see themselves with respect to digital nativeness as learners' perception might be influential on how they intend to use current technologies for learning.

Digital Production for language learning. The items in this section explored what tools the participants used to produce digital content. To assess the breadth of use, the participants were asked to specify how frequently they use a particular tool. They were also asked to provide links to their online productions. The digital tools presented here were mostly generic in nature, and as it was the case in Waycott et al.'s (2010) study, the list of technologies that could be used to create content in language learning is by no means complete, yet it might give us clues as to what younger generations are creating on the Internet while learning English.

Validation of the Data Collection Tools

The researcher used cognitive interviewing to validate the instrument used to collect quantitative data in this study. Cognitive interviewing was used to validate the survey used in the study. The first one was verbal probing. As a part of the verbal protocol, 3 students were asked to respond to the survey and the researcher interviewed them. Before the volunteers took the survey, they were given a form with guidelines for how to do screen recording and what to focus on during the think aloud protocol. The think-aloud protocol participants were asked to focus on four potentially problematic issues, suggested by Willis, Royston and Bercini (1991), and each of these were explained in detail in the think-aloud protocol form: comprehension, retrieval, judgment and response. Moreover, the participants were also asked to identify potentially unknown vocabulary. For this study, institutional review board permissions were obtained. Before the students took the survey, they were asked to read the informed consent form, and those students who did not agree to what is written in this form were directly taken to the end of the survey without seeing the survey itself.

Data Analysis

Extensive data were collected about the learners and a so-called digital nativeness score and productivity score were calculated for each learner based on learner-provided data. After the sum of the participants' responses to the items related with digital nativeness and those related with digital productivity was calculated, a test of correlation was carried out, yet before carrying out the correlation test, the assumptions of Pearson conduct moments correlation were tested. A Shapiro-Wilk's test (p = .117) along with the examination of their histograms, normal Q-Q plots and box plots indicated that digital nativeness scores were normally distributed with a skewness of .391 (SE = .218) and a Kurtosis .467 (*SE* = .433). However, the results of Shapiro-Wilk's test (p = .047) for digital productivity scores indicated that they were not normally distributed although with a skewness of .509 (*SE* = .218) and a kurtosis -017 (*SE* = .433). Therefore, Spearman rank-order correlation test was conducted to determine if there was a relationship between digital nativeness scores and digital productivity scores. The EFL and ESL students' scores were compared using a Welch's test as it is a robust tool against unequal sample sizes. The correlations between several variables such as gender, age and productivity were also examined.

FINDINGS

This section presents an overview of the findings from the study. The results are presented under the research questions posed earlier.

(Q1) How do EFL and ESL learners differ with respect to access to digital devices and the internet?

ESL students have better access to technological devices, particularly to tablet computers and electronic readers than their EFL peers. Only the percentages of the students with a web or phone camera were approximately the same. For the remaining devices and internet access, the ESL students' digital device ownership clearly goes beyond that of the EFL students. However, in a global sense, device ownership and access to the Internet do not seem to pose significant problems in neither of the groups (Table 1).

Table 1. Device ownership and Internet access among EFL and ESL learners

		I have it (%)	I have access to one (%)	I can find it with difficulty (%)	I cannot get it at all (%)
Desktop/Laptop	EFL	79.1	6.6	6.6	7.7
	ESL	96.7	3.3	0	0
Cell phone	EFL	89.9	7.9	0	2.2
	ESL	100	0	0	0
Tablet computer	EFL	16.7	22.6	16.7	44.0
	ESL	37.9	44.8	6.9	10.3
Electronic reader	EFL	3.7	15.9	17.1	63.4
	ESL	40.7	18.5	18.5	22.2
Webcam or phone camera	EFL	86.0	5.8	2.3	5.8
	ESL	86.2	6.9	0	6.9
Speakers/headphones	EFL	70.2	8.3	3.6	17.9
	ESL	93.3	3.3	0	3.3
Internet access	EFL	91.9	5.8	2.3	0
	ESL	100	0	0	0

(Q2) What are the patterns of internet and mobile device use in EFL and ESL learners?

