THE USE OF SMARTPHONES AND SOCIAL MEDIA IN SCHOOLS OF KOTA SALATIGA, CENTRAL JAVA

Dharmaputra T. Palekahelu
Satya Wacana Christian University
Indonesia

John Hunt
Education Consultant: ICT for learning
Australia

Rose-Marie Thrupp
University of the Sunshine Coast
Australia

Stefanus Relmasira
Satya Wacana Christian University
Indonesia

Abstract

Smartphones and social media are the source of entertainment and communication for many students, both inside and outside of school. This is the case in Indonesia where high numbers of students from Year 6 to senior schooling have access to a phone and social media. To investigate student use of smartphones and social media, it is therefore appropriate to collect data from students. Children know first-hand what they do, know and think about the environment created by smartphones and social media. This study will inform educational leaders about design learning of the future.

Introduction

The focus of this study is about knowing the learner and his/her context as the basis for designing learning. Historically, Ausubel (1968) and colleagues suggested this to mean building knowledge of the child's physical, emotional, social and cognitive environments. In the late twentieth and early twenty-first century, knowing the learner encompasses knowledge of the digital environment from and the digital experiences with which learners come to school, including where children have no access to digital processes or artifacts (Thrupp, 2008). Childhood has changed as a result of the introduction of information communication technologies. Thrupp claimed that ICT-based identities of students require greater responsiveness to an increased diversity in classrooms than in pre-ICT eras. Understanding the digital context of students and their ICT-based identities in a wider learning community enables schools to design a total learning environment, both physical and curriculum, in which students feel comfortable and learn in a way that meets their needs in the twenty-first century. In a recent study, Palekahelu, Hunt and Thrupp (2016) examined access to and use of ICT by school-age children in Central Java, Indonesia. This earlier report identified the prevalence of mobile technologies in this age group. As a general rule, mobile technologies are widely available and used in Indonesia. This is particularly the case in the schools and homes of the students surveyed. The data used for this report was a subset of the data gathered previously during an earlier study. In establishing an understanding of the use of smartphones and social media as mobile technologies, purposeful consideration can be

given to the extent of and nature of impact of this phenomenon on schools, classrooms and learning. This study confirms the wide availability and use of smartphones and social media and delves into the uses and social practices by students developing a picture of the contemporary learner in Indonesian schools. The study provides starting points for schools and education leaders to consider future approaches in learning.

Literature

The influence of the environment from which students come has long been recognised as a factor in improving schooling. The environment is constituted by background experiences from which knowledge and attitudes develop. Considerable theoretical work on prior knowledge (Ausubel, 1968) has influenced teachers as they work to know their learners. On this basis, curriculum is designed as a composite of content and strategy to create success in learning. The importance of background and experience are further extrapolated in the concept of inclusivity, enabling all students to achieve successful learning despite variables in their background. Given this, the digital context from which learners arrive at school daily needs to be visibly recognized and valued in the classroom (Thrupp, 2008). This study makes visible the digital context of learners in Indonesian schools.

The Context of Childhood in the Twenty-First Century

The social practices that constitute childhood, once dictated by geographic areas (Prensky, 2001), are no longer limited in this way. Childhood has changed for this generation. Childhood interactions occur with a variety of different groups in different geographical locations, breaching the limitations of distance, time and culture (Jukes & Dosaj, 2006). Both social and pedagogical activity (Hayes, Mills, Christie, & Lingard, 2006) in childhood has changed. For some children, personal lives have both virtual and physical components marking this generation apart from earlier generations (Sefton-Green, 2001). Key to these changes is the ICT-driven interactions. These changes in childhood social practices associated with digital technologies are associated with changed thinking about learning throughout childhood. Schools can no longer claim ownership of learning (Condie & Munro, 2007). Contemporary learners have increased opportunities to learn from others, have control of that learning (Somekh et al., 2002) and learn anywhere and anytime (Davies, Hayward & Lukman, 2005). ICT have provided this context. There is a need to understand prior learning and background experiences (Ausubel, 1968) as the "local reality" of teaching and learning (Wink & Putney, 2002, p. 30). Understanding "local reality" enables teachers to define their role to meet the challenges of working with contemporary learners. With this, teachers determine school organisation and classroom pedagogy to enable successful learning.

