Digital Natives' Behaviours and Preferences: Pre-Service Teachers Studying Accounting

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ABSTRACT

Digital natives are a new cultural generation born of aggressive digital technology penetration. The rapid development of technology is influencing their learning habits and behaviours, and consequently this generation has a unique way of thinking and learning. The purpose of this research is to analyse the behaviours and preferences of digital natives through understanding their preferences in the use of technology and their cultural values, as a basic strategy for selecting learning methods. This research uses a survey method to explore the use of technology and the cultural values of digital natives on accounting courses. The cultural values referred to in this paper are Hofstede's cultural dimensions, namely power distance, individualism, masculinity, uncertainty avoidance and long-term orientation. The research results reveal two main findings: 1) the level of use of technology for non-academic purposes tended to be high, and the preference of the students was to use smartphones rather than fixed PCs or laptops. This suggests that lecturers must actively use technology in the classroom, thus ensuring that pre-service accountancy teaching students are themselves ready to use technology in their teaching practice; 2) analysis results of Hofstede's cultural dimensions indicate that the students prefer learning in technological environments, informal learning structures, unlimited space and time, that they expect quick feedback, prefer teamworking, and prefer active learning rather than reading and listening. These results can be used as the basis for designing quality learning methods.

Keywords: cultural values; technological environment; digital natives

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INTRODUCTION

'Digital natives' is the term used to describe the generation which has been surrounded by digital tools in daily life since birth. This generation lives in a new culture as a result of aggressive breakthroughs in digital technology (Prensky, 2001; Rideout, Foehr, & Roberts, 2010). The rapid development of technology has influenced their learning habits and behaviours during childhood and adolescence (Thompson, 2013). Their ways of thinking and learning are different from the previous generation, who in contrast to digital natives are often called 'digital immigrants' (Prensky, 2001; Kivunja, 2014). Digital natives are used to fun ways of learning (Tapscot, 2009), with digital tools being made more attractive than more traditional methods through the use of full colour, graphics, video and stereo sound (Kelly, McCain, & Jukes, 2009). It is said that they use technology 'like breathing air' (Tapscot, 2009); for example, they are able to learn while listening to music or chatting online.

Expert researchers claim that digital natives have unique characteristics (Thompson, 2013) that include preferring to learn in technological environments and in informal learning structures, valuing unlimited space and time, having short attention spans, expecting quick feedback, preferring teamwork, preferring learning through activity rather than reading and listening, and preferring to use mobile devices (Sarkar, Ford, & Manzo, 2017). Thus, digital immigrants may speak an outdated language when trying to teach students who speak an entirely new digital language (Prensky, 2001). Thus, digital natives and digital immigrants are different actors in the educational setting (Uygarer, Uzunboylu, & Ozdamli, 2016). It is necessary, therefore, that patterns of technology use (Thompson, 2013) and cultural learning (Prensky, 2001) should be considered in improving the learning experience and group collaboration of this new generation of learners (Watson & Pecchioni, 2011).

Based on observations of pre-service accounting teachers it was found that almost 60% of students seemed less active and serious than would be expected and used smartphones to chat during the learning process. These phenomena suggest that the learning methods being used were unsuitable for students' preferences and behaviours. Therefore, this research has the objective of analysing digital natives' behaviours and preferences through understanding trends in their use of technology and their cultural values, as a basic strategy for selecting learning methods. Knowing the patterns of use of technology could assist lecturers to adjust their teaching to match the learning styles of digital natives and thus provide positive impacts on learning outcomes (Sarkar et al., 2017). This research therefore seeks to identify the technological tools used and their frequency of use (Thompson, 2013) to reveal the preferences of students in terms of their use of technology. Moreover, the differences in technology use may depend on the behaviour culture in a particular environment, and cultural developments through the value systems in the environment will affect behaviour (Armia, 2002). This research therefore also identifies cultural values which influence digital natives' behaviours in their use of technology, providing information which can ultimately be used as the basis for selecting learning methods.

