Chapter 1
Understanding and Facilitating Learning for the Net Generation and Twenty-first-century Learners Through Motivation, Leadership and Curriculum Design

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I help my mom to make the computer screen…a little bit bigger so people with bad eyesight can see…. At school I use computers to do 'Kidspiration' and on 'Kidspiration' you can write letters…you can do science… I use computers to figure out where to get certain things…stuff…. (Max, 7 years)

1.1 The Net Gen and Twenty-first-century Learners

Young Max (Zimmer 2007) shows typical attributes of the Net Generation (Net Gen): he is better at manipulating the computer than his mom, goes online to learn and surfs the net for information. Net Gen is one of many terms coined to describe those born in the years following the introduction of the personal computer and the advent of the digital revolution. Prensky (2001) called them the 'digital natives' in contrast with the 'digital immigrants', who were born before the computer era and have had to adopt and adapt to the new information and communications technology (ICT). Yet others, like McCrindle (2006) have dubbed them the Generation Y (Gen Y) or the Millennial generation since they succeed Generation X, the post-war baby boomers. The Net Gen thus consists of the cohorts of students populating the schools and institutions of higher education in the twenty-first century. As such, they would form the bulk of twenty-first-century learners, and are instrumental in shaping the educational landscape and policies of their era.

A number of authors suggested that since the Net Gen learners have been exposed to multiple types of technologies from a young age, their learning needs and preferences would differ markedly from those of their teachers (Oblinger and Oblinger 2005; Prensky 2005). For instance, they would prefer learning that is experiential

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C. Koh (ed.), *Motivation, Leadership and Curriculum design,*
DOI 10.1007/978-981-287-230-2_1

and participatory rather than didactic. In addition, in lieu of conventional, top-down, unidirectional communication, they favour social interactivity and networking, with response or reaction effected at the click of the mouse. Needless to say, they are likely to make use of multiple types of media in their learning, being comfortable and adept at 'doing everything' on a single 'smart' gadget, be it an iPhone, iPad, notebook or one of the plethora of other competing models of mobile devices available in the market.

Undoubtedly, if learning has taken on a new orientation, it is imperative for teaching to follow suit. Currently, the Gen X teachers in charge of educating their Net Gen students have had a challenging time playing catch up with the slew of new technologies and 'apps' (applications) such as those in Web 2.0. Yet, literally speaking, one would describe the twenty-first-century learner as anyone who is actively learning in the context and with the tools and technologies of the twenty-first century. Any digital immigrant who actively embraces, adopts and adapts innovations is as much of a twenty-first-century learner as any of the Net Gen youths currently being schooled. Hence, twenty-first-century learning is really about students learning 'with' their teachers, rather than 'from' their teachers, with the teachers exploring with their students how best to make sense of all the available knowledge, and how to transform this knowledge into innovations and improvements. As Prensky (2005, p. 2) puts it, 'we can no longer decide for our students; we must decide with them'.

1.2 How the Net Gen Learns

If teachers are to involve their students as partners, it is important for them to have a good understanding of how the Net Gen learns and how the latter is likely to shape twenty-first-century learning for themselves as well as those born before them. Prensky (2001) views Net Gen learners as different from their predecessors in their ability to develop 'hypertext minds', enabling them to cognitively 'leap around' rather than to process information in a linear fashion. According to Oblinger and Oblinger (2005), they are nimble in terms of their deployment of attention, being able to multitask or switch their attention rapidly from one task to another. Being used to getting responses at the 'click of the mouse', they respond quickly to situations and expect others to do the same. Their familiarity with the visually rich, virtual environments makes them essentially visual communicators, with well-developed visual–spatial skills. They are inductive, experiential learners, preferring to discover and explore on their own rather than being told what to do. They have a predisposition towards bricolage, patchwork and cutting and pasting of information from multiple sources (Brown 2000). In fact, to the twenty-first-century student, learning does not need to be restricted to the classroom—with their mobile devices and the advent of cloud computing, they are able to learn anywhere, everywhere and from anyone.

The Net Gen learners have experienced life differently from the preceding generations and as such, their expectations and approaches to learning are unlikely to mirror those of their predecessors. Some authors have argued that young people are avidly making use of new technologies for communicating (emails and instant messages), social networking and sharing (blogs, Facebook, Twitter, amongst others), entertainment (YouTube, online games), fact finding and information dissemination (search engines and databases), and as such, have to be 'taught' how to make use of the new tools and systems in their learning (Prensky 2005). Yet, there seem to be some basic and fundamental needs that the Net Gen people have in common with prior generations. Although they are deemed to be 'prolific communicators', showing a clear preference for activities and tasks that require or involve social interaction and teamwork (Crittenden 2002), they are adamant in supporting the need for face-to-face interaction (Kvavik 2005), not only with peers but also with teachers, whose role they consider as vital to their learning and central to their sustained motivation to learn. Furthermore, although Net Gen students are avid users of new technologies in their personal lives, they make scant use of information technology for educational purposes (Oblinger and Oblinger 2005). In a study conducted on undergraduates in Australian universities, Kennedy and his colleagues found that the use of collaborative and self-publishing Web 2.0 technologies amongst the participants is lower than expected (Kennedy et al. 2007). In fact, for the Net Gen learners, the focus is on the activity enabled by the technology rather than the technology per se. They view technology as a means to an end rather than as the ultimate objective (Oblinger and Oblinger 2005).