Social Media in Indonesia

Social media affords the opportunity for students with online access to contribute to the world in meaningful ways (Richardson, 2011). Social media allows students to create, share, discuss or exchange ideas and information online. Between 2004 and 2009, the amount of time that students aged 2 to 11 spent online increased by 63 per cent (Varlas, 2011). According to Asosiasi Penyelenggara Jasa Internet Indonesia (eMarketer, 2015), Internet use is synonymous with social media use in Indonesia (see Table 1).

Table 1

Digital Activities Conducted by Internet Users in Indonesia, February 2015 *N= 2000 aged 18-65*

	% of respondents
Use social networks	87.4%
Look for information/search/browse	68.7%
Instant messaging	59.9%
Latest news	59.7%
Upload/download videos	27.3%
Email	25.4%

This same group, (eMarketer, 2015), reported that the vast majority of Internet users (85%) conducted online activities using their mobile phones. Fewer than one in three respondents went online using a laptop computer, desktop or tablet. In another online forum (Redwing-Asia, n. d.), the use of social media is well described in the following:

> Indonesia is currently vying with Brazil for the title of social media capital of the world, and the stats show why. It is the world's 4th largest market for Facebook, 5th for Twitter, and 12th for LinkedIn. The reason for being at the top of the tables is twofold. Firstly, demand: Indonesia has an exceptionally social culture, and the statistics simply reflect the online expression of the real world in Indonesia. The second reason is supply: ingenious tweaking gets Facebook working on even the lowliest feature phone, so more than 80% of the mobile base of 278 million subscribers can potentially access social media services. (para.1)

The use of smartphones and social media are cause for investigation, and in the case of children the investigation must take place with the children, themselves.

Student Voice and Use of ICT

Much childhood activity with smartphone and social media is invisible to those in the immediate vicinity of the child. Much of the information that needs to be known about students and their interactions with smartphones and social media can only be learned from the student. A growing body of research in the area of ICT has produced findings from data provided by children. This approach to data collection is known as *giving voice to children and students, student voice* (Thrupp, 2008). Fromme (2003) argued for the need to hear children when childhood is being examined. After all, it is their social and cultural milieu. Effective data collected from children results from techniques that acknowledge that children provide relevant and valid information (Somekh et al., 2002; Appleton, Hunt, Heldsinger, & Thrupp, 2006; Thrupp, 2008; Mojica-Casey, 2014). These techniques acknowledge the distinctiveness of gathering consistent and clear data from children and the need to capture the "social, cultural, situational and contextual" reality of children (Stake, 2005, p. 452).

Research Questions

1. What use is made of smart phones in schools? What is the frequency of their use? How much time is given to using smart phones?
2. 2.What use is made of social media for learning? How much time is given to using social media?

Methodology

The research used a mixed methodology, where the survey collected data that was both closed response (quantitative, using Likert scales) and open response (qualitative). Trained enumerators administered the surveys in fifty-two schools including primary/elementary, lower secondary, senior secondary and vocational schools, with a requirement that sampling represented schools in urban and peri-urban areas. Students participating in the survey ranged from 10 to 18 (Year 6 to Year 12).

Table 2

Number of School Type in Sample

	Number of type	Number of female students	Number of male students
1. Primary/Elementary	33	481	456
2. Junior Secondary	10	218	201
3. Senior Secondary	6	151	105
4. Vocational High School	3	68	58

Data Analysis

From the total of 1738 respondents, 80.5% own mobile phones, while 19,5% do not own personal mobile phones. From the total of 1399 students that own mobile phones, 92.6% own one mobile, while the other 7.4% own one or more mobile phones.

Table 3

About Smartphones N=1738

80.49% of students reported ownership of a smartphone
29.40% of students reported using smartphones for learning either one or more times a day or two to three times a week
23.30% of students reported using their phones at school for social activity either one or more times a day or two to three times a week

As might be expected, there is an increase in ownership in the higher levels of schooling: 71.5% of upper primary students have a smartphone; 80.2% of lower secondary students have a smartphone; with the figures being 95.6% and 81.75% for senior secondary and vocational schools, respectively.

