

## **The Digital Ecologies of Korean College Students: An Exploration of Digital Self-Directed Learning**

**Briggs, Neil · Sherman, Brandon**

(Hannam University · Indiana University - Purdue University Indianapolis)

Cite as:

**Briggs, Neil; Sherman, Brandon. (2018). The digital ecologies of Korean college students: An exploration of digital self-directed learning. *STEM Journal*, 19(1), 107-127.**

The wealth of readily available online digital English language learning resources presents vast opportunities for students to engage in self-directed language learning. The extent to which such resources are known to students, however, let alone how they are being utilized, typically remains largely unknown to teachers. In order to design a curriculum that maximizes student learning opportunities by guiding them towards online digital resources that afford self-directed learning, it is essential for teachers to first develop an intimate understanding of the students' relationships with such resources. This may include awareness, patterns of use, and the variables that constrain them from using the resources more extensively. To accomplish this objective, the Self-Directed Digital Study Instrument (SDDSI) was developed and implemented to survey 197 Korean college students. While the results of this study are indicative of a reality in which digital resources are being underused, they also point towards an area of great potential for pedagogical change in Korean post-secondary English learning education. In contrast to the traditional pedagogical model, the results suggest that self-directed learning or even self-determined learning models, facilitated via various digital resources, can present students with opportunities for more deeply engaging, individualized, and self-directed approaches to language learning.

### **I. INTRODUCTION**

It is of critical importance that both teachers and students recognize that in-class learning time is rarely sufficient for language learning. A typical university semester in Korea consists of roughly forty-five hours of segmented study – nowhere near enough to master a language. For example, the British Broadcasting Corporation estimates that it

takes approximately 120 hours to improve by one proficiency level on six-level proficiency scale (de Castella, 2013). That time frame can vary drastically depending upon countless variables of which out of class, self-directed study is certainly significant. Teachers may attempt to extend student engagement in the learning process by assigning homework, but unless those assignments are highly individualized, there remains a good chance that the work will fail to match the specific needs of many students.

For teachers who truly wish to guide their students towards highly engaging and individualized study, introducing them to a range of online resources seem to represent a promising starting point. The potential of digital learning resources to transform students' language study habits has certainly not gone unnoticed in Korea. Recent research papers have focused on various forms of blended learning (Kang & Ahn, 2015; Lee & Lee, 2012; Yoon, 2016) and attempts to guide students toward the discovery of self-directed study through massive open online classes (MOOCs; Cho & Byun, 2017). However, in the modern digital ecosystem, digitally connected language learners seeking to undertake self-directed study are faced with a veritable cornucopia of online resources. The sheer number of these resources, and the rate at which new resources are released, can make the situation more akin to a digital bedlam. A learner seeking to make use of these resources may be overwhelmed, and will need to make decisions about how and where to invest their finite supply of time, money, and in many cases, mobile data.

The notion that teachers play an important role in helping students to discover, to recognize the value of, and to learn how to use such resources in an effective and self-directed manner is well recognized in research (Blaschke, 2012; Dick, 2013; Hurd, 1998; Lai, 2015). In order to effectively promote the students' capacity for self-directed language learning, however, it is essential that teachers avoid making assumptions about their students' technology use habits. They must also remain cognizant of the possibility that their own digital ecologies may differ greatly from that of their students. The first step to avoiding this pitfall is to develop an understanding of students' digital landscapes and the tools they commonly use.

Drawing on a larger mixed-method study exploring students' use of digital resources for language learning, this paper presents an instrument by which teachers can develop their understanding of the students' digital ecologies. In this study, the Self-Directed Digital Study Instrument (SDDSI, Appendix A) is implemented to investigate Korean college students' use of digital resources at one college in South Korea. The results and discussion are useful in identifying patterns in student technology use habits that can be of value to teachers seeking to support their students in the discovery of self-directed and self-determined language study. The guiding research questions are as follows:

1. Which types of digital resources do the students use to support their English language

- learning endeavors?
2. What barriers do students perceive as impeding them from making greater use of online digital resources to learn English?
  3. To what extent do the students report using digital resources for self-directed English language learning outside of the classroom?

## **II. LITERATURE REVIEW**

### **1. Digital Ecologies of Korean University Students**

Brown (2000) defines an ecology as an “open, complex, adaptive system comprising elements that are dynamic and interdependent” (p. 19). Whereas Brown is referring to learning ecologies in general, this same definition can be applied to the set of digital resources that learners draw upon to accomplish their goals. We refer to this as a learner’s digital ecology. It encompasses both the hardware to which a learner has access, and the applications the learner knows about and is both able and inclined to use. The key point of framing student technology use in this way is that, despite the ubiquitous nature of access to digital resources in the context of modern day Korean universities, students, access cannot be equated with use. This is because the students’ digital ecologies are shaped by what Bourdieu (1986) refers to as habitus, a complex concept that is succinctly described by Maton (2008) as, “ways of acting, feeling, thinking and being... [which] captures how we carry within us our history, how we bring this history into our present circumstances, and how we then make choices to act in certain ways and not others” (p. 52). This explains why, in cases where individuals lack historical experience using digital resources for language learning purposes, their potential value is likely to remain unrealized unless they are explicitly directed towards such discovery.

Few studies have investigated, with specific focus on language learning, the digital ecologies of Korean university students. In a broad sense, Lee and Kim (2014) investigated the digital ecologies of 652 students, revealing not only that the students were well-connected, but also that 87% of the participants accessed the internet via mobile phone or tablet rather than by desktop computer. In other words, they are connected nearly everywhere they go. With respect to English learning, however, they were found to focus primarily on developing their receptive skills while steering clear of participating in authentic English production and communication (Lee & Kim, 2014). Jung (2017) revealed similar findings in a recent study, noting that among the digital resources reported to be used by 411 university students, dictionaries were easily the most frequently used resources, followed by resources for the purposes of exam preparation, grammar

referencing, and listening practice, respectively.

