Adapting practice to achieve City2.0 – how recent graduates are changing the nature of planning and what can be done to accommodate them

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Wednesday 15th April – 1.30-3.15pm

Keywords: technology, planning practice, graduates, engagement, smarter cities

Abstract

Technology and social media offer new approaches to planning and participation with platforms like Facebook, Twitter, YouTube, Instagram, Snapchat, and Flickr providing a variety of ways to engage and capture valuable information about the communities they are working with. Mobile applications (apps) take this one step further, allowing decision makers to analyse their city in real time (e.g. FIXiT in Wellington), and conversely, allowing users to engage with their city in a more dynamic way (e.g. Citymapper, Stereopublic and Design City). Furthermore, we are now packaging information in new forms that are easier to comprehend by those without planning expertise. Visualisations such as maps, charts and infographics have made data more accessible and easier to understand.

Such technology is second nature to Urban Planning graduates of today but what happens to this knowledge and expertise once these planners enter into practice? How can councils and consultancies embrace this new generation of planners, and the value they add to practice?

This paper will explore how contemporary planning practice has been influenced by technology and social media, and will consider the benefits and issues associated with the adoption of such technology. The paper will then consider whether such technologies are being utilised to their full potential considering the general disjoint of understanding and knowledge of graduates as opposed to more senior professionals (based on personal experiences). The paper will then attempt to identify the steps that can be taken to accommodate and fulfil the potential of the next generation of planners from a recent graduate’s perspective.
Introduction

We are all aware that technology is quickly changing the way we plan, provide information about, and gather information on cities. Information and Communication Technology (ICT) offer planning practitioners new approaches to engagement and participation. Platforms like Facebook, Twitter, YouTube, Instagram, Snapchat, and Flickr providing a variety of ways to broadcast and capture valuable information about the communities they are working with. Mobile applications (apps) take this one step further allowing decision makers to analyse their city in real time, and conversely, allowing users to engage with their city in a more dynamic way.

At the forefront of understanding this technology in planning practice are our newly minted graduates, who – as will be discussed below, have grown up in a world where technology is a ubiquitous component of their everyday lives. The graduates of today have the ability to use, understand, and create content and effectively communicate via a myriad of digital tools. In light of this, leveraging the knowledge from digitally literate graduates can have a number of benefits in the workplace, and for planning practice.

In this paper, I provide a brief overview of Information and Communication Technology and how it is continually shaping planning practice, and outline the concept of digital literacy. This is followed by a discussion around the tools used in contemporary planning and how university students are (and are not) being taught to use this technology. I then offer some reflections from my own experiences in the workplace as a recent graduate, highlighting some of the benefits on the part of the employee and the employer to providing grads with the tech they need.

Information and Communication Technology

In the twenty-first century, we have seen a global shift in patterns of communication and behaviour, the availability and accessibility to information, and in the participation of citizens in the happenings of their countries and communities (Houghton, Miller, & Foth, 2014). This transformation is due in large part to the rapid urbanisation occurring in cities around the world, and to the availability and increased accessibility to Information and Communications Technology (ICT), which acts as both a driver and support mechanism for this change (European Commission, 2012).

So what is ICT?

ICT is an all-encompassing term used to describes the communications devices and applications that we use on a daily basis, and their application and use in our daily lives. This may include such things as computers, tablets and the hardware and software associated with them, as well as the services they provide. Technological advances stemming from ICT include internet and cloud computing, micro- and nano-electronics, advanced interfaces (such as 3D displays and augmented reality), social networking and intelligent environments – technologies that are increasingly used on a daily basis by individuals and businesses alike.