The length of internet and cell phone use is similar across the two groups. Compared with ESL students, EFL students are less experienced users of cell phones. For instance, while 18.3% of EFL students have owned a telephone for 11 years or more, 33.3% of the ESL students have been using a cell phone for the same duration. However, the number of EFL students who have used computers for over a decade is larger than that of ESL learners. In an overall sense, both contexts paint a similar picture when it comes to internet and cell phone use over the last decade.
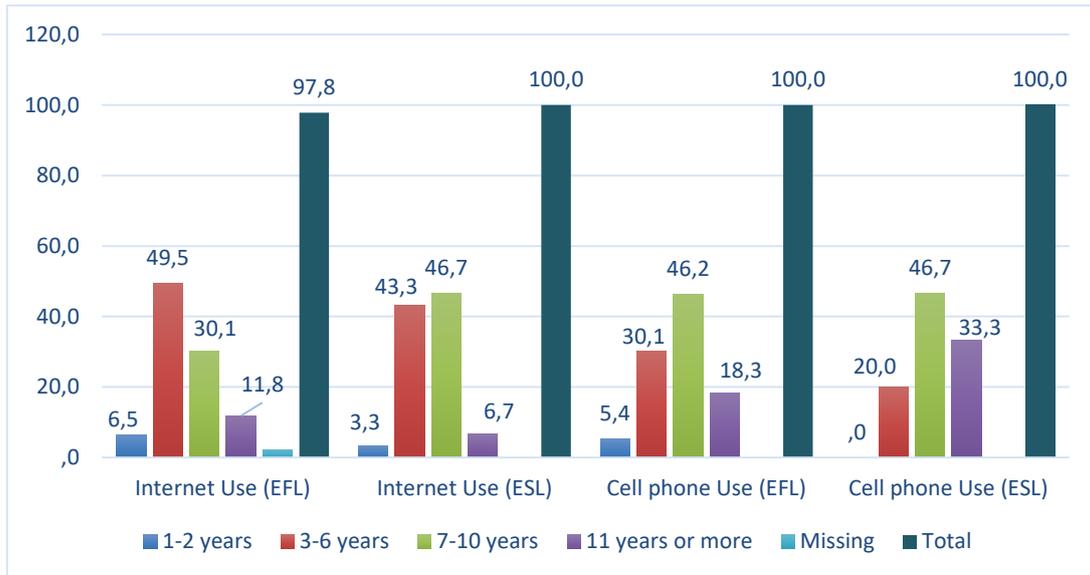
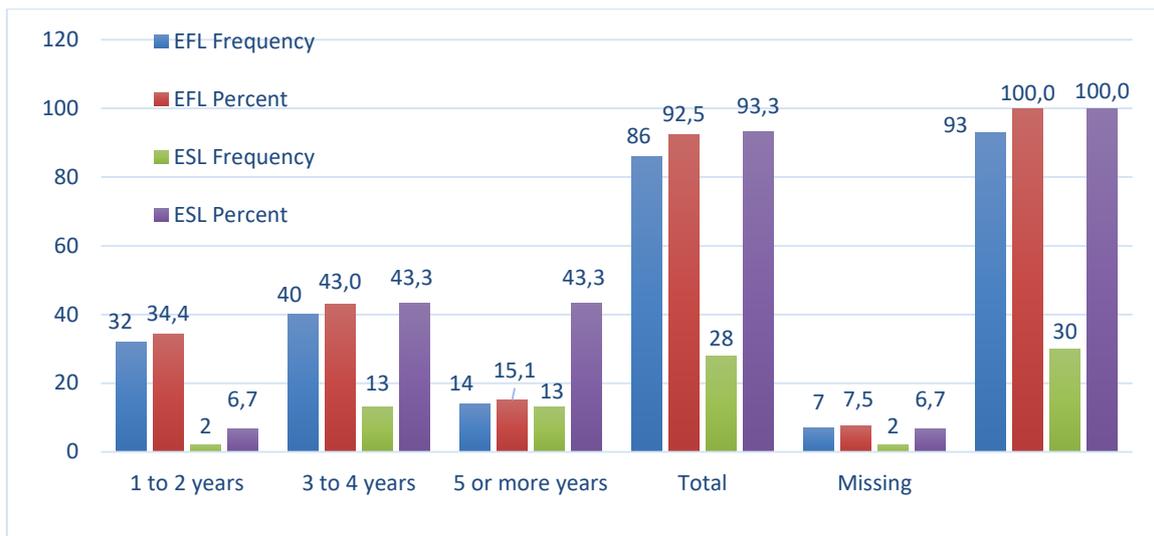**Figure 2. The length of Internet and cell phone use among EFL and ESL students (based on percentages)**

