

Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates

Oguzhan Atabek*, Department of Computer Education and Instructional Technology, Akdeniz University, 07070 Antalya, Turkey

Suggested Citation:

Atabek, O. (2020). Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates. *World Journal on Educational Technology: Current Issues*. 12(1), 001–013. <https://doi.org/10.18844/wjet.v12i1.4433>

Received August 15, 2019; revised from October 20, 2019; accepted from January 1, 2020.

Selection and peer review under responsibility of Prof. Dr. Servet Bayram, Yeditepe University, Turkey.

©2020 United World Center of Research Innovation and Publication. All rights reserved.

Abstract

The purpose of the research was to investigate the relationships between alternative certification candidates' attitudes towards using technology in education and their use of social networking services (SNSs). Participants were 156 pre-service teachers enrolled in the alternative certification program at a public university in Turkey (N = 156). The research was designed as a correlational study. Data were collected by Attitude towards Using Technology in Education Scale in addition to demographics form including questions about SNS usage. Data were analysed by Mann–Whitney U test and Spearman's rank-order correlation coefficient. Alternative certification candidates had strong attitudes towards improving themselves in using technology in education. However, their attitudes towards using educational technology in instructional processes and classroom management were weaker. Alternative certification candidates were observed to be close to low-risk class of problematic social media use indicating negative emotional states. The results indicated that instructional programs that participants engaged in during their undergraduate studies seem to have an influence on developing familiarity with and competence in technology.

Keywords: Alternative certification, attitude, social networking service, teacher training, technology integration.

* ADDRESS FOR CORRESPONDENCE: **Oguzhan Atabek**, Department of Computer Education and Instructional Technology, Akdeniz University, 07070 Antalya, Turkey. E-mail address: oguzhanatabek@gmail.com / Tel.: +90-242-227-4400 Ext. No. 4634

1. Introduction

A considerable amount of the financial resources allocated for education is directed in educational technology (Adkins, 2018; Shulman, 2018). At the same time, it is considered as the field of innovation that most hopes are set on. Technology is argued to be one of the most effective factors in school improvement 'not only for the purpose of teaching and learning but also for administrative use' (Ghavifekr, Afshari, Siraj & Seger, 2013, p. 1344). However, the results of the integration of technology into education are not proportional to the investments made in educational technology. Large investments produce modest results or are inconclusive (Atabek, 2019). Despite substantial increases in spending and many reform efforts, in most of the school systems, performance has barely improved in decades (Barber & Mourshed, 2007). Most of the teachers struggle to use (Rebora, 2016) or misuse (Fox, 2018; Glendinning, 2018; Hyndman, 2018) educational technology. Moreover, Guzey and Roehrig (2012) reported that most of the teachers do not use educational technology in meaningful ways. Educators seem to be facing significant barriers to integration of technology (Al-Senaidi, Lin & Poirot, 2009; Johnson, Jacovina, Russell & Soto, 2016). Ertmer (1999) classified the barriers to technology integration into two types: first-order and second-order barriers. First-order barriers are extrinsic to teachers such as inadequacies in resources, time, training or support, and second-order barriers are intrinsic to teachers such as attitudes towards using technology in education (Beri & Sharma, 2019; Ertmer et al., 2003; Johnson et al., 2016). Second-order barriers are considered to pose a greater challenge (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur & Sendurur, 2012). They also create more difficulties than the first-order ones (Hew & Brush, 2007) and are more difficult to overcome (Johnson et al., 2016). There is a need for research to examine barriers to technology integration in greater detail (Hew & Brush, 2007).

On the other hand, the number of teacher certification programs alternative to the traditional programs provided by universities has been increasing all over the world to remedy the teacher shortages (Duncan, Cannon & Kitchel, 2013). Wise (1994) defines alternative certification as a process in which government licenses a person who has not received a bachelor's or equivalent degree in the field of education. McFarland et al. (2018) reported that, in 2015, approximately 18% of public school teachers had entered teaching through an alternative certification program. Glass (2008) estimated that the chances that a private secondary school teacher is not certified increased to 50% from 25%. Roberts and Dyer (2004) contend that current trends indicate the existence of relaxed certification requirements that allow mid-career people, without proper teacher training, to enter teaching. Hence, there seems to be an increase in the number of in-service teachers who earned their teaching credentials through an alternative certification program, even though 60% of alternative certification teachers reported to leave after five years in the United Kingdom (Cassen, McNally & Vignoles, 2015). However, Roberts and Dyer (2004) argued that there is a lack of knowledge about alternatively certified teachers. Schonfeld and Feinman (2012) argued that it is not enough to educate teacher candidates on how to effectively deliver instruction, rather, it is also important to pay attention to the unique difficulties that alternatively certified teachers face.

In Turkey, alternative certification is carried out by 'Pedagogical Formation Education Certificate Programs' (PFCEP) provided by education faculties of universities. In this arrangement, the faculties of education of universities carry out both traditional and alternative routes of the teacher certification process. Most of the research investigating teacher training, teacher candidates or teachers are conducted in traditional certification contexts. Studies on PFCEP, which is the secondary teacher training resource of Turkey, remain at a more limited level. 'The quality of an education system cannot exceed the quality of its teachers' (Barber & Mourshed, 2007, p. 11). To succeed in integrating technology into education for improving the quality of the educational system, more insight into alternative certification candidates may be beneficial. It should also be noted that alternatively certified and traditionally certified teachers do not have the same in-service needs (Roberts & Dyer, 2004). 'Knowledge of the principal stressors and difficulties that alternatively certified teachers experience is also necessary for building better support systems for these teachers' (Schonfeld &

Feinman, 2012, p. 217). Therefore, there is a need for research that will provide insight into the second-order barriers to technology integration, such as attitude towards using technology in education, especially in alternative certification contexts such as PFCEP.

