicitly the skills needed for their strategic uses as L2 learners (cf. Prichard 2013, §4.2.3). As surveys (e.g. Lai, Hu & Lyu 2018) have found that some learners find social media for informal, extramural learning forced and inauthentic, however, participation should be encouraged in interest-focused affinity spaces where L2 use is not the goal but the means of interaction.

4.1.3 Theoretical and methodological innovation

Descriptive research of informal, multilingual SNS use usually employs qualitative, ethnographic methods in the tradition of Lam's online language socialization research (e.g. 2000, 2004). Recent work also borrows concepts from research in Internet sociolinguistics that recognizes the multilingual and superdiverse nature of online language use (e.g. Vertovec 2007; Blommaert 2010; Androutsopoulos 2015). For example, Schreiber (2015) examined the literacy practices of a Serbian adolescent in Facebook, and argues they should be considered 'translanguaging', wherein the user considers the various repertoires and resources as an integrated system, and the SNS serves as an intertextual space for self-presentation and identity performance (cf. §4.1.1). Schreiber showed how her participant was able to develop and present both local and transnational, global English-mediated identities through a variety of translingual re-entextualization and sharing practices that affiliated him with global hip-hop communities.

Other studies employ mixed and quantitative techniques as well. For example, Chen (2013; see also Chen 2012) examined the Facebook use over two years of two L1 Chinese graduate student multilingual writers in the US, finding one student preferred to post personal updates and observations while the other shifted from personal updates to sharing and other-involved writing as she observed others doing the same. Working with the second participant's data further, Reinhardt & Chen (2013) used frequency analysis to study the participant's development and made the argument that her Facebook activity indexed perceived socialization into an imagined community (Anderson 1991, in Reinhardt & Chen 2013). Also employing mixed methods, Solmaz (2015) used an innovative visualized social network analysis technique to present evidence that students used diverse multilingual and multimodal resources in online identity performance and SNS literacy practices. Visualization showed that an individual's networks mapped into different patterns according to language, gender, and community affiliation.

In a recent book-length treatment, Vandergriff (2016) provides a useful model for applying computer-mediated discourse analytic techniques to a variety of SNS contexts of L2 use and learning in both vernacular SNSs and SNECSs (§4.3). In the examples, she shows how users employ agency through strategic self-presentation, deployment of multilingual resources, negotiation for supportive space, engagement in play, and management of learning processes.

Innovative approaches have led to important classroom implications. For example, Warner & Chen (2017) adapt Goffmanesque participation analytic techniques to three

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translingual Facebook conversations, showing that features like virtual adjacency, non-verbal backchanneling, focused addressivity, and layered simultaneity make them highly unique in comparison to non-digital conversations. As such, the authors argue, they might serve better to develop symbolic competence and awareness of symbolic power than the artificial examples found in classroom texts. In their analysis of the translingual practices of their first language (L1) Arabic and L1 Spanish students in an English telecollaboration project, Kulavuz-Onal & Vásquez (2018) showed that all three languages became interactional resources for audience design, intercultural awareness, and establishing solidarity, arguing that 'English only' classroom policies do reflect the global reality of social media literacy practices.

4.1.4 Summary and future directions: Informal SNS L2 use and learning

Research on informal use of SNSs for L2 use and learning differs from research on pedagogical applications of blogs and wikis because there are far fewer, if any, notable studies on the informal use of those tools for L2 use and learning. SNSs are unique in this regard because they are vernacular and everyday, but they are truly global and used in multilingual and transcultural ways. Their use centers on networking with new and old friends, family, and home or heritage culture communities. Unfortunately, the considerable audience and register awareness, interactional, and identity performance skills involved in SNS use are usually neither recognized nor legitimized in traditional writing or language instruction.

Research in the area holds great potential to inform SNS-enhanced L2 pedagogy and to benefit from interdisciplinary cross-pollination. Internet sociolinguistics and computer-mediated discourse analysis are growing fields (e.g. Page et al. 2014; Jones, Chik & Hafner 2015; Vandergriff 2016), and offer examples of analyses of computer-mediated and social media discourse with frameworks that can be adapted to L2 situations as well. The field will also benefit from the addition of quantitative techniques that complement the many case studies and ethnographic perspectives, allowing for more generalizable and scalable results. Because SNS use has become so ubiquitous and is digitized, applying mixed methods should not be as difficult as it perhaps once was, although new issues of gaining permission, maintaining privacy, and archiving digital data present additional challenges.