So why is this important? In New Zealand alone, 80 per cent of households (4 out of 5 homes) have access to the internet, a percentage which increases to 85 per cent in Auckland and Wellington (Statistics New Zealand, 2013). The personal use of the internet via smartphone (mobile ICT), laptops and tablets has also doubled in recent times, with a third of households using these devices to connect to the internet (ibid).
The implications of this from a planning perspective are enormous as communication with, and the involvement of key stakeholders in the planning process is a well-established principle in urban planning (Houghton, Miller, & Foth, 2014). ICT has the potential to “promote cultural understanding between citizens, seed innovation in institution and create competitive advantage for businesses in the future” (European Commission, 2012). As the rate of connectedness in New Zealand creeps close to 100 per cent, so too does the potential to reach and engage with all New Zealanders in the planning process.

In the context of urban planning, ICT has the capacity to convey information to, and gather data on the wider community. As the use of this technology increases, so does the importance of understanding how to best utilise and manipulate the information it can provide.

The ability and knowhow to manipulate ICT – one’s digital literacy – is a skill set generally present in recent graduates, who will have never known a life without the internet, as ICT is an integral part of their everyday lives and educational experiences. The following section provides a brief overview of the concept of digital literacy, and highlights the various ways in which today’s planning students are learning to become digitally literate.

### Digital Literacy and Graduates

Graduates today are exposed to technology in myriad forms both in and outside the classroom, and many are coming out of college having grown up with technology as a ubiquitous component of their everyday lives. Growing up with tech gives these students the ability to use smart phones and apps quickly and with ease, to collaborate in the cloud, and manipulate web content for the purposes of conveying concepts without having to be taught in the classroom. This *digital literacy* – the use of digital tools for research and critical thinking, and for the communication of ideas – is a critical and valuable skill of today’s urban planning students (JISC Inform, n.d.).

First coined by Paul Gilster in 1997 as ‘literacy for a digital age’, digital literacy has evolved to a well-established concept, built on three principles:

- The ability to *use* technology; the technical fluency to use hardware devices and software applications;
- To *understand* technology; the ability to understand and critically analyse digital content and applications to make informed decisions about the world around us; and
- The ability to *create* with digital technology and engage with Web 2.0 user-generated content (Murray & Perez, 2014; Media Smarts, n.d.)

The importance of digital literacy has been recognised by the EU Digital Literacy High-level Expert Group, which noted that it is “increasingly becoming an essential life skill and the inability to access or use ICT has effectively become a barrier to social integration and personal development” (DG Information Society and Media, 2008). This is to be expected given the ways in ICT is integrating itself into our everyday lives, and the way in which the use of technology can enhance one’s academic, personal and professional development (Leeds Metropolitan University, 2011).

In the classroom, students use their digital literacy to visualise complex topics and convey messages through the medium of technology. Examples of this include using a
combination of Geographic information systems (GIS) such as ArcMap, and design software such as Adobe Illustrator to create maps and figures. Google SketchUp and Google Earth to visualise urban development in 3D, and online presentation software such as Prezi are used to create dynamic presentations.

Other skills of the digitally literate graduate include:

- The ability to find, access, evaluate, manipulate, re-use, synthesise and record information while understanding issues around a source’s reliability, citation matters and relevance
- The ability to critically read and produce professional communications via appropriate media
- The ability to engage in digital networks, using a range of digital tools that are appropriate in the given environment
- An ability to study and learn effectively in formal and informal technology-rich environments
- The ability to make informed decisions and achieve goals through the use of digital tools and media, demonstrating an awareness of identify and reputation management (Leeds Metropolitan University, 2011)

These skills align with those identified by the New Zealand Education and Science Committee, as those that will underpin the workforce of the future. As will be discussed in the following section, these skills become increasingly important as ICT weaves its way into planning practice.

**ICT + Planning**

**GIS**

One example of how technology is infusing itself into the planning profession in New Zealand is the use of geographic information systems (GIS) technology in local and regional planning departments. For example, a survey of regional council websites indicated that the majority (88%) of regional council websites offered interactive online maps, some of which were shared between councils (Tasman, Nelson and Marlborough use “Top of the South”).

Location data also enables users to capture, monitor, document and distribute information about key assets in real time, helping to improve the end users experience and address a community’s need quickly and efficiently.

