

# CHANGING THE FACE(BOOK) OF HIGHER EDUCATION AND STUDENT COMMUNICATION: NWU CASE STUDY

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We are living in a time of incredible technology changes and technology is bringing all spatial elements closer together. In this sense, the increasing technological changes are impacting on our approach to society, to planning and to breaking new ground in terms of research and education. There is a rise of a new generation that is "location-aware" (based on virtual environments) and speaks a "technological-language" (via social media and networks). This also impacts on the teaching-learning environment within the current university structures, as students (the generation Y learners) are more equipped with technology, and even 'talk a different language' than generation X (tutors, lecturers and study-leaders). This study aims to investigate the preferences of the new generation Y, in terms of technology usage, based on the surveys conducted among the Urban Planning students on the Potchefstroom campus of the North-West University, South Africa, in two year intervals (2011, 2013 and 2015). It furthermore aims to link the current technology hype with teaching-learning strategies, addressing new Urban Planning initiatives and mobile application assisting the planning of virtual spaces for a new generation and urban social life.

## 1. Introduction

"Everything is related to everything else, but closer things are more closely related" according to the first law of Geography (Tobler, 1970). Technology is bringing spatial elements closer together in the current era, characterized by incredible technological changes. Technologies that took dozens of years to become mainstreamed now emerge within a period of three to five years. Radio took 38 years to reach an audience of 50,000,000. Television took 13 years and the Internet took a mere five years (Rosen, 2004).

Currently everything in the media world gets tracked, tagged and mapped. Cell phones became location-aware, computer games moved outside, the web is tagged with geospatial information, and geobrowsers like Google Earth are thought of as an entirely new genre of media (Parks, 2009). Spatial representations have been inflected by electronic technologies (radar, sonar, GPS, WLAN, Bluetooth etc.) traditionally used in mapping, navigation, and location and proximity sensing. There is a rise of a new generation that is "location-aware" (Varco, 2004).

The paper explored the current technology hype (with specific reference to WhatsApp and Facebook) and investigated the preferences of technology usage of the new generation Y, specifically the Urban Planning students of the North-West University (NWU) in South Africa. The empirical investigation was based on university-wide surveys conducted in 2010 and 2012, and two-yearly interval surveys conduct among 3rd year Urban Planning students in 2011, 2013 and 2015, in order to be able to compare differences and illustrate advances, changing needs and preferences with regard to technology usage. The paper furthermore explored Urban Planning initiatives which resulted due to technology advances, such as the planning of virtual spaces, participatory planning advances and data collection methods via social media, as these initiatives impact on, and should guide, future teaching-learning approaches.

## 2. Technology reality and usage increase in the professional world

In January 2015 there were a total population of 7.210 billion people in the world (Kemp, 2015). A total of 3.010 billion of them are current active internet users and 2.078 billion has active social media accounts (Kemp, 2015). The use of technology and social media, with reference to Facebook, WhatsApp, Twitter, YouTube, web blogs, mobile mapping and bar-codes on smart phones is increasing exponentially in the everyday life. The research scope of this paper is limited to use of Facebook and WhatsApp, and the impact thereof within the professional and higher education sectors.

### 2.1 Facebook

Currently 3.5 billion pieces of content are shared each week on Facebook and there are over 70 translations available for these content. As of September 2012, Facebook had over one billion active users (Fowler, 2012) and it was found that more than 425 million active users access Facebook through mobile devices across 200 mobile operators in 60 countries (Protalinski, 2012). Figure 1 illustrates the significant increase of active Facebook users since 2004. On 28 July 2015 these numbers has increased even further to 1.49 billion monthly active Facebook users (DME, 2015).