4.2 SNS-enhanced L2 pedagogy

Complementing research on informal L2 use and learning with vernacular SNSs, and sometimes incorporating its implications, a second broad research area on SNS reports on formal, classroom-based pedagogical applications of vernacular SNSs like Facebook and Twitter, as well as on autonomous learning through extracurricular use of SNSs associated with formal interventions. Research strands in the area focus on (1) the motivational benefits of SNSs, and their affordances for (2) observation of and participation in genuine L2 sociopragmatic usage, (3) situated and simulated practice, (4) literacies development, and (5) autonomous learning.

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4.2.1 Motivational benefits of SNSs

Early work on vernacular SNS use included idea pieces focused on its motivational potential. For example, McCarty (2009) described his attempt to explore learner motivations and reactions by joining his EFL students' social network Mixi, where he found mixed reactions from students at his presence. His finding pointed to an early point of debate—whether teachers should be SNS friends with students or force students to friend each other (see also McBride 2009)—that has now largely been solved since Facebook introduced its groups feature. McCarty's study also illustrated another increasingly relevant issue—whether vernacular, everyday technologies like SNSs can be fully appropriated for formal educational purposes and retain their motivational qualities. In an empirical answer to the question, Kelley (2010) found that four experimental classes of Chinese university EFL learners who participated in MySpace discussions measured significantly higher in some measures of integrative/ideal L2 self-motivation post-treatment than four control classes who did comparable activities face-to-face. While there might have been a novelty effect and the teacher was not controlled for, a plausible interpretation was that the SNS (and the teacher) functioned as a 'window' to the outside world, which for Chinese students at the time, was a significant motivator. It would be interesting to test SNS vs. non-SNS conditions experimentally now, several years later, when SNS use has truly become ubiquitous and everyday, even in once-isolated China. While the reason 'because students are motivated by technology' might once have been sufficient to justify a technology-enhanced activity over a traditional one, learners may now find classroom technology normalized (Bax 2011).

Some recent studies have compared social media-enhanced activities to controlled versions of the same activities face-to-face. For example, Dizon (2016) found that the writing fluency of a Facebook experimental group improved in comparison to a face-to-face control group, but lexical richness and grammatical accuracy did not. Özdemir (2017; cf. Jin 2015) found improvement in measures of intercultural competence in Facebook discussions compared to control groups. While she did not compare them to face-to-face equivalents, Liu (2017) found more instances of negotiation and resolution in Facebook chats among high-level proficiency learners than low-level, who relied more on requests for help. Although these results are interesting, future research should focus on which particular social media dynamics lead to L2 learning affordances by isolating task and contextual variables. For example, the anytime accessibility, informality, reduced social cues, or anonymity of social media posting may be more associated with some learning affordances than others.

4.2.2 Genuine L2 sociopragmatic usage

One of the first to propose potential formal applications of SNSs, McBride (2009) describes them as spaces for learner self-authorship, interaction, and sociopragmatic development. Echoing Prensky's (2001) digital natives argument, she argues that SNS users practice 'writing/re-mixing of the self' through impression management, identity work, and identity

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play, which may all contribute to L2 development. Heralding future studies, she suggests a variety of projects included alternative identity profiles, group profiles, global simulations, media-centered projects, and theme-centered projects.

One strand of research to echo McBride's (2009) suggestions was forged by Blattner and colleagues, who recognized the potential of SNSs to serve as windows onto genuine L2 sociopragmatic usage. For example, Blattner & Fiori (2009) had university-level French and Spanish learners in the US observe expert speakers informally through Facebook's group function. The instruction, based in Lave & Wenger's (1991) notion of situated learning, had learners observe and gather information on how speech acts were used and how usage differed among varieties. In a later study, Blattner & Fiori (2011) had advanced Spanish learners participate in guided discourse analysis tasks designed to raise sociopragmatic awareness of various speech acts and discourse functions in Facebook groups whose subjects corresponded to course topics. Students in both studies responded positively. Finally, Blattner & Lomicka (2012) reported on the use of Facebook groups as a space for telecollaborative exchange between French learners in the US and English learners in France. Comparison of pre- and post-instruction attitudes towards formal SNS-mediated learning showed a shift towards awareness of the L2 learning potential of the medium. Although they were not required to, many students friended each other and thus remained connected after the course finished.