In another study, Cho and Byun (2017) investigated the experiences of twenty-four Korean university students' experiences with learning from MOOCs, revealing that the new learning experiences evoked feelings of wonder and interest among students. Their online interactions, however, were found to be minimal and hampered by excessive concerns regarding the production grammatically correct sentences. One reason that Korean students may be reluctant to engage in authentic communicative activity online is that, in order to be regarded as useful, digital resources must be viewed by students as compatible with their language learning needs, goals, and past learning experiences (Jung, 2015). In the Korean post-secondary context, preparing for various non-communicative, high-stakes English tests which serve as gatekeeping mechanisms to future employment continues to be the norm (Choi, 2008). To get a competitive edge, parents commonly invest large sums of money on private English education (Park, 2009) which commonly results in a high degree of dependency on other-mediated learning (Kim, 2008; Nah, 1999). As a consequence, the potential opportunities for self-directed language learning which can be afforded by inexpensive or free of charge digital resources which exist beyond the realm of test-centric language learning can remain virtually unknown to students.

The responsibility for exposing students to the vast world of digital resources and encouraging them to partake in self-directed study lies largely on the shoulders of teachers. Studies such as that conducted by Jung (2017) suggest that such teachers' efforts can be fruitful. This study reveals a statistically significant, positive relationships between the provision of both technical and non-technical supports and the students' assimilation with digital English language learning. In other words, students become more likely to use the resources available to them when their teacher is available to help them work through any problems or tensions which may arise. Blended learning, a term which refers to the mixing of online and offline learning environments (Lee & Lee, 2012), one means by which teachers can introduce various digital resources to students. However, as Yoon (2016) warns, the autonomy required for such learning environments to thrive can be constrained by the need to meet course requirements related to assignments and formal examinations. A study by Kang and Ahn (2015), however, suggests that such issues may dissipate over as students become adapted to the learning context. They reveal that by instructing students to study via various YouTube ([www.youtube.com](http://www.youtube.com)) videos outside of the classroom, learning became more individualized and the students' abilities to self-regulate through the learning process improved.

## **2. Andragogy and Heutagogy**

In order to orient students towards becoming self-directed in their learning, it is

important for teachers to recognize the limitations of *pedagogy*. The term pedagogy is derived from the Greek and “literally means the art and science of teaching children” (Knowles, Holton, & Swanson, 2005, p. 36). The pedagogical model assigns responsibility to the teacher with respect to decision-making processes that include what, how, and when students should learn. Furthermore, in English language education, pedagogical approaches are typically designed around the content of course books which seldom meet the actual learning needs of the students, effectively restraining them from reaching their full potential (Long, 2000). Although the term *pedagogy* is commonly accepted as a general term for “the art, science, or profession of teaching” (Merriam-webster.com, 2017), it is important for teaching professionals to recognize that this ‘art’ or ‘science’ should differ according to the age, experience, and goals of the learners.

In recognition of the differing needs of adult learners, Knowles (1980) proposed *andragogy*, or ‘the art and science of teaching adults’, as an alternative. The andragogical model recognizes that in comparison to children, adults are generally more mature, responsible, capable of setting their own learning goals, and better equipped to engage in self-directed learning. However, as Dick (2013) reminds us, “Self-directed learning doesn’t always just happen. Sometimes it has to be crafted” (p. 39). Thus, it is the responsibility of teachers, who are referred to as facilitators or guides, to develop curriculum and set appropriate learning objectives based on the input of their students, and to then support their efforts to become self-directed in their learning (Blaschke, 2012).

As a further extension of the andragogical model, Hase and Kenyon (2007) proposed the *heutagogy* (based on the Greek word for ‘self’). Whereas andragogy is focused on self-directed learning, heutagogy refers to self-determined learning. Self-determined learning requires the teacher to relinquish control over what and how the students go about their learning as students proactively engage in the negotiation of their own learning path. Interest in heutagogy has increased dramatically in recent years, largely because it is regarded as a ‘net-centric’ theory which is largely supported by Web 2.0 and the learning affordances which come with it (Blaschke, 2012; Muresan, 2014). The advantages of self-directed learning are particularly apparent with respect to language learning. Given the vast number of hours required to reach advanced levels of proficiency, engagement in autonomous learning is considered essential to effective language learning (Pachler, Bachmair, & Cook, 2010). Kenyon and Hase (2013) report that self-determined learning can result in much more engaged learning: “They spend hours and hours learning, pursuing what fascinated them because they want to; the learning is no longer seen in terms of a ‘requirement’ but becomes a pleasurable and inherently rewarding experience” (p. 10).

Central to andragogy and heutagogy is the concept of autonomous learning. Autonomous learning can be defined as “the freedom and ability to manage one’s own

affairs, which entails the right to make decisions as well” (Scharle & Szabo, 2000, p. 4). While it is true that a number of factors might influence students in these decisions, including peer cultures and beliefs about the utility of technology for learning (Lai, Wang, & Lei, 2012), the teacher plays a critical role in determining the extent to which they actively embrace it. Lai (2015), for example, provides empirical evidence that the teacher’s affection support helps to strengthen the students’ perceived usefulness of technologies, and that capacity support and behavioral support helped students to enhance the learning conditions and students’ self-efficacy in relation to self-directed learning. For example, Van Praag and Sanchez (2015) reveal that teachers commonly restrict the use of mobile devices in their language learning classes despite students’ ardent desires to use them. While such actions are surely well-intended, they can be of great detriment to the opportunities afforded to the students to develop autonomous learning skills. This point is of critical importance for teachers to consider, because as Hurd (1998) explains “...if learners are not trained for autonomy, no amount of surrounding them with resources will foster in them that capacity for active involvement and conscious choice, although it might appear to do so” (pp. 72-73).