LITERATURE REVIEW

Digital natives prefer learning in technological environments (Prensky, 2001; Sarkar et al., 2017) and are naturally fluent in the use of technology (Thompson, 2013). Digital natives choose fun ways to learn (Tapscot, 2009) through digital tools which are made attractive through the use of full colour, graphics, video and stereo sound (Kellyet al., 2009). Tapscot (2009) suggests that they use technology like breathing air, and that they can learn while listening to music or chatting online.

However, other research shows different phenomena for digital natives in their use of technology, such as technological tools only being used for basic communication such as sending emails and searching for information, with very few creating multimedia content or playing games (Kennedy, Judd, Dalgarno, & Waycott, 2010; Thompson, 2013), and these descriptions do not neatly fit into the stereotype of the digital native (Corrin, Bennett, & Lockyer, 2010). These differences in research results suggest the need to analyse preferences in the use of technology.

Differences in ways of thinking, communication and learning style are affected by learning culture (Prensky, 2001; Armia 2002). Culture is a dimension used to measure the characteristics of the lives of individuals (Sari & Dirgahayu, 2017), in their patterns of behaviour and attitudes there are different culture (Donthu & Yoo, 1998). Digital natives learn the new language of their culture naturally and easily, rather than trying to learn the previous cultural language (Prensky, 2001). Therefore, this research intends to identify the cultural values of digital natives to enable the development of an appropriate technological approach to teaching and learning.

Cultural values consist of five dimensions: power distance, individualism, masculinity, uncertainty avoidance and long-term orientation (Hofstede & Bond, 1984). Power distance provides information about dependence relationships (Hofstede, Hofstede, & Minkov, 2010). A high power distance is indicated by the greatest power being held by those with the highest positions, whereas a small power distance suggests more democratic thinking and mutual respect for each individual's opinion. High individualism is shown by individuals viewing themselves as independent individuals, whereas low individualism is shown by individuals being more concerned with group interests. High masculinity is shown by the male characteristic of having a strong personality while the female characteristic is of more tenderness, whereas low masculinity is shown by there being little gender differentiation in terms of views or thoughts. High uncertainty avoidance can be assessed in terms of how individuals use laws or regulations to deal with changing situations or conditions so that they can control changes that occur, whereas an individual with a low uncertainty avoidance culture will create a more tolerant environment for change. High long-term orientation is shown by individuals thinking about the long-term consequences that will occur as a result of current actions, while low long-term orientation is shown by a short-term oriented culture in a particular society (Hofstede & Bond, 1984).

METHODS

A survey research method (Gay & Diehl, 1992) was used in this research to explore the use of technology and cultural values of digital natives among pre-service accounting teachers at the university in Surakarta, Indonesia. Questions about using technology (Corrin et al., 2010) were used to identify trends by identifying the technological tools used and their frequency of use, while questions about culture issues (Hofstede & Bond, 1984) were used to identify the emerging cultural values of digital natives. Cultural value tendencies were analysed from the responses of pre-service accounting teachers with reference to Hofstede's cultural dimensions scale (Siregar, Mayadewi, & Rosely, 2016). The results will be used to design methods and content of learning for digital natives to fit their learning style. Quantitative descriptive analysis was used to analyse the data.

RESULT AND ANALYSIS

Trend of The Using Technology

In order to develop methods and content of learning for digital natives were began with survey about students' ownership and activity of the using technology (Corrin et al, 2010). The students' ownership of technology, they are pre-service teachers' accounting were identified to determine technology tools which will be used in learning process. The activity of using technology was identified to develop the learning methods that match the digital natives' behavior.