Twitter has also been explored as a means for exposing learners to genuine usage outside of traditional class times and spaces. For example, Antenos-Conforti (2009) had her intermediate L2 Italian learners follow each other on Twitter, inviting a few native speakers to participate as well. While most learners reported satisfaction at being able to interact in the L2 authentically outside of class, half reported being overwhelmed with the frequency of the contributions from the native speakers, and discomfort at not knowing them in real life. Lomicka & Lord (2011) had 13 L2 French learners use Twitter to interact with each other and with native French speakers. Analysis found affective (e.g. humor and self-disclosure) and interactive features in the tweets, but fewer cohesive features in the form of vocatives and phatic language, perhaps due to the implied addressivity of a closed community. The invited native speakers did not tweet nearly as much as the learners, which might indicate they did not feel a part of the group. For beginning learners especially, there might be less intimidation if Twitter use in the L2 mirrors the authentic practice of following celebrities, and using the tweets as objects of analysis (e.g. Blattner, Dalola & Lomicka 2015), rather than as a tool for closed group interaction.

Findings on SNS are similar to those of other studies of social media-enhanced cultural exchange, where blogs served as windows onto genuine uses and means of interaction with cultural informants and experts. While not always reported, challenges related to appropriate task design and learner variables—the double-edged sword of peer and authentic audiences empowering some learners but intimidating others—are considerable (cf. Lee 2009, §2.1.1; Chen 2015, §2.1.4). Studies also sometimes fail to discuss if and how connections initiated in SNS-enhanced intercultural exchange might lead to sustainable autonomous learning practices. Future work might examine this potential, informed by research on how learners use SNS strategically for informal learning outside of the classroom (§4.1, §4.3).

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4.2.3 Situated and simulated practice

Also implementing some of McBride's (2009) suggestions is a strand of research building on the potential of SNSs for situated learning (Lave & Wenger 1991), since they have become ubiquitous and familiar and might therefore act as a point of departure for exploration of new practices in the L2. For example, Mills (2011) developed Facebook-enhanced global simulation instruction for university-level advanced French learners. Over the course of a semester, students developed simulated identities by completing joint narrative authoring tasks, interacting as their characters in wall posts and status updates, and sharing various online resources, which contributed to a sense of immersion. In the ensuant SNS-mediated interactions and simulated self-presentations, Mills found evidence of the joint enterprise, mutual engagement, and shared repertoire characteristic of situated learning. In a similar project, Reinhardt & Ryu (2013) created and implemented a series of role play and bridging activities for intermediate L2 Korean learners, the purpose of which was to develop awareness of Korean Internet language and sociogrammar by voicing perspectives they could not with their actual identities. Learners analyzed each others' production and discussed the appropriateness of the language used. In another example, Yen, Hou & Chang (2015) developed a series of team-based activities for 42 EFL learners in Taiwan enhanced by Skype and Facebook. Teams used Facebook groups as a medium for brainstorming and discussing sales strategies they would then employ in the Skype-based business negotiation role plays. These pieces offer models for instruction by means of which learners can identify with and as L2 users through familiar SNS lenses. In other words, to continue the metaphor of SNSs as windows onto socio-pragmatically genuine discourses and gateways into communities, SNSs can also as playgrounds or safe spaces for practice, perhaps before they are used for interaction with expert users and genuine communities.