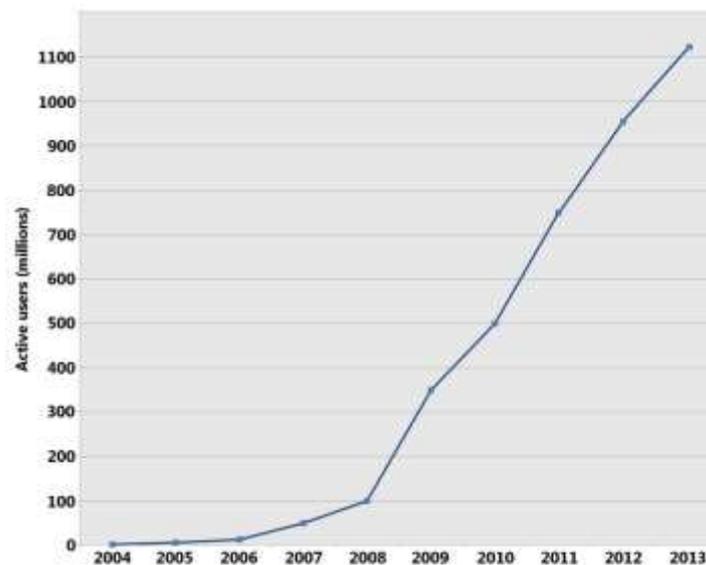
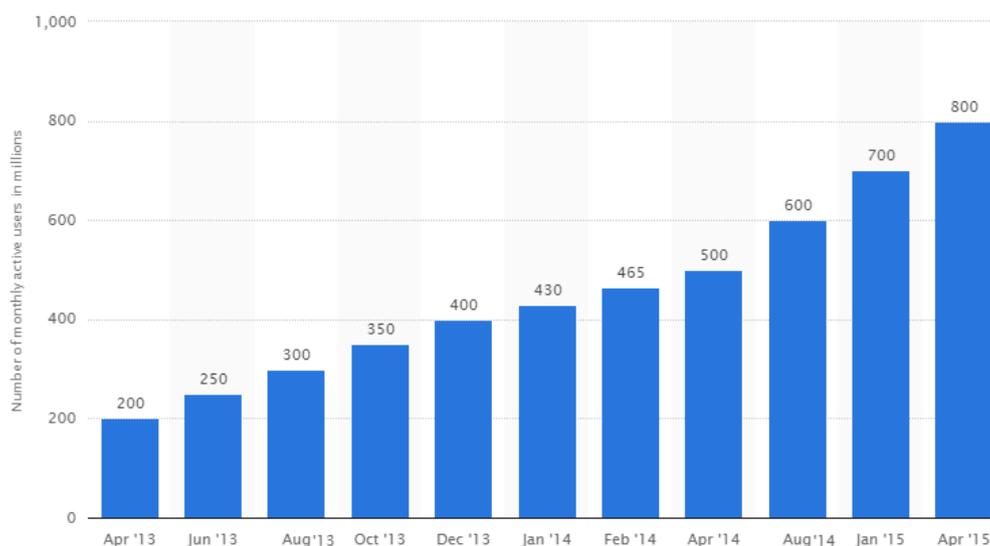


Figure 1. Facebook popularity  
Source: Facebook statistics (2013)

### 2.2 WhatsApp

Research conducted by Statista (2015) illustrated a timeline with the amount of monthly active WhatsApp users worldwide since April 2013 till April 2015, reaching 800 million monthly active users, up from over 700 million in January 2015.



*Figure 2. WhatsApp popularity*  
Source: Statista (2015)

### 2.3 Impact of technology and social media usage increases

In the global and connected workplace of today, organizations have to constantly drive innovation in its services and products, and companies are increasingly investing in Information Technology in an attempt to reduce costs, improve efficiency and gain differentiation (PwC, 2012). Through the effective implementation of technologies such as virtualization, social networking tools and Web 2.0, businesses can unlock innovation, increase productivity and improve employee engagement.

The way in which business is conducted is being rewritten by the younger generation of internet users, through using tools such as Wiki's, blogs, tagging and social media (Van Zyl, 2009). Modern organizations are applying social networking tools for the purpose of internal communication and knowledge management (Baxter & Connolly, 2014). The professional world and workspace enables employees to work from any location (Bennet et al., 2010) and it is therefore essential that networking tools are implemented on a strategic level (Bennet et al., 2010). Social networking tools such as Facebook, Twitter and YouTube are often utilized to connect with employees, share information and enhance marketing strategies (Burrus, 2010). Social media monitoring has, in this sense, also become a core focus within the professional work (Dyer, 2013).

This increase in technology and social media usages impacts on the teaching-learning environment within the current university structures, as students (the generation Y learners) are getting more equipped with technology, and even 'talk a different language' than generation X (typical lecturers at universities).