Table 1. Preferences on The Use of Technology

Activity	Never	Sometimes	Weekly	Daily
Create video with computer	15,4%	62,5%	7,4%	14,7%
Share foto online	3,7%	66,2%	13,2%	16,9%
Writing Blog	81,6%	17,6%	0,7%	0%
Create Website	80,2%	14,7%	2,2%	2,9%
Create Persentation with computer	0,7%	6,6%	56,6%	36,1%
Access information with Handphone	0%	11,8%	20,6%	67,6%
Read Blog	1,5%	25,7%	32,4%	40,4%
Playing game	23,5%	57,4%	5,9%	13,2%
Access e-learning website	12,5%	66,9%	17,7%	2,9%
Send or receive email	0%	30,1%	57,4%	12,5%
Sending task with Handphone	0%	13,2%	64,7%	22,1%
Using social media	19,1%	46,3%	11,8%	22,8%
Using SMS or chating	2,2%	24,3%	25,7%	47,8%

The responses related to use of technology (see Table 1) shows that the activity of writing blog and create website are low. This research shows more than 80% of student never writing blog or create website, they are not familiar whit the activity. The students tend use handphone to daily activity, this can be seen from daily percentage for access information (67,6%), using SMS or chatting (47,8%)

but for access e-learning website is low (2,9%). This finding shows that the use of technology to academic activity relatively low compared to the need of daily life.

Table 2. Level of The Use of Technology

Activity	Scor	Low	Medium	High
Create video with computer	301		√	
Share foto online	331		√	
Writing Blog	162	√		
Create Website	174	√		
Create Persentation with computer	446			√
Access information with Handphone	484			√
Read Blog	424			√
Playing game	284		√	
Access e-learning website	287		√	
Send or receive email	384		√	
Sending task with Handphone	420			√
Using social media	324		√	
Using SMS or chating	434			√

The categorization results of the use of technology based value interval (see Table 2) shows the most frequently academic activity such us create persentation, access information, read blog, and sending task. This finding shows the use of technology just searching information to help doing task. The students prefer share foto online, sms or chatting and using social media than access e-learning website. Besides that, The ability of students to explore their idea relatively low, this is see from their ability to write blog and to create website including low category. This finding shows the learning process not yet maximize to write in blog or website.

Culture Values of Digital Natives

The culture values in this research refers to Hofstede's culture dimension scale. The result will be used to design methods and content of learning for digital natives to fit the learning style.

Table 3. Results of Culture Values Index

Dimension	Scale		Results
Power Distance	Small	0-50	41 (Small)
	Large	50-110	
Individualism	Collectivism	5-50	48 (Collectivism)
	Individualism	50-95	
Masculinity	Feminism	5-50	74 (Masculine)
	Masculine	50-95	
Uncertainty Avoidance	Weak	5-60	64 (Strong)
	Strong	60-115	
Long-term	Short	5-50	60 (Long)

orientation	Long	50-105	

According to the results of culture values index (see Table 3) power distance include small category, so distance between lecturer and student equivalent meaning there is no fear to convey the disapproval of ideas from lecturer. The individualism index shows low results, so they are prefer team work than individual work. The masculinity dimension shows the students include group who like firmness and competition. The Uncertainty avoidance dimension shows strong results, they are using laws and regulations to deal with change. The long-term orientation dimension shows that the students thinking about the long-term consequences when they are now doing something.

DISCUSSION

Trend for the use of technology

In order to develop teaching methods and content of learning for digital natives we began with a survey about students' ownership and use of technology (Corrin et al., 2010). The researched students' ownership of particular technological tools and their activities using these tools were identified to develop learning methods that match digital natives' behaviours.

