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Digital technology for Indonesia's young people

The significance of SNS use and digital literacy for learning

Jee Young Lee and Didin Nuruddin Hidayat

Abstract

Indonesia has recognized the growing demand for information technology, with the most rapid adoption of this technology being amongst its young people. Within the perspective of a balanced knowledge information society, the adoption of technology is crucial for improving social development in developing countries and is considered a particularly important tool in education. The education sector is well-placed to harness the potential of ICT for the millennial generation in these societies. Based on a survey of students enrolled in a university in Jakarta, this study attempts to identify the learning and development opportunities available through digital technology by exploring both how university students in Indonesia use this technology, and how they experience and perceive the benefits of digital learning. In particular, we examine how their access to and use of technology is associated with their digital literacy and their perceived usefulness of ICT. In general, Indonesian university students are actively engaged in a number of diverse activities online, including educational activities, which in turn result in increased online learning outcomes. A better understanding of the role of digital literacy and learning environments and effective use of technology for learning can provide important insights into education and technology use in Indonesia and similar contexts.

Introduction

Today's young people are predominantly portrayed as tech-savvy. Their tech fluency is taken for granted, hence the term 'digital native' (Prensky 2001) which has often been used to explain the difference between the younger and older generations. It is evident that the current generation is familiar with *conventional* technologies such as the internet and smartphone. Nevertheless, it is important to look more deeply into ways of using technology, nuanced differences in this use, and the effect of technology adoption on young people. Critical commentary on this view of young people and technology has been made, particularly with regard to the lack of empirical observation (Kennedy, Judd, Dalgarno & Waycott 2010). More in-depth consideration of their different practices and perceptions should be made by adopting broader and more open-minded perspectives in research concerning younger generations.

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It has been recognized that there is a lack of data on technology adoption in a variety of contexts where digital technology has begun to advance only recently (Bartikowski, Laroche, Jamal & Yang 2018), including in developing countries such as Indonesia. Furthermore, digital technologies including social networking sites (SNS), have become a significant communication resource, allowing young people to access several subsets of communication platforms anywhere, anytime, and at a low cost or free. These resources are used in different contexts as a means not only of managing their friendship networks but also sharing interests and information. It has enabled the creation of, and access to, social resources for developing their skills and knowledge in a variety of fields through shared online activities.

This study, therefore, aims to focus on the experience and perception of education technology in young people in Indonesia, in an attempt to extend our understanding of the learning practices of this younger generation. In particular, we attempt to examine social media use and its role in learning among Indonesian young people.

Digital literacy: its growing importance in the ever-changing digital era

The digital divide has been described as one of the most important social inequality issues facing the information society (Hoffman, Novak & Slosser 2001), and the term digital inequality is often used to turn attention away from the simplistic dichotomy, access to ICT. The technological emphasis of early digital divide research resulted in physical access being considered as equal to technological access (Van Dijk, 2006). From this perspective, having access was translated into use of and access to information and resources. However, an increasing number of researchers, such as DiMaggio and Hargittai, suggest that the concept of a digital divide should be discussed «beyond access». They argue that it should be reframed based on the different contexts of use, which significantly shape the experiences of use.

Some researchers have begun to extend the concept of the digital divide to inequalities in skill or competency in the use of technology. Hargittai (2002) considers variations in levels of skills and usage among individuals, conceptualizing a second-level divide which can lead to unequal benefits being accrued by internet use. Such a divide has become more evident as access is increasingly made available (Livingstone & Helsper 2007; Park 2012; Selwyn 2006; Tsatsou 2011; Van Dijk 2005; Zillien & Hargittai 2009). Different levels of skill result in variations in ways of using technology such as the internet. In order to optimize its usefulness and target particular needs, the internet should be used effectively, rather than merely be available. If users cannot effectively use the technology, then merely having access does not mean that a digital divide has been overcome (Hargittai 2002). Instead, the problem becomes more complex (Van Dijk 2013).