Attitude is a variable psychological construct that can direct individuals' behaviour. Fishbein and Ajzen (1975) defined attitude as an individual's 'degree of evaluative affect towards the target behavior' (p. 216). Attitude towards using technology is reported to be a barrier to technology integration for teachers (Beri & Sharma, 2019; Hew & Brush, 2007; Unal, Yamac & Uzun, 2017). Previous research indicate that attitude towards using technology is the strongest factor influencing the intention to use technology (Chau & Hu, 2002; Cheung & Vogel, 2013; Davis, 1993; Louho, Kallioja & Oittinen, 2006; Sanchez-Mena, Marti-Parreno & Aldas-Manzano, 2019; Wu & Chen, 2017). Kim and Keller (2011) reported that a proper attitude towards using technology in education among teachers is necessary to produce non-conscious technology integration. Moreover, attitude towards using technology in education is also observed to be correlated with self-efficacy for using educational technology with respect to standards for teachers set by the International Society for Technology in Education (Atabek & Burak, 2019). Beri and Sharma (2019) reported that Teacher's attitudes contribute to assimilation of technologies. Moreover, Almeida and Sobral (2009) stated that even manager's attitude towards technology has an influence over adoption of technology. Previous research on pre-service teachers indicate that attitudes towards educational technology do not differ according to age (Marti-Parreno, Segui-Mas & Segui-Mas, 2016), gender (Alkan & Erdem, 2010; Bayrakci, Tozkoparan & Durmus, 2014; Kurtaslan, 2013; Marti-Parreno et al., 2016), department (Alkan & Erdem, 2010; Bayrakci et al., 2014) or social media use (Bayrakci et al., 2014).

When it comes to investigating attitude towards using technology in education, it is crucial to decide which technology to deal with in relation to the attitude. Educators have always been early adopters in using new technologies (Ractham & Firpo, 2011). Web 2.0 technologies such as social networking services (SNS) are the new technologies of this era (Buzetto-More, 2012). 'SNS are significant players in the Web 2.0 environment, transforming communication practices, opening new spaces and processes of socialisation and impacting upon traditional social structures' (Collin, Rahilly, Richardson & Third, 2011, p. 7). Atabek (2013) reported that attitude is one of the strongest predictors of adoption and frequent use of SNS. SNS are the most popular mass communication media (Molodetska, 2016), the most accessed content by the international students (Feno Heriniaina, 2016), the most used applications (Chisenga & Chande-Mallya, 2012) and the most prominent type of virtual community (Shravanthi & Lavanya, 2012). Mashrah (2017) reported that SNS are the best place where the learners can share their experiences and knowledge and exchange their ideas collaboratively. Many educational researchers believe that Web 2.0 has vast potential to shape the way people learn (Hung & Yuen, 2010). Ractham and Firpo (2011) stated that SNS have great potential for expanding teaching and learning beyond the classroom. Collin et al. (2011) reported that even though 'there is substantial evidence of the benefits associated with SNS use' impact of SNS 'has been largely neglected in public debate' (p. 7). They reported that the use of SNS can support the development of media literacy, complement formal educational activities, enhance learning outcomes, facilitate learning and skill development outside formal learning environments, contribute to the strengthening and development of social relationships, contribute to the strengthening and development of new interpersonal relationships and facilitate a sense of connectedness, community and belonging.

Additionally, other researchers also reported that the use of SNS for educational purposes promote community of practice (Hung & Yuen, 2010), facilitate development of skills valued in the modern workplace (Jenkins, 2009), foster creativity and innovation (Notley & Tacchi, 2005), facilitate a sense of connectedness and classroom community (Hung & Yuen, 2010) and strengthens and builds communities (Montgomery, 2009). Moreover, Greenhow and Robelia (2009) reported that SNS facilitate emotional support, help maintain relationships and provide a platform for self-presentation. Finally, SNS can enhance knowledge construction, increase student interest and engagement and foster collaborative learning (Shih, 2011). Hence, investigating the relationship of the use of SNS with the attitude towards using technology in education may contribute to foster the benefits of using SNS

for educational purposes. On the other hand, research gap regarding alternative certification pre-service teachers (Roberts & Dyer, 2004), attitude towards using educational technology (Chappelear, 2019; Hew & Brush, 2007; Kisicki, 2012), use of SNS (Collin et al., 2011) and relationship between use of SNS and attitude (Atabek, 2013; Cleveland & Ellis, 2015) have been reported. Therefore, the purpose of this research was to investigate the relationship of PFCEP alternative certification candidates' attitudes towards using technology in education with their SNS usage.

2. Method

The study was designed as a correlational research. Throughout the study, the 'Ethical Principles of Psychologists and Code of Conduct' have been followed (American Psychological Association, 2002).