Table 1. Preferences in the use of technology

Activity	Never	Sometimes	Weekly	Daily
Creating videos on a computer	15.4%	62.5%	7.4%	14.7%
Sharing photos online	3.7%	66.2%	13.2%	16.9%
Writing blogs	81.6%	17.6%	0.7%	0%
Creating websites	80.2%	14.7%	2.2%	2.9%
Creating presentations on a computer	0.7%	6.6%	56.6%	36.1%
Accessing information on a smartphone	0%	11.8%	20.6%	67.6%
Reading blogs	1.5%	25.7%	32.4%	40.4%
Playing games	23.5%	57.4%	5.9%	13.2%
Accessing e-learning websites	12.5%	66.9%	17.7%	2.9%
Sending or receiving email	0%	30.1%	57.4%	12.5%
Sending tasks on a smartphone	0%	13.2%	64.7%	22.1%
Using social media	19.1%	46.3%	11.8%	22.8%
Using SMS or chatting online	2.2%	24.3%	25.7%	47.8%

The responses related to use of technology (see Table 1) show that the activity of writing blogs and creating websites are infrequently carried out. This research shows that more than 80% of students never write blogs or create websites; they are not familiar with this activity. The students tend to use smartphones for daily activities. This can be seen from the high daily percentage for accessing information (67.6%) and using SMS or chatting online (47.8%) but the low frequency (2.9%) for accessing e-learning websites. This finding shows that the use of technology for academic activity is relatively low compared to use for everyday, non-academic activities.

Table 2. Level (frequency) of use of technology

Activity	Score	Low	Medium	High
Creating videos on a computer	301		√	
Sharing photos online	331		√	
Writing blogs	162	√		
Creating websites	174	√		
Creating presentations on a computer	446			√
Accessing information on a smartphone	484			√
Reading blogs	424			√
Playing games	284		√	
Accessing e-learning websites	287		√	
Sending or receiving email	384		√	
Sending tasks on a smartphone	420			√
Using social media	324		√	
Using SMS or chatting online	434			√

The categorization results for the frequency of use of technology-based tools for particular activities (see Table 2) show the most frequent academic activities are creating presentations, accessing information, reading blogs and sending tasks. This finding indicates the use of technology just for searching for information to help with completing tasks. The students prefer to share photos online, SMS contacts and chatting and using social media to accessing e-learning websites. In addition, the ability of students to explore their ideas is relatively low, as indicated by writing blogs and creating websites being categorized as low. This finding shows that learning opportunities have not yet been maximized in terms of writing blogs or websites.

Cultural Values of Digital Natives

The cultural values used in this research refer to Hofstede's cultural dimensions scale. The result will be used to design methods and content of learning for digital natives to fit with their learning styles.

Table 3. Cultural values index results

Dimension	Scale		Results
Power distance	Small	0-50	41 (Small)
	Large	50-110	
Individualism	Collectivism	5-50	48 (Collectivism)
	Individualism	50-95	
Masculinity	Feminine	5-50	74 (Masculine)
	Masculine	50-95	
Uncertainty avoidance	Weak	5-60	64 (Strong)
	Strong	60-115	
Long-term orientation	Short	5-50	60 (Long)
	Long	50-105	

According to the results of the cultural values index (see Table 3) power distance is categorized as small. This reflects the distance between lecturer and student,

meaning there is little fear among students of disapproval of their ideas from their lecturers. The individualism dimension shows a low categorization, suggesting the students prefer team work to individual work. The masculinity dimension is characterized as masculine, suggesting that the students like firmness and competition. The uncertainty avoidance dimension shows a strong result which indicates that the students look to laws and regulations to deal with change. The long-term orientation dimension result shows that the students think about the long-term consequences of present actions.

DISCUSSION

Preferences in the use of technology

Digital natives have a different way of learning to previous generations (Barnes, Marateo, & Ferris, 2007). This research shows the highest score for the activity of using smartphones for accessing information. Based on this result, it can be seen that although these students use their smartphones in their everyday activities, they have relatively low levels of use for academic activities. The use of technology for non-academic purposes tends to be high, as evidenced by the daily percentage for accessing information (67.6%) and using SMS or chatting online (47.8%). This finding indicates that the use of technology for academic activities is relatively low compared to its use in daily life. The analysis of the responses from the survey support research (Corrin et al., 2010) which indicates that students' access to and use of technology does not neatly fit into the stereotype of the digital native.