Information technology is a way of life for the millennial generation, who are living in the most wired, connected world to date (Henderson, Selwyn, Finger & Aston 2005). Norris (2001) argued that developing countries are able to elevate their economic development and minimise poverty with the help of technology. Providing internet access to less-privileged societies (Jensen 2007) and improving the quality of their technology use (Tsatsou 2007) are some ways to do that. However, areas that require improvement are not confined to technology and its distribution. As discussed above, being digitally enabled increasingly requires the effective use of technology (Park 2017) in an ever-changing digital environment. Currently, as informatization has accelerated in many countries, including both developed and developing societies (Houghton 2010), national ICT strategies have been targeting a balanced knowledge information society in which information literacy plays a key role for users (ITU 2013). In order to establish a balanced digital culture in a society, it is essential to assure that its members can make productive use of ICT in their daily lives and generate digital opportunities to be able to engage properly in the consumption and production of social resources.

When it comes to education, digital technology does not merely facilitate online learning but can also play a crucial role in resource sharing, by connecting those who need a resource to those who have the resource which ultimately enables users to accumulate resources. We need to further examine digital learning in which networked individuals, particularly young people, can play as a learner as well as a provider and sharer of resources.

There has been a significant growth rate in ICT adoption over the past few years in developing countries (ITU 2013). Within the perspective of a balanced knowledge information society, the adoption of technology is crucial in improving social development in developing countries. There, it is considered an especially important tool in education allowing the population to better harness the potential of ICT for the millennial generation.

ICT and young people in the Indonesian context

Internet use in developing countries has been observed as being left behind compared to developed countries [ITU, 2018]. This observation remains valid for digital technology ownership, showing lower rates of smartphone ownership in developing economies despite the surging increase in their use. However, while the global digital divide has largely been recognized, in local contexts, the digital divide *within* emerging and developing countries has not yet been studied (Bartikowski et al. 2018). Recently, it has been observed that high rates of social media use are being found in emerging and developing countries, such as Indonesia (Poushter, Bishop & Chwe 2018). Interestingly, in such economies, the rates of social media use are

almost equal to internet use as a whole. This pattern is significantly different to most developed countries, such as Germany. For example, according to the latest internet use statistics, 52% of Indonesians use the internet, which is the same percentage as active social media users (Hootsuite 2019).

It is undeniable that digital media plays a major role in the daily life of a great number of Indonesian people. As the fourth largest population in the world (World Bank 2011), Indonesia is now an emerging country in terms of digital media consumption. Utomo et al. (2013) show that Indonesia has the second- and third-highest number of Facebook and Twitter users, respectively. Moreover, more than 70 million Indonesian people, approximately 30% of the total population, are active internet users and more than half that number access the internet via mobile devices (eMarketers 2013). The use of internet, especially via smartphones, is more prevalent among young and more educated people (Puspitasari & Ishii 2013).

The high use of internet via mobile phones, which has resulted from affordable devices and inexpensive data packages (APJII 2012), means that using technology and the internet in daily activities has now become «normalized» in Indonesia (Bax 2002). Even people from a low socio economic background can more readily afford this sophisticated technology today. In addition, with more than sixty million young adults aged 20-34 (Statistics Indonesia 2011), Indonesia is emerging as one of the most promising markets in terms of ICT penetration (Utomo et al. 2013).

However, despite this increase in the development of technology, the potential benefits of technology have not been fully maximized. For example, a study by Bilbao-Osorio, Dutta, and Lanvin (2014) measuring network readiness and country development reported that Indonesia was placed 67th of the 142 countries observed. Many possible factors may have contributed to this result.

The report by The Economist mentioned above, for example, shows that most Indonesian people use the internet for entertainment rather than information-oriented activities. Those preferences in technology use may be attributed, as Bondafelli (2002) argues, to people with higher economic status and educational opportunities tending to use the internet for information gathering, while those lower on this scale mostly using it for entertainment purposes. This argument is consistent with the above-mentioned finding about affordable devices and data packages; people with low social economic status can afford smartphones and get connected to the internet easily.

However, digital media can also be used for more meaningful purposes. For example, integrating technology into education may assist with teaching and learning processes in the classroom. This makes the technology itself more meaningful and introduces the younger generation to technology in a more educated and purposive way. Acknowledging these benefits, the Indonesian government included technology in their updated 2013 Curriculum. Retnawati, Hadi, and Nugraha (2016) state that

one of the key points in this latest curriculum is attention to harnessing technology in class. Students are involved in information gathering from the various sources available, including the internet. However, while smartphones and the internet are widely used by students, it is unfortunate that the official use of technology provided by government is still in its infant stage, with the adoption of computers for final examinations only.

