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Fostering Learner Autonomy through CALL and MALL in a Korean Class: A Case Study

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This case study (n=5) explored how second language (L2) learners perceive changes in their learning autonomy in a technology-integrated, 3rd-year university Korean language class. The curriculum integrated three Web 2.0 tools (VoiceThread, Padlet, and a Grammar/Spell checker) and one mobile tool (Urimal 365: a synchronous chatting service for Korean learning) that assisted with students' reading, writing, listening, and speaking activities. Students completed eight VoiceThread speaking assignments, seven Padlet activities, and regularly used the online Grammar/Spell checker as a writing aid throughout the semester. However, the students decided to stop using Urimal 365. Data included one-hour interviews, post-semester surveys, and student work examples. The findings revealed that participants' diverse backgrounds and beliefs regarding L2 learning drove their decisions regarding how to use the technology. The students reported their dynamic approaches toward the tools and changes in their autonomous learning while completing the four technology projects. The multiple uses of the tools impacted students' cognitive and affective domains simultaneously in their Korean learning. Lastly, the students autonomously formed a strong sense of e-learning community. The pedagogical implications for integrating technology tools and fostering learner autonomy through the use of the tools are discussed.

Keywords: learner autonomy, CALL, MALL, e-community, technology integration, Korean

"Tell me and I forget. Teach me and I remember. Involve me and I learn."

– Benjamin Franklin

INTRODUCTION

Learner Autonomy: Past, Present, and Possible

Learner Autonomy (notated as LA) is defined as a learner's control of their studying, his or her capacity to pursue self-directed learning. This includes making decisions, setting learning goals, engaging in learning activities, and testing outcomes toward constructing personal meaning within the content (Benson, 2013; Confessore & Park, 2004; Dam, 1995; Figura & Jarvis, 2007; Holec, 1979, 1981; Little, 1995). The behavioral, psychological, and pedagogical effects LA had on teachers and students were investigated. Motivation, self-monitoring, metacognition, curriculum building, and evaluation were also explored. Past research by Holec (1979) defined LA as "the *ability* to take charge of one's own learning… [and]…a potential *capacity* to act in the learning situation" (p. 3). Five constructs of autonomous learning are identified by Holec that the learner: (1) determines the objectives, (2) defines the content and progressions, (3) selects methods and techniques, (4) monitors the procedure of acquiring proper speaking such as rhythm, time, place, and (5) evaluates what skills were gained. Raya and Vieira (2015) defined autonomy as "the competence to develop as a self-determined, socially responsible and critically aware participant in (and beyond) educational environments, within a vision of education as (inter)personal empowerment and social transformation" (p. 1). Raya and Vieira view autonomy as a collective interest and a democratic ideal in a larger social context.

At its core, LA is viewed not as a state or static concept like personal learning habits or traits, but as a dynamic and ongoing *process* (Asik, 2010). Autonomous learning occurs when the learner initiates their own education (Dickinson, 1987), either regarding course goals or immediate learning decisions within the learning process. Specifically for second language (L2) teaching, Godwin-Jones (2011) described developing LA in L2 learning as "helping students develop the skills and mindset that can lead to successful self-guided language study" (p. 4).

A wealth of literature has expanded the concept and practices of learner autonomy over the last few decades (Arnold, 2006; Benson, 2001, 2006; Benson & Voller, 2014; Dickinson, 1987, 1992; Joshi, 2011; Kenny, 1993; Little, 1991, 2003; Ng, Confessore, Yusoff, Aziz, & Lajis, 2011). According to Benson (2006), LA has been extensively researched in language learning fields since the mid-1970s with over 2,000 publications from 1981-2006. From the early 1980s through the 1990s, learner autonomy was discussed regarding learners' independent decision-making (Dickson, 1987), capacity (Little, 1991), and degrees of dependence (Little, 1995). One consensus during the 1990s was that LA is based on individualized learning, a term rooted in behavioral psychology. Early approaches in LA criticized teachers' inflexible curriculum for not allowing any freedom for the students in the learning process. In response, Riley and Zoppis (1985) promoted self-directed learning by creating an experiment of building a rich collection of sound and video materials at a university's second language center. Resources were provided to students, who could select materials and make decisions regarding their learning. Riley (1986) argued for developing more student-centered learning materials and that teacher-created methodology and materials is imposing what the teacher wants the learner to achieve. Many cultures contain teacher-centered curricula and passive students' participation as a standard practice. (Godwin-Jones, 2011).

During the 1990s to early 2000s, researchers investigated a more student-centered classroom and addressed the importance of the individual learner's identity, cultural variability, free thoughts, and discursive interests (Benson, 2001, 2006; Kenny, 1993; Little, 1995). This era highlighted individual's creative, idiosyncratic, and authentic understandings and a shared view on the fundamental characteristics of human learning established by Dewey (1903). Kenny (1993) suggested that fostering autonomy is an essential empowerment for the learner and highlighted the importance of the learner independently initiating, planning, organizing and carrying out work. Little (2003) characterized LA as the readiness of learners who are proactive in self-management and voluntarily interact with classmates. Asik (2010) affirmed that "institutionalized learning cannot provide all the information and knowledge that a student will need throughout life. Learners are the ones who are in charge of learning" (p.151).

With the growth of instructional technology in classrooms, one of the central roles of teachers fostering LA was identified as designing effective instructional methods and learning environments to encourage students to engage both in the classroom and online. Empirical research supports that highly structured activities that allow students to make individual and in-

dependent decisions strongly impact students' autonomous learning (Chan, 2000; Lee, 2011). Considering that humans learn through social interactions, social use of technologies have received attention in recent years. Reinders and White (2016) acknowledged the importance of social learning and the learning environment by emphasizing that the role of others in one's learning is an essential component for optimal language learning, stating "the role of others in learning and their contributions, and the ways in which learners work with and restructure aspects of their learning conditions moment by moment" (p.149). Therefore, a well-structured curriculum, which has room to gradually loosen the decision-making responsibilities of students, and teachers providing a learning environment for learners' social interactions are fundamental characteristics for facilitating learner autonomy.

Learning and Technological Affordances

Certain researchers focused on how foreign language teachers may foster learner autonomy (Asik, 2010; Chan, 2000; Lee, 2011; Richards, 2015). Chan (2000) discussed the importance of teacher-designed in-class activities. The study offered a way to foster learner autonomy by suggesting teachers design varying coursework ranging from individual and group work to peer/self-evaluation. For example, if the teacher frames collaborative discussions with an open-ended conversation, students are likely to fill the gap using autonomous thinking, discussion, and reflection, either individually or through collaboration. Lee (2011) investigated how computer technology promotes learner autonomy. Participants were American university students learning Spanish as L2; they were required to keep both class blogs and individual blogs to document learning progress in the Spanish language and cultural understanding throughout the semester. They reviewed peers' blogs and provided continued feedback beyond class hours, although the teacher did not require it. Blogging enabled students to leave feedback, share experiences, and discuss anytime and anywhere, allowing them to revisit, monitor, and reflect on their ideas at their convenience. The study suggested that active and autonomous learning occurred through writing online blogs, but necessitated guided scaffolding via ...discussion prompts that the teacher gave, which... required the students to critically think and reflect about the readings.