The worldwide technology hype is also present in developing countries. However, in comparison to developed countries, the developing countries are still far behind in terms of accessibility of such infrastructure and platforms. This paper acknowledges the limitations of a developing country in terms of the technology changes and advances that is not yet distributed equally throughout the country and among citizens and students. Not all citizens and students have smart phones and access to internet is mostly restricted to universities, public service providers and corporate institutions. Home based internet is not a common phenomenon. This is changing daily as more citizens are being introduced to the digital and virtual worlds of communication. The scope of this paper therefore only included basic social media structures including Facebook and WhatsApp, and university interactive platforms, in this case Efundi.

### 3. Education and technology platforms at the NWU

Education plays a vital role in today’s global society for both the whole of society and for the individuals within society (Betts et al., 2009:100). Technology is transforming the current education systems and approaches to teaching-learning strategies. The NWU implemented eFundi (powered by Sakai) as a learning management system at the end of 2006. Since then the number of simultaneous users grew from a maximum of 3000 in 2013 to a maximum of 8000 in 2015. This makes eFundi the most used mission critical system at the university. eFundi is mostly used as a content sharing and collaborative tool (NWU, 2015). The Efundi interactive platform is the formal learning and collaboration environment of the NWU. Efundi is a user-friendly site, administrating all university modules in an interactive manner. Lecturers are the site administrators of their specifics modules active on the Efundi site, and students can interact through working groups, surveys, uploading of documents, taking tests and polls, and communicating via the site with the lecturer and other class mates. Figure 3 illustrates the number of active Efundi users on a typical weekday.

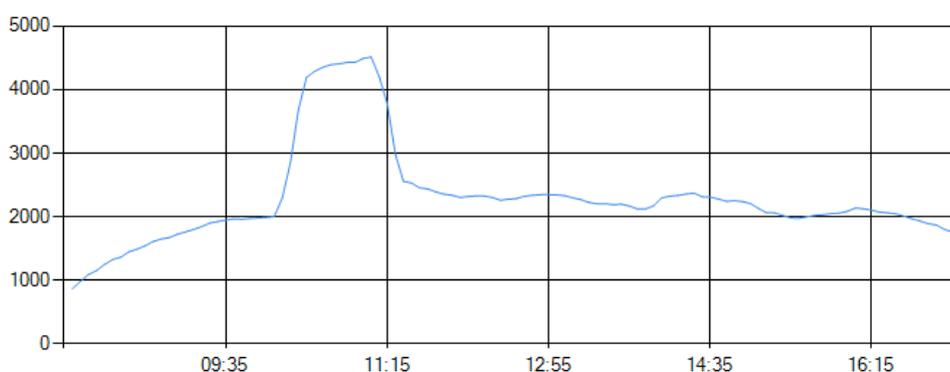


Figure 3. Efundi number of current active users in 2013  
 Source: NWU statistics (2013)

### 4. Student preferences with regard to technology use

In an attempt to determine the level and preference of technology use among students of the NWU, surveys was conducted in 2011, 2013 and 2015 among 3<sup>rd</sup> year Urban Planning students. The 3<sup>rd</sup> year group was selected as these students are in the final year of study, completed various computer modules as part of their degree, and are familiar with technology advances in the academic environment. Students completed anonymous questionnaires capturing their preferences with regard to technology use as part of teaching-learning strategies.

The findings of these surveys were compared to the university-wide survey of the NWU conducted in 2010 (Le Roux et al., 2010) and in 2012 (Olivier, 2013). The Urban Planning students were found to be more technology-orientated than the average university student, based on the survey result comparison. Table 1 capture core issues of comparison that overlapped in the various surveys.

Table 1. Level of technology usages of NWU student versus Urban Planning students.

Survey questions	NWU students	UP students 2013	UP students 2015
I have my own computer	88%	100%	100%
I access internet via cell phone (Smart phone)	92%	100%	100%
I have access to social media (Facebook, WhatsApp)	91%	100%	100%
I use social media to contact my lecturers	9%	65%	100%

\* NWU Average of two surveys. \*\*UP=Urban Planning Students.

All students indicated that they have access to social media and are users of Facebook or WhatsApp. This correlates to the study conducted by DMR (2015) that indicated that 91% of millennials (15-35 year olds) use Facebook. Statistics have further shown that every day 798 million of Facebook users are accessing this site from their mobile phones (Digital Information World, 2015). The most significant difference illustrated in the NWU study was in terms of Facebook usage for academic purposes and the use of social media to formally contact lecturers, where Urban Planning student usage was far higher than the average university student. Possible explanations for these tendencies will be given in the next section.