Figure 3. The length of mobile internet connection among EFL and ESL students
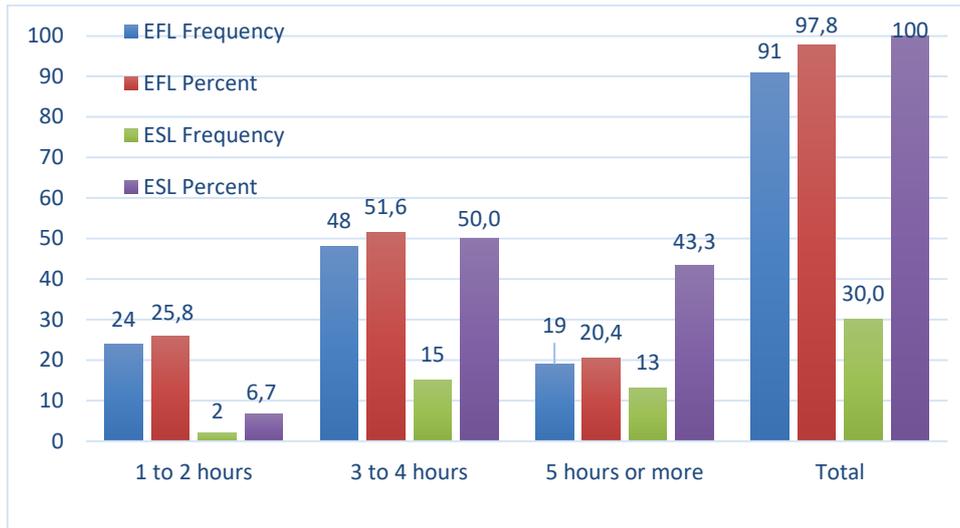
Figure 4. Daily internet use among EFL and ESL students

Mobile connection levels were similar in EFL and ESL learners as 93.5% of the former and 93.3% of the latter reported that they have internet connection in their cell phones. The main difference between the EFL and ESL students is that there are more what we might call internet addicts among ESL students than among EFL students as the percentage of the ESL students spending five hours or more on the Internet is more than two folds (20.4% and 43.3%, respectively). The percentage of average Internet users for the two groups is alike (approximately 50%), yet the number of EFL students who use the Internet for a limited time during the day is almost fourfold. In short, EFL students seem to spend more time on the Internet (Figure 4).
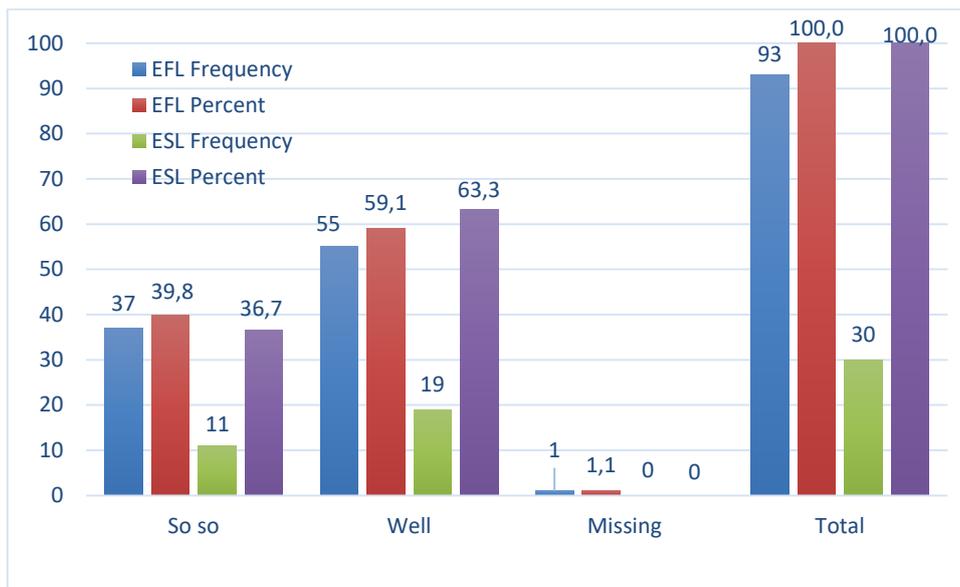
Figure 5. How well students understand the language on the Internet