McLoughlin and Lee (2007) explained that blogging's affordances enable students to share ideas and interact. The study identified an affordance as an action that an individual performs in their environment by using a particular Web 2.0 tool. Although Web 1.0 enabled the Internet users to search

and read, the users do not necessarily write their ideas or opinions online. The distinctive feature between Web 1.0 and Web 2.0 is that Web 2.0 is based on readers' active participation, collaboration, and sharing ideas by not only reading, but also *writing* their ideas on the web. Emphasizing the importance of outside-classroom learning for successful L2 learning outcomes, Richards (2015) introduced diverse Web 2.0 technology tools such as chatting engines, language e-forums, digital games, and e-mediated tandem learning. The affordances embedded in the Web 2.0 technology tools are dynamic; both teachers and students choose their own affordances, including: (1) aural and visual multimodal input (e.g. YouTube, TED Talks, and wikis), (2) synchronously or asynchronously interacting in the virtual world (e.g. chatting, e-forums), (3) writing and commenting on personal and others' ideas as an e-mediated tandem learning tool (e.g. blogs), and (4) aurally speaking, writing, and drawing online to show their ideas or share reflections (e.g. VoiceThread). The comprehensive review of these tools within the framework of learner autonomy suggests that L2 teachers could integrate technology tools into the language curriculum to foster autonomy. Web 2.0 technology tools enable both teachers and students to use them anytime and anywhere as long as they have an Internet connection and Internet-accessible devices (Beach, Anson, Breuch, & Reynolds, 2014; Sarah, Hsueh-Jui, & Yu-Ju, 2016).

Students who increased autonomy during the learning process of L2 reported that they created authentic learning goals and made independent decisions regarding learning methods. These students showed various and unexpected learning experiences such as meeting a native speaker of the target language (Kuure, 2011), visiting a self-accessible learning center such as a language lab (Murray, 2011), and using a video game to learn an L2 (Chik, 2014). Students with solid development of autonomy are more passionate, purposeful, and reflective of their learning and may be expected to enjoy lifelong learning.

With the theoretical background and empirical research performed on LA, this study investigated whether the use of four technology tools foster students to make decisions in determining learning objectives, monitoring their progress, reflect, and evaluate their performances in a third-year university-level Korean class. The next section will discuss the characteristics of the four tools used in this study.

The Four Tools

Three Computer Assisted Language Learning (CALL) and one Mobile Assisted Language Learning (MALL) tools were used. VoiceThread, Grammar/Spell Checker by Pusan National University in South Korea, and Padlet were the CALL tools and KakaoTalk Urimal 365 was the MALL tool. These tools were carefully selected by the researchers because of the tools' unique affordances that can facilitate LA, which are discussed in the following section.

VoiceThread. VoiceThread was used for students' online oral discussions via open-ended questions. As a Web 2.0 tool, VoiceThread enabled students and researchers to participate at one's convenience. The tool's multimodal input and output functions for posting pictures, videos, and voices were other factors in adopting this tool. It was essential to avail both comprehensible input and output in the project via authentic student voice responses (Krashen, 1989; Swain 2005). Effects of using VoiceThread in L2 learning have been documented by Wood, Stover, and Kissel (2013), Rueckert and Kim (2014), and Pontes and Shimamuzi (2014). In the current study, eight VoiceThread projects were completed by students; the final VoiceThread project was a student-created reflection of using the four technology tools throughout the course.

Grammar/Spell Checker by Pusan National University. The Grammar/Spell Checker was developed by Pusan National University in South Korea and publicly available on the university website. It was introduced to widen students' perceptions of Korean grammar and help students with various writing assignments. The checker is a Web 1.0 tool and does not allow open-ended writing or sharing. It consisted of receiving learners' inquiries and providing responses within the tool's homepage.

Padlet. Padlet is a Web 2.0 collaborative writing tool for students to use. It enables anonymous users to access and post comments on the same page with both textual and visual inputs. Padlet-based class discussions and exercises were completed seven times during the semester.

KakaoTalk Urimal 365. KakaoTalk is a synchronous chatting application for smartphones. In KakaoTalk, there is an account called Urimal 365, operated by the National Institute of Korean Language in Seoul, South Korea. "Urimal" is an English transliteration of "our language" in Korean and the service provides a synchronous Q&A session related to linguistic questions for appropriate use of the Korean language. For instance, if one is unsure of how to combine a noun and a particle, a subject expert hired by the

service institution answers the individual user's inquiry. A limitation of this tool is that it is only available from 9:00 AM to 5:00 PM Korean local time. This tool is considered Mobile Assisted Language Learning because the service is designed primarily for smartphones.

The researchers revamped the existing 3rd-year Korean course with the four tools to explore how students use them and whether they influenced students' development of autonomous learning. The detailed course design and integration of the four tools into the curriculum will be further explained in the methods section.

Research Questions

This study explored whether the 3rd-year Korean students have undergone changes in their Learner Autonomy while using the aforementioned four tools in their coursework within one semester. The researchers were interested in identifying changes and the cause of these changes. The two research questions regarding students' changes in autonomy are:

1. Did students perceive changes in Learner Autonomy while using the four CALL and MALL tools in the curriculum? If so, how did the students perceive them?
2. What were the roles of the CALL and MALL learning environments during the students' learning of the Korean language?

METHODS

Participants

Participants were five students enrolled in a 3rd-year Korean class at a large, private university in the Northeast region of the United States. The 3rd-year students were chosen because the 3rd-year Korean curriculum was based on projects, writing with critical thinking, whole class discussions on researched facts, and routine presentations on cultural comparisons. All students enrolled in the course were female and none were Korean heritage students. Criterion sampling (Creswell, 2012) was used because the purpose of this case study was to explore how the five students perceived changes in learner autonomy within the designed curriculum while using the chosen four technology tools. The students' learning environment had three characteristics: that the students (1) enrolled in a 3rd-year Korean class at a university, (2) experienced the four tools integrated in the course, and (3) learning Korean was not their major, but was an elective course. The students pos-

sessed different cultural backgrounds and varying opinions of the assigned lesson topics. "Pseudonyms were used for the student names throughout this paper for confidentiality."

All five participants have unique foreign language(s) learning background. Marie and Nina were U.S.-based Asian immigrant 2.0 generations and their most comfortable language in various academic activities and intimate social engagements was English. These two students started Korean education as freshmen commencing from the beginners' class, and continued to study Korean for three years. They also each spent one summer learning Korean in a language program in Seoul, South Korea.

Mandy was a student from Thailand who had studied in the U.S. after middle school and was bilingual in Thai and English. She took Korean because of personal interest and she considered Korean a 'fun' class out of the other three science classes she needed to take as a science major. Compared to her peers, Mandy was more academically concerned due to her plans to become a medical doctor. Mandy was academically advanced and highly achieving in her classes. For Mandy, Korean was her third language.

Both Lily and Henna came from China but their home regions were quite distant. Lily was from Shanghai, which had been a popular international destination with multiple ethnicities coexisting; wider globalization took place decades ago, ahead of most other cities in China. Lily was interested in the Korean entertainment industry, marketing, and advertising business and was planning to possibly work in Korea. Henna was from Shaanxi, a historic city in the central region of mainland China. From her dedicated and singlehandedly advanced performance in the coursework, Henna was identified as a highly self-motivated student who had talent in learning languages. She later decided to major in linguistics and began learning her fourth and fifth languages. For both Lily and Henna, Korean was their third language because they were more fluent in Chinese and English compared to Korean. It is important to identify students' backgrounds for validity; table 1 describes their backgrounds.