In terms of importance of technology for academic success, the results of Olivier (2013) indicated that students ranked devices as follows: Portable storage device 87%, laptop 84%, personal computer 82%, printer 78%, scanner 37%, tablet 30% and smartphone 30% (Olivier, 2013). It illustrated that students are still reliant on traditional devices but drawn to new technologies (Olivier, 2013).

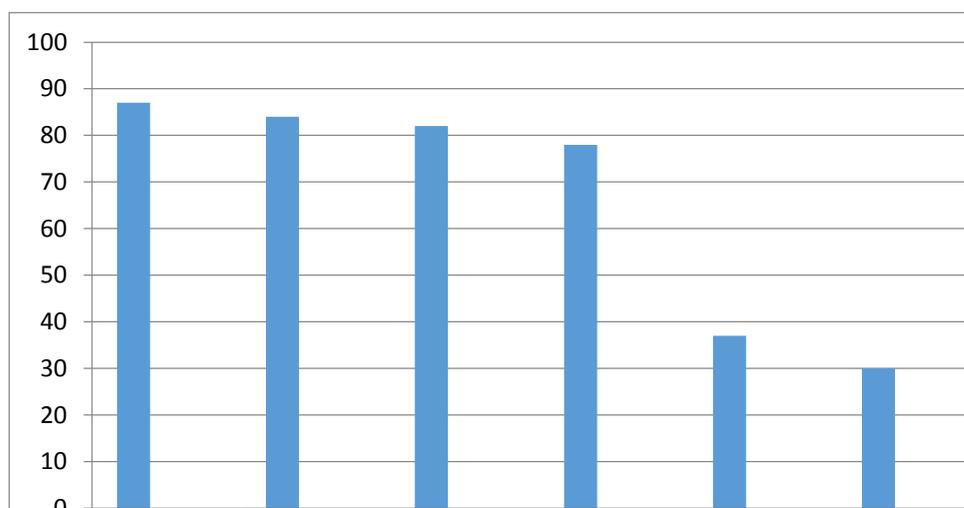


Figure 4. Importance of technology for academic purposes  
 Source: Olivier (2013)

All of the Urban Planning students (in all survey years) indicated that they have their own smart phone, and all of them have their mobile phone with them for more than 50% of the day. 75% of students in 2011 indicated that they have their mobile phone with them for more than 80% of the day, and this number increased to 94% in the 2013 survey. Most of the students use their mobile phone as the core instrument to access the internet (81% in 2011, 88% in 2013 and 93% in 2015). All students included in the 2015 survey illustrated that they have a Facebook account, as well as WhatsApp. Table 2 illustrates the data captured with regard to technology usage and preferences in the learning environment of the 3<sup>rd</sup> year Urban Planning students for the 2011, 2013 and 2015 survey years.

Table 2: Student preferences with regard to technology usage in the learning environment

Survey questions	NWU students	UP students 2013	UP students 2015
I would prefer to write electronic examinations	31%	12%	7%
I would prefer electronic study guides for my modules	31%	41%	44%
I would prefer electronic journals and literature	38%	47%	44%
I would prefer more assignments and fewer lectures	13%	18%	44%
I have more technology know-how than my lecturers	56%	23%	50%
I use my mobile phone to access the internet	81%	88%	93%

It was interesting to note that most students prefer writing written examinations and not electronic examinations (69% in 2011, 88% in 2013 and 93% in 2015). The preference of an electronic study guide did however increase from 31% in 2011 to 44% in 2015, but most students still prefer hard copies for the study guides. This correlates with the findings Olivier (2013) who surveyed 1810 students of the Potchefstroom Campus. The research proved that in 2010 there were 52% of students who preferred their study material in hard copy. In 2011 this figure shrunk to 41% and in 2012 to 35% (Olivier, 2013).

62% of Urban Planning students in 2011, 53% in 2013 and 57% in 2015 indicated that they also prefer hard copies of journals and literature. Students were not opting for the option to have fewer lectures and more assignments, thus not supporting the e-learning initiatives, but this trend is changing as there is an increase (13% in 2011 to 44% in 2015). In 2011 5% of students thought to have more technology know-how that their lecturers and this number decreased to 23% in 2013, and increased back to 50% in 2015. This emphasise the need for the NWU to make better infrastructure and platforms available to support (and train) lecturers in this regard. The 2015 study indicated that 93% of students use electronic journals for research purposes as opposed to library books. Table 3 illustrates the data captured with regard to technology usage and experience of students with specific reference to their teaching-learning environment, linked to technology advances such as Facebook and Efundi.