4.2.4 Literacies development

As social media becomes increasingly used as a primary source of news and information, there is also justification for focus on media literacy in L2TL (e.g. Reinhardt & Thorne 2011; cf. also §3.1.3). These might be integrated with 'SNS literacies', which Solmaz (2015) argued, based on his descriptive analysis of the informal SNS practices of multilingual university students (§4.1.3), include simulation, performance, appropriation, judgement, and networking literacies. Research shows these activities should be experiential and focused on developing criticality. For example, Prichard (2013) developed and implemented a set of SNS-enhanced activities corresponding to the TESOL technology standards for 41 Japanese EFL learners. Activities had students experience Facebook in English by creating profiles, friending others, joining groups, and making posts and comments. Similar to Reinhardt & Ryu (2013) but using real rather than role played identities, critical activities had students determine the appropriacy and relevance of different posts, and critically evaluate SNSs as aids to L2 learning. Students responded positively to the intervention, although for the most part they used the site more for informal socializing than for explicit study purposes, a finding that aligns with studies of other social media use (Kessler 2009, §3.1.1)

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Because SNSs are associated with informal, everyday uses, formal SNS activities may not always be well-received, as Reinhardt & Zander (2011) found. They had their students play and evaluate Facebook-based social games together and critically evaluate the use of SNSs for educational purposes. Because of the extrinsic pressures of an impending standardized test, however, some learners resisted the SNS-enhanced activities and did not wish to interact with classmates on SNS outside of class, preferring more rote and traditional test preparation activities. Wang & Kim (2014) found that their advanced Chinese learners for the most part enjoyed an assignment requiring open-ended posts and responses to the group Facebook page, valuing it for extramural practice, freedom of topic choice, and socializing with other class members, but some expressed concern that it distracted them from other more academic-focused assignments. This aligns with findings (cf. §2.1.5 and §3.1.5) that learners themselves may have unexamined preferences for traditional, transmission-oriented, and teacher-driven language instruction. Williams, Abraham & Bostelmann (2014) found half of the 800 American university students they surveyed did not think social media should be integrated into L2 curricula—future research might explore reasons for this and what implications there are for formal uses.

4.2.5 Autonomous learning

Findings on learner pushback on formal, explicit SNS-enhanced instruction have led to exploration of whether there is the possibility of encouraging learners to teach themselves. Studies of semi-formal (sometimes confusingly called non-formal) or extramural uses of SNSs support the hypothesis that giving learners a sense of control is key to developing autonomy as these connections often result in more naturalistic interactions and informal learning opportunities. For example, Liaw & English (2013) compared the exchanges made between English learners in France and Taiwan in a formal, institution-supported SNS and a Facebook group that they spontaneously created on their own. A systemic-functional linguistic analysis found less interpersonal and textual language in the official group than in the unofficial group. The researchers suggest that the unsanctioned quality of the informal group afforded the learning of interpersonal language not possible in the formal group, leading to more genuine and situated learning of culture.

Another way to encourage autonomy might be to carefully scaffold an SNS resource so that learners gradually take ownership. For example, Yang, Crook & O'Malley (2014) examined the implementation of a Ning-based SNS created for seven adolescent learners in an extracurricular Mandarin learning program for virtual teaching, social, and cognitive presence. Over time the teacher gradually relinquished activity direction to the students, who then autonomously assumed teaching presence. Analysis of user behavior and change in content over time showed that the SNS activity exhibited social and cognitive presence as well. The results contrast with Kennedy & Miceli's findings (2013, §3.1.3), where a learner-directed wiki-enhanced learning resource was not so successful—it may be that without scaffolding, or perhaps for larger numbers of students taking a course as a requirement rather than voluntarily, SNS resources will not be utilized as readily for autonomous learning.

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A third approach might be to offer a variety of platforms and allow learners to choose and use them differently. Lamy (2013) examined about 5400 SNS-enhanced posts by L2 Chinese learners who, over a year, participated in two institutional but informal chat rooms (4000 posts) as well as in public and private Facebook groups they created for themselves (1400 posts), posting freely in both languages. She found that most learner posts, in both the institutional and Facebook groups, exhibited re-use and link display, but little openness or network effects—the former meaning sharing resources that are openly re-useable, and the latter meaning enhancing shared resources so that they grow in virality or popularity—all four qualities can lead to affordances. She attributes differences in post type to the differing parameters and constraints of participation in the institutional, informal, and learner-directed groups. It may also have been that particular site features facilitate or inhibit open or network activities, or that even in the informal groups the learners saw the activities as formal in nature. Implications from research on informal uses (§4.1) might be applied, and more long term research on the use of semi-formal SNS groups is warranted—perhaps using ethnography to get at users' emic perspectives on what they believe they are doing in the different SNSs, and for what purposes they use one kind over another.