### **3. Surveys as Instruments of Change**

Simply put, language instructors need to become intimately acquainted with their students’ language learning knowledge and behaviors in order to teach them effectively. In other words, the processes of *praxis*, a term described by Carr and Kemmis (1986) as “informed action which, by reflection on its character and consequences, reflexively changes the ‘knowledge-base’ which informs it” (p. 33), requires a starting point. Only then can the processes of praxis help to transform the perspectives of learners by presenting them with concepts and ways of thinking which can help them to make life changes by embracing new modes of learning which supplement more traditional language learning approaches (Cranton, 1994). To accomplish such transformations, teachers must first recognize and understand the experiences of their students. This is because, from the perspective of Mezirow’s (1996) transformative learning theory, “Learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one’s experience in order to guide future action” (p. 162). For teachers, it is understanding those experiences of the students which “constitutes a starting point for discourse leading to critical examination of normative assumptions underpinning the learner’s... value judgments or normative expectations” (Mezirow, 2000, p. 31).

When teaching students of limited English language proficiency or larger class sizes, developing an understanding of the students learning experience can be a challenging task. Surveys, however, serve as effective tools for quickly and efficiently gathering

information (Cranton, 2006; Mackey & Gass, 2005) which can then be used by the teacher to make informed and intellectually stimulating teaching decisions. In contrast to the need to establish high levels of technical validity and reliability in surveys used for formal empirical research purposes, when used as a teacher’s tool (e.g. an action research tool), the primary purpose of surveys is to ensure that the students are actively involved in the processes of change. In this way, as Kincheloe (2011) asserts, the inquiry process serves not only to alter the students’ realities, but “it will also direct this impact so that those under study will gain self-understanding and self-direction” (pp. 93-94).

### III. METHODS

#### 1. Participants

A total of 197 first-year students attending a two-year information college in central South Korea participated in the study. Details pertaining to the students’ majors, gender, extracurricular study habits, and reported use of digital resources to learn English are summarized below in <Table 1>.

**TABLE 1**  
**Participant Profiles**

Demographic Category		Frequency	Percent
Major of Study	Beauty Design	91	46.2%
	Hospitality	44	22.3%
	Culinary Arts	23	11.7%
	Nursing	21	10.7%
	Hotel Tourism	18	9.1%
Gender	Female	151	76.6%
	Male	46	23.4%
English Study Habits	Extracurricular Study	101	51.3%
	School Only Study	96	48.7%
Time per week spent using digital resources to learn English*	0 hours	113	57.4%
	>0; <1 hours	59	29.9%
	≥1; <2 hours	16	8.1%
	≥2 hours	9	4.6%
Total		197	100.0%

A particularly noteworthy revelation, as indicated by ‘English Study Habits’, is that engagement in English language study was limited to the classroom setting by nearly half (48.7%) of the participants.

## 2. Data Elicitation Tool

This is a descriptive study, which De Vaus (2001) suggests can be guided by a simple framework which seeks to identify answers to two questions: (a) What is happening?; and (b) Why is it happening. The SDDSI is designed as a tool to help teachers assess such information pertaining specifically to the students' digital ecologies. In this respect, the SDDSI invites classroom teachers to initiate their own investigations as to what effective 21st century language learning may look like. This is because, as Araki and Senior (2015) argue, "reconsidering beyond the binaries of what counts as work/research, what is data/analysis and blurring the lines between meaning/interpretation have proven to be a pragmatic and productive space in the EFL context" (p. 115).

The items are focused on helping teachers identify the extent to which students are using various digital resources, in addition to the possible reasons why they do not use them more frequently. In this regard, the SDDSI can be regarded as a diagnostic tool, designed to provide teachers with essential background knowledge of the students' digital ecologies from which they can make informed decisions about the design of their curriculum. This is an essential feature of self-directed learning (Blaschke, 2012; Dick, 2013).

Prior to the study, a pilot study of 18 students was used to develop and test a questionnaire instrument concerned with student technology use habits. Upon completion, the results suggested that the student's knowledge of resources available to them were quite limited. The results were then analyzed in order to identify any limitations of the instrument. Slight adjustments were then made and SDDSI questionnaires were then translated into Korean to avoid any potential comprehension issues on the participants, as per the advice of Mackey and Gass (2005). The questions include student background and demographic information, spaces to list the resources that they use, and multiple-choice options, including a space to report 'others', with respect to the reasons that they had not made greater use of the digital resources which are available to them.

In addition to general descriptive data, the instrument includes ten five-point Likert-type questions as a means of helping to develop an understanding of the frequency at which students utilize various digital resources. Likert-type scales differ from Likert scales in that they do not attempt to combine items into a single composite scale (Clason & Dormody, 1994). Possible responses range from 'almost never' to 'very often'. To avoid the inherent ambiguities and highly subjective interpretations of such response options, each are accompanied by descriptions of what types of behaviors can be assigned to which specific categories. The resulting English version of the SDDSI is available in Appendix A. The students completed these surveys during the first fifteen minutes of their regularly scheduled classes.



### 3. Data Analysis

The focus of this study is on displaying the students' online study habits as well as their use of digital resources to support their language learning endeavors. Accordingly, descriptive statistics are analyzed according to a number of variables including gender, major of study, and whether or not students engage in English study outside of the classroom context. Charts are presented to clearly display the results of the various survey questions. In the case of the open-ended questions regarding the use of various digital resources, responses were coded into various categories depending upon the purpose of that resource. Responses given in Korean were confirmed by an advanced Korean speaker.