*Table 3: Student experiences with technology usage in the learning environment (Facebook)*

Survey questions	NWU students	UP students 2013	UP students 2015
Facebook improves my learning environment	63	29	21
Facebook is a good communication method	81	94	93
Efundi improves my learning environment	100	100	100
Efundi is a good communication method	81	71	93
I prefer Facebook (rather than Efundi) for academic purposes	25	6	14
Facebook is only useful to get quick information	88	76	79
I get academic information via Facebook from my classmates	94	47	29

Students indicated in 2011 that Facebook contributed to their learning environment. In 2011 the module (which applied to this survey) had a Facebook page and the lecturer used this as a medium to communicate with students. The Facebook page was not used in 2013 and 2015, and it was evident in the survey results where only 29% (2013) and 21% (2015) indicated that Facebook improved their learning environment. 94% of students got academic information from Facebook in 2011, and only 29% in 2015. However, most students (and in 2015 all students) indicated that Facebook is a good communication method. 18% of NWU students in the Olivier (2013) study also perceived Facebook as communication medium important to academic success. 90% agreed that it is important to have an online forum to communicate and interact with other students about academic work outside the classroom (Olivier, 2013).

With regards to the official student interactive portal of the NWU, Efundi, all of the students agreed that it contributed to their learning environment. Most students preferred Efundi over Facebook for academic purposes. Facebook is mostly used to get quick information (88%, 76% and 79% of students agreed on this in the 2-year interval survey). It was evident that Facebook was not used as much in 2015 as was the case in 2013 and 2011, as fewer students indicated that they received information from their classmates via Facebook. This can be as a result of the increase in WhatsApp technology that played a significant role since 2013. Therefore the WhatsApp technology was included as part of the 2015 survey, and it was evident that it had a visible impact in teaching-learning strategies.

Most students indicated that WhatsApp improves their learning environment, while 100% agreed that it is good communication method and all students indicated that they use WhatsApp to receive academic information from their classmates. Efundu was still preferred as platform for academic purposes. Based on the comparisons between Facebook and WhatsApp it was evident that WhatsApp played a bigger role in teaching-learning approaches in 2015.

*Table 4: Student experiences with technology usage in the learning environment (WhatsApp)*

Survey questions	UP students 2015
WhatsApp improves my learning environment	57%
WhatsApp is a good communication method	100%
I prefer WhatsApp (rather than Efundu) for academic purposes	29%
WhatsApp is only useful to get quick information	64%
I get academic information via WhatsApp from my classmates	100%

The NWU studies agreed with the Olivier (2013) survey which concluded that most (83%) students agree that technology elevates the level of teaching and learning (Olivier, 2013).

From the surveys it was evident that Urban Planning students were on average more technologically advance than the broad NWU student. This might be due to the nature of the Urban Planning discipline, relying on technology and the use of computers and specific software for layout and planning purposes, as explained accordingly.

## 5. Urban Planning and technology advances

From the beginning of its practice, urban planning has always been a discipline of engagement. Although planning has been expert-driven for much of its history, participatory planning has become de rigueur in recent decades. Without engaging and interacting with city residents and constituents, planners would be lost with regards to making effective decisions and city plans. Social networks are also changing the traditional approach to urban planning and spatial development (Streetline, 2013).

Nowadays, the users of the urban spaces have different needs, brought along by the technology changes. Urban Planning is in this sense entering a new dimension, where virtual spaces are planned and used to direct the growth and potential of the actual urban spaces and places. The mobile phone has transformed the life in the city as individuals can both receive information about their surroundings through location-based services and contribute to the city as a system by participating in sharing location conditions, text, photos and videos of the city (Evans-Cowley, 2010:136). There is evidence that the new virtual environments alter the sense of individuality, along with mobility, interactions with others, capacity to participate in and document public life and senses of privacy and publicness, thus implicating and opting for a new approach to planning (Evans-Cowley, 2010:140).

The greatest impacts brought along by the technologic area with regards to urban planning processes, are in terms of participatory planning and data collections methods, and the use of the mobile phone for providing spatial information and creating virtual environments.

### 5.1 Participatory planning and data collection methods

Since the 1960s, the urban planning profession has developed increasingly sophisticated techniques and theories regarding how and why to involve citizens in planning processes (Goodspeed, 2008:20). Professional literature reflects a consensus a variety of additional techniques can enhance the process and result in more effective and democratic plans, by making use and incorporating internet technology into existing processes (Goodspeed, 2008:20).