Table 4

Brand of Smartphone Commonly Used by Students Not all students responded to this question

	No. of references		No. of references
Samsung	389	Evercoss	66
Advan	193	Oppo	66
Smartfren	171	Sony	41
Asus	121	Nokia	34
Lenovo	97	Blackberry	30

From the total of mobile phones used, the largest numbers by brand representation are Samsung (27.2%), Advan (13.6%), and Smartfren (12.0%). In the data available, 14.4% of primary/elementary students use smartphones in learning activities either one or more times a day or two to three times a week; for the other schools and the same frequency, the data are: 19.25% in lower secondary, 90.4% in senior secondary, and 58.9% (73) in vocational schools. Facebook, YouTube and SMS dominate social media use at home though a diverse range is reported.

The use of social media at home is twice the frequency of use reported at school (see Table 5 and Table 6). Other social media used by students included: BBM (cross platform), IMO, Instagram, WeChat, Path, Blogs, WattPad, Quipper, Google Hangout and assorted email packages.

Table 5

About Social Media at Home	N=1738
59.09% of students use Facebook	
21.28% of students use Twitter	
53.10% of students use YouTube	
85.78% of students use SMS	
39.29% of students use Line	
27.67% of students use WhatsApp	

Table 6

About Social Media: Frequency of Use Home Versus School

35.55% of students use social media at school either one or more times a day or two to three times a week
64.55% of students use Facebook or social media at home either one or more times a day or two to three times a week

These data were further analysed according to level of school. In all instances, greater use occurred at home with less of a difference between use at home and school evident in senior secondary and vocational levels. For the complete cohort, 35% use it at school either one or more times a day or two to three times a week, whilst at home this shifts markedly to 64.6%.

Table 7

Locational Use of Social Media by Students Not all students responded to this question

	At school	At home
Primary/Elementary	20.6% (185)	54.3% (497)
Junior Secondary	34.7% (141)	71.7% (295)
Senior Secondary	80.8% (202)	90% (226)
Vocational High School	72.6% (90)	83.2% (104)

One question asked specifically about using social media at school for *learning*. Table 8 summarises students' use of Facebook and other social media either one or more times a day or two to three times a week *at school and for learning*.

Table 8

Social Media and Learning at School Not all students responded to this question

	No. of references
YouTube	686
SMS	352
Facebook	351
Line	137
WhatsApp	92
Twitter	76

The use of social media at school showed 98% use it to search for learning material, that is for enhancing knowledge, searching for information assigned by a teacher, finding the meaning of difficult words, translating English to Indonesian, and for communicating learning materials and assignments given by a teacher. A small number of students use social media at school for social activities such as: updating status, commenting friends' status, posting pictures, etc. Students were asked to describe some of the things they do with social media at home; this diverse use is shown in Table 9.

Table 9

Student Activity Using Social Media at Home

News	83	Video/YouTube	72
Chat	205	Jobs	48
Facebook	63		
Status	102		
Friend	195		
Games	122	Learn	47
SMS	47	Search	80
BBM	41	Information	211
Photos	25	Lesson	26

The analysis here is of single words. However, they were often contextualized further in combination with other words, e.g., chat with friends, upload photos, find jobs (employment), download videos, contact friends and family. One particulate grouping demonstrated that social media was also used at home for the purpose of schooling (shaded text above). While social media outside school hours is significant, 76% utilized it for social activities such as communicating with friends, sharing pictures, looking for entertainment, as well as gaining information related to their learning. Students were asked to indicate approximately how many hours each day they used specific social media (see Table 10).

Table 10

Daily Hours of Use of Social Media 1702 students responded to this question

Social Media	0.1-.99 hours	1-3 hours	4-6 hours	7-9 hours	>10 hours	Do Not Use
SMS	328	704	96	22	49	446
Twitter	129	203	12	0	4	1356
YouTube	209	672	44	6	13	745
Line	155	408	48	18	33	1043
WhatsApp	114	266	20	6	19	1225

SMS, Facebook and YouTube appear to be the social media most widely used. With reference to SMS and Facebook, a number of students suggested that they were connected 24/7. These students were mainly from the secondary and vocational phases of schooling suggesting the primary students may use a restricted set of social media.

Answering the Research Questions

RQ 1: What use is made of smartphones in schools? What is the frequency of their use? How much time is given to using smart phones?

The data suggest that as a mobile technology, smartphones live in pockets, in the hand and in the school bag. They provide instantaneous and endless access to a wide range of social media. Students make use of these diverse media in a way that matches their style and that of their friends. As a result, they are accessible at all times, enabling frequent use both in school and out of school. By the time students are in higher levels of schooling, use of social media could be said to be habitual. The diverse use of social media, both in frequency and nature, challenges school leaders and teachers to understand the variety of experiences students bring to school (Ausubel, 1968).