## IV. RESULTS

### 1. Students' Use of Digital Resources

In <Table 2> below, the students' study habits are reported and classified according to major, gender, and whether or not they engage in English language study outside of the classroom. The first category (Study Time) reveals the number of minutes that the students reported, on average, studying English outside of the class each week. The second category (Percent Study) reveals how many of those minutes are reported to be spent studying through the use of digital resources. It is worth noting that among those students who reported studying only at school (School Only Study), only three (3.1%) reported using digital devices for such studies. On the other hand, 64% of extracurricular study was conducted via the support of digital resources.

**TABLE 2**  
**Students' Extracurricular Study Habits**

Demographic Category		Study Time	Percent Digital
Major of Study	Beauty Design	16 min	100.0%
	Hospitality	12 min	94.6%
	Culinary Arts	58 min	73.7%
	Nursing	41 min	100.0%
	Hotel Tourism	72 min	32.6%
Gender	Female	23 min	62.0%
	Male	44 min	80.7%
English Study Habits	Extracurricular Study	54 min	64.8%
	School Only Study	0 min	N/A
All Participants (n = 197)		19 min	69.0%

It is important to note that students in particular majors may have a greater perceived need to learn English. For example, many of the students enrolled in the Hotel Tourism department recognize that without sufficient English abilities, their future job prospects will be very limited. While there are no remarkable differences between males and females, it is apparent that the males in this study spend a greater portion of their study time online (80.7% of study time) than their female counterparts (62.0% of study time). Finally, it is important to note that only 101 (51.3%) of the participants reported engaging in any kind of English study outside of the classroom, meaning that the remaining 96 (48.7%) did not.

<Table 3> below reveals information pertaining to the percentage of students who reported using websites (Website), mobile devices (Mobile), and online communication (OC), respectively, to support their language learning endeavors. The percentages in the table were calculated by dividing the number of students in each demographic category who reported using the various digital resources by the total number of students in that major. Interestingly, among the students who reported engaging in ‘School Only Study’, the use of digital resources was particularly minimal.

**TABLE 3**

**Students’ Extracurricular Study Habits**

Demographic Category		Website	Mobile App	OC
Major of Study	Beauty Design	17.6%	8.8%	9.9%
	Hospitality	4.5%	4.5%	25.0%
	Culinary Arts	26.1%	43.5%	34.8%
	Nursing	28.6%	14.3%	47.6%
	Hotel Tourism	33.3%	33.3%	66.7%
Gender	Female	13.2%	14.6%	42.4%
	Male	21.7%	15.2%	50.0%
English Study Habits	Extracurricular Study	26.7%	25.7%	51.5%
	School Only Study	3.1%	0%	0%
All Participants (n = 197)		18.3%	14.7%	25.4%

OC = online communication

<Table 4> below reveals the participants’ responses as to the frequency at which they use English with various digital devices. As the results display, responses of ‘very often’ and ‘often’ are far less frequent than responses of ‘(almost) never’ and ‘very rarely’. In other words, the students generally do not make extensive use of English in their daily use of digital resources.

**TABLE 4**  
**Frequency of English use on Various Devices**

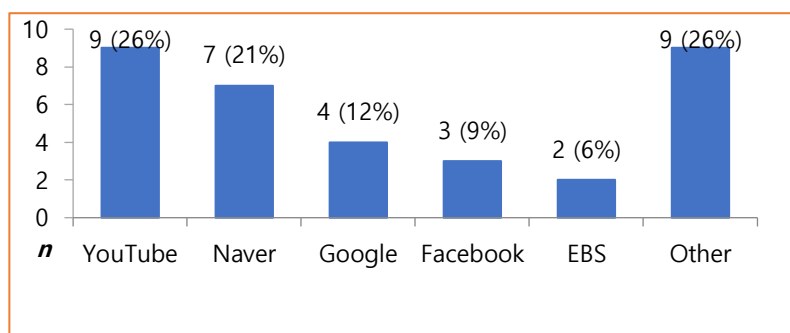
	Description	(Almost) Never	Very rarely	Occasion-ally	Often	Very Often
1	EU on Websites	38 (19.3%)	77 (39.1%)	67 (34.0%)	13 (6.6%)	2 (1.0%)
2	EU on Mobile Apps	30 (15.2%)	77 (39.1%)	73 (37.1%)	12 (6.1%)	5 (2.5%)
3	EU in E-Games	84 (42.6%)	57 (28.9%)	42 (21.3%)	12 (6.1%)	2 (1.0%)
4	EU on Smartphone	27 (13.7%)	82 (41.6%)	67 (34.0%)	16 (8.1%)	5 (2.5%)
5	EU on Computer	37 (18.8%)	82 (41.6%)	57 (28.9%)	17 (8.6%)	4 (2.0%)
6	EL on Website	97 (49.2%)	64 (32.5%)	28 (14.2%)	7 (3.6%)	1 (0.5%)
7	EL on Mobile App	94 (47.7%)	57 (28.9%)	31 (15.7%)	13 (6.6%)	2 (1.0%)
8	EL in E-Games	108 (54.8%)	57 (28.9%)	26 (13.2%)	4 (2.0%)	2 (1.0%)
9	EL on Smart Phone	74 (37.6%)	66 (33.5%)	40 (20.3%)	16 (8.1%)	1 (0.5%)
10	EL on Computer	99 (50.3%)	60 (30.5%)	31 (15.7%)	7 (3.6%)	0 (0.0%)
	Total Responses	688 (34.9%)	679 (34.5%)	462 (23.5%)	117 (5.9%)	24 (1.2%)

EU = English use; EL = English Learning

## 2. Commonly Utilized Digital Resources

The students reported a total of thirty-four digital resources which they used for learning English. In <Figure 1> below, it is revealed that the most popular resource was YouTube (26%), followed by both Naver.com (21%); including Naver tools such as Dictionary and Naver Translate) and similarly, www.google.com (Google, 12%) and its associated applications. www.facebook.com (Facebook, 9%) and the Korean Educational Broadcasting System (EBS, 6%) were also reported. Among the nine ‘others’, seven were various Korean resources.