Research questions

This study aims to identify the learning and development opportunities available through digital technology, and in particular social media use, by exploring how Indonesian young people use this technology, and experience and perceive the benefits of digital learning. Furthermore, we examine how their digital literacy is associated with outcomes such as perceived online learning satisfaction. The following research questions were formulated:

- To what extent and for what purpose do young people use the internet and social media?
- To what extent do young people use the internet for learning?
- Are internet use, social media use, learning experiences online and digital media literacy related to online learning satisfaction?

Research Method

This study used a self-administered questionnaire method to collect data. The survey (paper-based) was conducted in a university in Jakarta between September and October 2016. Two trained graduate students randomly recruited undergraduate students on the campus and then distributed and gathered the survey, answering questions if required. Participants were given a very small gift (stationery) in compensation for their time completing the survey. Ethical approval was obtained from the researchers' institution (University of Canberra) before data collection began.

Measurements

Online activities. Participants' different online activities were measured with 14 items designed to identify how often the participant engages in online activities. In responding to these items, we asked participants to consider all their devices, such as computers, tablets, and smartphones. Answers were reported on an eight-point Likert-type scale ranging from (1) 'never', (2) 'less than every few months', (3) 'every few months', (4) 'every few weeks', (5) '1–2 days a week', (6) '3–5 days a week', (7) 'about once a day', to (8) 'several times a day'.

SNS use. SNS use was measured by averaging 19 items of user behavior on social networking sites, designed to identify how often the participant engages in activities on social networking website(s). These items were: 'keep up with friends' statuses'; 'visit friends' pages'; 'reply to friends' status updates'; 'chat with friends'; 'update my status'; 'post photos, videos or music'; 'read others' comments to my postings'; 'add friends'; 'join group activities'; 'organize/join events'; 'share links (photos, videos, etc.)'; 'search for information related to studies'; 'play games'; 'watching video clips'; 'reading/watch news'; 'learning, professional activities (search for job)' and 'share homework/information'. The answers to these items were reported on an 8-point Likert-type scale ranging from (1) 'never', (2) 'less than every few months', (3) 'every few months', (4) 'every few weeks', (5) '1–2 days a week', (6) '3–5 days a week', (7) 'about once a day', to (8) 'several times a day'.

Digital literacy. We measured both device literacy and content literacy, adapted from Park and Burford's (2013) measures of digital media literacy, with 3 items respectively on a 5-point Likert-type scale based on the following: not at all (1), not much (2), somewhat (3), quite a bit (4), and very well (5).

Learning satisfaction online. This study adapted satisfaction with social media measurement used in Hong et al.'s (2015) study, which was originally proposed by Lin (2008), and Song and Zinkan (2008). We measured the level of satisfaction with online learning experience with four items on a 5-point Likert-type scale based on the following: strongly disagree (1), somewhat disagree (2), neutral (3), somewhat agree (4) and strongly agree (5).

Demographics. Gender, age, parent's income, and GPA variables were measured.

Participants

In total, 524 respondents were collected, of which 496 respondents were finally used for data analysis after data checking. Of the final respondents, 66.3% (326) were female and 33.7% (166) were male. Respondents aged 16 – 17 were 9.1% (45), 18, 36.6% (181), 19, 29.1% (144), 20, 16.8% (83) and 21 or over, 8.3% (41). The distribution of parents' monthly income (IDR) among respondents as follows: 'less than 1,000,000 – 2,500,000', 29.1% (143), '2,500,001 – 4,500,000', 36.5% (179), '4,500,001 – 11,000,000' 25.9% (127), and 'more than 11,000,000', 8.6% (42). 31.9% (158) were a freshman, 41.4% (205) were a sophomore, 18.2% (90) were a junior and 7.0% (34) were a senior.

