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Digital technology use by the students and english teachers and self-directed language learning

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Abstract

The digital era is a new challenge for teachers. While children get acquainted with the digital technology before the age of six, teachers, who have encountered with the digital world at a later time in their lives, struggle with it. Self-directed learning, which is crucial for lifelong learning, can be enhanced by the use technology particularly beyond the classroom settings. The aim of this study was to examine the difference between the perceptions of 5-8 graders in low and high income groups about their technology use skills and their English teachers' technology use skills. It also tested the correlation between their perceptions of their self-directed language learning behaviors and their technology use skills as well as their English teachers' technology use skills. The population of the study consisted of 145 students. Inter group comparisons and correlational research methods were adopted. The results indicated that the low and high income students' perceptions did not differ regarding their own technology use skills, and similarly their English teachers' technology use skills. There was no correlation between the perceptions of the low/high income group combination regarding their technology use skills and their English teachers' technology use skills. And lastly, their perceptions on their self-directed learning behaviors did not correlate with their perceptions on their technology use skills and their English teachers' technology use skills. The educational implications of these results were discussed and suggestions were put forward so as to produce more effective learning environments.

Keywords: Digital technology, self-directed learning, ELT, English teacher

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1. Introduction

Through teaching and learning processes, the role of teacher is not the only improving aspect. Recent improvements in computer technology have induced the use of digital technology in many areas of education including English Language Teaching (ELT) (Oz, 2014) - therefore digital technology has an essential role for foreign language instruction (Oz, 2015; Toyoda & Harrison, 2002). As Pettis (2002) points out, improving her/his teaching competence –composed of principles, knowledge and skills- is the teacher's professional responsibility. This motto reveals the need of today's language professionals for improving their digital technology skills. On the other hand this changing role by the force of technology may become a challenge for the teachers. Prensky's term (as cited in Walker & White, 2013) 'digital immigrants' is useful to explain these difficulties: as most of today's teachers were not born into a digital world, they have difficulty practicing technology; their students, conversely, who are likely to be 'digital natives', were born into and grown up with technology. This distinction is likely to have an undesired outcome, that is technological competence of the teachers may stay behind their students' competence. Eventually, this may affect the students' perceptions of their teacher's competence. Hargittai (2002) states that (as cited in Dornish, 2013) regarding access to information through technology, skills of young people are generally better than skills of older people. Dornish (2013) adopts this statement to education field and suggest that it is very likely that some students have better skills and comfort in technology than their teachers; and as a result, this comfort may lead to a perception of having higher level of technology skills compared to their teachers' skills.

Becker (1999) defines three kinds of teachers who are expected have high levels of internet (in broader terms it can be taken as digital technology) use: '(1) younger teachers, (2) teachers who are leaders in their profession, and (3) teachers with constructivist pedagogies. Although taking into consideration age as a factor influencing technology use, he states that the age cannot have an influence alone, in that, significance of it may come from the comfort of the younger in technology. This younger/older teacher distinction is in accordance with the mentioned result that students - youngers- are likely to have higher levels of technology skills compared to their teachers.

There is a link between technology competence and self-directed learning. Technology enables students to have technology competence, and technology enhanced instruction supports student-centered classrooms in which discovery learning and autonomous learners arise (Erben, Ban, & Castañeda, 2009). As a result, extended knowledge of digital technology and pedagogy as well as the ability to evaluate digital technology activities become basic requirements of today's foreign language professionals, and technology enables those professionals to understand the strategies that individual learners apply when they are learning through technology (Fotos & Browne, 2004).

Languages are complex parts of human nature and it is very grueling to learn a foreign language. Knowles (as cited in Dickinson, 1995) makes a distinction between learners by classifying them as proactive learners and reactive learners. According to him, proactive learners are the learners who take the responsibility as well as the initiative, and reactive learners are the learners who rely on their teachers to learn something. He concludes this distinction by pointing out proactive learners learn more and better than reactive learners. Victori and Lockhart (1995) support the view of proactive learners learn more effectively by stating that when the learner perceives her/himself as the initiators, boosters or accelerators of their own learning, they are likely to become autonomous learners and to be successful by using their potential in every situation. Autonomous learners need support from their teacher only when it is very necessary as they know how to control their learning process and learn not only from books but also all kinds of sources like radio, TV, corresponding courses (Moore, 1972), and for today internet without doubt.