2.1. Participants

The participants were 156 pre-service teachers enrolled in the alternative certification program (PFCEP) at a public university in the southwestern part of Turkey ($N = 156$). Participants were determined through convenience sampling at the university where the researcher is also a member of the faculty. All of the 120 sports sciences and 153 foreign language graduates were invited to participate in the study. Fifty-nine (49.2%) of all sports sciences graduates and 97 (63.4%) of all foreign language graduates participated in the research. There were 79 (50.6%) female and 77 (49.4%) male students. Participants' ages ranged between 20 and 32 ($\bar{x} = 22.76$). Of all participants, 59 (37.8%) were sports sciences and 97 (62.2%) were foreign language graduates. Only consenting individuals participated in the research. The threat to validity posed by convenience sampling was tried to be reduced by collecting data from a considerable size (56.3%) of the accessible population. On the other hand, Wallen and Fraenkel (2001) note that in convenience sampling, 'the researcher is obligated to describe the sample as thoroughly as possible with respect to variables pertinent to the study. Sometimes it is possible to show that the sample is very similar to the intended population in certain ways. In this case, the researcher can argue that the sample is representative' (p. 139). To describe the sample as clearly as possible, demographic questions were used.

2.2. Data collection tool

The attitude towards using technology in education scale (ATUTIES) was developed by Ozturk (2006). It is a 5-point Likert-type scale consisting of 39 items and three dimensions (1 = Strongly Disagree, 5 = Strongly Agree). The sub-dimensions (AT1 to AT3) and Cronbach's α values of the scale are as follows: reflection of using technology in education on instructional processes ($\alpha = 0.90$); improving oneself in using technology in education ($\alpha = 0.90$) and using technology in education and classroom management ($\alpha = 0.89$). The scale includes items such as 'Use of tools and equipment increases students' interest in the course', 'I have discussions with my teacher friends to increase my knowledge of technology' and 'I lose control of the class when using tools and equipment during the lesson', respective to the factors. SNS usage of participants was measured by the number of friends on favourite SNS, time spent on SNS in a day and number of SNS used.

2.3. Procedure

A paper-and-pencil instrument was prepared by comprising ATUTIES and a demographics form. Permission required for conducting the research was received from institutional authorities. Data were collected in the classrooms during the final week of the PFCEP in 2018. Data collection process took one week and collected data were analysed by statistical techniques.

2.4. Data analysis

Initially, the completed survey instruments were transferred to a personal computer. Statistical analyses were performed using the IBM SPSS Statistics computer program (IBM SPSS Statistics version 25). Data were analysed by Cronbach's α estimate, Mann–Whitney U test and Spearman's ρ . Since, Ozturk (2006) had reported a Cronbach's α estimate only for the whole scale, Cronbach's α estimates were calculated for all three of the factors to test their internal consistencies. Mann–Whitney U test and Spearman's ρ were considered as appropriate for the analyses because the sum of factor scores was normally distributed.

3. Findings

Descriptive results regarding ATUTIES, age of respondent, time spent on SNS in a day and number of friends on favourite SNS are illustrated in Table 1. SNS membership is depicted in Table 2.

Table 1. Descriptive results

	Min	Max	\bar{x}	Median	SD
Age	20	32	22.76	22.00	2.20
Time spent on SNS in a day	13	960	218.17	180.00	169.86
Number of friends on favourite SNS	0	13,000	528.11	304.00	1,197.66
Number of SNS used	0	9	4.44	4	1.782
ATUTIES Factors					
Reflection of using technology in education on instructional processes	1	4	1.94	1.87	0.59
Improving oneself in using technology in education	1	5	3.78	3.79	0.69
Using technology in education and classroom management	1	5	2.11	2.00	0.85

Note: Min, Max, and SD refer to Minimum, Maximum and Standard Deviation, respectively.

Descriptive results indicated that attitude towards improving oneself in using technology in education was quite strong. Attitude towards using technology in education and classroom management was the second highest factor. Attitude towards reflection of using technology in education on instructional processes was the weakest mean attitude score. On average, candidates were observed to have profiles on 4 SNS and spend almost 4 hours on SNS, with more than 500 friends. Most popular SNS such as Facebook and Twitter were observed to not be among the most used SNS. WhatsApp and Instagram were observed as the most frequently used SNS.

Table 2. SNS membership information

SNS	Frequency	Percentage
WhatsApp	149	95.51
Instagram	139	89.10
YouTube	113	72.44
Facebook	103	66.03
Twitter	69	44.23
SnapChat	37	23.72
Pinterest	26	16.67
Tumblr	16	10.26
Reddit	13	8.33
LinkedIn	9	5.77
Tinder	4	2.56
Flickr	2	1.28
Telegram	2	1.28

3.1. Attitude and personal variables

The findings revealed that reflection of using technology in education on instructional processes, improving oneself in using technology in education and using technology in education and classroom management did not show a significant difference according to age or sex of the respondents ($p > 0.05$) as represented in Table 3. However, Mann–Whitney U tests comparing the department of respondents indicated that all three ATUTIES factors differed significantly between sports sciences graduates and foreign language graduates. Reflection of using technology in education on instructional processes was significantly higher for sports sciences graduates ($\bar{x} = 98.68$) than for foreign language graduates ($\bar{x} = 66.23$), $U = 1,671$, $p = 0.000$. Using technology in education and classroom management was also significantly higher for sports sciences graduates ($\bar{x} = 97.09$) than for foreign language graduates ($\bar{x} = 67.19$), $U = 1,764$, $p = 0.000$. On the other hand, improving oneself in using technology in education was significantly greater for foreign language graduates ($\bar{x} = 86.52$) than for sports sciences graduates ($\bar{x} = 65.32$), $U = 2,084$, $p = 0.004$.