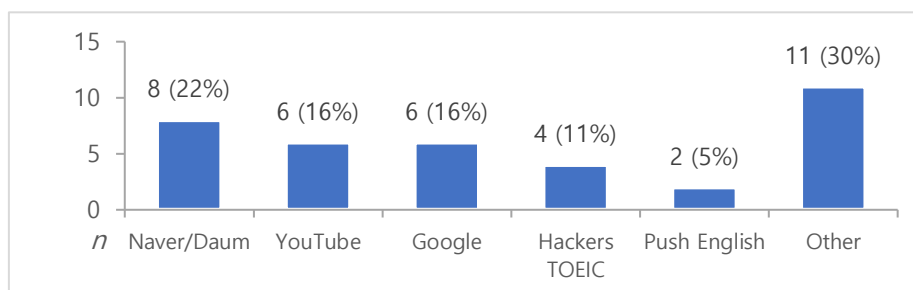
**FIGURE 1**  
**Websites for English Language Learning**



There are similarities with the students’ use of mobile applications in comparison with websites, as revealed in <Figure 2> below.

**FIGURE 2**

**Mobile Applications for English Language Learning**



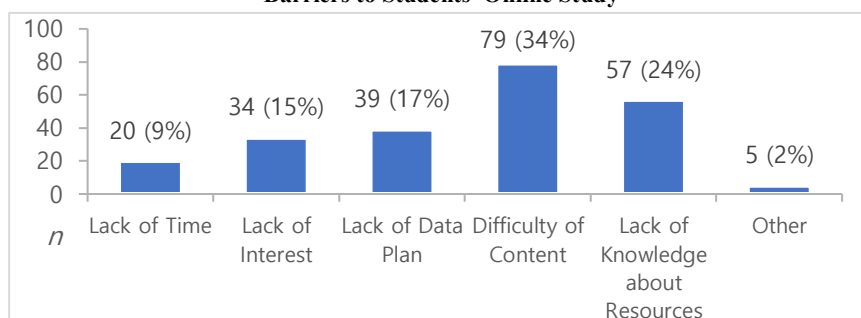
This result is somewhat predictable, given that most of the websites also have apps. Of the 37 mentions of mobile apps, the largest categories include Naver.com (22%), YouTube (16%), and Google (16%). However, students also reported using their mobile applications to learn English using a range of mobile applications designed specifically for Korean learners, such as Hackers TOEIC (11%) and Push English (5%). A wide range of ‘Others’ also includes five Korean-English mobile applications which are designed specifically for learning and memorizing vocabulary and one additional application for TOEIC preparation.

### 3. Barriers to Studying English Online

Regarding online study restrictions, students were provided with a number of options to select from based upon the outcomes of the pilot study. A total of 234 student responses were recorded in the data. <Figure 3> below reports the student responses as percentages in relation to the total number of barriers to learning which were reported.

**FIGURE 3**

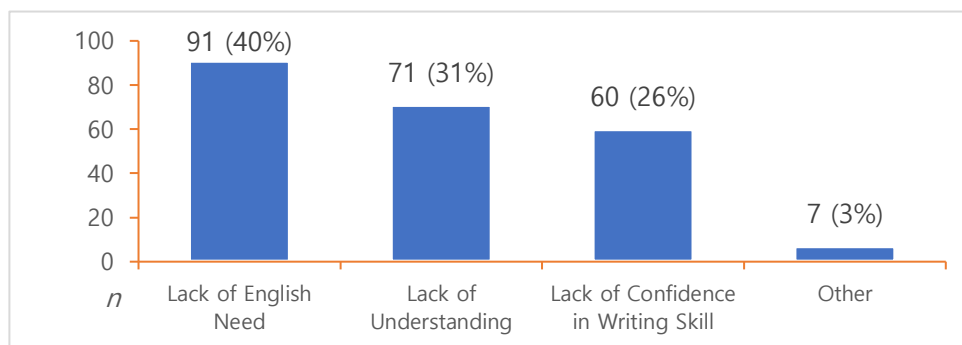
**Barriers to Students' Online Study**



The top two restrictions represent challenges associated with the difficulty of the content (34%) and a general lack of knowledge of the available resources (24%), respectively. Lack of Time (9%), Lack of Interest (14%) and Lack of a Data Plan (17%) were less commonly reported to be an issue by the students. The two students reporting in the ‘Other’ category mentioned (a) the lack of need for online resources due to satisfaction with studying off-line with books, and (b) an inability to concentrate while using online resources.

In addition to investigating the restrictions to online English language study, this investigation also sought to identify the variables that limit the students’ use of English in their daily online activities. A total of 229 student responses were collected. The results displayed in <Figure 4> reveal that the most commonly reported reason is the students’ perceived lack of need for English (40%). The next most common response among was related to their general lack of English understanding (31%). The students’ lack of confidence (26%) in their writing ability was another commonly reported factor which prevented students from engaging in communication in the online environment. In the ‘Other’ category, students’ comments included (a) “I just don’t use it” and (b) “I don’t know” (2).

**FIGURE 4**  
**Reasons for Limited Online English Use**



<Table 5> reveals, in order of frequency, details of the students’ responses which were previously summarized in <Table 3>. Noteworthy is the fact that twenty of the thirty different resources of the were produced domestically in Korea. Resources originally reported in Korean are reported in English italics. The original names are provided in the Appendix.