Results

What Indonesian young people do online

The majority of participants used a smartphone (94.3%) and a laptop (95.6%). 61% of participants reported having internet access at home (average home access 47.2%, ITU 2017). The most popular way to access the internet was mobile data (3G/4G), with 83.2% of respondents reporting using the internet often/very often through it, whereas only half of respondents (50.8%) reported using the internet often/very often through Wi-Fi.

On average, participants spend 10 hours online. There were significant gender differences showing female students (11 hours) spend more time online than male students (9 hours). Likewise, female students (9 hours) than male (7 hours) students stay longer on SNS [Table 1]. Participants reported surfing/browsing the internet (M=7.28), searching information (M=7.14), posting/replay to messages (M=7.12) and using social networks sites (M=7.01) on average once a day. Following these activities, participants often use the internet for learning (M=6.72). Looking at gender differences in online activities, female students significantly spend more time for searching information/surfing the internet than male students, whereas male students (M=4.32) spend more time for playing online games than female students (M=2.92).

In order to assess the underlying structure of the 19 items of SNS use behavior, a factor analysis was performed. This procedure resulted in three factors with an explained variance of 62.4%. The five factors were labelled as follows: 'Information and learning' (α = .793), 'group activity' (α = .756), 'social communication' (α = .777), 'self-disclosure' (α = .811) and 'entertainment' (α = .590). The means of the scales in each component were used as variables.

		Total	Gender	
			Female	Male
Average hours spent on the internet (a day)***		10.4	11.24	8.79
Average hours spent on SNS (a day)**		8.2	8.74	7.20
Information/ learning	Search for information*	7.14	7.25	6.96
	Surf/browse the internet*	7.28	7.35	7.17
	Learning (for schoolwork or other interests, e.g., languages, etc.)	6.72	6.83	6.51
	Read e-books/news/magazines/journals	5.35	5.30	5.47
Entertainment	Watch movies, TV shows, animation, etc.	5.35	5.30	5.42
	Watch video clips	5.43	5.35	5.60
	Listen to music, podcasts/other audio files	5.83	5.95	5.60
	Play online games***	3.40	2.92	4.32
Communication	Send/receive email	5.16	5.13	5.23
	Visit online communities	4.86	4.74	5.11
	Social networking sites	7.01	7.13	6.81
	Instant messaging	5.71	5.65	5.83
	Post or reply to messages	7.12	7.23	6.92
Other	Online shopping	2.95	2.99	2.86

Tab. 1.: Online activities.[1]

When it comes to different types of SNS usage, female students are more frequent users of SNS in social communication and self-disclosure, whereas male students are more frequent users of SNS in entertainment [Table 2]. However, no gender difference in SNS use for group activities and information and learning was found.

	Total	Gender	
		Female	Male
Group activities	4.19	4.16	4.26
Information and learning	6.03	6.11	5.91
Entertainment***	4.36	4.13	4.84
Social communication**	5.23	5.40	4.93
Self-disclosure**	5.05	5.21	4.74

Tab. 2.: SNS activities.[2]

1 * p < .05, ** < .01, *** p < .001
2 * p < .05, ** < .01, *** p < .001

The most occurred learning activities online among participants were 'communicating with friends for homework or study' (M=4.22), followed by 'searching information for homework or study' (M=4.20) and 'looking for answers to questions relating to homework or study' (M=3.97) [Table 3]. On the other hand, watching online videos for study (M=3.08) and taking freely available courses and educational content (M=2.54) were the least occurred activities among participants. Female is more likely to be engaged with learning-related activities online than male, in particular, in cooperating in their study with others, such as communication and seeking for study partners, and information searching.

	Total	Gender	
		Female	Male
Communicating with friends for homework/ study***	4.22	4.34	3.98
Searching information for homework/study***	4.20	4.32	3.96
Looking for answers to questions relating to homework/study	3.97	4.02	3.85
Getting peer support/help for homework/study	3.88	3.94	3.77
Finding good examples for essays and reports relating***	3.85	3.96	3.62
Getting study partners or groups*	3.39	3.47	3.25
Watching online videos for your studies	3.08	3.11	3.02
Taking freely available courses and educational content	2.54	2.56	2.50

Tab. 3.: Learning activities online.[3]

Relationship between use of the internet and SNS, digital literacy, learning experience online and satisfaction

To examine the relationship between variables measured, a correlation analysis was conducted [Table 4]. SNS use was positively related to learning satisfaction online; however, how participants use SNS matters. SNS use for information and learning, group activities and social communication are significantly correlated with learning satisfaction, whereas there was no significant correlation with use of entertainment and self-disclosure. Digital literacy is also significantly correlated to learning satisfaction; in particular, device literacy was highly correlated. In terms of learning experience, the more participants use for learning online, the higher perception of learning satisfaction is observed.