Based on the value intervals for frequency of use, the use of technology for searching for information to help in the completion of academic tasks tends to be high. The students prefer sharing photos online, SMSing or chatting online and using social media to accessing e-learning websites. Moreover, the ability of students to explore their ideas using technology is relatively low, as seen by their writing of blogs and creating of websites being in the low category. Uncontrolled overuse of photo-sharing and social media platforms may lead some students to be at risk of bullying, use of pornography and other negative outcomes (Hidayat, Saefudin, & Sumartono, 2016)

These phenomena are important for lecturers to understand in evaluating claims about digital natives' technological proficiency (Thompson, 2013). Such claims include that they are multitaskers (Prensky, 2001; Heslper & Eynon, 2009), that they complete many tasks through extensive use of technology (Lei, 2009), that they prefer learning through activities rather than reading and listening, and that they prefer using mobile devices (Sarkar et al., 2017). As pre-service teachers, students who are also digital natives take an active role in using technology in classrooms; in consequence, they will be more ready to use technology for teaching (Lei, 2009).

The culture values of digital natives

According to the results of the cultural values index (see Table 3) power distance is categorized as small. This reflects the distance between lecturer and student suggesting there is little fear of receiving disapproval of ideas from lecturers.

Digital natives display democratic thinking and mutual respect for each individual's opinions (Hofstede & Bond, 1984). These dimensions shows that digital natives in pre-service accounting teacher training prefer informal learning structures and unlimited space and time (Sarkar et al., 2017). These characteristics demonstrate the benefit of determining learning methods which are suitable for them.

The individualism dimension is categorized as low. This indicates that individuals in a group will emphasize the interests of the group over their own individual interests. The high collectivism result shows that evaluation systems should be based on the achievement of group goals (Armia, 2002). These dimensions shows that these students prefer teamwork to individual work (Sarkar et al., 2017), suggesting that the appropriate learning methods for them should be group-based.

The masculinity dimension shows the students like firmness and competition (Hofstede & Bond, 1984), are self-assured and achievement-focused (Reeves & Oh, 2008). They prefer a reward system based on individual recognition, promotions and bonuses (Armia, 2002). These dimensions suggest they prefer and expect quick feedback (Sarkar et al., 2017).

The uncertainty avoidance dimension is categorized as strong, suggesting the students use complex resources such as technology, law and religion to deal with change. In this regard, technology is used to assist in defending oneself from the uncertainties caused by nature, the law is used to defend against uncertainty in the behaviour of others, and religion is used to accept uncertainties that cannot be defended against (Armia, 2002). In this case, in terms of digital natives' learning styles, they can be seen to prefer learning in technological environments, so instructional design for pre-service accounting teachers should be technology based (Feiertag & Berge, 2008).

Long-term orientation is a cultural dimension that represents how individuals decide what to do right now (Sari & Dirgahayu, 2017). This research shows that the students are thinking about the long-term consequences when they are doing something now. They decide to be more oriented toward the future by determining attitudes and considering the consequences that will occur.

CONCLUSION

The students tend to use smartphones every day in their daily activities, using technology just for searching for information to help with carrying out academic tasks. They prefer sharing photos online, SMSing or chatting online and using social media to accessing e-learning websites. In addition, the ability of students to explore their ideas is relatively low, as indicated by their ability to write blogs and create websites being in the low category. This research shows that the use of technology for academic activities is relatively low compared its use for everyday needs and activities. This research indicates that these students accessing and use of technology does not neatly fit into the stereotype of the digital native.

The cultural values of digital natives in pre-service accountancy teacher training indicate common learning styles such as preferring learning in technological environments, preferring informal learning structures and unlimited space and

time, expecting quick feedback, preferring teamwork and preferring active learning rather than reading and listening. These preferences in the use of technology and cultural values should therefore be considered for improving their learning experiences and group collaboration through appropriate instructional design.

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