**TABLE 5**  
**Students' Digital English Learning Resources**

Web-Based	<i>n</i>	Mobile Applications	<i>n</i>
YouTube (SM)	9	Naver.com* (SE)	8
Naver.com* (SE)	7	YouTube (SM)	6
Google (SE)	4	Google (SE)	6
Facebook (SM)	3	Hackers TOEIC* (TP)	4
EBS* (GE)	2	Push English* (V)	2
YBM Class* (GE)	1	TOEIC Voca* (TP)	1
TED (VBL)	1	<i>Just turn it on English*</i> (V)	1
<i>Cool School*</i> (GE)	1	<i>Super Fan</i> (VBL)	1
Memrise (V)	1	<i>Daily Vocab*</i> (V)	1
Daum* (SE)	1	English central (VBL)	1
Hackers TOEIC* (TP)	1	<i>Vocab &amp; Weapons*</i> (V)	1
afreeca.com* (SM)	1	Chef TV (VBL)	1
<i>English Vocab*</i> (V)	1	<i>Mayu English*</i> (VBL)	1
		IELTS Vocabulary* (V)	1
		Memrise (V)	1
		ETS TOEIC* (TP)	1
		Daum* (SE)	1

\* = domestic product; SM = social media; SE = search engine; GE = general education; V = vocabulary; TP = test preparation; VBL = video-based learning

<Table 6> below displays the various types of digital resources which students reported using to learn English and their respective frequencies. These data are classified according to the three open-ended survey questions which requested students to report the website resources and mobile applications which they use to learn English. Of the 197 respondents, only a small subset ( $n=45$ , 23%) indicated that they used any resources at all for this purpose. Social media and search engines (Google and 2 domestic services) dominate the list. This latter resource was most likely being used as translation/dictionary applications, as was reported explicitly by five of the students.

**TABLE 6**  
**Categories of Students' Digital English Learning Resources**

Web-Based	<i>Web-Based (n)</i>	<i>Mobile- Based (n)</i>
Social Media (SM)	13	6
Search Engine (SE)	12	15
General Education (GE)	4	0
Vocabulary (V)	2	6
Test Prep (TP)	1	6
Video-Based Learning (VBL)	1	4

Lastly, revealed in <Table 7> are the online resources that students reported using to communicate with others. In this case, they were not asked to report resources with which they specifically used English. Rather, this information was gathered in an effort to deepen

our understanding of which resources students are familiar with, helping teachers to potentially tap into the untapped potential of such resources to use English. It is possible, as indicated in <Table 6> for example, for students to use social media platforms such as Facebook to learn English. Similarly, it is possible to communicate in English while playing many online computer games, although the results suggest that students do not, or at least do not perceive to, use computers games as a means of learning English.

**TABLE 7**  
**Digital Resources for Communication**

Resource	Frequency	Resource	Frequency
Facebook (SM)	55	SMS (CMWC)	1
Kakao* (SM)	42	Line (SM)	1
Instagram (SM)	18	Whatsapp (SM)	1
Naver café/blog* (SE)	16	Seven Knights (G)	1
Overwatch (G)	3	Crazy Arcade (G)	1
Twitter (SM)	3	Steam (SM)	1
Naver Band* (D)	2	League of Legends (G)	1
Skype (AVC)	2	GTA (G)	1
Google (SE)	2	Picki Cost	1
SMS (CMWC)	1	Daum* (SE)	1
Line (SM)	1	Nate* (SE)	1

\* = domestic product; G = game; SM = social media; SE = Search Engine; AVC = Audio-Visual Communication; CMWC = computer-mediated written communication

## V. DISCUSSION AND CONCLUSION

The results of this study indicate that the learning opportunities provided by digital resources remain largely untapped among the students in this study. Even when limiting the analysis to those students who reported studying outside of the classroom, the average study time was little less than an hour a week, of which roughly two-thirds was mediated by the use of digital resources. While it is impossible to objectively classify this amount of study time as either sufficient or insufficient, it is clear that the students are not fast-tracking towards investing the vast number of hours which are required to acquire high levels of English proficiency (Pachler et al., 2010). Nor does it seem that students are engaged in the type of deeply engaged, extended study sessions which Kenyon and Hase (2013) describe as being characteristic of self-directed and self-determined learning. Furthermore, the fact that digital resources were seldom reported as tools for use in the classroom suggests that there is a disconnect between the ways students are being taught in the formal classroom setting and the actually means by which they study language autonomously. Accordingly, it is evident that changes from the traditional pedagogical

model towards an andragogical or heutagogical model, initiated with an analysis of the students' digital ecologies via the SDDSI provided in this study, could help to vastly expand the resources known to, and potentially used by students.

Interestingly, the majority of the reported digital resources were domestically-produced commercial resources. In contrast with the vast number of authentic digital resources available through which students can engage in authentic language learning, the students predominantly use resources that are designed for the specific purpose of supporting Korean students' English language learning. Given the prominence of Korea's test-taking culture (Choi, 2008) and the relevance of the learning goals which those conditions tend to produce (Jung, 2015), it is of little surprise that the reported resources are dominantly oriented towards vocabulary learning and test-taking strategies. In the absence of interventions through which students are presented with alternative paths to language learning, they are prone to continue reproducing the habits which they have procured in their pasts (Bourdieu, 1986; Maton, 2008). Determining an effective means of doing this without the contradiction of assigning mandatory 'self-directed' study, however, is a challenge which requires further investigation. As a suggestion, teachers may wish to create a project in which groups of students explore a particular digital resource of their choosing (perhaps from a list) and presenting their finding to the class. In that way, a range of potentially captivating resources can be presented to the class.