4.2.6 Summary and future directions: SNS-enhanced L2 pedagogy

In sum, research has shown that vernacular SNSs can be used for observation of, and participation in, socio-pragmatically genuine discourse practices in the L2 of study. The SNS practice of profile curation can be leveraged as an affordance for L2 identity development, interaction, and language awareness through simulation and role play activities, while network traversing (i.e. sharing and posting) can be leveraged to develop learner community. Learner agency and autonomy can be facilitated through the provision or unofficial support of SNS resources that are supplemental to formal instruction. Findings also suggest, however, that resistance may be encountered depending on task parameters and learner variables—for example if SNS use is required, if activities are imposed top-down, and if learners are required to use their real identities and to friend each other unwillingly.

Future research and instructional development should build on the findings from analysis of naturalistic, informal SNS L2 use and learning (e.g. § 4.1.4), connecting descriptive research with pedagogical practice. As SNS use becomes everyday practice and assumes a central role in our cultural, political, and educational lives, development of social media literacies—by using SNSs critically as windows, gateways, and playgrounds—might be a direct goal of L2 curricula. Through critical examination of how languages and other semiotic means are used in SNSs for presenting identities, building and maintaining relationships, and otherwise creating social meaning, learners might see their own and others' practices more critically, and participate more reflectively in both L1 and L2. Autonomous use is key to successful lifelong L2 learning—there is no doubt that once L2 learners leave classrooms, there is a good chance they will encounter the L2 in social media and other digitally enhanced contexts as often, if not more often, than in face-to-face situations.

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4.3 SNECSs: Social network-enhanced commercial CALL sites and services

A third area of research on SNSs for L2 learning is on the self-directed use of SNECSs, sometimes called social networking sites for language learning (SNSLL). Zourou (2012) offers a taxonomy for three different types of these 'Web 2.0 language learning communities', comprised of 'structured language learning communities', centered on tutorial CALL lessons, 'marketplaces', focused on tutor or peer pairing and hosting, and 'language exchange sites', focused on general interaction and socialization. As of this writing, however, these sites have continued to evolve into online amalgams of all three types enhanced by a variety of social networking and intelligent CALL features. In March 2016 the most widely researched SNECS, Livemocha, was acquired and shut down by Rosetta Stone, which may or may not revive it in some form. Busuu, Babbel, and Palabea (also now defunct) began as primarily online tutorial CALL and have incorporated various social network-enhanced market and exchange features from their beginnings. DuoLingo started as a peer-tutoring translation site, and has increasingly incorporated tutorial CALL elements and social networking features.

In view of this continuing evolution, the term SNSLL has become inadequate—I propose instead the term 'social network-enhanced commercial CALL sites and services' (SNECSs). Typical SNECS use involves creating profiles, articulating and cultivating networks (often suggested by the site), engaging in tutorial CALL lessons (sometimes authored by other users) that focus on writing, reading, grammar, and listening, and participating in synchronous chat and asynchronous discussion boards. In exchange for completing various tasks—often providing feedback to other users—SNECSs offer rewards in the form of recognized status and access to premium content and tutors. Alternatively or in addition, premium access can be purchased. These features and their impact on user experience, or usability, has been one of two major research strands in the area.

4.3.1 Overall SNECS usability

Research focused on SNECS usability has generally found that while different features appeal to different learners, poor design often distracts from learning potential. For example, Harrison & Thomas (2009) followed six L2 learners who used Livemocha. Using boyd & Ellison's (2007) conceptualization of SNS identity as an analytic framework, they argued the site afforded self-presentation, network management, and community participation, but that different site features appealed to some learners but not to others. Clark & Gruba (2010) reported on their own experiences using Livemocha to learn Korean over four weeks, identifying several site affordances that motivated them and aligned with L2 pedagogical principles—the opportunity to communicate with native speakers, to use chat instead of voice or video, to leave comments for others, and to have tasks broken into manageable chunks. However, certain design elements led to frustration, including outdated methods and boring drills, decontextualized content, limited opportunities for interaction, excessive requirements to help others, and no acknowledgement in the site design of the relative difficulty between English and languages like Korean as opposed to Spanish.