Table 1
Participants' Backgrounds

Name	Marie	Nina	Mandy	Lily	Henna
Background	Immigrated to the U.S. from Hong Kong	Immigrated to the U.S. from Vietnam	Thailand	Shanghai, China	Shaanxi, China
Experience with Korean Language	Three semesters of university Korean courses, summer language schooling in Korea	Three semesters of university Korean courses, summer language schooling in Korea	Four semesters of university Korean courses	Four semesters of university Korean courses	Summer intensive Korean school in China, no university Korean course experience
Languages	L1: English/ Chinese (bilingual) L2: Korean	L1: English / Vietnamese (bilingual) L2: Korean	L1: Thai L2: English L3: Korean	L1: Chinese L2: English L3: Korean	L1: Chinese L2: English L3: Korean
University Year	Junior	Junior	Senior	Senior	Freshman
Major	Communication	Psychology	Biology	International Relations	Linguistics
Motivation for Studying Korean	Korean culture enthusiast	Korean music enthusiast	Wants to be trilingual in English/ Thai/ Korean	Wants to work in the Korean entertainment industry	Korean drama enthusiast

Course Design with the Four Tools

The four tools, VoiceThread, Padlet, Grammar/Spell Checker, and Urimal 365, were introduced in the first week of the semester and training was given. Each VoiceThread activity addressed a focal point of each week's main lesson, such as discussing the histories of Korean cities, sharing traditional beliefs related to the full moon in one's hometown, and how to reject someone when that person is asking for a favor by using an appropriate euphemism. On the VoiceThread website, students first viewed and listened to the introduction of the weekly tasks, researched the details, and voice recorded their responses. The students could always re-record or erase their comments and were periodically asked to provide feedback to their peers' recordings.

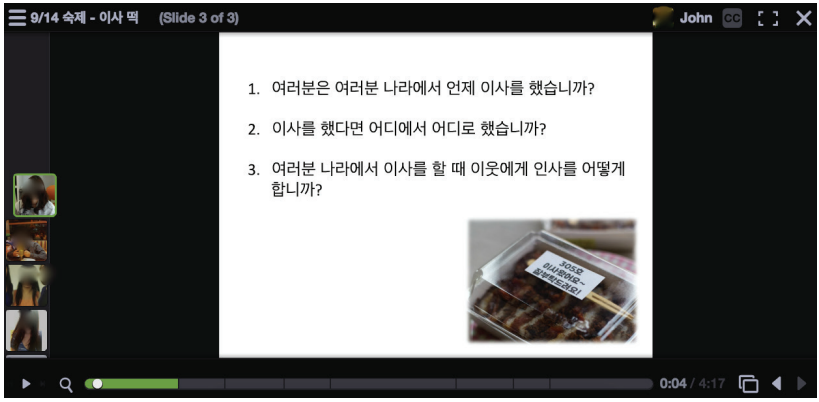

Figure 1. A screen capture of student coursework on VoiceThread.

On Padlet, students read a written prompt partnered with a relevant photo, and responded in writing along with related photos as visual aids. Students posted their writing samples online on a shared, continuous page where they could view the postings of one another interactively. The Padlet site was also displayed as a backdrop during in-class student presentation sessions.

Figure 2. A screen capture of student coursework on Padlet.

The third tool, Grammar/Spell Checker was easily accessible on the website with no login required. Since its introduction, the Grammar/Spell Checker was used by students throughout the semester for writing projects and weekly assignments. The instructor, one of the researchers, reminded and encouraged students to use the Grammar/Spell Checker when the students needed to write longer essays, which were assigned three times over the semester.

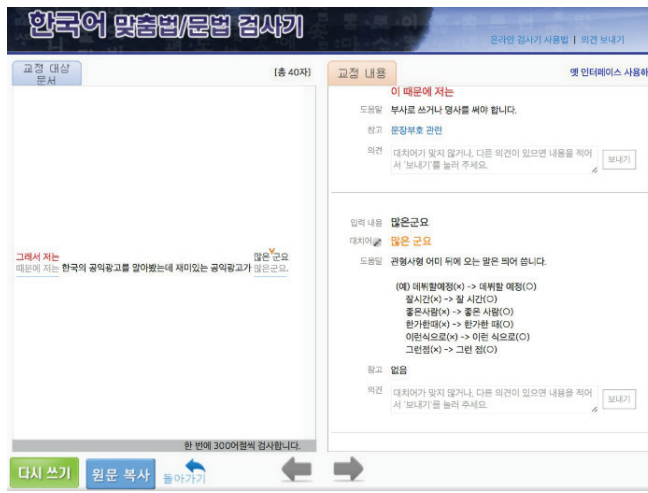

Figure 3. A screen capture of student coursework on Grammar/Spell Checker.

For Urimal 365, a synchronous human response system developed by the National Institute of Korean Language in South Korea, the students were not required to use the tool for grading because it was inappropriate to measure the qualities of students' self-initiated, spontaneous questions on random grammar forms. Alternatively, the researchers intended to give students freedom in order to observe how students use the tools and whether they do so voluntarily.

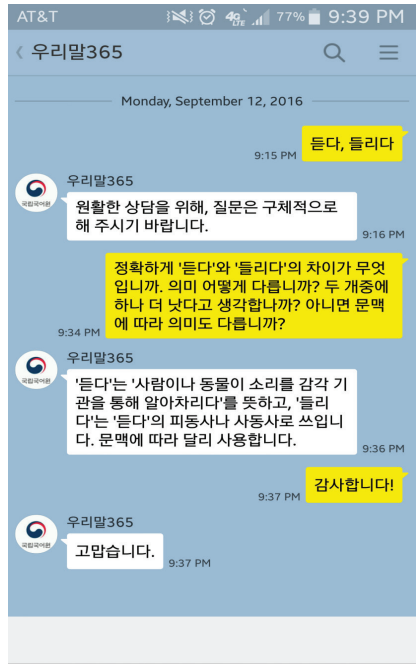

Figure 4. A screen capture of student coursework on Urimal 365 mobile application.

Data Collection and Analysis

Data included one-hour in-person interviews on the use of the four tools, the student work samples on VoiceThread and Padlet, and follow-up written survey results (see appendix B for survey items). Semi-structured in-person interviews were individually conducted with the participants for one hour at the end of the semester (see appendix A for interview questions). The interview data were then transcribed for thematic analysis

(Shank, 2002) by comparing and contrasting the data, codes, and categories (Lecompte & Preissle, 1993). The original interview data included occasional grammatical errors as the English language is not always the participants' first language. Triangulation of the data was performed by comparing the in-person interviews to the survey results and reviewing students' work samples. For example, in the post-course survey, Lily answered that the VoiceThread speaking activity was the most useful activity among other reading and writing activities. This finding contrasts other students because they reported that they preferred the Grammar/Spell checker to the speaking tool. Lily's rationale was revealed through the individual interview data; she reported that she wants to work in the Korean entertainment industry, which motivated her to improve her speaking skills more than others. Later, when the researchers compared and contrasted the three different datasets, Lily's homework contained her Korean pop dance club activity examples in her Padlet assignments. Through this triangulation, all five students' interview data, survey answers, and coursework samples were inductively analyzed to explore the richness of the participants' autonomous learning decisions.

Triangulation for interpreting the codes, categories, and themes was conducted for trustworthiness. The first researcher coded all the transcripts first, then both researchers shared the results. To improve validity, the second researcher separately coded all the transcripts again. Then, codes were compared and contrasted to merge categories and map out themes. All disagreements about themes and codes were settled between the two researchers through multiple discussions. Finally, 518 codes and 16 categories were identified and the categories were mapped out into seven themes. A code table example is found in appendix C.