It is important to acknowledge that half of the participants reported never having studied English outside of the classroom. While this may be indicative of a general lack of interest in English, it must also be recognized that such outcomes can be symptomatic pedagogical teaching models which fail to engage the students' needs or interests (Knowles, 1980). As studies in self-directed and self-determined learning suggest, the discovery of digital resources which are of personal interest have the potential to turn the tide in terms of student interest (Blaschke, 2012; Cho & Byun, 2017; Kang & Ahn, 2015; Muresan, 2014) as well as to help mediate Korean learners towards much-needed development of self-directed learning skills (Kim, 2008; Nah, 1999). In particular, this study reveals that 'lack of interest' and 'lack of time' were the most common barriers to study; issues which could, in many cases, be remedied by the discovery of learning resources which are customized to the needs of individual students.

For teachers, understanding the extent to which students use and are knowledgeable of the resources available to them is of critical importance. The SDDSI is presented in this study as a tool to help teachers reflect upon student needs and to ensure that their actions (Carr & Kemmis, 1986) and their support of students digitally-supported and self-directed language studies (Lai, 2015) is informed. Only after obtaining such pertinent information can teachers begin to point to new possibilities and begin to transform students learning towards more intellectually stimulating and self-directed learning (Blaschke, 2012; Cho



& Byun, 2017; Cranton, 1994; Kang & Ahn, 2015; Mezirow, 1996, 2000; Muresan, 2014). The results of this study reveal that a large portion of students reported that a general lack of knowledge of digital resources among the students, and specifically, a lack of knowledge of level appropriateness materials, were key barriers to using digital resources to study English. Henceforth, it is clear that these students could experience considerable benefits if they were to be introduced to ability-appropriate digital resources which lay beyond the resources with which they are familiar.

There are a number of methodological limitations associated with this study which require explanations. Most significantly, it is acknowledged that a greater depth of qualitative data is needed to develop a more complete understanding of the students' digital ecologies. Perhaps most notably, details pertaining to the variables which are constraining the students' access to digital resources needs to be investigated. The lack of generalizability could be considered as a limitation of this study. The habits of students enrolled in four-year universities, for example, generally score more favorably on the Korean SAT, and thus may demonstrate different self-directed study tendencies than the students in the current study. Further open-ended questions may also help to provide answers to other unknowns, such as the reason why male students were more engaged in their English studies than females. In recognition of this point, however, the SDDSI is presented as a teacher's tool which can be adapted and implemented by teachers in any context in order to obtain highly contextualized data. One suggestion for adaptation is the inclusion of a scale which measures the strength of the students' desires to learn English because in addition to goal orientation, it is important to consider that some students may simply not have any invested interest in learning the English language. Lastly, it is worth noting that search engines such as Google and Naver.com and social media and video streaming resources such as Facebook and YouTube are among the most frequently reported resources. Such resources contain vast amounts of both English and Korean content, making it impossible to accurately assess the extent to which English was used as the mediating language.

While only providing a snapshot of the technology use habits of one limited population, the findings of this study suggest that these habits are worth exploring, and are relevant to language instructors hoping to kindle andragogical or heutagogical learning in their students by leveraging, and encouraging learners to leverage, the digital resources that are available. As a descriptive study, the empirical generalizability of the findings are limited. For this, a deeper statistical analysis of a larger population would be needed. Yet, in terms of theoretical generalizability (Lee & Baskerville, 2012), the findings highlight the need for instructors to avoid making the assumption that students will be drawn to use resources simply because they are available. Rather, instructors are encouraged to develop concrete understandings of their students' digital ecologies, to make efforts to meet them where

they already are, and then to give them the information and opportunities that they need to put such resources to use. The SDDSI which is presented represents a tool by which teachers can achieve those afore mentioned ideals and ultimately help to inform the development of self-directed learning curriculums in which students can be encouraged to explore and discover previously unknown digital resources. In contrast with traditional pedagogical approaches in which standardized materials are inevitably hit or miss with respect to their compatibility with individual student's language learning needs, goals, and interests, digital resources represent opportunities for students to customize their learning experience through which students can engage more deeply and for longer periods of time in self-regulated language learning sessions.

## REFERENCES

- Araki, A., & Senior, K. (2015). Making 'work' matter: The praxis of collecting and analysing data. In M. Vicars, S. Steinberg, T. McKenna, & M. Cacciattolo (Eds.), *The praxis of English language teaching and learning (PELT): Beyond the binaries: Researching critically in EFL classrooms* (pp. 115-140). Rotterdam: Sense.
- Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and Distance Learning*, 13(1), 56-71.
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York, NY: Greenwood.
- Brown, J. S. (2000). Growing up digital: How the web changes work, education, and the ways people learn. *Change: The Magazine of Higher Learning*, 32(2), 11-20.
- Carr, W., & Kemmis, S. (1986). *Becoming critical: Education, knowledge and action research*. London: Falmer Press.
- Cho, M.-H., & Byun, M. (2017) Nonnative English-speaking students' lived learning experiences with MOOCs in a regular college classroom. *International Review of Research in Open and Distributed Learning*, 18(5), 173-190.
- Choi, I.-C. (2008). The impact of EFL testing on EFL education in Korea. *Language Testing*, 25(1), 39-62.
- Clason, D. L., & Dormody, T. J. (1994) Analyzing data measured by individual Likert-type items. *Journal of Agricultural Education*, 35(4), 31- 35.
- Cranton, P. (1994). *Understanding and promoting transformative learning: A guide for educators of adults*. San Francisco, CA: Jossey-Bass.
- Cranton, P. (2006), Fostering authentic relationships in the transformative classroom. *New*