The answer to this question must be considered against the prevailing views of Indonesians who regard the Internet and social media as almost one and the same (eMarketer, 2015). Smartphone ownership in the schools surveyed is high (80.5%). More than 30% of students use these devices either one or more times a day or two to three times a week. At the same time, students have said that their use of social media at home is high, with 1122 students using Facebook or social media either one or more times a day or two to three times a week.

The broad list of social media used at school includes Facebook, Twitter, YouTube, SMS, Line and WhatsApp. The use made of these tools and the wide range of tools and apps connected to the Internet, is mostly about communication across social groups and searching for information for class work.

The difference in home/school use of social media using smartphones decreases across the years of schooling. It is clear that there is a strong difference in the use of social media by primary/elementary students at home and school. More than twice as much use occurs at home. The extent of difference in home/school use is similar for junior secondary students. In senior secondary and vocational schooling, the difference between home/school use decreases extensively.

RQ 2: What use is made of social media for learning? How much time is given to using social media?

The data suggest that school related learning occurs through the use of social media. It is evident that students no longer rely upon the teacher or the school to learn. Students are using social media and thereby learning different ways to learn and how to control their engagement with learning, engaging in pedagogical activity away from school (Hayes et al, 2005). It can be assumed that the diverse experiences with social media beyond the school are creating different types of learners, bringing to school different expectations of learning and curriculum. This could be a challenge for teachers to create new and different pedagogical frameworks. Students have been less clear about precisely how they use social media and the Internet for learning, although there are statements about capacity to complete tasks set by the teacher and to locate current information for presentations and assignments.

Social media is used at school by 98% of the students surveyed. They use it to search for learning material, for enhancing students' knowledge, for searching for information assigned by a teacher, finding the meaning of difficult words, translating English to Indonesian, and for communicating learning material and assignment given by teachers. The greatest time allocated to use of social media by students appears to be in the range of 1-3 hours per day, with some students being connected 24/7 (mainly from secondary and vocational schools). Table 10 clarifies these data more fully.

Where to from Here?

Smartphones, social media and the Internet are to a large extent the same thing in the Indonesian context. The smartphone creates the connectivity, and the Internet provides access to the social media. This is a cultural scenario that needs to be understood by those who bring distinctly Western and developed nation views to this research. There is a need to understand the local context and consider how this influences expectations and possible solutions to learning in a connected world. Indonesia does not rely on copper wire networks for telephony and Internet access, as say does Australia or the US. Therefore, arguments about the possible solutions surrounding how the Internet (including smartphones and social media) need to be explored from the prevailing cultural context. These 'wired and wireless' technologies are embedded in the Indonesian culture. The question is: How can this be value-added to grow learning opportunities in a safe and secure environment for learners?

School leaders and teachers are faced with a diversity of learners, strongly influenced by the learning afforded them through smartphone technology and social media. Strong use of social media opens a diversity of social practices, giving students freedom in an unsupervised social environment. Students learn to be independent and in control of their communication and learning, recognising that they do not need to depend on teachers and schools for learning. Learning is now available outside the school gates. Teachers need to recognise that students come to school having learned extensively, school-type learning in an out-of-school context in ways that match their learning styles. They have collaborated with friends and self-directed their use of time and engagement with topics. These learners may challenge a traditional teacher-directed pedagogy.

The Challenges

The horse has bolted one might say. The Internet and all it embraces is an established part of life for many Indonesians, including its school children. Personal beliefs around the Internet and the World Wide Web are well developed due to access to and use of social media through smartphones. The cultural aspects of how Indonesians perceive the connected world must be respected. The challenge is for education system authorities, school principals and teachers to elaborate upon this information to build a view of the contemporary Indonesian student. A comprehensive view built upon this meager start will serve to build curriculum and pedagogy that create a match with the contemporary student, the way they now learn and want to learn. Many schools will be responding, but the challenge for some systems and some teachers will be difficult. The solution must lie in exploring examples from around the globe that have harnessed mobile phones and social media to grow learning.

Moving Forward

To ensure the safety and security of schools and their students, rigorous policy should be developed and implemented in legislation to ensure that learning is maximized and safety is paramount. There are numerous Net Safety programs based on such policy that could be appropriately adapted to Bahasa Indonesia.