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The work of Liu and colleagues (Stevenson & Liu 2010; Liu et al. 2013; Liu et al. 2015) also employs usability testing along with comparison as methods for evaluating SNECSs and their potential integration into formal instruction, with similar critical findings. Comparing Palabea, Livemocha, and Babbel, Stevenson & Liu (2010) evaluated technical and pedagogical usability by examining how five learners completed exploratory, open-ended, and close-ended tasks in the sites. In brief, users wanted a combination of features no one single SNECS offered—access to native speakers and tutorial CALL resources, an atmosphere of both serious and fun learning, customizability, and intuitive interface design. In a second study, Liu at al. (2013) explored the possibility of integrating SNECSs into formal instruction. They had 21 adult ESL students complete a series of focused tasks over six weeks in Livemocha, Busuu, and English Café, and found in general that the first was preferred for speaking and vocabulary, the second for reading and writing, and the third for grammar. There were considerable differences in how comfortable participants were using the sites, which communication modes they preferred, how proficiency level influenced outcomes, how feedback was received, and how design features led to preferential differences because of perceived affordances. A third study (Liu et al. 2015) examined four more SNECSs—LingQ, Lang-8, italki, and Polyglotclub—and focused on the design of supplemental learning tasks they designed, including journal keeping, video watching, text reconstruction, and photo sharing tasks. Behavioral data analysis and a user survey of six adult ESL learners revealed that advertisements, complicated and poorly designed interfaces, and inaccurate translations sometimes interfered with the tasks. In short, teachers may not be able to ameliorate the problems of poor SNECS design with well-designed supplemental tasks.

Coming to similar conclusions, Brick and colleagues (Brick et al. 2011; Brick et al. 2012; Orsini-Jones, Brick & Pibworth 2013) also examined SNECSs as potential formal teaching resources, from the perspectives of both learners and instructors. Brick's analysis (2011) of the Livemocha experiences of seven learners of a variety of languages showed frustration at the quality of peer feedback as well as a perceived tendency towards 'cyber-flirting'. Users were quite unhappy with the quality of the curricula, which focused on rote memorization and word lists. In a complementary study (2012), Brick analyzed the experiences of 15 instructors and 14 students with Busuu. While most reported their overall experiences were positive, and students were enthusiastic about the site's reward systems, there was some instructor skepticism about inauthenticity of material and cultural representations. Finally, Orsini-Jones, Brick & Pibworth (2013) examined how eight L2 teacher trainees evaluated Livemocha and Busuu with regards to learner agency and found a pattern of motivation, frustration, and demotivation similar to what Clark & Gruba (2010) found. While participants appreciated some site features, they were demotivated by mismatches between materials and designated level and between the potential of the sites to support authentic interaction and the behaviorist, decontextualized nature of the materials themselves. They were also frustrated at the lack of pedagogical expertise by the other users, even if they were recognized by the site to have it.

Most recently, large scale quantitative usage analysis offers statistically significant evidence that lack of real teaching expertise among users is perhaps the biggest issue with SNECSs. Lin, Warschauer & Blake (2016) surveyed over 4000 users of Livemocha, with additional case study analysis of the production of 20 users, focused on attitudes and site usage. Although survey participants in general felt the site built self-confidence and was motivating, the case

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studies showed that most users quit after a few months. Analysis of user work showed that while syntactic complexity increased the longer the site was used, accuracy did not. The researchers argue the findings implicate the need for dedicated, trained instructors, without whom learners are not motivated to persist in their efforts and to attend to persistent errors in accuracy.

4.3.2 Focus on specific SNECS features and affordances

A second strand of research on SNECSs focuses on specific site features and their affordances, often taking theoretically rigorous discourse analytic approaches to do so. This approach, to focus on features and dynamics that are universal across SNECSs, is perhaps in reaction to the fact that as commercial products being constantly updated, SNECSs are evolving and sometimes disappearing targets. Most studies, like those employing usability analytic methods, find that site designs leave users frustrated, and that while negative affordances counteract positive learning outcomes, sometimes positive affordances emerge in spite of site design, as users adapt.