(Q3) How to ESL and EFL learners use the Internet and digital tools in their daily lives and in language learning contexts for content-creation purposes?

In an overall sense, the average levels of digital technology use were similar for both cohort of students in most items concerning digital nativeness. For some of the items, the mean score for EFL and ESL students were highly similar, while for some others, the ESL students' mean score was higher than that of EFL students. For example, ESL students did some activities more frequently, such as using online maps, online banking, paying bills, online shopping, listening to online radios, downloading content, keeping an online diary, using an email account and organising and taking part in campaigns. It was these items that resulted in the significant difference between the total scores of the members of the true group of participants. On the other hand, for some other items, EFL students scored higher than ESL students, yet the difference between these two groups for these items was smaller than the difference for the first group of items mentioned above. Examples include watching videos on social media sites, uploading videos on social media sites, dating and so forth (Table 2).

Table 2. The Means of the Items about Digital Nativeness for the EFL and ESL Group

	EFL		ESL	
	Mean	*Std Dev.*	*Mean*	*Std. Dev.*
Doing research to learn new things	4.16	0.73	4.13	0.94
Finding solutions for real-life problems	3.70	0.93	3.73	1.01
Watching/reading online tutorials	3.94	0.88	3.77	0.94
Listening to/watching/reading the news	3.71	0.95	3.97	0.93
Using online maps	2.86	0.97	4.20	0.85
Reading travel guides to learn about places, landmarks, etc.	3.02	1.16	3.70	1.15
Banking	2.39	1.23	3.47	1.17
Paying bills, taxes, etc.	2.06	1.20	3.50	1.14
Online shopping	2.57	1.22	3.67	0.96
Reading for fun	3.74	1.10	4.07	0.83
Playing online games	2.80	1.34	3.07	1.41
Watching videos/TV	4.30	0.84	4.13	0.90
Listening to online radios	2.85	1.33	3.20	1.21
Downloading photos, videos, music, etc.	4.37	0.78	3.73	1.23
Watching videos on social media sites	4.54	0.76	4.27	0.83
Commenting on videos on social media sites	3.20	1.26	3.20	1.37
Uploading videos on social media sites	2.94	1.29	2.50	1.48
Writing tweets on Twitter	2.31	1.51	2.50	1.50
Writing posts on Facebook	3.03	1.30	2.90	1.37
Commenting on others' posts on Facebook	2.97	1.32	3.13	1.41
Commenting on others' tweets on Twitter	2.13	1.38	2.43	1.43
Cloud computing	2.63	1.23	2.87	1.28
Keeping an online diary	1.75	1.22	2.23	1.30
Using an e-mail account	3.88	1.18	4.63	0.61
Chatting	3.94	1.08	4.20	0.96
Dating	2.19	1.39	1.70	1.18
Using e-government web sites	2.59	1.24	2.60	1.30
Participating in online surveys or polls	2.58	1.01	2.90	1.09
Organizing or taking part in campaigns	1.89	0.90	2.47	1.36

(Based on Helsper, Dutton & Gerber, 2009)

In contrast with digital nativeness, the participants from the ESL contexts produced more content while learning English. However, the difference was quite small for most of the items. As it is apparent in Table 3, the EFL students were better at using social media to produce content for language learning purposes. They also used the Internet to do research for their homework slightly more frequently than their ESL peers. They also used instant and audio messaging to communicate with their teachers. For other items in Table 3, ESL students were found to be more frequent users of these tools to produce something.