RESULTS

This section is organized to inform the two research questions. The first research question was about students' perceptions of changes in their autonomy while using technology tools in language learning. The most distinctive changes that students reported were their *strategic use of the technology tools*; six other themes were identified. The following is a report on each of the seven themes regarding the first research question.

1) Strategic Decision-Making on Technology Use

Through thematic analysis (Shank, 2002), students' primary perceptions of the impact of the tools for their learning were identified in four subcategories: *strategic use, technology-choice rationale, strategic applications, and learning backgrounds and beliefs.* Students strategically used or chose not to use the tools based on their own discursive and autonomous technology-driven rationale, which derived from their learning backgrounds and beliefs. For example, Henna stated that she spent one hour on the VoiceThread speaking assignment following her unique strategy: reading the prompt first, researching topics, writing a memo as her speech script, and reading aloud several times before speaking on the tool. This strategy may be based on her background and beliefs about language learning. Henna believes that speaking is the most important skill in foreign language learning:

> This is a language class, I think we need to learn how to speak for learning a language… …In China, I learned Korean only through reading textbooks, however, here in this school I used this tool [VoiceThread], which teaches me more speaking and makes me speak better, I can learn Korean in more fun way…it takes several times, I click the recording button, speak, and I listen…and if I don't like my speaking, I continue and record again, for two or three time[s]…it took about 1 hour to complete…. (Henna, personal communication, December 1st, 2016)

Contrasting Henna, Lily believes that both the listening and speaking skills are more important than other language skills. Both Henna and Lily perceived VoiceThread as useful, but their backgrounds and beliefs led them to approach the tool differently. Lily said "I think my Korean listening is better than speaking…listening is just important, so [as] speaking [via VoiceThread] is great practices…." Lily reported that she listened to other students' recorded voice responses not only for improving her listening skills, but also to gain ideas or assurances about her own work. She said "if I could, like, just listen to others, like, I may get ideas how should I find the answers… so sometimes, if you listen to the others, and think about how you should answer the question."

Not all students prefer VoiceThread for their speaking and listening practices. Marie, who went to Korea for two summers with her study abroad program, perceived VoiceThread as unhelpful. Her reasoning was that Voi-

ceThread was one-way speaking compared to the in-person encounters in local regions of Korea and therefore not "natural." She reported that:

> …Usually, I think one of my biggest hmm thing with VoiceThread is it's a one-way thing, like it's only one person, in putting, vs. like interview with our conversations [conversant] and you're constantly interacting with that person, but [on] VoiceThread you end up thinking a lot by yourself, and then you formulate the certain response to it, so for me, it was very unnatural that way, vs. like a real conversation, you're constantly interacting with that person, even if you make a mistake, but you still like, constantly have trying to come up and use your knowledge vs. in VoiceThread you kind of like formulate all these ideas and then force it into a conversation, that's how I feel.
> (Marie, personal communication, December 1st, 2016)

For the Grammar/Spell checker, the five participants either used it beyond the class expectations (e.g. using it for other classes' writing requirements) or solely used it for writing assignments. Perceptions of the Grammar/Spell checker varied based on the students' backgrounds and beliefs. Henna and Nina perceived it merely as an error-correcting machine and not an interactive learning tool. However, Lily used the term "machine" with a different nuance; she positively described it as "a machine tutor" and viewed it as the best tool she used. Mandy reported that she felt confident when she submitted her essays because she checked it with the checker beforehand. However, Mandy pointed out that the Grammar/Spell checker was only good for displaying mechanical mistakes, not helping her learning. Mandy said she learned more from her teacher's written feedback by clarifying that "when the teacher give[s] back the essays, that's when I learn."

The participants' discursive learning backgrounds and beliefs towards the learning of a foreign language may lead them to use the tools more than expected, but also inspire them to autonomously reflect on the benefits and limitations of the tools for their learning. For instance, Henna, who has never been to Korea, seemed to have a strong desire to practice her Korean speaking skills. Hence, she reported that VoiceThread was a good tool to use although it made her spend nearly an hour per recording, which exceeded other students' typical time of a half an hour or so; whereas for Marie, the tool was unnatural compared to her real interactive conversation experiences

with native Koreans over her study abroad programs. This finding seemed to be consistent with Holec's (1979) third construct of learner autonomy that students select methods and techniques best suited to their learning.

Both Mandy and Lily expressed dissatisfaction with the insufficient answers given by the Grammar/Spell Checker, so they used popular search engines like Google and other available Korean grammar lesson websites to look for further explanation. This voluntary and creative solution to the dissatisfaction of the spell checker suggests that students were making strategic decisions. In response to the final VoiceThread assignment, students submitted their most memorable moments of using the four tools. On average, students created six slides for this VoiceThread assignment, but Henna submitted 15 screen capture examples of how she used the four tools with detailed explanations and presented her work in class. This was unexpected because the instruction was to give at least one example for each tool, totaling four, yet Henna extraordinarily documented her learning, capitalizing on the opportunity to review and reflect.

All students reported that they did not use Urimal 365 as often compared to other tools. The students reported that they used Urimal 365 less than five times during the semester. They explained this lack of usage was due to the delayed response time. Lily, who had lived in Korea for a short time, added that if she were in the Korean time zone, Urimal 365 would be a good study aid to use. Marie reported that she had some technological problems during her first attempt, so she did not use the service again. Instead, she researched and referenced other available Korean grammar learning websites. These findings illustrated that the students were autonomously making strategic decisions on the use or non-use of the tools.

2) Realizing, Refocusing and Reaffirming

In the description of how the students completed the VoiceThread assignments, all students responded that they first listened to the prompt then deliberated the answers. Some students reported that they attempted to respond to the recorded questions on VoiceThread immediately after listening to the questions in an ongoing conversation style as if they were conversing with a Korean native. For example, during the in-person interview, Nina commented that "using VoiceThread made me realize that I should work on Korean pronunciation but also impromptu Korean speaking and writing." She connoted that she *realized* the proficiency of her performances and this realization led her to *refocus* her future study goals. Nina was defining progressions in learning and determined the objectives for the next phase.

Similarly, VoiceThread activities reminded Marie of her goal and she *reaffirmed* her learning goals to speak more naturally in Korean because of the way the VoiceThread assignment was designed:

> Whenever we were doing VoiceThread, I felt myself forcing out the conversation … with VoiceThread, I actually want to speak the sentences and even if I mess up, I feel like I don't want to write it down and speak it again, because that loses the purpose of speaking naturally. (Marie, personal communication, December 31st, 2016)

Nina and Mandy also shared the sentiment that they realized how much they could or could not naturally respond to the ongoing questions while using VoiceThread. According to the survey, four out of five students reported that VoiceThread exercises made them evaluate their own linguistic abilities and knowledge on the lesson topics because the VoiceThread projects were the application of what they had learned in the classroom. According to their descriptions, all students prepared their responses and recorded them several times. Students reported that after the first recording session, they could replay and listen to their own performances and actively diagnose their pronunciations independently. The students corrected their sentences in a repetitive manner, trying to produce responses close to the sounds of native speakers during re-recording. They repeated the recording until they were satisfied with their pronunciations, occasionally recording as many as ten times, when they were initially dissatisfied with their pronunciation.