Table 3. Relationships of ATUTIES factors with age, sex and department difference

	Age		Sex		Department	
	ρ	Sig.	U	Sig.	U	Sig.
Reflection of using technology in education on instructional processes	0.086	0.39	2,788	0.36	1,671	0.000***
Improving oneself in using technology in education	-0.135	0.18	2,823	0.43	2,084	0.004**
Using technology in education and classroom management	0.003	0.97	2,777	0.34	1,764	0.000***

Note: ** $p < 0.01$, *** $p < 0.001$. U , ρ and 'Sig.' refer to Mann–Whitney U, Spearman's ρ and two-tailed significance, respectively.

3.2. Attitude and SNS usage

Results indicated that using technology in education and classroom management did not correlate with any of the SNS usage variables ($p > 0.05$). Time spent on SNS in a day did not correlate with any of the ATUTIES factors ($p > 0.05$), either. However, Spearman's ρ calculations revealed that reflection of using technology in education on instructional processes had a significant positive relationship with a number of friends on favourite SNS ($\rho = 0.219$, $p = 0.007$). Similarly, improving oneself in using technology in education had a significant positive relationship with a number of SNS used ($\rho = 0.230$, $p = 0.004$). Calculations with Spearman's ρ test are illustrated in Table 4.

Table 4. Relationships of ATUTIES factors with SNS usage variables

	Time Spent on SNSs in a Day		Number of Friends on Favourite SNS		Number of SNSs used	
	ρ	Sig.	ρ	Sig.	ρ	Sig.
Reflection of using technology in education on instructional processes	-0.061	0.455	0.219	0.007**	-0.129	0.107
Improving oneself in using technology in education	0.153	0.060	-0.030	0.712	0.230	0.004**
Using technology in education and classroom management	-0.030	0.715	0.128	0.118	-0.095	0.237

Note: ** $p < 0.01$. ρ and 'Sig.' refer to Spearman's ρ and two-tailed significance, respectively.

3.3. Department and SNS usage

The findings revealed that time spent on SNS in a day did not show a significant difference according to the department of the respondents ($p > 0.05$) as represented in Table 5. However, Mann–Whitney U tests comparing the department of respondents indicated that the number of friends on favourite SNS was significantly higher for sports sciences graduates ($\bar{x} = 95.44$) than for foreign

language graduates ($\bar{x} = 63.62$), $U = 1,515.5$, $p = 0.000$. On the other hand, foreign language graduates ($\bar{x} = 85.60$) were observed to use a significantly higher number of SNS compared to sports sciences graduates ($\bar{x} = 66.83$), $U = 2,173$, $p = 0.01$.

Table 5. SNS usage according to the department of the respondents

	Department		Mean Ranks	
	<i>U</i>	Sig.	Sports sciences	Foreign language
Number of friends on favourite SNS	1,515.5	0.000***	95.44	63.62
Time spent on SNS in a day	2,491	0.449	72.98	78.55
Number of SNS used	2,173	0.01**	66.83	85.60

Note: ** $p < 0.01$, *** $p < 0.001$. *U* and 'Sig.' refer to Mann–Whitney *U* and two-tailed significance, respectively.

3.4. Attitude and use or non-use of SNS

Another set of Mann–Whitney *U* tests were conducted to see if ATUTIES factors differed according to use or non-use of SNS. Tests revealed that reflection of using technology in education on instructional and using technology in education and classroom management did not differ according to use or non-use of SNS ($p > 0.05$). However, analyses revealed that candidates who use SNS ($\bar{x} = 80.44$) had a significantly more positive attitude towards improving oneself in using technology in education compared to the ones who do not use SNS ($\bar{x} = 42.63$), $U = 305$, $p = 0.021$. It should be noted that there were only eight candidates who did not use SNS compared to 148 of those who use. Therefore, this finding should be interpreted with caution. Results of Mann–Whitney *U* tests are illustrated in Table 6.

Table 6. ATUTIES factors according to the use of SNS

	Use of SNS		Mean Ranks	
	<i>U</i>	Sig.	Uses SNS	Doesn't use SNS
Reflection of using technology in education on instructional processes	478	0.359	77.73	92.75
Improving oneself in using technology in education	305	0.021*	80.44	42.63
Using technology in education and classroom management	403,5	0.129	77.23	102.06

Note: * $p < 0.05$. *U* and 'Sig.' refer to Mann–Whitney *U* and two-tailed significance, respectively.

3.5. Attitude and SNS membership

A final set of analyses were conducted to see if ATUTIES factors differed according to membership on particular SNS. Analyses revealed that none of the factors differed according to membership status for Facebook, Flickr, LinkedIn, Reddit, Telegram, Tumblr, Twitter or YouTube ($p > 0.05$). However, those who use Instagram ($U = 744$, $p = 0.013$), Pinterest ($U = 1,035$, $p = 0.002$), SnapChat ($U = 1,647$, $p = 0.021$) and WhatsApp ($U = 291$, $p = 0.048$) had a significantly more positive attitude towards improving oneself in using technology in education. On the other hand, those who use Pinterest ($U = 1,114.5$, $p = 0.006$) and SnapChat ($U = 1,671$, $p = 0.027$) had a significantly less positive attitude towards using technology in education and classroom management.

4. Discussion

The purpose of this study was to investigate the relationships between PFCEP alternative certification candidates' attitudes towards using technology in education and their SNS usage, which were measured by the number of friends on favourite SNS, time spent on SNS in a day and number of SNS used. Initial analyses indicated that attitude towards improving oneself in using technology in education was the strongest factor of ATUTIES in terms of mean values. Attitude towards reflection of using technology in education on instructional processes was observed to be the weakest factor.