3 * p < .05, ** < .01, *** p < .001

An ordinary least-squares (OLS) regression analysis was conducted to predict perceived online learning satisfaction. As a result, gender, device literacy, and online learning experience emerged as positive and significant predictors. Female experienced higher satisfaction of learning online than male. Frequent online engagement for learning and higher levels of device literacy implied higher satisfaction of learning. In terms of SNS use, self-disclosure only had a significant but negative association with learning satisfaction, indicating that those who spend more time for self-disclosure on SNS are less likely to perceive benefits from learning engagement online. The adjusted R^2 was .240.

	B	β	*t*
(Constant)	1.588		5.369
Gender (Dummy: female)*	.231	.149	2.327
Parent's income	-.001	-.003	-.048
GPA (Dummy: high)	-.071	-.049	-.840
Time spent online	-.017	-.132	-1.771
Time spent on SNS	.013	.094	1.334
Group activities	-.014	-.026	-.333
Information and learning	.040	.073	1.083
Entertainment	.027	.072	1.177
Social communication	.025	.056	.800
Self-disclosure*	-.081	-.173	-2.289
Device literacy*	.170	.194	2.436
Content literacy	.135	.146	1.898
Learning experience**	.251	.215	2.985
Adjusted R^2	.240		
F	6.833		

Tab. 4.: Regression for perceived online learning satisfaction.[4]

Discussion

The high penetration of digital technologies (such as smartphones and personal computers), and diverse engagement in online activities (such as social networking and entertainment), observed in this study clearly shows Indonesian young people to be digitally engaged, as has been observed elsewhere. It is clear that there is strong evidence of an increasing trend in internet use among Indonesian young people although this may in part relate to the sample being taken in the context of young people living in urban or suburban areas.

4 * p < .05, ** < .01

Social media use is positively correlated with learning experiences and has positive outcomes; however, what young people actually do on SNS is important. It is not surprising that there are negative associations between SNS use for less learning-related activities, such as self-disclosure observed in the results of regression. It is worth noting that engagement with SNS can produce positive outcomes in learning, by increasing efficiency in sharing content and ideas and seeking help/support with studying. Research has suggested that SNS, such as Facebook, are potentially useful tools for promoting effective academic practice (Kalpidou, Costin, & Morris 2011; Madge, Meek, Wellens, & Hooley 2009). It has been found that undergraduate students benefit from SNS use in education-related interactions with peers, as it facilitates obtaining peer feedback and engagement with collaborative work while at university (Gray, Vitak, Easton, & Ellison 2013). The findings in this study are in line with existing research and further emphasize the significance for the current generation of undergraduates of social networks developed via SNS.

Social networks are an important source of social support. With the proliferation of online social networks, learning to socialize and maintain social relationships online is becoming a vital part of young people's lives. Digital technology does not merely facilitate online learning but can also play a crucial role in resource sharing by connecting those who need a resource to those who have the resource, in mutually cooperative ways, which ultimately enable users to accumulate resources. This result implies that the culture of sharing that today's young people experience is becoming a crucial part of education. Many activities which are necessary for learning, such as finding relevant information and materials and seeking help/assistance from others, are increasingly technology-mediated, which allows learners to increase their learning efficiency.

This study suggests that digital media literacy is a key factor in education. It has been acknowledged that simply having access is not enough to guarantee effective use of technology even among users (Dobransky & Hargittai 2006; Park, 2012). There has been an emerging trend which includes not only being able to access a social resource through digital technology but also being able to circulate the information and resources shared online. Notably, our regression results show that device literacy contributes to increased online learning satisfaction, indicating the importance of technical skills which are increasingly required to use evolving digital technologies.