3) Self-efficacy through Autonomous Learning

All students commented on the importance of speaking aloud in learning a foreign language, and therefore VoiceThread was the most appreciated tool for various learning exercises, which was clear from the quality of students' submitted VoiceThread work samples. During the interview, Henna reflected that she felt more confident in speaking Korean after listening to herself and continued to practice on VoiceThread throughout the semester. Especially on the topic, "Art of Rejection," which was assigned after the middle of the semester, all students creatively participated in this activity, conceiving and responding to different plausible situations that require apol-

ogetic gestures, tones, and rejection using euphemistic phrases. Following the structure of the sample dialogues provided on the VoiceThread, all students left voice messages either requesting a favor or responding to their peers' favors with apologies and appropriate manners of speech explaining their rejections.

Using the Grammar/Spell Checker, students could proofread their writing. Most of the students answered that they felt sure of the learning content when using this tool; furthermore, they responded that they were learning from the tool's grammar checking process itself. In response to the question about their favorite tool among the four, Nina answered "… definitely Grammar Checker…I felt validated after putting the effort in making more complex sentences if the machine did not detect any mistakes in my sentences." Nina's comment suggests this tool elevated her self-efficacy and therefore heightened her confidence to continue Korean study.

For the Padlet writing exercises, all students responded to the survey that the exercises made them confident of the content they learned in the semester. Active brainstorming, stating their ideas in paragraphs, finding a visual aid and posting it, and presenting a writing sample during the in-person class hour formed a multilayered process that confirmed their application of using linguistic knowledge for expressing ideas on Padlet. Students unanimously agreed that Padlet activities helped them evaluate their progress on Korean learning. While Henna stated that she could go over the vocabulary and incorporate the new words of the week immediately, Lily and Nina reported that they regularly reviewed other classmates' writing on Padlet, practicing reading provided by their peers. The reviews on peers' writing was neither assigned nor mandatory yet they went above and beyond to review them before the class hour. Henna added that reading others' writing made her think about her own effort; she felt she should "work harder."

4) Positive, Negative Feelings, and Critiques

While using the four tools and progressing into the semester of learning, both *negative* and *positive feelings* occurred in an intertwined way. All five students acknowledged that using different technology tools could make them learn the Korean language in a more interesting and fun way. Also, because their writing and speaking performances were archived and therefore accessible online anytime, when they finished activities they felt a sense of accomplishment. Nina stated that:

> I think it [VoiceThread] is pretty straightforward about what we have to do… and it's there [online – she can access, repeat,

> re-record any many times as she wants]… I feel proud of myself (laugh). After final products [her recording of VoiceThread], I feel like 'this is it!'…. (Nina, personal communication, December 8th, 2016)

Negative feelings on VoiceThread occurred from the students' feeling strange about hearing their own voices. Sometimes the students were overwhelmed by the complicated voice-only delivery of the instruction on VoiceThread assignments. The students reported that they needed to re-listen to the assignment's prompt repeatedly until they understood at times. These negative aspects led the students to *critique on the tools and the class design*. The students were willing to suggest different approaches that could make the use of the tool more beneficial for their learning. They suggested creating simpler VoiceThread prompts and introducing the technology tools earlier, such as in the first or the second year curriculum. They also asked for more detailed feedback from the teacher for the VoiceThread and Padlet projects.

The second research question was focusing on the roles of the CALL and MALL learning environments. The following is a report on continued findings each of the three themes regarding the second research question.

5) Sense of e-Learning Community

One significant theme emerged from the study: the *sense of e-learning community* was built dynamically among the students, which worked as a driving force for the students' on-the-spot decision making over their *unique learning strategies*. The students were both synchronously and asynchronously engaged in the CALL and MALL environments. For example, Henna reported that "just listening to others' answers enabled me to feel like I belonged to a Korean learning community." A consensus was that the VoiceThread exercises were meaningful and more engaging because the VoiceThread questions were directly related to the topic of the week, thus, questions on VoiceThread provided an opportunity for students to interact with the instructor and peers outside of the classroom environment. Lily stated, "I think VoiceThread and Padlet were where the classmates could get in to work on each other's activities. I think that was really nice, because in other classes, people just do their homework by themselves after class." Henna added, "I liked the fact that the teacher was listening to our responses. On

VoiceThread, I was encouraged by the teacher's comments outside of the classroom." All participants checked their peers' VoiceThread speeches and Padlet writing samples for different reasons, such as checking their comprehension of the prompts or gaining more ideas to answer the questions. For instance, Lily listened to others' speech samples first when completing an assignment on comparing the histories of town names in Seoul, South Korea, and the ones in students' home countries. She was not sure about her comprehension of the prompt, but felt assured by listening to others' sample responses:

> …if I could like just listen to others like I may get ideas how I should find the answers, is that for one for Seoul, and one for my own country, or, in that just own my county, or, yeah, so sometimes, if you listen to the others, yeah, and think about how you should answer the question. (Lily, personal communication, December 1st, 2016)

Other than these asynchronous and online interactions, students' contact with each other offline led to collaboration to solve problems. One VoiceThread assignment was confusing to the students because the VoiceThread project was not showing others' speeches (the teacher had accidentally set sharing options in "private" setting). That night, Marie and Lily contacted each other after midnight to check their comprehension of the task. Lily explained during the interview about what happened that night:

> …Yeah, yeah, I missed that, just listen to the others, and I was like, there is no others! Ha, no one did [VoiceThread homework]! Did everyone forget about homework? And, she [Marie] has like, oh my god, in the, 2 o'clock, Marie sent me like, 'why there is no one did the homework?' … Yeah, and then she find out that I did it, so she said, so am [did] I. (Lily, personal communication, December 1st, 2016)

The data showed that the students interactively checked others' work samples multiple times, discussed, and collaborated with each other, eventually building their own learning community in the CALL and MALL environments while completing the assignments with technology tools. Holec (1979) argued for autonomous learning that it takes place when students defined the objectives (talking about city histories), defined the content and progressions (whether for one city or two cities), and monitored and evalu-

ated their performances (checking with peers for the quality). The student reported interactions with peers while completing the VoiceThread project illustrated that they had been working autonomously when using this tool.

6) Motivation and Confidence Influenced by the e-Environment

Two additional themes emerged from the students' perceptions of the characteristics of the technology tools for both their cognitive learning and learning motivations: *study aids* and *motivational and confidence effector*. Learning through technology tools not only functioned as *study aids* for knowledge building but also *affects their motivation and confidenc*e. The five participants acknowledged that using the three tools (VoiceThread, Grammar/Spell checker, and Padlet) were useful for their L2 learning, because VoiceThread positively challenged them to speak and listen, Grammar/Spell checker was helpful for checking their spelling and grammar mistakes, and Padlet was useful for short passage writing and in-class presentation. The participants' reflections of using the tools demonstrated their changes in motivation and confidence. For instance, Lily pointed out that she was motivated to learn and study more when she saw many grammar and spacing mistakes caught by the Grammar/Spell checker. She stated, "the grammar checker motivates me to study Korean, because I see how many mistakes I made after I learn like after 4 years of learning Korean." Henna also acknowledged that using the Grammar/Spell checker made her think "I need to study more because the checker showed me many mistakes I made."

Regarding the reflections on confidence, VoiceThread speaking practices seemed to help all five participants increase their confidence in speaking in the target language. Nina said she felt more confident after finishing each VoiceThread homework assignment:

> I think when we did the 'Art of Rejection' assignment [through VoiceThread] I feel like I guess maybe it was fun for me but I felt more confident about what I was saying than before, I think I have a lot of speaking practice [on VoiceThread] at that point. (Nina, personal communication, December 8th, 2016)

The five participants acknowledged that the more they speak, the more confident they became in speaking, based on their other foreign language learning experiences.