These results indicate that while alternative certification candidates had significantly positive attitudes towards improving themselves in using educational technology, they were uncertain about using technology in the actual instructional processes. These findings may indicate that candidates do not have strong self-efficacy beliefs about using educational technology since they did not receive a formal teacher training during their undergraduate education. On the other hand, alternative certification spends 3.63 hours in a day (25.45 hours a week) using 4.44 different SNS with 528 friends, on average. Candidates were measured to be close to low-risk class (27.68 hours a week) of problematic social media use according to the classification of Banyai et al. (2017). Problematic use of SNS may stem from the fact that alternative certification candidates are individuals with an undervalued profession, who are having trouble finding a job and are, therefore, suffering from negative emotional states (Atabek, Orhon & Burak, 2019; Gezgin, 2018). Alternative certification candidates see the programs such as PFCEP as a source of hope and enrol in them for overcoming the overwhelming social and economic problems.

ATUTIES factors did not show significant differences according to the age or sex of the respondents, in parallel with previous research gender (Alkan & Erdem, 2010; Bayrakci et al., 2014; Kurtaslan, 2013; Marti-Parreno et al., 2016). However, in contrast with previous research (Alkan & Erdem, 2010; Bayrakci et al., 2014), candidates who were graduated from sports sciences departments had a more positive attitude towards reflection of using technology in education on instructional processes and using technology in education and classroom management, compared to the ones who were graduated from foreign language departments. On the other hand, candidates who were graduated from foreign language departments had a more positive attitude towards improving themselves in using technology in education, compared to the ones who were graduated from sports sciences departments. These findings indicate that sports sciences graduates were more likely to actually use educational technologies in the classroom, whereas foreign language graduates were more into improving themselves. The difference may stem from the fact that students use a plethora of tools and technologies in sports sciences programs, whereas foreign language programs are designed to include more of the non-physiological activities such as linguistics and literature in their curriculums. Hence, familiarity with technology may be providing sports sciences graduates' advantages in certification programs regarding developing an attitude towards using technology in education. This finding indicates that teacher training program may have a significant effect on attitude towards using technology in education. The advantage of sports sciences graduates was also supported by the findings from the analyses investigating departmental differences in SNS usage. Sports sciences graduates were observed to have more friends and to be a member of more SNS compared to foreign language graduates.

The findings from the analyses conducted on the relationships between alternative certification pre-service teachers' attitudes towards using educational technology and their SNS usage, supported the findings of Atabek (2013) but contradicted with the findings of Bayrakci et al. (2014). Two of the factors correlated with two of the SNS usage variables. A more positive attitude towards reflection of using technology in education on instructional processes was associated with a significantly greater number of friends on favourite SNS. Additionally, a more positive attitude towards improving oneself in using technology in education was associated with using a significantly greater number of SNS. Similar to the findings from the analyses on the departmental differences in SNS usage, time spent on SNS in a day did not correlate with ATUTIES factors. Those who had a more positive attitude towards reflection of using technology in education on instructional processes may be more familiar with technology as in the case of departmental difference. Familiarity with technology may result in a more effective use of SNS. Hence, they may have reached every individual with whom they can establish an online relationship. This effectiveness may also have caused them to avoid joining unnecessary or redundant SNS. On the other hand, those who want to improve themselves in technology may be less effective in spotting the best SNS that are suitable for them. Hence, self-improvement in educational technology is associated with being a member of a greater number of SNS.

Regarding the use of SNS, there was a significant difference in one of the ATUTIES factors. Those candidates who use SNS observed to have significantly more positive attitudes towards improving oneself in using technology in education. Considering the prevalence and ubiquity of SNS, non-use of SNS may be an indicator of aversion to technology (Hamutoglu, Gezgin, Sezen-Gultekin & Gemikonakli, 2018). This finding indicates that those who abstain from or avoid using SNS seem to be refraining from improving themselves in educational technology. In the final set of analyses, it was observed that two of the ATUTIES factors differed according to membership on particular SNS. Membership to Instagram, Pinterest, SnapChat or WhatsApp was associated with a more positive attitude towards improving oneself in using technology in education. On the other hand, membership to Pinterest and SnapChat was associated with a less positive attitude using technology in education and classroom management. Remarkably, none of the factors differed according to membership status for Facebook, Flickr, LinkedIn, Reddit, Telegram, Tumblr, Twitter or YouTube. These findings indicate that those candidates who think that they need to improve themselves in technology prefer SNS that provide users with relatively more privacy and that focus on one-to-one communication such as Instagram, SnapChat and WhatsApp. It should also be noted that with the exception of WhatsApp, Instagram, SnapChat and Pinterest are more 'visual' SNS compared to Facebook, LinkedIn, Reddit, Telegram and Twitter. Individuals with less competence in technology may be prioritising one-to-one communication and privacy more, compared to individuals that are more competent. Candidates who feel less competent in the use of technology may also have difficulty controlling the flow of information while using SNS.

5. Conclusion

The findings of the study revealed that alternative certification candidates had strong attitudes towards improving themselves in using technology in education. However, their attitudes towards actually using educational technology in instructional processes and classroom management were weaker. Results indicated that instructional programs that alternative certification candidates engage in during their undergraduate studies seem to have an influence on developing familiarity with and competence in technology. Attitude towards using technology in education may be strengthened during undergraduate education by helping students improve competence in using technology and increase familiarity with technology. On the other hand, candidates were observed to be close to low-risk class of problematic social media use indicating negative emotional states. Teacher training institutions should be sensitive to and cognizant of emotional states of teaching candidates and should have resources and mechanism for helping them when necessary. The findings also indicated that teaching candidates, especially those who want to improve themselves in the use of technology, prefer SNS that are easier to control in terms of privacy and flow of information. SNS focusing on visual media, such as Instagram and SnapChat, seem to be more preferable by relatively less competent teaching candidates. Therefore, privacy, one-to-one communication features and user's sense of control should be taken into consideration while designing instructional programs and learning environments, which aim to endorse the use of SNS for educational purposes.