Autonomous learning is related closely with self-regulated learning and self-directed learning. When defining self-regulated learning, Zimmerman (2007) mentions the term 'self-oriented feedback loop' and counts the terms self-esteem, self-concepts, self-actualization for covert descriptions; self-recording, self-reinforcement, and self-controlling for overt descriptions. Paris and Paris (2001) examine self-directed learning under the broader term 'self-regulated learning' which requires learner

autonomy to monitor, direct, and regulate actions. Self-directed learning is defined by Garisson (1997) as "an approach where learners are motivated to assume personal responsibility and collaborative control of the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes." From these definitions, it is clear that autonomous learning is an umbrella term that covers self-regulated and self-directed learning. In his clarification of autonomous learning and self-directed learning, Nunan (2015) states that autonomous learning may take place inside and/or outside classroom, while self-directed learning usually occurs outside the classroom where the students take responsibility of their own learning. On account of the notion that self-directed learning is the 'outside classroom dimension' of autonomous learning, social learning is a part of self-directed learning. Since class time is so limited to make language learning happen, it is essential to make use of the opportunities available beyond classroom. Yet, authenticity of the social environment provides more practice which leads to easier adaptation to unfamiliar experiences. This is what makes self-directed learning inevitable for foreign language learners.

Self-directed learning may give the impression that it is a process in which learners act independently. Yet it should be kept in mind that learning cannot take place without other associations (Demirtas & Sert, 2010). In self-directed learning, students are expected to reach and acquire the knowledge independently, at least to some extent. Nevertheless, a learner may become independent in a certain situation with the support provided by the teacher, though it does not guarantee that the same learner will fulfill the requirements for self-directed learning in different situations (Ryan, 1993). Self-directed learning may outwardly connected with independent learning, yet as Little (1995) delineates autonomous learning occurs when the learner associates the knowledge acquired in the classroom with 'what he or she has already become as a result of developmental and experiential learning'. By this definition, it is clear that self-directed learning requires classroom context in which learner autonomy is promoted by the teacher. Accordingly, the learners will be able to effectively exploit authentic resources available beyond the classroom which is the essence of self-directed learning. The need for teacher promotion for learner autonomy has changed the traditional roles of teachers, and for ELT context the new concern is how teachers can support the students' learning processes (Yang, 1998). As a matter of fact, progressivism of Dewey, cognitive constructivism of Piaget and Bruner, and social constructivism of Vygotsky all assert the importance of social learning (Fosnot & Perry, 1996; Kim, 2001; Liu & Matthews, 2005; Philips, 1995). Constructivist and socio-constructivist theories also highlight the active learning environments in which knowledge is constructed.

2. Aim of the study

This study aims to make contributions to the literature by investigating perceptions of the 5-8 graders in in low and high income groups about their use of technology for variety of purposes and their English teachers' use of technology. It also tests the correlation between their perceptions of their 'self-directed learning behaviors' and of effectiveness of their technology use as well as their English teachers' technology use. To reach the aforementioned aims, the questions below are addressed:

- Is there a difference between the perceptions of the 5-8 graders in low and high income groups regarding their use of technology?
- Is there a difference between the perceptions of the 5-8 graders in low and high income groups regarding their English teachers' use of technology?
- Is there a correlation between the perceptions of the 5-8 graders in low/high income group combination regarding their use of technology and their English teachers' use of technology?
- Is there a correlation between the perceptions of the 5-8 graders in low/high income group combination regarding their self-directed learning behaviors and their use of technology?

- Is there a correlation between the perceptions of the 5-8 graders in low/high income group combination regarding their self-directed learning behaviors and their English teachers' use of technology?

3. Methods

Inter group comparisons and correlational research methods were adopted in this study. The surveys that explore perceptions of the students in low and high income groups about their use of technology and their English teachers' use of technology were used. The processes explained below were used to develop the scales (Appendix A). First of all the related concepts were defined. Open ended questions about perceived use of technology were directed to 10 students. After analyzing their responses and reviewing the related literature, items of the surveys were pooled. The items in the surveys were mostly influenced by the surveys developed by Dornish (2013). To check whether the items in the draft forms were compatible with the purpose of the study, three field experts and six participants were consulted. Their comprehensibility and applicability were also checked in the same fashion. The surveys were updated according to the recommendations given by three experts. Firstly, the surveys were piloted and then revised accordingly as suitable and given their final forms. Exploratory factor analyses were conducted to provide reliability and validity of the surveys. The percentages of the explained variances were found to be sufficient (41.2%; 40%), and the surveys were one-dimensional. The items in the survey measuring the self-directed learning (Appendix B) were taken from the scale developed by Demirtas & Sert (2010, 166-167) was also factor analyzed. The percentage of total explained variance was 64.3. The rating scales used in all of the surveys had five-points from not applicable (0:NA) 'strongly disagree' (1) to 'strongly agree' (4).

The study was conducted at two elementary schools in Ankara. Among these schools, there was a private elementary school in which most of the children were from high income families. The other was a public elementary school, in which children of low-income families attended. The study population consisted of 145 students, 75-70 students from each group respectively.