Grammar/Spell checker also seemed to raise their confidence because

the students felt they were more "equipped" with a learning aid. The two tools played a role as both a study aid (e.g. for checking mistakes, practice speaking) and as a motivational and confidence booster. An interesting finding was that each tool had different effects on each student's motivation and confidence based on their autonomy. One's affective domains in learning such as motivation or self-efficacy may be another layer of how one's autonomous learning could be initiated.

7) Monitoring Enacted via the Tools

Students responded that they could *monitor* their development while using the tools. Regarding Grammar/Spell Checker, students reported that they frequently used this tool when composing longer essays and double-checking weekly grammar exercises. Nina detailed that she used Grammar/Spell Checker whenever she had to write more than two sentences in completing an assignment. Lily stated that the frequent use of the Grammar/Spell Checker helped her notice correct grammar patterns in Korean. She explained that the Grammar/Spell Checker made her realize patterns of grammatical mistakes because of the repeated systemic detection on each error she made. Related to error correction, Henna commented that she was surprised to see how many mistakes she made after running her longer essay sample through the Grammar/Spell Checker. Overall, the students answered that the Grammar/Spell Checker did not change their Korean learning goals but all students reported that it helped them monitor their Korean learning, which aided in evaluating their progress. Similarly, the students answered that using Padlet helped them monitor their Korean learning because of the opportunity for applying learned classroom knowledge to their own writing practice.

Summarizing the findings, *participants' unique backgrounds and beliefs about language learning* seemed to lead them to autonomously decide how to use the four tools, and in doing so, the tools acted as either *study aids* or *motivational boosters*. *Negative* and *positive feelings* evolved in dynamic ways, and the negative portion led the students to *critique* how to use the tools for the next generation of students. The *sense of learning community* was built through online and offline environments while using the tools, which worked as a driving force for students' collaborative learning. Students responded that they could communicate and exchange ideas on the topics outside of the classroom via VoiceThread and Padlet. Lastly, *monitoring* one's linguistic output was enacted via the tools such as Grammar/Spell Checker and Padlet.

DISCUSSION

Increased Motivation through Autonomous Learning

The most prominent finding regarding the technology was that using the four tools increased students' motivation through autonomous learning. VoiceThread has evoked students' desire to improve their Korean speaking at the level of responding to a prompt in an active and participatory manner. The students explained that they listened to their own recorded voice answers three times per project on average before they uploaded their responses to VoiceThread. They repeated voice recordings until satisfied, and by repeating and altering their responses, they were able to continue focusing on the inquiry of learning for the weekly theme. The increased motivation and continuous voluntary practice was particularly meaningful in the 3rd-year curriculum in a foreign language study. The relationship between learners' autonomy and motivation is identified in Garcia & Pintrich (1996). In their study with college students, Garcia & Pintrich (1996) reported that the "immediate experience of autonomy may not be directly facilitative of high course grades, autonomy seems to foster intrinsic goal orientation, task value, and self-efficacy, all of which are continuing motivation" (p.477). It is crucial to keep students interested in the subject at this intermediate-to-advanced level, so the language program can retain students to continue studying at a higher level.

Students were offered the opportunity to realize their grammatical errors and rethink the correct forms through the use of Grammar/Spell Checker. There is also the possibility that Grammar/Spell Checker does not always perfectly detect errors. However, it provides convenience in that students can use this anytime. This realization and monitoring were not easily achieved while using a traditional way of correcting grammar; typically a teacher provides written corrections on returned assignments a few days after the assignment is submitted. Due to limited time, a teacher providing systematic, immediate, and frequent written feedback such as Grammar/Spell Checker is not realistic. Using Grammar/Spell Checker provides students immediate feedback with no delay while they entertained an opportunity for critical self-reflection from reviewing their grammatical performances. The teacher functioned as a facilitator and mediator in this process as students *owned* their learning with the help of technology. The students defined their strategy and sometimes moved to other grammar websites of their own initiative to discover further explanations on correct grammar

forms. This suggests that by way of using the Grammar/Spell Checker, students defined their learning tools, resulting in the increase of autonomous learning. This finding is consistent with the benefits of self-evaluation argued by the importance of metacognitive development in learning (Flavell, 1979; Vandergrift, Goh, & Tafaghodtari, 2006; Zhang, 2010). Archiving students' writing samples, speaking output, and self-evaluation of the performances were essential in developing students' metacognition. The Grammar/Spell Checker enhanced students' motivation to learn and improve Korean further from their current level. Even the motivation of already high-achieving students was enhanced through the use of this tool. Generally, high achieving students could experience lower levels of motivation to push themselves further during the semester. However, the Grammar/Spell Checker detected "all" mistakes on the essay writing, identifying high achieving student's minor, but many mistakes and showed their patterns. It was a valuable outcome because neither the instructor nor the classmates could provide this prompt feedback regarding the grammatical mistakes. This realization was less likely to occur without the help of the Grammar/Spell Checker.

Students highlighted on the post-semester survey that, overall, Padlet was a good tool. Lily, Henna, Marie, and Nina commented that reading other students' writing samples made them learn about each other and promoted their Korean learning community. Little (2016) argued for the importance of learner-generated activities and material while advocating the effectiveness of telecollaborating in L2 learning. The participating students in this project were grounded by authentic target language use when reading other students' posts and wrote in Korean to communicate. As Henna acknowledged, Padlet writing sharing practice enabled students to learn from their peers' thoughts, ideas, and cultural analysis. This was important because every student had a different cultural background. For example, although the two Chinese students were from the same country, the large geographical distance and drastically varying cultural conventions set them apart. By continuously sharing ideas on Padlet about their regions' cultural conventions and histories, the two students could learn about each other personally and culturally and eventually form a sense of unity. The other countries' cultures and history, such as a presentation on an incident of a military coup in Thailand and its influence on the countrymen, or medieval heroes documented in Vietnam, were written and told by students on Padlet. After a series of periodic writing sharing activities, Padlet became a gathering place for a strong learning community. Additional benefits of using Padlet were found during the in-class presentation and discussion sessions. Many stu-

dents read other students' writing ahead of time, so the quality of discussion questions shared during the in-class session was substantially high. Because Padlet postings were available for viewing the night before, students felt more comfortable and confident during their presentations.

Affordances of the Tools

The affordances provided by the four tools in this project were (1) reading, writing, listening, and speaking in Korean language, (2) interacting in the target language, and (3) reflecting on the students' own meaning construction for a wider growth in perspectives of life beyond linguistic features (e.g., history of Korean cities, speaking and reflecting on the Art of Rejection assignments). These affordances were used by the students in proactive ways. For example, Nina acknowledged that she realized the "knowledge gap" between her Korean speaking skills and her Korean grammar and vocabulary knowledge while engaging in VoiceThread activities, which fueled her intrinsic motivation to continue practicing her speaking. Darabi, Liang, Suryavanshi, and Yurekli (2013) argued that a collaborative process of constructing meaningful knowledge will occur through social dialogue and engagement. The affordance of Grammar/Spell Checker, checking one's spelling and grammar mistakes anytime for immediate feedback helped all students use the checker not only for this coursework but also for assignments in other classes. For Padlet, the affordance was more than just learning through reading or writing. The students visited the Padlet postings anytime, usually previewing them before class; multiple visits to Padlet postings were not required nor prompted but the affordances of Web 2.0 technology seemed to nudge the students to visit Padlet for their own learning purposes. Although Urimal 365 was an in-person synchronous study aid, the limited time the service was accessible constrained student use. Thus, Urimal 365 was not productively used, and the students made their own learning decisions, eventually increasing student's autonomous learning.