Funding

This work was supported by The Scientific Research Projects Coordination Unit of Akdeniz University [Project Number: SBA-2018-4063].

Notes

All the procedures including the data collection were carried out in accordance with the standards and guidelines of the Scientific Research and Publication Ethics Committee of Akdeniz University.

Atabek, O. (2020). Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates. *World Journal on Educational Technology: Current Issues*, 12(1), 001-013. <https://doi.org/10.18844/wjet.v12i1.4433>

Preliminary results of this research were presented at 10th World Conference on Learning, Teaching and Educational Leadership (WCLTA-2019) which took place on November 1st–3rd, 2019, in Athens, Greece.

References

- Adkins, S. S. (2018). The 2017 global learning technology investment patterns. *Metaari*. Retrieved from <http://www.metaari.com/whitepapers.html>
- Alkan, F. & Erdem, E. (2010). The attitudes of student teachers towards educational technologies according to their status of receiving teaching application lessons. *Procedia-Social and Behavioral Sciences*, 2(2), 2523–2527. <https://doi.org/10.1016/j.sbspro.2010.03.366>
- Almeida, F. & Sobral, F. (2009). The psychological and structural determinants of technology integration in organizations: An empirical study. *Management Research*, 7(1), 61–74. <https://doi.org/10.2753/JMR1536-5433070105>
- Al-Senaidi, S., Lin, L. & Poirot, J. (2009). Barriers to adopting technology for teaching and learning in Oman. *Computers & Education*, 53(3), 575–590. <https://doi.org/10.1016/j.compedu.2009.03.015>
- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, 57(12), 1060–1073. <https://doi.org/10.1037/0003-066X.57.12.1060>
- Atabek, O. & Burak, S. (2019). Pre-service music teachers' self-efficacy for and attitude towards educational technology. *Mediterranean Journal of Educational Research*, 13(29), 444–464. <https://doi.org/10.29329/mjer.2019.210.23>
- Atabek, O. (2013). *An exploratory study on the use of Facebook by pre-service teachers in Turkey and the U.S.A: A mixed method design* (Unpublished doctoral dissertation). Middle East Technical University, Ankara, Turkey. Retrieved November 25, 2019 from <http://etd.lib.metu.edu.tr/upload/12616814/index.pdf>
- Atabek, O. (2019). Challenges in integrating technology into education. *Turkish Studies - Information Technologies and Applied Sciences*, 14(1), 1–19. <https://doi.org/10.7827/TurkishStudies.14810>
- Atabek, O., Orhon, G. & Burak, S. (2019). Psychological well-being of prospective teachers: the case of pedagogical formation students. *International Online Journal of Education and Teaching*, 6(4), 799–814. Retrieved November 25, 2019 from <http://www.iojet.org/index.php/IOJET/article/view/543>
- Banyai, F., Zsila, A., Kiraly, O., Maraz, A., Elekes, Z., Griffiths, M. D., ... & Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS One*, 12(1), 1–13. <https://doi.org/10.1371/journal.pone.0169839>
- Barber, M. & Mourshed, M. (2007). *How the world's best-performing school systems come out on top*. London, UK: McKinsey and Company.
- Bayrakci, T., Tozkoparan, S. B. & Durmus, A. (2014). Internet self-efficacy beliefs of teacher candidates and their attitudes toward educational technology. *International Journal of Eurasia Social Sciences*, 5(17), 27–44. Retrieved November 21, 2019 from <http://www.ijoess.com/DergiTamDetay.aspx?ID=229&Detay=Ozet>
- Beri, N. & Sharma, L. (2019). Teachers' attitude towards integrating ICT in teacher education. *International Journal of Innovative Technology and Exploring Engineering*, 8(8), 285–295. Retrieved from <https://www.ijitee.org/download/volume-8-issue-8/>
- Buzzetto-More, N. A. (2012). Social networking in undergraduate education. *Interdisciplinary Journal of Information, Knowledge, and Management*, 7(1), 63–90. <https://doi.org/10.28945/1578>
- Cassen, R., McNally, S. & Vignoles, A. (2015). *Making a difference in education: What the evidence says*. London, UK: Routledge.
- Chappelear, L. H. (2019). *Parent perceptions of a one-to-one laptop program* (Unpublished doctoral dissertation). Walden University, Minneapolis, MN.
- Chau, P. Y. & Hu, P. J. H. (2002). Investigating healthcare professionals' decisions to accept telemedicine technology: an empirical test of competing theories. *Information & Management*, 39(4), 297–311. [https://doi.org/10.1016/S0378-7206\(01\)00098-2](https://doi.org/10.1016/S0378-7206(01)00098-2)