Table 3. The Means of the Items about Digital Productivity for the EFL and ESL Group

	EFL		ESL	
	Mean	*Std Dev.*	*Mean*	*Std. Dev.*
Doing research for your homework	4.46	0.75	4.27	0.98
Using Microsoft Word or similar software to write in English	3.82	1.10	4.50	0.86
Creating written documents in such environments as Google Drive	2.87	1.22	3.50	1.17
Working on a single document with your friends on the Internet although you are physically away from each other	3.17	1.27	3.47	1.25
Writing paragraphs/essays in an online environment	2.89	1.31	3.37	1.16
Using mind-mapping tools to organize your ideas in writing	2.70	1.12	2.70	1.24
Using social media to cooperate on a project with your friends	3.53	1.18	3.43	1.19
Using e-mail to cooperate on a project with your friends	3.04	1.30	3.57	1.04
Using instant messaging to cooperate on a project with your friends	4.25	1.09	3.47	1.17
Creating online quizzes	2.20	1.18	2.43	1.41
Preparing your own blog	1.67	1.03	2.27	1.26
Writing comments on others' blog posts	1.95	1.10	2.40	1.33
Editing what is written in a wiki site	2.06	1.35	2.10	1.42
Adding new information in a wiki site	1.62	1.07	2.00	1.39
Preparing online posters	1.62	0.97	2.03	1.33
Creating videos in which you give a speech or roleplay	1.97	1.09	2.17	1.32
Sharing videos that you produce while you are learning English	2.06	1.10	2.20	1.21
Using comics creators to produce comics for learning or assignments	2.35	1.23	2.30	1.37
Creating interactive videos	1.80	1.04	2.27	1.46
Recording your computer screen while you are giving a presentation or explaining something	2.42	1.17	2.87	1.38
Writing on your Facebook or Twitter account	2.98	1.46	2.77	1.36
Creating podcasts	1.82	1.09	2.27	1.36
Using text-to-speech tools to create audio versions of texts	2.19	1.17	2.37	1.50
Recording audio messages to communicate with your friends or teacher	2.96	1.22	2.63	1.27
Preparing PowerPoint presentations on your computer	3.80	1.15	3.90	1.12
Creating presentations on an online site	2.53	1.37	2.97	1.50
Sharing your presentations on a PowerPoint sharing web site	2.22	1.31	2.70	1.39
Preparing phonetic transcriptions of words/sentences by using phonetic transcription tools	2.48	1.35	2.50	1.41
Taking part in discussion forums where grammar rules are discussed	2.42	1.21	2.83	1.34
Preparing vocabulary lists on online vocabulary flashcard sites	2.31	1.30	2.73	1.28
Sharing your vocabulary flashcards on social media	1.82	1.16	2.47	1.43
Creating content in virtual worlds	1.97	1.22	2.53	1.46
Preparing webquests	1.86	1.09	2.43	1.59
Creating electronic portfolios	1.75	1.03	2.80	1.54
Creating digital stories by using Windows movie maker, i-movie or similar software	2.24	1.29	2.57	1.50

(Q4) What is the relationship between (a) the level of digital nativeness and productivity in language learning (b) age and digital nativeness and (c) age and digital productivity?

The results of Spearman rank-order correlation test indicated the there was a statistically significant moderate positive correlation between digital nativeness and digital productivity r_s (123) = .571, *p*=.001. In addition to this, Spearman rank-order correlation test was carried out to investigate if there was a correlation between age and digital nativeness and digital productivity. The result of the significance testing revealed that there was almost no correlation between age and digital nativeness score r_s (118) = .027, *p*=.772 and age and digital productivity score r_s (118) = .044, *p*=.633 (Table 4).

Table 4. *Correlations and Descriptive Statistics*

Variables	1	2
1. Digital nativeness	–	
2. Digital productivity	.571*	–
3. Age	.027	.044
M	90.95	90.23
SD	15.70	24.66

*p < .001

(Q5) How do EFL and ESL learners differ with respect to their level of digital nativeness and digital productivity?