For example, Harrison (2013) examined the central role that profiles play in impression management and identification of the pedagogical expertise of language partners in SNECSs. Ethnomethodological analysis of the experiences of seven Livemocha users found they were discouraged by the inability to control profile features and privacy settings, which, combined with the inability to discern authenticity in others' profiles, led to mistrust and uncertainty about the potential affordances of peer interaction and tutoring. In a similar focused study, Zourou & Loiseau (2013) conducted a quantitative analysis of the Livemocha's culture section's threads over two years, showing a boom at launch of number of threads (about 1300 per day), a gradual decline of threads over time, and a low rate of persistence—only 10% remained active after a month. Closer analysis found that most threads were photos, comments were very sparse, language used was simple, and responses on the most popular threads were not interactive. The researchers conclude that the mechanism for sorting threads favored new thread authoring rather than response or reuse and that the functional complexity of network traversing—i.e. finding and interacting with one's friend's culture threads—inhibited the potential of the culture section to afford social interaction and learning. Most recently, Zourou, Potalia & Zourou (2017) explored SNECS affordances for the development of autonomy in a study of over 1500 French and English learners using *Busuu*. Comparison of the users' solo engagement with tutorial CALL exercises to social activity with peer correction activities showed a majority preference for the latter, which the authors argue represents a social autonomy stance. Whether or not that activity leads to long term learning gains, however, is unknown—although if Lin et al.'s (2016, §4.3.1) findings hold, it probably does not.

Gonzales (2013) used conversation analysis to examine how an L2 Spanish learner negotiated rapport and solidarity in Livemocha chat with native-speaking partners in spite of, not thanks to, site affordances, through the use of humor, small talk, textualized paralanguage, and shared cultural reference. Even though the site provided chat users with translators, extra emoticons and L2 characters, and suggested topics, the learner instead autonomously

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leveraged his CMC discourse competence, thereby developing sociopragmatic competence. In a similar study using discourse analysis, Vandergriff (2015) examined 120 discussion board transcripts in the non-commercial, non-profit SNECS Deutsch für Dich (DfD) for evidence of the expression and exercise of learner agency, including formulating goals, engaging in strategic learning behaviors like planning and self-regulating, choosing which language to use, and engaging in humor. She found considerable evidence of the expression of agency, sometimes, like Gonzales (2013) in spite of site design, but mostly in concord with the pedagogical objectives built into the design. It is notable that DfD is developed by the venerable non-profit Goethe Institute, which hires professional tutors and trained instructors to operate and design the site.

4.3.3 Summary and future directions: SNECSs

In sum, most studies that have examined SNECSs in terms of overall usability by learners and instructors have found that poor site design not grounded in best L2TL practices or accepted SLA theory ultimately leads to frustration and abandonment. Studies of particular site features and affordances emergent from use have also shown less than encouraging results, although recent studies (e.g. Vandergriff 2015; Zourou et al. 2017), aligning with trends in other social media research (cf. §2.1.3, §4.1.2, §4.2.5), show some affordances for the development of learner autonomy.

While the evidence against Livemocha might lead one to conclude its demise was perhaps for the better, other SNECSs continue to develop, and one hopes their developers might learn from the successes of the non-commercial DfDs among them. Unfortunately, as long as there is a steady stream of new customers who find the status, ranking, and gamified rewards systems motivating, but who are unaware that poorly designed, decontextualized memorization drills may not lead to long term learning gains, commercial SNECS developers have no reason to pay attention to L2TL research. To force their and their customers' attention, more long term studies like Lin et al.'s (2016) that target and isolate different features, mechanics, and dynamics are necessary. The question of whether sustained, long term use of commercial SNECSs can lead to sustained linguistic development, even in the absence of teaching expertise, can be answered with studies that compare SNECSs with other SNECSs as well as with non-SNECS conditions. In particular, qualitative studies of successful users and formal programs that integrate SNECSs are needed that offer insights into the ecologies of SNECSs use.

Increasing research focus on informal, extramural learning practices may also contribute to research on SNECSs and social media in L2TL more broadly (e.g. Sockett 2014; Sylven & Sundqvist 2016). While educational social media use is only one kind of practice among a variety of informal, self-directed L2 learning practices, SNECSs are designed for intentional L2 learning, unlike digital games or other vernacular media. Chik & Ho (2017) found that beginning L2 learners gravitated towards structured self-directed L2 learning resources rather than opportunities for interaction with other speakers, and that time limitations pushed would-be learners to ready-made rather than do-it-yourself resources. While some SNECSs become more comprehensive as others become more targeted and customizable, their place

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in an L2 learner's increasingly multifarious repertoire of extramural resources is a topic for continued scholarly attention.