- Atabek, O. (2020). Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates. *World Journal on Educational Technology: Current Issues*, 12(1), 001-013. <https://doi.org/10.18844/wjet.v12i1.4433>
- Cheung, R. & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: an extension of the technology acceptance model for e-learning. *Computers & Education*, 63, 160–175. <https://doi.org/10.1016/j.compedu.2012.12.003>
- Chisenga, J. & Chande-Mallya, R. (2012). *Social media and professional networking: a case of information professionals in the SCECSAL region*. In 20th Standing Conference of Eastern, Central and Southern Africa Library and Information Associations (pp. 1–20), Nairobi, Kenya, June 4–8, 2012. Retrieved from <http://eprints.rclis.org/18920/>
- Cleveland, S. & Ellis, T. J. (2015). *Five capacities that impact attitudes toward knowledge sharing via SNS*. In Proceedings of the IEEE SoutheastCon 2015 (pp. 1–2). Fort Lauderdale, FL: IEEE. <https://doi.org/10.1109/SECON.2015.7133031>
- Collin, P., Rahilly, K., Richardson, I. & Third, A. (2011). *The benefits of social networking services*. Melbourne, VIC: Cooperative Research Centre for Young People, Technology and Wellbeing.
- Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International Journal of Man-machine Studies*, 38(3), 475–487. <https://doi.org/10.1006/imms.1993.1022>
- Duncan, D., Cannon, J. & Kitchel, A. (2013). Teaching efficacy: a comparison of traditionally and alternatively certified CTE teachers in Idaho. *Career and Technical Education Research*, 38(1), 57–67. <https://doi.org/10.5328/cter38.1.57>
- Ertmer, P. A. (1999). Addressing first-and second-order barriers to change: Strategies for technology integration. *Educational Technology Research & Development*, 47(4), 47–61. <https://doi.org/10.1007/BF02299597>
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E. & Sendurur, P. (2012). Teacher beliefs and technology integration practices: a critical relationship. *Computers & Education*, 59(2), 423–435. <https://doi.org/10.1016/j.compedu.2012.02.001>
- Ertmer, P., Conklin, D., Lewandowski, J., Osika, E., Selo, M. & Wignall, E. (2003). Increasing preservice teachers' capacity for technology integration through the use of electronic models. *Teacher Education Quarterly*, 30(1), 95–112. Retrieved from <http://www.jstor.org/stable/23478427>
- Feno Heriniaina, R. (2016). *A privacy threat for internet users in internet-censoring countries*. In Proceedings of the 2nd International Conference on Information Systems Security and Privacy (pp. 372–379). <https://doi.org/10.5220/0005739203720379>
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fox, C. (2018). *The misuse of technology in the modern classroom and a guide for solutions* (Unpublished master's thesis). California State University San Marcos, San Marcos, USA.
- Gezgin, D. M. (2018). Understanding patterns for smartphone addiction: age, sleep duration, social network use and fear of missing out. *Cypriot Journal of Educational Sciences*, 13(2), 166–177. <https://doi.org/10.18844/cjes.v13i2.2938>
- Ghavifekr, S., Afshari, M., Siraj, S. & Seger, K. (2013). ICT application for administration and management: a conceptual review. *Procedia-Social and Behavioral Sciences*, 103, 1344–1351. <https://doi.org/10.1016/j.sbspro.2013.10.705>
- Glass, G. V. (2008). *Alternative certification of teachers*. Tempe: Education Policy Research Unit. Retrieved from <http://epicpolicy.org/publication/alternative-certification-of-teachers>
- Glendinning, S. (2018). A new rootedness? Education in the technological age. *Studies in Philosophy and Education*, 37(1), 81–96. <https://doi.org/10.1007/s11217-016-9562-z>
- Greenhow, C. & Robelia, B. (2009). Old communication, new literacies: social network sites as social learning resources. *Journal of Computer-Mediated Communication*, 14, 1130–1161. <https://doi.org/10.1111/j.1083-6101.2009.01484.x>
- Guzey, S. S. & Roehrig, G. H. (2012). Integrating educational technology into the secondary science teaching. *Contemporary Issues in Technology and Teacher Education*, 12(2), 162–183. Retrieved from <https://www.learntechlib.org/primary/p/39130/>