In addition to correlational analyses, two groups of students were compared with respect to their digital nativeness and digital productivity scores. As a robust test used to compare unequal sample sizes a Welch's test (also known as Welch–Satterthwaite or Welch-Aspin) was carried out to compare the means of the EFL and ESL group for digital nativeness and digital productivity scores. The results indicated that there was a statistically significant difference between EFL (*M* = 89.04, *SD* =14.37) and ESL (*M* = 96.87, *SD* =18.28) groups with respect to their digital nativeness scores in favour of the latter, Welch's *t*(41.20) = 4.583, *p* < .001. However, there was not a significant difference between EFL students (*M*=87.80) and ESL students (*M* = 97.77) with respect to their digital productivity scores, Welch's *t*(37.55) =2.521, *p* < .001. Similarly, as the number of males and females were unequal, again a Welch's test was conducted to compare the mean digital nativeness and digital productivity scores based on gender. Although males (*M* = 93.60, *SD* = 15.56) scored higher than females (*M* = 89.76, SD = 15.71) with respect to digital nativeness, the mean scores did not differ significantly by gender, Welch's *t*(71.85) = 1.591, p= .211. By the same token, there was not a significant difference between males (*M* = 92.71, *SD* = 26.07) and females (*M* = 89.11, *SD* = 24.07) with respect to their digital productivity scores, Welch's *t*(66.31) =.523, *p* =.472.

DISCUSSION AND CONCLUSION

One of the most conspicuous findings from this study is that digital technologies are used more frequently in daily life than in academic settings. This was apparent in the results, as the participants in both groups made top scores in the items for several enjoyment-oriented activities that are common in daily life, such as doing research to learn new things, watching videos/TV, downloading photos, videos, music, watching videos on social media sites and so forth (See Table 2). As the significant correlation between the participants' digital nativeness and digital productivity scores indicated, the participants' higher digital nativeness led to higher productivity. This could cause us to question Margaryan et al.'s (2011) claim that students lead a "double life," which is

characterized with "high use of Internet after school and no (or little) use of Internet at school" (p. 1390). The phrase "double life," according to the results from this study, seems too harsh to be true. However, this finding should be read with caution due to two reasons. First, the correlation mentioned above was moderate and when globally considered, the productivity scores were lower than nativeness scores. Moreover, the aforementioned correlation could be a simple indication of the positive impact that technology use in daily life has on technology use in academic settings rather than higher productivity rates. In other words, even if productivity rates are low, one could obtain a strong correlation between digital nativeness and digital productivity provided that digital natives and digital producers are the same set of people. However, it should be noted that, as the analysis of the survey data indicated, people with higher productivity in academic settings are probably digitally competent users, yet not every digitally competent user is expected to be digitally productive, particularly in academic contexts.

The results also indicated that ESL students were better than EFL students at using digital technologies in daily life. However, they were found to be equal with respect to producing digital content for learning. This indicates that access to broadband Internet digital devices might help students become digital natives in daily life, yet this might not hold true for academic contexts. This finding seems to lend support to those of other researcher (Gurung & Rutledge, 2014; Kennedy & Fox, 2013; Margaryan et al., 2011; Rowlands et al., 2008; Selwyn, 2009).

Another important point is that there seems to be an increase in the rate of the learners who use digital technologies for learning and producing content. A decade ago, for example, Bennet et al. (2008) found that only 21 percent of the students produced their own digital content. This finding indicates that digital technologies keep changing all the time, so it is possible to mention different generations of digital natives and the level of digital nativeness might change from one generation to another within a short time span. This equally goes with producing content for learning.

Those who were born into the Web 2.0 world are referred to as "second generation" or "real" digital natives (Helsper, 2008). Today we might perhaps talk about the third generation as the nature of online technologies keep changing and "semantic web" has long been under discussion. However, although the use of digital tools for production was not as low as that found in Bennet et al.'s (2008) study mentioned above, the breadth of use was an issue in the present study. It seems that the problem lies with the ability to use a plethora of online tools to complete assignments or learn new things autonomously and more importantly produce content by using these tools in academic settings. In the survey, the researcher asked the participants to provide links to the digital content they produced on the Internet, yet very few students in both the EFL and ESL context provided such information, indicating that they were not fully engaged in digital production.