Building an e-Community

Beyond the tools' affordances, what is more meaningful was that the integrated affordances of the tools contributed to providing a sense of learning community. As Nel (2017) highlighted in her research on the importance of student collaboration, meaningful and engaged learning experiences in technology-enhanced classrooms are likely to promote student success and

adequately prepare students for the world. Blau and Shamir-Inbal (2017) confirmed that digital technologies promote students' voices during learning and by inviting students as partners in the learning process and successful implementing the technologies, a larger learning community can be created, including teachers and students alike. In this project, VoiceThread allowed the students to interact verbally and Padlet enabled the students to interact textually. The shared positive experiences from using Grammar/Spell Checker and the consensus that Urimal 365 was difficult to use may play a role among the five learners to build their own learning community. Thus, the hidden but more significant affordance in the interplay of using the four tools was the students were building an e-Community of learning. The strong e-community was emerged through various interactions happening outside the classroom, which contributed to an increase of students' autonomous learning.

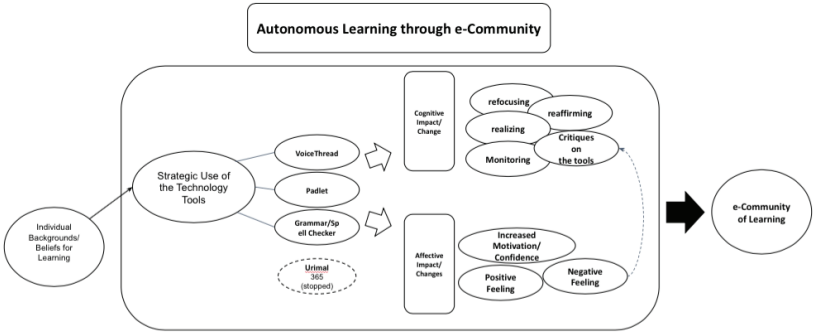

Diagram 1. Autonomous Learning through e-Community Found in this Study.

The above diagram illustrates how dynamic interactions occurred autonomously throughout the semester, establishing the e-Community of learning. As shown by the arrow from "Individual Backgrounds/Beliefs for Learning" to "Strategic Use of the Technology Tools," students' backgrounds and beliefs seem to initiate how they use the technology tools for their language study. Based on their own strategic rationales and choices, the students interacted with VoiceThread aurally and with Padlet textually, both multiple times even after class hours. The Grammar/Spell Checker enabled the students to interact with the study aid website via texts. The dotted oval for Urimal 365 indicates that students stopped using the service after the first week of the semester, which suggests the students made strategic

decisions. The environment for frequent use of the three tools seemed to impact the students' changes over cognitive and affective domains. For the cognitive domain, students monitored, realized, reaffirmed, refocused on their learning progress, and critiqued the tools. For the affective domain, the students increased their motivation and confidence, and reported positive and negative feelings towards the learning environment. The "negative feeling" initiated "critiquing" as the dotted arrow indicated in the diagram. The students' dynamic interactions with each other, shared use of tools, and decisions made based on their needs were continuously identified beyond the classroom, which suggests that they formed a strong e-Community of learning. The five students' autonomous learning components, illustrated with the arrow (e.g. realizing, refocusing, reaffirming, monitoring, self-efficacy, strategic decision-making) played key roles in building the continuum of their learning.

LIMITATIONS OF THE STUDY

While Nina appreciated feeling rewarded by the Grammar/Spell Checker, Mandy expressed that it did not detect "anything" except spacing conventions among words. However, after reviewing her homework, this impression may have resulted from Mandy's inability to fully understand the Korean-only explanations, which were too advanced for her level of proficiency. Mandy was an enthusiastic student regarding correcting and perfecting her grammar skills to advance her Korean, but did not have previous contact hours with Korean native speakers unlike several other students in the class who had spent a summer or two in Korea interacting with natives. Thus, Mandy lacks understanding of the context or a social setting in Korean discourse. If a student did not already recognize what was incorrect with her grammar, the complex explanation given in Korean was less recognizable for her, and was perceived as somewhat "meaningless." The grammar explanation given in the Grammar/Spell Checker assumes a Korean native user would use this tool. Thus, for students who learn Korean as a foreign langauge, providing technical and linguistic explanations on the grammar mistakes in Korean could be even more difficult to comprehend than the student's original, incorrect sentences. This suggests that technology tools in a foreign language class should be used with discretion depending on the students' ability and their proficiency of the target language.

The limited use of Urimal 365 was clear from both the survey and the interview data. Technology problems, delay of response, and the office-hour only synchronous response service were inconvenient. Lily reported that

asking about Korean grammar in Korean itself was already difficult enough for her that she was not motivated to use the tool. The importance of the teacher and the students' opportunities for periodic review and open-discussions on the progress of the student activities should be taken into account. The structural limitations (e.g., regional time zone difference in using Urimal 365) should have been considered more critically when the researchers adopted this tool for the project. If the initial student discomfort was reflected earlier in the semester, this limitation would have been remedied and another productive way of using the tool would have been suggested.

The low number of participants (n=5) is another limitation of this study. However, delving into an in-depth understanding towards how L2 learners foster their LA through a planned series of classroom activities suggest alternatives in designing a language curriculum. To expand how LA can be facilitated with the technology tool integration into a curriculum, studying with a larger sample size participants with different settings is suggested, such as K-12, adult education, and public universities.

IMPLICATIONS FOR FOREIGN LANGUAGE EDUCATORS

This study shows that incorporating technology tools and unique affordances in foreign language curriculum play a significant role in facilitating learner autonomy. Foreign language educators must consider students' diverse learning backgrounds and beliefs when designing activities using technology tools because different learners go through different facets of autonomous learning. Incorporating CALL and MALL tools is recommended for foreign language educators in their given teaching contexts to empower students not only with the tools, but also their affordances. Therefore, foreign language educators who want to facilitate the learner autonomy through technology tools must have flexibility within the instructional design to encourage students to make autonomous and spontaneous decisions.

CONCLUSION

Abundant CALL and MALL tools are available on the Internet. Some are useful for both language teachers and learners with highly sophisticated services. However, adopting tools for language coursework may or may not result in the desired outcome in L2 instruction. Rather, teachers' thoughtful, considerate, and informed decisions when bringing technology tools to students' lives empower students, which is directly linked to their ability to

think autonomously. The four tools used in this study illustrated the dynamic links among the affordances of the tools, instructional designers' roles as a facilitator, and most importantly, the learners' autonomous minds. It is hoped that this study inspires more L2 teachers and scholars to use, discuss, and critique further development of technology-tool integration in a holistic approach to facilitate students' LA.

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Appendix A: Interview Questions

Introductory Questions

1. What was the most useful tool for you in this semester?
2. Could you compare our use of technology in Korean this semester to those classes that do not use any technology?
3. Did you try to improve your Korean this semester? How did you do it?