- Atabek, O. (2020). Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates. *World Journal on Educational Technology: Current Issues*, 12(1), 001-013. <https://doi.org/10.18844/wjet.v12i1.4433>
- Hamutoglu, N., Gezgin, D., Sezen-Gultekin, G. & Gemikonakli, O. (2018). Relationship between nomophobia and fear of missing out among Turkish university students. *Cypriot Journal of Educational Sciences*, 13(4), 549–561. <https://doi.org/10.18844/cjes.v13i4.3464>
- Hew, K. F. & Brush, T. (2007). Integrating technology into K-12 teaching and learning: current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, 55(3), 223–252. <https://doi.org/10.1007/s11423-006-9022-5>
- Hung, H. T. & Yuen, S. C. Y. (2010). Educational use of social networking technology in higher education. *Teaching in Higher Education*, 15(6), 703–714. <https://doi.org/10.1080/13562517.2010.507307>
- Hyndman, B. (2018, August 13). Ten reasons teachers can struggle to use technology in the classroom. *The Conversation*. Retrieved from <http://theconversation.com/ten-reasons-teachers-canstruggle-to-use-technology-in-the-classroom-101114>
- Jenkins, H. (2009). *Confronting the challenges of participatory culture: media education for the 21st century*. Cambridge, UK: MIT Press.
- Johnson, A. M., Jacovina, M. E., Russell, D. E. & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In S. A. Crossley & D. S. McNamara (Eds.), *Adaptive educational technologies for literacy instruction* (pp. 13–29). New York, NY: Taylor & Francis.
- Kim, C. & Keller, J. M. (2011). Towards technology integration: the impact of motivational and volitional email messages. *Educational Technology Research and Development*, 59(1), 91–111. <https://doi.org/10.1007/s11423-010-9174-1>
- Kisicki, T. (2012). *Comparing graduate courses taught by the same instructor using competing approaches: Traditional vs. technology-infused* (Unpublished doctoral dissertation). Arizona State University, Phoenix, USA.
- Kurtaslan, Z. (2013). Evaluation of prospective music teachers attitudes on music teaching technologies. *Journal of Teaching and Education*, 2(1), 41–50. Retrieved November 21, 2019 from <http://www.universitypublications.net/jte/0201/html/toc.html>
- Louho, R., Kallioja, M. & Oittinen, P. (2006). Factors affecting the use of Hybrid media applications. *Graphic Arts in Finland*, 35(3), 11–21. Retrieved from [https://research.aalto.fi/en/journals/graphic-arts-in-finland\(41793b7a-c231-4929-9618-a5d7f727184e\)/publications.html](https://research.aalto.fi/en/journals/graphic-arts-in-finland(41793b7a-c231-4929-9618-a5d7f727184e)/publications.html)
- Marti-Parreno, J., Segui-Mas, D. & Segui-Mas, E. (2016). Teachers' attitude towards and actual use of gamification. *Procedia-Social and Behavioral Sciences*, 228, 682–688. <https://doi.org/10.1016/j.sbspro.2016.07.104>
- Mashrah, H. T. (2017). Blending web 2.0 technologies with developing of writing skills in ESL classroom: some insights. *International Journal of English Language & Translation Studies*, 5(2), 10–15. Retrieved from <http://www.eltjournal.org/archive.html>
- McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., ... & Mann, F. B. (2018). *The condition of education 2018* (NCES 2018-144). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2018144>
- Molodetska, K. (2016). Social networking services as a national cyber security subject. *Information Technology and Security*, 4(1), 13–20. <https://doi.org/10.20535/2411-1031.2016.4.1.95915>
- Montgomery, K. C. (2009). *Generation digital: politics, commerce, and childhood in the age of the internet*. Cambridge, UK: MIT press.
- Notley, T. & Tacchi, J. (2005). Online youth networks: researching the experiences of 'peripheral' young people in using new media tools for creative participation and representation. *Journal of Community, Citizen's and Third Sector Media*, 1(1), 73–81. Retrieved from <https://www.cbaa.org.au/article/online-youth-networks-researching-experiences-peripheral-young-people-using-new-media-tools>
- Ozturk, T. (2006). *Evaluation of social studies teacher nominees' competency regarding their use of technology in education (Balikesir sample)* (Unpublished master's thesis). Gazi University, Ankara, Turkey.
- Ractham, P. & Firpo, D. (2011). *Using social networking technology to enhance learning in higher education: a case study using Facebook*. In 44th Hawaii International Conference on System Sciences (pp. 1–10). IEEE. <https://doi.org/10.1109/HICSS.2011.479>

- Atabek, O. (2020). Alternative certification candidates' attitudes towards using technology in education and use of social networking services: A comparison of sports sciences and foreign language graduates. *World Journal on Educational Technology: Current Issues*, 12(1), 001-013. <https://doi.org/10.18844/wjet.v12i1.4433>
- Rebora, A. (2016). Teachers still struggling to use technology to transform instruction, survey says. *Education Week*. Retrieved from <https://www.edweek.org/ew/articles/2016/06/09/teachers-still-struggling-to-use-tech-to.html>
- Roberts, T. G. & Dyer, J. E. (2004). Inservice needs of traditionally and alternatively certified agriculture teachers. *Journal of Agricultural Education*, 45(4), 57–70. <https://doi.org/10.5032/jae.2004.04057>
- Sanchez-Mena, A., Marti-Parreno, J. & Aldas-Manzano, J. (2019). Teachers' intention to use educational video games: the moderating role of gender and age. *Innovations in Education and Teaching International*, 56(3), 318–329. <https://doi.org/10.1080/14703297.2018.1433547>
- Schonfeld, I. S. & Feinman, S. J. (2012). Difficulties of alternatively certified teachers. *Education and Urban Society*, 44(3), 215–246. <https://doi.org/10.1177/0013124510392570>
- Shih, R.-C. (2011). Can web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology*, 27(5). <https://doi.org/10.14742/ajet.934>
- Shravanthi, A. R. & Lavanya, M. S. (2012). Netnography: a qualitative research tool. *International Journal of Management Research and Reviews*, 2(6), 903. Retrieved from <https://search.proquest.com/docview/1420387142?pq-origsite=gscholar>
- Shulman, R. D. (2018). EdTech investments rise to a historical \$9.5 billion: What your startup needs to know. *Forbes*. Retrieved from <https://www.forbes.com/sites/robynshulman/2018/01/26/edtech-investments-rise-to-a-historical-9-5-billion-what-your-startup-needs-to-know/>
- Unal, E., Yamac, A. & Uzun, A. M. (2017). The effect of the teaching practice course on pre-service elementary teachers' technology integration self-efficacy. *Malaysian Online Journal of Educational Technology*, 5(3), 39–53. Retrieved from <https://www.mojet.net/volume/volume-5-issue-3>
- Wallen, N. E. & Fraenkel, J. R. (2001). *Educational research: a guide to the process*. Mahwah, NJ: Erlbaum.
- Wise, A. E. (1994). Choosing between professionalism and amateurism. *The Educational Forum*, 58(2), 139–146. <https://doi.org/10.1080/00131729409335317>
- Wu, B. & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in Human Behavior*, 67, 221–232. <https://doi.org/10.1016/j.chb.2016.10.028>