Young people are likely to be deemed technically savvy; however, many researchers reveal that university students in particular vary widely in their digital use and competency (Kennedy, Judd, Dalgarno, & Waycott 2010; Eynon & Malmberg 2011). Therefore, providing technical support and assistance is critical to increasing their efficiency and effectiveness in learning though digital technology. Observed barriers to use of the internet for learning in this study additionally confirm the need for support, with almost half of the respondents (47.7%) reporting that lack of technical support from the university is a barrier to use of the internet.

More importantly, merely providing technical support, such as computer skills, may not be adequate to meet the emerging digital capability (Park, 2017). It may be necessary to educate young people about how to integrate other social skills, such as interpersonal communication and ethics. Park (2012) has conceptualized the dimensions of digital media literacy, adding the 'create' dimension to device and content literacy (see Park 2012). This creative dimension to digital literacy refers to the skill to manipulate digital technology to make, create, and express ideas and opinions and engage socially. This study puts flesh onto the bones of the 'creative' dimension by showing the significance of digital literacy among university students, particularly with regard to learning.

Above all, this study highlights the significance of the different dimensions of digital literacy, which should be equally considered when it comes to the development of digital literacy. Adopting Park's (2012) dual-layered approach to digital media literacy, we distinguished the *content* from the *device*. Our result shows those who are digitally savvy and equipped with device literacy do not always have high information/content literacy, and those equipped with high information literacy may not be able to use the technology effectively. Digital literacy is closely associated with the extent of use in terms of both depth and breadth (Ferro, Helbig & Gil-Garcia 2011). In particular, Ferro, et al. (2011) suggest that technical skills acquisition is crucial to being able to engage in more activities online, which is consistent with the findings in this study. It may be challenging for users to comprehend the different forms of software and applications that must be installed to access digital content and services, and then further upgraded to retain usage. With rapid improvements in technology, the internet is becoming faster and more complex, and thus in many instances requires costly necessary upgrades. This development requires users to keep up with various applications and devices (Newman & Gurstein 2016). As a result, the basic level of digital engagement is much higher than it was a short time ago (Helsper 2008) and technical skills acquisition is becoming crucial to being able to perform more activities online (Ferro, et al. 2011).

It is worth mentioning that the way to understand the value of technology in education, in particular SNS use, needs to move beyond seeing it 'as a tool for learning' and to recognize its value as a medium which enables learners to seek and share both tangible and intangible resources, such as materials, information, and human and emotional support. In particular, more attention needs to be paid to the culture of sharing among young people through which resources and information are generated and developed (Lee, Park, Na, & Kim 2016), as inequalities in being able to participate in such sharing practices might impact on educational achievement and the development of social resources. This emerging digital gap in education should be considered equally significant to gaps in technical skills and learning opportunities.

In this regard, this study may provide a more nuanced understanding of the digital divide study, considering issues at both the macro and micro levels. Indonesia, as a whole, is still digitally underdeveloped but is becoming one of the world's fastest-growing digital markets; mainly as the result of its large youth population. As shown in this study, Indonesian young people, especially university students, are digitally connected and engaged with a range of activities online. On the individual level, however, there are different experiences and perceptions of technology, such as learning. Therefore, the Indonesian government needs to pay attention to developing the country through the use of technology, not only by improving the access infrastructures but also by better understanding the emerging groups as well as offering training for them.

In conclusion, three major findings can be drawn from this study. First, Indonesian young people are digitally engaged, as observed elsewhere. Current university students use SNS for a range of activities, of which information seeking and learning are the most popular. Second, digital media literacy is key to increasing learning satisfaction; however, device literacy is still required to be able to harness technology for learning as it is constantly evolving. Third, the culture of sharing is an emerging practice that is becoming routinized among young people, which also influences how young people in this digital era learn and obtain knowledge and information. Taken together, these findings provide further impetus to move beyond debates about technology in education to seeking a more sophisticated understanding of this millennial sharing generation. In terms of technology in education, broader perspectives on learning via technology are required to improve this generation's education. Although the findings in this study are informative, our research method does have a limitation. This study was conducted in a university in Indonesia using a convenient sampling method. Although participants were randomly recruited on the campus, results may not adequately represent Indonesian young people, so generalizations from the results of this study should be made cautiously.

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