Goodspeed (2008:30) stated that the internet is a tool for communication among government and citizens, which would enable the involvement of the public early in the planning process, and continuously during the process (Goodspeed, 2008:30-31). He further stated that internet technology would enable the participation of a broad range of stakeholders that might have been excluded in traditional participatory processes (Goodspeed, 2008:31).

This brings about a new creation of the participation ladder created by Arnstein (1969) which identified broad categories of participation ranging from “non-participation, to “empowered participation” (Fergusson, 2010). With technology now virtually omnipresent, more of the residents have access to data and city information, and it is imperative that planners use technology in ways to benefit the city and Urban Planning (Globalsiteplans, 2010). Social media can foment social change due to increased participation. Social media enhances participatory planning approaches as it provides a platform for unrestricted communication and interaction between the users of a space (residents) and providers of a space (planning authorities). The Internet is thus used as a communication tool in a group decision-making process (Hanzl, 2007:290) and the bases for projects are real world models and GIS databases (Jankowski and Nyerges, 2001).

A new net participation typology has thus appeared in the last few years (HudsonSmith et al., 2002), as illustrated in Figure 5.

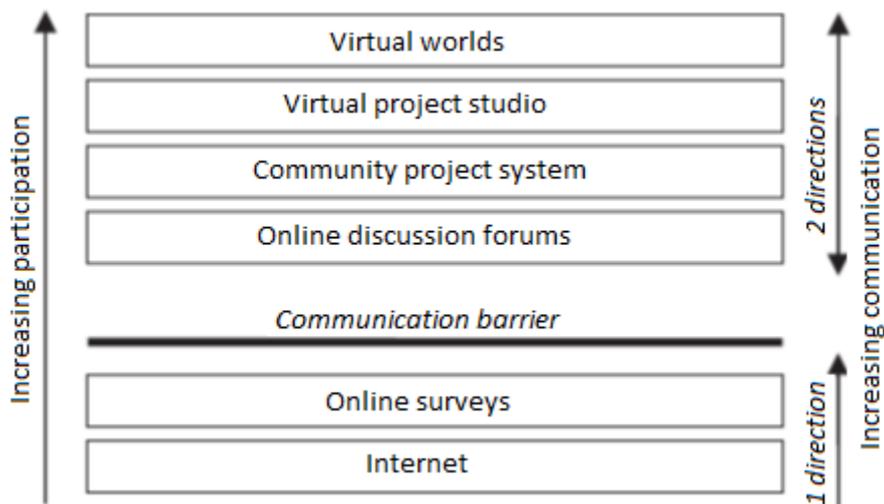


Figure 5. E-participation ladder

Source: Based on Goodspeed (2008:30), HudsonSmith et al. (2002) and Kingston (2002)

Urban technology trends thus impacted on urban planning processes (Streeline, 2013) and transformed participatory processes to online civic involvement. New app’s that lets residents submit city issues to their local government via their smartphone. Not only will the report be systematically directed to the correct department, but the app users can include details, photos, GPS positioning, and more to help mangers triage the complaint and work to address the issues more efficiently and effectively (Streetline, 2013).

### 5.3 Mobile application development for Urban Planning

Recent developments in mobile applications transformed the traditional approach to Urban Planning and the way information was collected and disseminated. Accordingly some of the most recent app’s available on Android is summarized to illustrate the extent and scope of such technology advances.

Los Angeles Department of City Planning developed a mobile planning toolkit where residents can lodge development appeals, access agency fees and schedule appointments with relevant authorities (refer to Figure 6). Residents have access to development and planning control via their mobile devices and can access such 24/7.