4. Results

The difference between low income and high income groups regarding their use of technology

Table 1. Group Statistics

	VAR00012	N	Mean	Std. Deviation	Std. Error Mean
mean	1,00	70	3,2757	,44965	,05374
	2,00	75	3,3033	,74210	,08569

Table 2. Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed mean	3,129	,079	-,268	143	,789	-,02754	,10279	-,23073	,17564
Equal variances not assumed			-,272	123,220	,786	-,02754	,10115	-,22776	,17267

Results related to the difference between the perceptions of the 5-8th graders in low income groups (M=3.28, SD=.45) and high income groups (M=3.30, SD=.74) regarding their use of technology indicated that there was no statistically significant difference between the two groups, t(143)=.27, p >.05, two tails.

The difference between low income and high income groups regarding their English teachers' use of technology,

Table 3. Group Statistics

	VAR00012	N	Mean	Std. Deviation	Std. Error Mean
teachers mean	1,00	70	3,0127	,81761	,09772
	2,00	75	2,4619	1,06565	,12305

Table 4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Teachers mean	Equal variances assumed	4,309	,040	3,474	143	,001	,55077	,15855	,23736	,86418
	Equal variances not assumed			3,505	137,936	,001	,55077	,15713	,24007	,86148

Results related to the difference between the perceptions of the 5-8th graders in low income groups (M=3.01, SD=.82) and high income groups (M=2.46, SD=1.07) regarding their English teachers' use of technology indicated that there was statistically significant mean difference between two groups, t(143)=3.47, p=.001, two tails.

The correlation between the perceptions of the 5-8 graders regarding their use of technology and their English teachers' use of technology

Table 5. Correlations

		mean	teachers mean
mean	Pearson Correlation	1	-,119
	Sig. (2-tailed)		,154
	N	145	145
teachers mean	Pearson Correlation	-,119	1
	Sig. (2-tailed)	,154	
	N	145	14500

Table 6. Correlations

			mean	teachers mean
Spearman's rho	mean	Correlation Coefficient	1,000	-,157
		Sig. (2-tailed)	.	,059
		N	145	145
	teachers mean	Correlation Coefficient	-,157	1,000
		Sig. (2-tailed)	,059	.
		N	145	145

The correlation for the data revealed that the scores of the students' perceptions of their technology use and their English teachers' technology use were not significantly related, r= -.16, n=145, p >.05, two tails.

The correlation between the scores of the self-directed learning scale and their technology use scale

Table 7. Correlations

		self-directed	mean
self-directed	Pearson Correlation	1	-,149
	Sig. (2-tailed)		,074
	N	145	145
mean	Pearson Correlation	-,149	1
	Sig. (2-tailed)	,074	
	N	145	145

Table 8. Correlations

			mean	teachers mean
Spearman's rho	mean	Correlation Coefficient	1,000	-,157
		Sig. (2-tailed)	.	,059
		N	145	145
	teachers mean	Correlation Coefficient	-,157	1,000
		Sig. (2-tailed)	,059	.
		N	145	145

The correlation for the data revealed that the scores of the students' perceptions of their use of technology and their self-directed learning were not significantly related, r= -.12, n=145, p >.05, two tails.

The correlation between the scores of the self-directed learning scale and their English teachers' technology use scale

Table 9. Correlations

		mean	teachers mean
mean	Pearson Correlation	1	-,119
	Sig. (2-tailed)		,154
	N	145	145
teachers mean	Pearson Correlation	-,119	1
	Sig. (2-tailed)	,154	
	N	145	145

Table 10. Correlations

			mean	teachers mean
Spearman's rho	mean	Correlation Coefficient	1,000	-,157
		Sig. (2-tailed)	.	,059
		N	145	145
	teachers mean	Correlation Coefficient	-,157	1,000
		Sig. (2-tailed)	,059	.
		N	145	145

The correlation for the data revealed that the scores of the students' self –directed learning and their English teachers' tech use were not significantly related, r= +.10, n=145, p >.05, two tails.

5. Conclusion and Discussion

The result of the first question of the study whether a digital divide exists between low and high income students indicates that social stratum of the students has made no difference on their perceptions of their technology use skills. This result can be explained in light of recent technological and educational developments in the Turkish context. Fatih Project aiming at providing equal opportunities for students at any level of education from preschool to secondary school (ERI, 2013) might have an impact on eradicating the divide. This Project has made technology available for about 17 million students mostly from low income stratum by distributing tablet computers for educational

purposes at national level (ERI, 2013). Turkey has 47.339.020 Facebook, 35.359.000 internet, 28.566.650 twitter, 12.242.850 instagram, 23.669.510 Google users (Onedio, 2015) most of whom are young people (ERI, 2013). They use technology for variety of purposes such as life styles, music, news and so forth (Dogramaci & Radcliffe, 2015). Hence, it is important to conduct studies with larger groups to reveal to what extend they use technologies for educational purposes, which can make the efforts meaningful.