VoiceThread

1. Could you explain how you completed the VoiceThread homework?
2. How did you feel after completing the VoiceThread homework?
3. Have you been influenced by others' opinions in VoiceThread? If so, how?
4. Was VoiceThread activity helpful for studying Korean? How was it helpful, or not?
5. Do you feel that you are more confident in learning Korean by using VoiceThread?
6. Have the VoiceThread homework changed your view on how to increase your Korean skills?
7. Do you want to use VoiceThread after this semester?
8. Overall, were you more motivated to study Korean by completing VoiceThread activities?

Grammar/Spell Checker

1. Do you remember using Grammar and Spell Checker? Tell me how you used the software.
2. How do you think that grammar/spell checker impact your Korean learn-

ing?
3. Do you think using grammar/spell checker increased your competence in learning Korean? If so how? If not, why not?
4. Do you want to use the grammar/spell checker after this semester?

Urimal 365
1. Tell me your experience with using Urimal 365.
2. Will you use Urimal 365 after this semester?
3. How do you feel about this app? Was it easy to use or difficult? What made you feel that way?

Padlet
1. Tell me about your experience of using Padlet.
2. Could you compare using Padlet to using PPT for the coursework?
3. Tell me the pros and cons of using Padlet.

Wrap-up Questions
1. Did you enjoy learning Korean using the technology tools?
2. Among the four tools (VoiceThread, Padlet, Urimal 365, and Grammar & Spelling checker, Padlet), which one was the most meaningful tool for your learning in Korean?
3. What made you think _____ (the selected tool) is the most meaningful to you?
4. Do you remember the topics of the semester? In your opinion, does the _____ (the selected tool) help you make you feel sure of the content you learned in this semester?
5. You said that _____ tool is the most meaningful tool for you this semester. Did you have a moment that you realize you made improvement in Korean?
6. Do you know when you understand the lesson? How has _____ tool help you see whether or not you mastered the lesson?
7. Did you have a learning goal of this semester in Korean class?
8. Did the _____ (the selected tool) help you in achieving or determine your learning goals?
9. Did using of the technology tools influence your learning goals in any way?
10. Would you recommend any of the four tools to your friend who wants to learn Korean?
11. Do you feel more competent in learning Korean after this semester?

12. Does succeeding in Korean class make you feel important?
13. Has your Korean learning this semester made you a better student overall?

APPENDIX B: SURVEY QUESTIONS

Urimal 365

1. How many times do you use Kakaotalk Urimal 365 in this semester?
   Less than 5 times
   5 - 10 times
   More than 10 times
   Others ( )

2. What made you use Kakaotalk Urimal 365 the way you answered in Q1?

3. Using Kakaotalk Urimal 365 makes me feel that I belong to the Korean learning community.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

4. Using Kakaotalk Urimal 365 helped me feel sure of the content I learned in this semester.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

5. Can you give us an example for the Q4?

6. What was your learning goal in this semester?

7. Using Urimal 365 helped me achieve my learning goal answered in Q6.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

8. Using Urimal 365 helped me re-determine my Korean learning goals.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

9. Using Urimal 365 helped me monitor my Korean learning.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

10. Using Urimal 365 helped me select my Korean learning methods.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

11. Using Urimal 365 helped me evaluate my Korean learning by myself.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

12. Can you give us one or two meaningful examples for your answers above?

VoiceThread

1. How many times do you use VoiceThread in this semester?
Less than 5 times
5 - 10 times
More than 10 times
Others ( )

2. What made you use VoiceThread the way you answered in Q1?

3. Using VoiceThread makes me feel that I belong to the Korean learning community.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

4. Using VoiceThread helped me feel sure of the content I learned in this semester.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

5. Can you give us an example for the Q4?

6. What was your learning goal in this semester?

7. Using VoiceThread helped me achieve my learning goal answered in Q6.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

8. Using VoiceThread helped me re-determine my Korean learning goals.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

9. Using VoiceThread helped me monitor my Korean learning.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

10. Using VoiceThread helped me select my Korean learning methods.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

11. Using VoiceThread helped me evaluate my Korean learning by myself.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

12. Can you give us one or two meaningful examples for your answers above?

Grammar/Spell Checker

1. How many times do you use PSU Grammar/Spell Checker in this semester?

Less than 5 times
5 - 10 times
More than 10 times
Others ( )

2. What made you use PSU Grammar/Spell Checker the way you answered in Q1?

3. Using PSU Grammar/Spell Checker makes me feel that I belong to the Korean learning community.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

4. Using PSU Grammar/Spell Checker helped me feel sure of the content I learned in this semester.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

5. Can you give us an example for the Q4?

6. What was your learning goal in this semester?

7. Using PSU Grammar/Spell Checker helped me achieve my learning goal answered in Q6.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

8. Using PSU Grammar/Spell Checker helped me re-determine my Korean learning goals.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

9. Using PSU Grammar/Spell Checker helped me monitor my Korean learning.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

10. Using PSU Grammar/Spell Checker helped me select my Korean learning methods.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

11. Using PSU Grammar/Spell Checker helped me evaluate my Korean learning by myself.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

12. Can you give us one or two meaningful examples for your answers above?

Padlet

1. How many times do you use Padlet in this semester?
   Less than 5 times
   5 - 10 times
   More than 10 times
   Others ( )

2. What made you use Padlet the way you answered in Q1?

3. Using Padlet makes me feel that I belong to the Korean learning community.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

4. Using Padlet helped me feel sure of the content I learned in this semester.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

5. Can you give us an example for the Q4?

6. What was your learning goal in this semester?

7. Using Padlet helped me achieve my learning goal answered in Q6.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

8. Using Padlet helped me re-determine my Korean learning goals.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

9. Using Padlet helped me monitor my Korean learning.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

10. Using Padlet helped me select my Korean learning methods.
a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

11. Using Padlet helped me evaluate my Korean learning by myself.

a. Strongly Agree b. Agree c. Neutral d. Disagree e. Strongly Disagree

12. Can you give us one or two meaningful examples for your answers above?

Appendix C: Code Table Example

1. How do students perceive changes in Learner Autonomy using CALL and MALL tools when learning Korean?

Blue: Henna Red: Lily Green: Marie Brown: Nina Purple: Mandy

(VT: VoiceThread, PD: Padlet, GS: Grammar & Spell Checker, 365: Urimal365, T: Teacher)

Codes	Category	Theme
Did homework on the day After homework, not think about KR VT: listen -> research -> memo -> read VT – Record/listen/record 2-3 speaking practice Spent 1 hour for VT Email notice led me check again VT Meme- speaking easy Need more time without memo Didn't use 365 VT takes more time than PD Not use 365 GS for essay writing VT email notice used Used PC for VT Memo/listen (checking "ah, hm)/ delete VT spent 10-15 mins VT spent 30 mins for hard one 2 time practice VT VT allows me to check my grammar Thought about VT grading Not use 365 See PD pictures first Picture – choosing guide for stories Not want to write memo to keep it natural Listen first, no memo, practice 1-2 times for VT Looking up more online grammar/ vocab (didn't do this before) TV shows gave sentence patterns VT listening prompt again Write answers before speaking Record/listen/do again Long question write up Casual question just talk Spent 30 minutes for VT Understood VT prompt well Did read aloud before speaking Practice 5-6 times VT Listen 2 times to understand some-times Didn't use 365 Used PC for 365 Turned off VT email notice Listened several times 365 NO use	Strategic Use (43)	Students *strategically used or dropped the tools* based on their own *discursive and autonomous technology-choice rationale*, which seems to be derived from their *learning backgrounds and belief*.