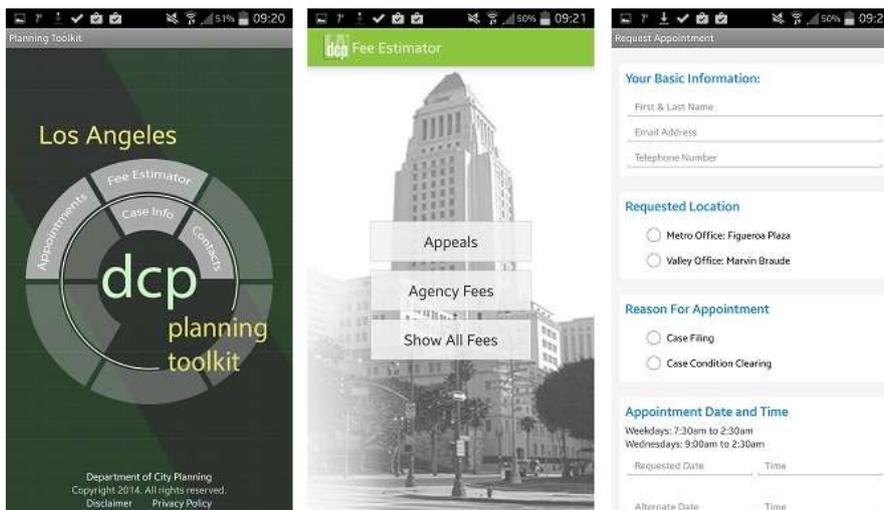


Figure 6. Los Angeles DCP planning toolkit screenshots

The city of Philadelphia have a bicycle- and points-of-interest maps, free to download on Android devices. The movements and usages of roads can be monitored through this app. Figure 7 captures screenshots of this app.

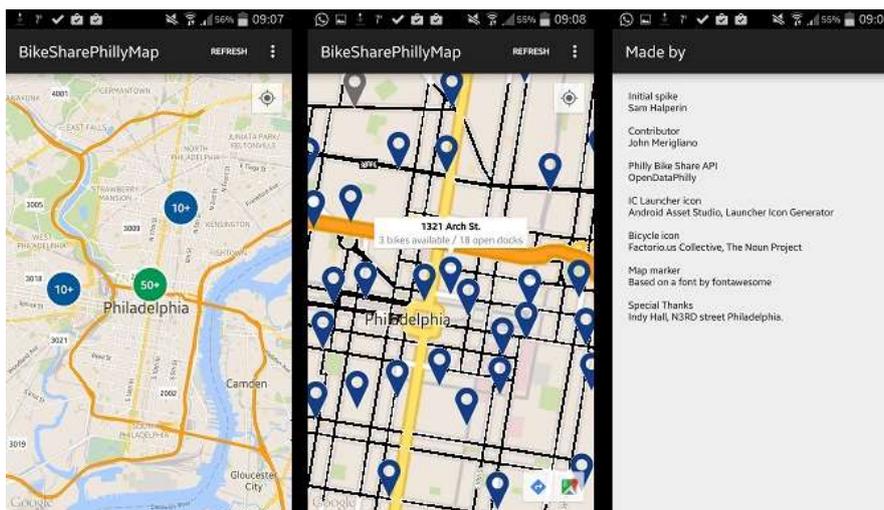


Figure 7. BikeSharePhillyMap

The city of Rotterdam in the Netherlands developed a “sustainable Rotterdam” app, which provides

information sustainability, water and buildings. The GIS technology identify points of interest in and around the city for citizens and tourists to access. The spatial development of the city is not only visible by mapping this information, but also continuously updated by new developments and data collected by means of virtual log-ins and citizens feedback.



Figure 8. Sustainable Rotterdam app screenshots

The entire Singapore 2014 master plan is available on a mobile application. All relevant maps and legends can be accessed by means of a mobile phone. Residents are thus engaged in the planning and more aware of planning provisions and plans (refer to Figure 9).



Figure 9. Singapore Master Plan application 2014

These applications represents only the beginning of the use of mobile applications within Urban Planning processes. Google recently announced it would be starting a new company, Sidewalk Labs, to invent and invest in “urban technologies” that will produce, “extraordinary business opportunities and opportunities for improving quality of life” (Lohr, 2015). Sidewalk Labs would instead of top-down planning approaches, seek to develop “technology platforms that people can plug into” (Lohr, 2015). This might be a glimpse as to what the future might hold for technology usage in Urban Planning.

## 6. Impact on teaching-learning strategies

In a competitive global economy, career placement and advancement are based on education, training, and the ability to apply knowledge, skills, and experience within dynamic work environments. While education and training provide the foundation for knowledge and skill development, it is through learning simulation and work-integrated learning that students acquire practical experience and engage in professional development while preparing for new careers, career advancement, or career transition (Betts et al., 2009:99).