For the territorial authority, GIS technology offers the ability to disseminate information to the within the organisation (via intranet) and to the wider community (via internet). GIS technology, with its geospatial analytic and mapping capabilities, can help the public to understand their property or communities in an interactive way. By adding and removing layers on screen, users are able to better understand the complex relationships that exist between zones, overlays, and planning boundaries, and instantly find information from relevant planning documents.

Additionally, GIS technology and geospatial analytics can help determine the location of key network assets, based on a combination of population data, economic factors, and natural resources. As businesses are beginning to look into the care of assets on a ‘whole of life’ basis (BIM) this ability to plan long-term with relevant information is invaluable.
GIS is a valuable tool for planners as it assists them to make decisions based on a deeper understanding of their particular geography, allowing for a weighted multiple-criteria evaluation to be undertaken, and has the ability to visually illustrate the implications of various scenarios (GIS Best Practice). This is particularly useful in the plan-making process, when planners need to think strategically about the long-term development of an area.

**Social Media**

Another example of how technology is shaping the planning profession is through the use of social media, which allows planners and organizations to directly and dynamically connect to a wider community that is more accustomed to using smartphones, tablets and laptops. As the Direction of External Communications at New York’s Metropolitan Transportation Authority (MTA) noted, “Twenty years ago, people turned on the television and the radio if they wanted to know what was going on. Now, people look at their Facebook and Twitter feeds to see what their friends are saying... This is where our customers are, and this is where we need to be” (Hsu, 2013).

Of the regional councils surveyed, all have a presence on social media, with the majority favouring Facebook and Twitter. Other platforms used included LinkedIn, YouTube, Google+, Flickr and Instagram, the latter two to a lesser extent. Social media offers a targeted way to communicate with citizens, and most consultancies and professional associations today have an online presence.

With respect to urban planning, these social media platforms enable planners to build awareness around projects and causes, provide news to the community, and to engage them in planning processes in a more dynamic way. They also provide a forum for users to directly connect with other members of the community. Rebuild Christchurch, founded after the 2010 earthquake, is a great example of how social media connects residents and businesses with the agencies in charge of rebuilding the city. Here, users can post images, articles and share opinions with over 49,000 people, and keep up with the news, events and decisions being made around the city (Rebuild Christchurch, 2010).

During and post-university, it is not uncommon for student groups and recent graduates to have a shared space online where they can post information about the latest events, discuss assignments and request help, point out job opportunities, and discuss planning-related issues. Groups such as Online forums and groups are easy to set up, easy to access and keep classmates in contact with one another after graduation.

**3D-Modelling, Virtual Reality and Augmented Reality**

Visualising, modelling and analysing urban environment through 3D-modelling and virtual reality is a thing of the present, allowing planners to communicate ideas, allowing citizens to experience suggested changes in their community in a simulated environment. SimCity for real life.

3D models are generated by collecting street data (building footprints, kerblines) from GIS, aerial photography, photographs and rendering this information via a modelling package (e.g. AutoCAD, Sketchup), creating visualisations that simulate spatial reality in a way that viewers can quickly consume and understand. When viewing scenes and buildings in 3D, the public understands them intuitively, “without any knowledge of cartography or having to decipher map symbols because the images closely imitate a real-life experience of the built environment” (Al-Kodmany, 2002).
The use of 3D modelling is widespread, being used by municipalities and businesses alike, allowing end users to see the outcomes before they are ever a reality. For example, in an effort to connect historic preservation and planning in Portsmouth, New Hampshire, a 3D map of the entire historic district was created to help determine how to integrate new development into the existing urban fabric.

Virtual reality (VR) takes 3D modelling to the next level, by creating a virtual world that users are able to interact, blurring the lines between what is real and what is not. In VR users are not only able to see the surrounding environment in 3D, they are fully immersed in the virtual world, with the ability to walk the streets, enter into buildings, and manipulate the environment as they are able to control objects.