Access does not seem to pose a significant problem today, yet there might be some other factors that are at work such as language proficiency. As a great majority of web pages are in English, low English proficiency students might experience problems, so IT use might be low among them (Ono & Zavodny, 2008). This low use is reflected in productivity as well. Another problem might be that producing content using mobile devices is not practical enough. For example, it usually proves more difficult to write something using a mobile device. However, young people are able to write very fast using a mobile device and today's technologies allow us to use voice-to-text tools in most cases. Despite these, it might prove challenging for students to use some programs or web sites by using a mobile device, and this in turn might undermine their ability to produce content during language learning process.

In short, as the current empirical research findings tell us, digital nativeness, is not a uniform and one-for-all term; digital natives and immigrants stand on the two ends of a continuum. Therefore, the term digital native defies an easy definition since neither age-based nor technology-based perspectives accurately describe the nature of those learners who might be labelled as digital natives. As the results of the present study indicated, nativeness in technologies used in daily life differs from that in academic life, which adds to the complexity of the issue. Another point is that the differences between the developing world and the developed one seem blurred with respect to various technologies that are seen a must in most countries. This could have wider ranging implications as some transformational movements in education could be based on such easily accessible technologies which will widely be available for a great number of world citizens.

Pedagogical Implications

Both EFL and ESL students are to be provided opportunities to use digital technologies to produce content for learning. Unlike claimed in the digital native rhetoric, students need guidance and exposure to digital world (particularly educational hardware and software). Without such guidance, even if students were highly native with respect to ubiquitous technologies, they could be less proficient with respect to production. Students and teachers might benefit from institutional efforts to introduce new technologies into educational contexts. Once exposed to a new digital tool, young learners can easily adapt themselves to the requirements of new practices in digital world. They could also benefit from being assigned enough in-class or homework assignments that entail the use of technology while producing something to learn English.

Students usually use various tools to produce content when they are institutionally required or the teacher asks them to do it as a part of a homework assignment. This implies that asking students to use certain tools might be highly influential in getting them to use such tools. In this respect, the class teacher and the institution has a certain responsibility to help students get acquainted with new digital tools that can be used to produce content for language learning purposes. Then it is wise to ask students to prepare a homework using a plethora of digital tools. However, it is sometimes not enough to ask learners to use them because they may need some technical knowledge to be able to use some of them. Regularly introducing innovative tools into the classroom might help students obtain technical knowledge and raise their awareness of using technology productively rather than receptively in language learning. Yet, a word of caution here is that it is wise to introduce and digital technology into the classroom if it is worth doing so. In other words, bringing every new tool into the classroom encountered in the digital world probably proves confusing, particularly for the students or it might even prove counter-productive.

Limitations of the Study and Further Research

A particular limitation is that although the researcher surveyed students from both the EFL and ESL contexts, the data collected in this way might be biased to certain extent. Another limitation of the study is that the number of EFL and ESL students was far from being equal to each other, largely due to lack of willingness of the latter to participate in the study. Moreover, the digital tools that young learners might be using are obviously not limited to those included in the second section of the survey (the items related with productivity), yet they might be representative of the tools that are used to create content in digital environments. We should note that it is almost impossible to see a skilful digital learner who uses none of these tools but uses another set of tools to create content because most of the items in the second section of the survey were generic in nature, presenting a cover term supported by typical examples. This basically aimed at uncovering the

participants' experiences with similar tools of the same category.

Further research on the same issue could be carried out with larger sample sizes especially with respect to ESL contexts. Samples of students' work produced using digital tools were beyond the scope of this study, so prospective researchers could analyse them with respect to originality, quality, linguistic properties and so on. In addition, factors that affect students' motivation to produce online content for language learning might be investigated in prospective studies.

Conclusion

This study compared and contrasted EFL and ESL learners with respect to their digital nativeness and their digital productivity for language learning. The findings of the study suggest that both EFL and ESL learners exhibit variations with regard to digital nativeness and how frequently they use certain digital tools to produce content for language learning. In an overall sense, neither EFL nor ESL students use digital productivity tools at desirable levels. It seems that younger generations contribute little to the development of what is there on the Internet despite the ease at which Internet user can produce content. Lack of enough instructional guidance seems to be influential in the learners' inability to use most tools that are surveyed in this study. Another possible reason for little production for some tools is that such tools are not trendy in the digital world. Raising students' and instructors' awareness might be highly influential in getting younger generation to use such digital tools to produce content.

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