- Directions for Adult and Continuing Education*, 109(Spring), 5-13.
- de Castella, T. (2013, July 23). How many hours does it take to be fluent in English. *BBC News Magazine*. Retrieved from <http://www.bbc.com/news/magazine-23407265>
- De Vaus, D. A. (2001). *Research design in social research*. London: Sage.
- Dick, B. (2013). Crafting learner-centred processes using action research and action learning. In S. Hase & C. Kenyon. (Eds.), *Self-determined learning: Heutagogy in action* (pp. 39-54). London, UK: Bloomsbury.
- Hase, S., & Kenyon, C. (2007). Heutagogy: A child of complexity theory. *Complicity: An International Journal of Complexity and Education*, 4(1), 111-119.
- Hurd, S. (1998). Too carefully led or too carelessly left alone? *Language Learning Journal*, 17(1), 70-74.
- Jung, H. J. (2015). Fostering an English teaching environment: Factors influencing English as a foreign language teachers' adoption of mobile learning. *Informatics in Education*, 14(2), 219-241.
- Jung, H. J. (2017). An empirical study of attributes influencing smart English learning. *Multimedia-Assisted Language Learning*, 20(3), 11-32.
- Kang, N., & Ahn, M. (2015). Flipping a Korean university EFL classroom with teacher-crafted YouTube videos. *STEM Journal*, 16(3), 109-134.
- Kenyon, C., & Hase, S. (2013). Heutagogy fundamentals. In S. Hase & C. Kenyon. (Eds.), *Self-determined learning: Heutagogy in action* (pp. 7-18). London, UK: Bloomsbury.
- Kim, E. (2008). Status quo of CLT-based English curricular reform: A teacher's voice from the classroom. *English Teaching*, 63(2), 43-69.
- Kincheloe, J. L. (2011). Meet me behind the curtain. In K. Hayes, S. R. Steinberg, S. R., & K. Tobin (Eds.), *Key works in critical pedagogy* (pp. 85-99). Rotterdam: Sense.
- Knowles, M. S. (1980). *Modern practice of adult education: Andragogy versus pedagogy*. Chicago, IL: Association Press/Follett.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005) *The adult learner: The definitive classic in adult education and human resource development* (6<sup>th</sup> ed.). Burlington, MA: Elsevier.
- Lai, C. (2015). Modeling teacher's influence on learners' self-directed use of technology for language learning outside the classroom. *Computers and Education*, 82, 74-83.
- Lai, C., Wang, Q., & Lei, J. (2012). What factors predict undergraduate students' use of technology for learning? A case from Hong Kong. *Computers & Education*, 59(2), 569-579.
- Lee, A. S., & Baskerville, R. L. (2012). Conceptualizing generalizability: New contributions and a reply. *MIS Quarterly*, 36(3), 749-761.
- Lee, J. H., & Kim, H. (2014). An exploratory study on the digital identity formation of

- Korean university EFL learners. *English Teaching: Practice and Critique*, 13(3), 149-172.
- Lee, J., & Lee, C. H. (2012). Students' perspectives and the effectiveness of blended learning in L2 listening at university level. *Multimedia-Assisted Language Learning*, 15(1), 59-89.
- Long, M. H. (2000). Focus on form in task-based language teaching. In R. D. Lambert, & E. Shohamy (Eds.), *Language policy and pedagogy: Essays in honor of A. Ronald Walton* (pp. 179-192). Philadelphia & Amsterdam: John Benjamins Publishing.
- Mackey, A. & Gass, S. M. (2005). *Second language research: Methodology and design*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Maton, K. (2008). Habitus. In M. Grenfell (Ed.), *Pierre Bourdieu: Key concepts* (pp. 49-65). London: Acumen.
- Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly*, 46(3), 158-172.
- Mezirow, J. (2000). Learning to think like an adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp 3-33). San Francisco, CA: Jossey-Bass.
- Muresan, M. (2014). Using cybergogy and andragogy paradigms in lifelong learning. *Procedia - Social and Behavioral Sciences*, 116, 4722-4726.
- Nah, Y. (1999). Can a self-directed learner be independent, autonomous and interdependent?: Implications for practice. *Adult Learning*, 11(1), 18-21.
- Pachler, N., Bachmair, B., & Cook, J. (2010). *Mobile learning: Structures, agency, practices*. New York, NY: Springer.
- Park, J.-K. (2009). 'English fever' in South Korea: Its history and symptoms. *English Today*, 25(1), 50-57.
- Pedagogy. (2017). In *Merriam-webster.com*. Retrieved from <https://www.merriam-webster.com/dictionary/pedagogy>
- Scharle, A., & Szabo, A. (2000). *Learner autonomy: A guide to developing learner responsibility*. Cambridge: Cambridge University Press.
- Van Praag, B., & Sanchez, H. S. (2015). Mobile technology in second language classrooms: Insights into its uses, pedagogical implications, and teacher beliefs. *ReCALL*, 27(3), 288-303.
- Yoon, S.-Y. (2016). Exploring learner perspectives on learner autonomy for blended learning in EFL conversation classes. *STEM Journal*, 17(1), 197-220.

## APPENDIX

### Translations of Korean Digital Resources

Korean	English Translation
시원스쿨 (GE)	Cool School
영단기 (V)	English Vocab
켜자마자 영어단어* (V)	Just turn it on English
슈퍼팬* (VBL)	Super Fan
매일 단어* (V)	Daily Vocab
단어와 무기앱* (V)	Vocab & Weapons
마유 영어* (VBL)	Mayu English

Applicable level: university

Keywords: digital learning resources, self-directed learning, digital ecology, change

Briggs, Neil (First author)

Talmage College of Liberal Arts

Hannam University

70 Hannamro, Daedeok-gu,

Daejeon 34430, Korea

E-mail: nrbteach@gmail.com

Sherman, Brandon (Corresponding author)

Dept. of Education

Indiana University - Purdue University Indianapolis

420 University Blvd, Indianapolis, IN, USA

E-mail: brandsherman@gmail.com