Augmented Reality (AR) combines real and virtual elements in real-time allowing users, “to see the real world, with virtual objects superimposed upon or composited with the real world” (Azuma, 1997). Unlike VR, in AR users are able to distinguish between the virtual and real worlds. This is done by transforming 2D media objects (business cards, maps, boards, etc.) into 3D interactive spaces, where designs and content can be made ‘live’.

**ICT + Graduates**

What is interesting about digital literacy is the fact that universities have been slow to update their core curriculum to address this changing learning environment. This is evidenced by a brief survey of core requirements for accredited planning programmes in New Zealand, which found that only two Universities required a course in spatial analysis/GIS as part of the core curriculum at the undergraduate level. None were required at the postgraduate/masters level.

Although these courses are not required, it is the author’s experience that some of this technology is taught, albeit as a supplement to other courses and at a very high level. For example, some exposure to GIS is offered in the Urban Design Studio (MUrPlan 708) at the University of Auckland. This course is designed “to develop an understanding of the principles and concepts of urban design, and the visualization techniques and skills required to create and manage the urban landscape” (University of Auckland, 2015).

As part of this course, a tutorial was offered in which students learned where to find and download GIS data, and how to import this data into ArcMap, a software application that is used to view, edit, create and analyse geospatial data. Students were then taught how to export this data, and manipulate it through Adobe Illustrator and Photoshop. As the tutorial was supplementary to the course, only the very basics of these programs were covered (e.g. using layers and understanding vectors). Essentially, we taught how to view, edit, and create, but not analyse.

The real power in GIS technology is not in its map-making capabilities, but rather in its spatial analysis capabilities (Chapin, 2003). However, exposure to this and to other programs is better than no exposure at all. And in many instances, this exposure is much more than what was offered to the previous generation of planners.

Despite the fact that the core planning curriculum has some catching up to do, and a growing awareness that universities are not preparing students to be competent in the area

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1 As recognised by the New Zealand Planning Institute, 2015
2 University of Waikato – 2015 Bachelors of Environmental Planning
of digital literacy, students are entering the professional world of planning with a set of ICT-based skills and a digital literacy that is essential in an increasingly connected world (Murray & Perez, 2014). So what are the benefits associated with these skills, and how can the planning profession capture and encourage the continuing development of these skills in the workplace?

Reflections from a Recent Grad

During my interview for MWH, I brought along samples of the various maps and images that I had made during my time at university, hoping to impress them with my technological savviness and design skills. I even proudly reserved a small section on my CV to highlight my aptitude in various programs and platforms. I knew that these were the kinds of skills that employers were looking for, and was happy to showcase my digital literacy.

Upon starting my job a few weeks later, I was given a computer with the standard software suite containing the essentials: Word, Excel, and PowerPoint. What Word and PowerPoint do well, are facilitate the creation of simple documents and slide show presentations. So after a few weeks of using what I had been given, and numerous failed attempts at making my maps and figures in Word, I set out to get the software that I had become accustomed to using during university (Photoshop, Illustrator, ArcMap, etc.).

After a few discussions on why I needed this technology, my manager quickly took action to ensure that I had exactly what I needed, and also ensured that the rest of the team knew about and understood the impacts that this could have on workflow and collaboration. Reflecting back on this now, a year removed, there are a few lessons that can be learned from my situation that might be useful for businesses looking to hire new urban planning graduates, and to leverage their technological skill sets in the workplace in order to keep up with a changing profession.

It is important to note that not all new graduates will have the same needs, as not all new graduates are confident with tech, nor will all be willing to speak to their requirements. However, as they will have a better understanding of their needs than management, sitting down with them at the start of their employment to identify the tech that they require can have a number of benefits including:

- increases in efficiency
- bridging the digital divide in the workplace
- fostering collaboration between teams/departments
- professional development opportunities

Ensuring that new grads have the tech they need, is also ensuring that they will have the ability to work effectively in a planning world that has been fundamentally changed by ICT. Information and communications systems have always been an important part of urban planning, and in the contemporary planning world, ICT has changed the nature of engagement and participation by giving planning practitioners the tools to communicate complex planning issues in a more efficient way that has the potential to be easier to understand by the wider community.