The result of the second question also explains that perceptions of low and high income groups regarding their English teachers' use of technology does not differ significantly. This result is not surprising since it is evident that the digital technology is prevalent in all social strata in the Turkish context, in that, they evaluate their English teachers from a similar point of view. Nevertheless, this result also require more studies to take more thoughtful decisions so as to make English courses more effective.

The perceptions of the students in low/high income group combination regarding their technology use skills and their English teachers' technology use skills do not correlate with each other. It will not be incorrect to interpret that English teachers are far from positively affecting their students' technology use although "Turkey is on the verge of a media revolution" (MU, 2013). Undoubtedly, more studies are required to comprehend all the reasons behind this result. Nevertheless, the most prominent reason might be that it is more problematic for adults to adapt themselves to the digital period as discussed in the introduction part above.

The correlation for the data revealed that the scores of the students' perceptions of their use of technology skills and their self-directed learning behaviors do not interact with each other. In other words, they neither contribute nor counteract one another. And it is the same for the sdata about English teachers' technology use skills. These are thought-provoking results since they seemingly conflict with the idea that the new technologies have profound effects on self-directed learning in the ELT classroom. Furthermore, Warschauer & Shetzer (2013) emphasizes that "flexible, autonomous, lifelong learning is essential to success in the age of information" (2003; cited in Hayta and Yaprak, 61). Mocker (1982) examines self-directed learning under lifelong learning, and states that in self-directed learning, learner is the one who makes all decisions by controlling both the objectives and means of processes. However, it is worth considering about what makes digital technology beneficial for self-directed language learning. It brings to mind the question whether to use it effortlessly, purposefully or both. It is true that language learning is initiated in the classroom and actualized beyond the classroom in real life situations mostly through the technology use nowadays. This is the English teacher who is responsible for guiding their students to monitor their learning processes both within and beyond the classroom. From this perspective, widely use of technology by students does not make any sense without any purposes to monitor their English learning for a lifetime.

Recommendations

The issue about how to use the digital technology successfully for specific educational purposes such as language learning in the lifelong learning process requires more investigation. This small group study has certain limitations. First of all, the findings of it cannot be generalized, and the validity of the findings pertains to the groups under investigation. On the other hand, it has the potential to set forward new research questions. For example, more comprehensive qualitative, quantitative and/or mixed studies can be conducted to explore the effects of digital technology on self-directed language language learning and how to stimulate self-directed language learning behaviors through digital technology. In this regard, the English teacher have liability for using technology in the learning environment purposefully and effectively. Conducting research to explore the variables affecting English teachers' technology use skills positively or negatively gains importance in terms of effective use of resources. Likewise, technology use skills of teachers of other braches also deserve investigation.

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Appendix A. Student perceptions about their own/their teachers' technology use skills

1. My teacher/I can use multimedia programs effortlessly (for example, media players, Adobe Creative Cloud, etc.).
2. My teacher/I can use computer communication programs effortlessly (e-mail, instant messenger).
3. My teacher/I can use video programs effortlessly (YouTube, etc.)
4. My teacher/I can use social media effortlessly (blogs, Facebook, twitter, etc.).
5. My teacher/I can use necessary databases effortlessly (for example, English grammar databases; English Language Learners databases, etc.)
6. My teacher/I can use spreadsheet programs effortlessly (for example, Microsoft excel, Apache Open Office Calc., etc.).
7. My teacher/I can use the Internet to gather information when necessary.
8. My teacher/I can use presentation software effortlessly.
9. My teacher/I can use technology to work with others, and to communicate with others.
10. My teacher/I can help my friends solve their technology related problems.

Appendix B. Self-Directed English Language learning Perception Scale

1. "I read books, periodicals, the internet etc. in English to improve my English."
2. "I pay attention to images while watching a TV programme or movie in English in order to better grasp it."
3. "I take notes of new words, word groups, idioms and structures while watching."
4. "I take note of new words, word groups, idioms and structures, while reading."
5. "I listen to English broadcasting in radio, internet, etc."
6. "I try to find tools and materials that well matches with my level in order to better learn English."
7. "If possible, I listen to the same English listening material a few times in order to increase my understanding of it."
8. "I try to understand English song lyrics while listening to them."
9. "I try to use every opportunity to utter each new word or structure that I have heard."
10. "I try to use every opportunity to write down each new word or structure that I have heard."
11. "I try to use every opportunity to utter each new word or structure that I have come across, while watching."
12. "I try to guess the meaning of unfamiliar words in the text without resorting to the dictionary."
13. "I try to make use of every opportunity to involve a new word or structure in speech, which I came across while reading."
14. "In order to promote my vocabulary knowledge, I regularly go through the text that I have read before."

15. "I try to make use of every opportunity to involve new words and structures in writing."
16. "Before starting to read, I first try to make predictions about the topic, by looking at the titles and pictures." (Demirtas & Sert, 2010).

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