Schools will need to develop policy around the use of mobile technologies in schools, Again, there are many examples of how this can be achieved. Whilst there is considerable negativity around this notion, this is in a context alien to Indonesia that has established patterns of use.

Teachers will require training and development opportunities that illustrate how these technologies can be harnessed to serve their students for the future and their well-being. Think tanks of innovative teachers need to be created and encouraged to share their practice. Parents can be a school's best friend. Schools communicating with parents via social media should be explored and developed further.

References

Appleton, K., Hunt, J., Heldsinger, D., & Thrupp, R. (2006). *Information communication technologies uptake and usage by primary-aged students.* Queensland, Australia: Central Queensland University.

Ausubel, D. P. (1968). *Educational psychology: A cognitive view.* New York, NY and Toronto, Canada: Holt, Rinehart and Winston.

Condie, R., & Munro, B. (2007). *The impact of ICT in schools – A landscape review*. Retrieved from http://dera.ioe.ac.uk/1627/7/becta_2007_landscapeimpactreview_report_Redacted.pdf

Davies, C., Hayward, G., & Lukman, L. (2005). *14-19 and digital technologies: A review of research and projects*. Bristol: Futurelab. Retrieved from https://www.nfer.ac.uk/publications/FUTL68/FUTL68.pdf

eMarketer. (2015, June 9). In Indonesia, social networking tops list of digital activities (Web log post). Retrieved from http://www.emarketer.com/Article/Indonesia-Social-Networking-Tops-List-of-Digital-Activities/1012582

Fromme, J. (2003). Computer games as a part of children's culture. *International Journal of Computer Game Research*, *3*(1), 1-20.

Hayes, D., Mills, M., Christie, P., & Lindgard, B. (2005). *Teachers and schooling: Making a difference.* Sydney, Australia: Allen & Unwin.

Jukes, I., & Dosaj, A. (2006). *Understanding digital children*. Retrieved from http://www.wright.edu/~marguerite.veres/786syl/growingupdigit.pdf

Mojica-Casey, M. (2014). *An exploration of student online experiences during mathematics class in the Middle School* (PhD thesis). Central Queensland University, Queensland, Australia.

Palekahelu, D., Hunt, J., & Thrupp, R. (2016). ICT use by schools in Kota Salatiga, Central Java. In L. Morris, & C. Tsolakidis, (Eds.), *Proceedings: International Conference on Information Communication Technologies in Education (ICICTE) 2016,* Rhodes, Greece.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, *9* (5), 1-6.

Redwing-Asia (n. d.). Indonesia's love affair with social media (Web log post). Retrieved on 23 January 2016 from http://redwing-asia.com/market-data/social-media-2/

Richardson, W. (2011). Publishers, participants all. *Educational Leadership*, *65* (5), 22-26.

Somekh, B., Lewin, C., Mavers, D., Fisher, T., Harrison, C., Haw, K.…Scrimshaw, P. (2002). *ImpaCT2 Pupils' and teachers' perceptions of ICT in the home, school and community*: *BECTA*. Retrieved on October 10, 2005 from www.becta.org.uk/research/impact2

Stake, R. (2005). Qualitative case studies. In N. Denzin & Y. Lincoln (Eds.), *The Sage handbook of qualitative research* (443-461). Thousand Oaks, CA: Sage Publications.

Thrupp, R. (2008). *Social groups and information communication technologies: Exploring primary-aged learners' identities* (Unpublished thesis). Central Queensland University, Australia.

Varlas, L. (2011). *Can social media and school policies be 'friends'?* Retrieved from http://www.schoolstream.com.au/social-media-schools/

Wink, J., & Putney, L. (2002). *A vision of Vygotsky*. Boston: Allyn & Bacon.

Acknowledgment

The researchers gratefully acknowledge the support provided and the permission granted by the Kepala Dinas Pendidikan: Kota Salatiga to undertake this study. Thanks are also extended to the schools, principals and students who welcomed us to their schools and to the research students who capably acted as enumerators.

Author Details

Dharma Palekahelu
dharma.palekahelu@staff.uksw.edu

John Hunt
johnhunt49@optusnet.com.au

Rose-Marie Thrupp
rose_marie_thrupp@icloud.com

Stefanus Relmasira
stefanus.relmasira@staff.uksw.edu