Increases in Efficiency

Creating an image in Photoshop or Illustrator is quicker and provides a higher-quality outcome, than using Word (or Powerpoint!). Furthermore, having GIS and design
capabilities at my desk means that I can produce a map or image myself, saving the time it takes to 1) draw it out, 2) explain it to the CAD team, 3) review a first draft, 4) re-communicate ideas, and so on. I also have the ability to assist my team in creating high-quality documents they need for hearings, community engagement presentations, etc. Being digitally literate also means that I can quickly understand, navigate, access and analyse digital content, making my time researching more efficient.

**Bridging the Digital divide**

Employers can use the technical skills of new graduates to assist those unfamiliar with particular pieces of software and more senior employees in presenting information more efficiently, providing new ways of collaborating, and innovative methods to participatory planning. This is also an opportunity for knowledge to be shared from the less tech-savvy to grads around non-tech based solutions to complex planning problems, and to highlight that oftentimes non-tech based solutions are more appropriate.

**Fostering collaboration**

Having an understanding as to how tech works, can help communicate information to engineers and technicians, who see things a bit differently. A good example of this is a conversation I was had with a member of our CAD team about a project drawing which needed to be amended. By explaining what I needed using the concept of layers (used in CAD and Adobe CS) I was able to communicate exactly what I needed.

After receiving all the software requested, I gave a presentation to another team to raise awareness of the potential applicability to their work. This has been well received and I have had the chance to work on a number of different types of planning projects from across the county. Collaborating with them on these types of projects fosters the development of relationships across the company and across geographic locations, and has enhanced my understanding of planning processes from a policy and consenting perspective.

**Professional Development**

Technology has both directly and indirectly affected my professional development. On the one hand, being digitally literate and having the knowhow to manipulate ICT to create, use and understand technology, as well as the desire to refine these abilities, is a desirable trait for any grad to have. What takes this to the next level, is fostering this development in the workplace by way of the discussion above.

Making presentations to my colleagues sharpens my presentation skills, and gives me the confidence in my own voice. Collaborating with other teams in my office and across New Zealand introduces me to a variety of projects, people and personalities. This fosters relationships and networking, and allows me to broaden my skills and my knowledge base.

**Conclusion**

The technologies described in this paper can help to facilitate information-sharing, help harness the collective intelligence of the community and help to democratize data, creating a greater participatory environment. A benefit to this is the ability of the planner to quickly get information to a diverse group of people in an efficient manner. However, ICT does not offer a solution to every problem, and the use of tech should be considered in the context of which it is required.
Google Earth for example, can enable a planner to get a basic understanding of a site, but a site visit will enable them to understand the site in the context of the wider environment. Furthermore, while social media enables planners to reach an innumerate amount of people, it will never replace meaningful dialoguing and work-shopping directly with the community as a means to identify opportunities and potential issues. It is the responsibility of the planner to determine which of the tools available are best suited for their purpose.

ICT is changing the nature of planning, particularly with regard to the way we work and as a result, the way we engage with and work with our communities, and offers exciting ways for planners to engage with an increasingly connected and community. From this graduate’s perspective, providing grads with the tech they need offers a number of benefits, including increases in efficiency, bridging the digital divide in the workplace, fostering collaboration between teams/ departments, as well as professional development opportunities for new grads. It also empowers us as planners, to meet the demands of a changing world where technology is a ubiquitous part of everyday life, by offering new tools for meaningful engagement and participation.

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Bio

Megan recently completed the Master of Urban Planning programme at the University of Auckland as a Fulbright scholar, and is now a planner at MWH where she utilises various technologies to improve and enhance engagement and communications.