5. Conclusion

In conclusion, there has been considerable research on social media in L2TL—blogs, wikis, and both vernacular and educational SNSs—that has implications for language teaching defined broadly. Research has argued and provided evidence that social media used informally can afford the development of intercultural, sociopragmatic, and audience awareness, language learner and user identities, and particular literacies. If used with agency and awareness, these tools may afford development of learner autonomy. Moreover, certain media have particular potentials—for example, blogs for reflective learning, wikis for collaborative learning, and SNSs for situated learning—that can be leveraged with carefully designed instruction that considers learner backgrounds and histories with social media outside of the classroom.

Research on social media in L2TL to date has utilized socially-informed L2TL theories, especially social-constructivist, multiliteracies, and L2 identity development theories, as well as a variety of research methodologies and techniques, including case studies, instructional and action research, discourse analysis, ethnography, and quantitative data analysis. As practices mature, they have the potential to inform theory building and methodological innovation in the fields from which they have borrowed, including CMC, digital humanities, new media studies, the learning sciences, and educational technology. Challenges include the constraints of technology, the limits of privacy, and reconciling the formal demands of research with the informal, anywhere, anytime qualities of social media use.

Because social media is increasingly everyday and omnipresent, it should be used by learners and teachers as a tool for experiential, situated learning, and as social practices deserving of critical attention. Affordances emerge from the interplay of instructional ecologies and learner styles and cultures-of-use, and continued investigation of how technology-agnostic social media dynamics are intensified, activated, diminished, or negated by particular media and situational variables is merited. A key dynamic not researched in any of the surveyed literature is mobility and the impact of anytime, anywhere (or always, everywhere) access on learning and how this truly blurs the increasingly archaic and perhaps irrelevant borders between formal and informal learning. Other social media, not yet fully explored, might offer affordances for multimodal, visual, location-based, and different forms of socio-collaborative learning.

It should not be overlooked in either research or practice that all vernacular social media, and most all educational social media, especially SNECSs, are usually commercial enterprises. As such, they should be subjected to the same critical scrutiny as any media used for L2TL as a means or object of learning. Advanced learners especially can benefit from explicit media literacy instruction (e.g. Buckingham 2003) applied to social media, with discussion of different media types and sources in the L2, perhaps in comparison to the home culture/language (Reinhardt & Thorne 2011). The concepts of user agency, control, and choice—especially in

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situations where the user is involved through Web 2.0 mechanisms as a producer of content—should be critically situated and understood in terms of how language is used in and by social media agents, for what audiences, and for what purposes. It is as crucial for English learners to study how social media was used in the Brexit vote or the 2016 US elections as much as it is for German learners to learn about cultural representations in pre-WWII German literature, or for French learners to understand the role of colonialism in Francophone literature. There is no question that social media literacies, as they continue to be researched and defined, will be key to modern language proficiency in the future.

Questions arising

1. What can be learned from research on L2 learning with now archaic technologies that may be applicable to L2 teaching with newer technologies today?
2. How have the social interactional and communicative features associated with blogs, wikis, and social networking sites been integrated into newer social media apps?
3. What new affordances for L2 use and learning are available in newer social media apps thanks to broadband access and mobility?
4. As social media and L2 learning apps have become everyday and widely accessible outside of classrooms, how much might learners' habitus towards them, or over-familiarity with them, present challenges for their formal use in L2 classrooms?
5. Considering the rise of image sharing media like *Instagram*, how can future research on L2 learning with social media consider the role of verbal, visual, and other semiotic modes?
6. What role does learner autonomy and agency play in social media-enhanced L2 learning and teaching?
7. How should commercial language learning apps like DuoLingo or Busuu be evaluated and studied? What uses might they have in formal classrooms?
8. What responsibilities do L2 educators have to raise awareness and address critical social media literacies when using social media as L2 instructional tools?

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