Education involves “activities that provide the knowledge, skills, and moral values that individuals will need in the ordinary course of life (Erasmus, 2007:2). The technology advances within the Urban Planning profession, as captured above, also impacts on the teaching-learning strategies. Not only should teaching-learning strategies familiarise students with such advances, but also equip students to use and master these initiatives.

From the surveys conducted it is evident that students recognize the importance of the technology usage as part of Urban Planning processes, as 100% of the students agreed that technology advances are beneficial to their profession (refer to Table 4). There are also implications for teaching and learning as Facebook emphasizes the importance of creating content over simply consuming it. Facebook allows students to express themselves, communicate, and assemble profiles that highlight their talents and experience.

There is a need to explore and understand the elements of social networking that students find so compelling and to incorporate those elements into teaching and learning (Du Plessis, 2011:28). The digital divide should be kept in mind when pursuing technology methods as part of teaching-learning. Engaging in social media states to students that the lecturer are engaged in the subject. Student-centered learning has power (Du Plessis: 2011:71) and technology advances and social media is enhancing such approaches.

*Table 5: Student perceptions of the impact of technology on Urban Planning processes*

Survey questions	NWU students	UP students 2013	UP students 2015
I think technology advances are beneficial to my profession	100	100	100
Urban Planning should consider and plan for virtual places	100	88	93
Urban Planning can benefit from social media usage	94	100	93
I scan barcodes to get information	19	6	14
I often log in at virtual places, attend events via social media	63	76	71

Students are aware of the importance of virtual spaces as part of the current reality and almost all students agree that Urban Planning should consider including the planning of virtual places. In contradiction they state that most of them don't scan barcodes to get information and although most students often logged in at virtual places. However, 94% of students in 2011, 100% of students in 2013 and 93% of students in 2015 still stated that Urban Planning could benefit from social media usage.

## 7. Conclusion: Changing the face(book) of higher education and student communication

As Lynch (1960:120) stated: “In the development of an image, education will be quite as important as the reshaping of what is seen. Indeed, they together form a circular, or hopefully a spiral, process: visual education impelling the citizen to act upon his visual world, and this action causing him to see even more acutely. A highly developed art of urban design is linked to the creation of a critical and attentive audience. If art and audience grow together, then our cities will be a source of daily enjoyment to millions of their inhabitants”.

Contemporary planning theory evolves towards planning through communication and debate (Healey, 1997). Technology advances directly benefits such initiatives. Education is an active process involving instruction, guidance, and supervision. Education plays a vital role in today’s global society for both the whole of society and for the individuals within society (Betts et al., 2009:100). From the surveys conducted it was evident that, even in a developing country such as South Africa, students are becoming more reliant on technology advances to enhance their learning environment. Generation Y is the technology-generation, preferring a technologic language as core communication method. It also benefits the teaching-learning environment. “Any technology that is able to captivate so many students for so much time not only carries implications for how those students view the world but also offers an opportunity for educators” (Du Plessis, 2011:2). Student-centered learning implies the learner has full responsibility for their learning. It implies that involvement and participation are necessary for learning, that the relationship between learners is more equal, and that the teacher becomes a facilitator and resource person (Du Plessis, 2011:9). Technology advances enables such learning possibilities.

With the new emphasis on blended learning and the electronic creation of study material, the tools that aid users with this become more important. The NWU are also working on an increase in the usage of eFundi tools including Lesson builder, Web content and the recently added LTI integration tools (NWU, 2015). eFundi MOVE is an app being developed for eFundi. The MOVE part of the name is an acronym for Mobile Offline Version. The first version of eFundi MOVE is currently in pilot phase. The main function of this version of the App is to take the content that lecturers make available through the Resource tool, offline. This is available for Windows desktops as well as Android and iOS devices. Students will be able to access their learning material via MOVE, when they have no connectivity (NWU, 2015).

Mobile-friendly technology needs to be implemented, along with resources and applications, since students view this type of technology as very important to their academic success (Olivier, 2013).

Technology is changing the face of planning. This is evident in terms of data collection and participatory planning (via social media interactions), and planning of virtual environments. Social media provides the planning profession with a variety of ways to improve participation, perhaps achieving social change, strengthened social capital, and improved governance. Social media presents an opportunity for planners to reap the purported benefits of participatory planning while improving on the Arnstein model for participation by allowing people to choose how much they wish to contribute (Fergusson, 2010). These advances should thus also be captured in current undergraduate modules to equip students for the technological practice and transform social media platforms from communication interfaces to interactive qualitative interfaces.

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