1.3 The Needs of Net Gen and Twenty-first-century Learners

Eaton (n.d.) identified a number of learner attributes that could lead to a better understanding of the twenty-first-century and Net Gen learners' needs. For instance, the digital immigrants learning in twenty-first-century contexts need more help and guidance in their mastery of ICT competencies and the use of new technological tools and devices, whereas the Net Gen learners want autonomy in their education, as well as the freedom to express their creative prowess and to make an impact. They are adept at multitasking and collaborating. They learn by doing and through experimentation, thriving in a structured, yet challenging environment. Prensky (2005) expressed concern that educators are still using 'old' ways to engage students and not achieving much success, when in fact, such students need to be motivated using the twenty-first-century approaches, by means of the very ingredients that keep them engrossed in 'gameplay' for hours on end. These include the provision of attractive goals, interesting options, fast responses and rewards and opportunities to 'upgrade' and 'advance' to higher levels of competence.

1.4 About this Book

To meet the needs of the Net Gen and other twenty-first-century learners, educators need to adopt a three-pronged approach through motivation, leadership and design of learning. Currently, there are many publications on ICT and/or twenty-first-century learners, but none of them focuses specifically on a compendium of these three domains. The aim of this book is to gather the expert opinions of a team of international authors, who through their respective chapters would offer their perspectives on how motivational, leadership and curriculum design principles and constructs can be applied to promote learning in the twenty-first-century, Net Gen context. The contributions of these authors reflect the diversity and abundance of ideas, approaches and methodologies that other educators, researchers and practitioners can adopt or adapt in their own educational and sociocultural milieus.

The chapters in this book are arranged in three parts, based on their related themes:

Part 1—Motivating the twenty-first-century and Net Gen learners (Chaps. 2–7)
Part 2—Leading twenty-first-century learning (Chaps. 8–12)
Part 3—Curriculum design and pedagogy for the twenty-first-century and Net Gen learners (Chaps. 13–18)

Finally, Chap. 19 concludes by drawing the intricate links between the domains of motivation, leadership and curriculum design. For all their technological savvy, the Net Gen still needs the guidance and impetus from their instructors, tutors or mentors in the use of ICT and other innovative practices to promote learning. The infusion of new technologies in twenty-first-century learning can be facilitated and enhanced through the careful crafting and design of new curricula that incorporate and align knowledge content with the relevant ICT tools. However, the motivation to learn and to use new technologies for learning cannot be sustained if no support is provided by educational leaders and institutional administrators. Learner motivation is thus likely to be enhanced by the clever interweaving of technology with pedagogy and curriculum, endorsed by a supportive leadership.

1.5 Part 1: Motivating the Twenty-first-century and Net Gen Learners

Although students generally need no prompting to use new technologies in their personal lives, the literature shows that students are generally reluctant to use these ICT tools for educational purposes. It is as if the students wish to keep what they do in their free time separate from their student or working life. Hence, they perceive the use of the ICT applications as mainly for leisure, and thus not to be associated with work. Yet, ICT tools present a plethora of opportunities for the promotion of learning, and as such, educators play an essential role in initiating and sustaining

motivation, not only in learning but also in the use of ICT in education. This section presents research and reviews on motivating twenty-first-century learners with the use of technology and other approaches.

Introducing Part 1 on twenty-first-century learner motivation, *Dilani Gedera, John Williams* and *Noeline Wright* in Chap. 2 explore the factors that affect students' motivation and engagement in online courses. These authors believe that an understanding of the nature of these factors will pave the way for a positive learning experience for students, and this, in turn, will enhance their motivation and engagement in online learning environments. The chapter is based on a case study conducted in a tertiary institution in New Zealand. The experiences and views of student participants and their lecturer with regard to online learning activities were captured through interviews, observations of online learning activities, an online profile survey and document analyses. The authors found that the nature of the online learning tools and the sense of belonging to the community of users were two main factors influencing learner motivation.

In Chap. 3, *Quint Oga-Baldwin* follows up on the discourse of the previous authors, by offering further explorations on learner engagement with digital environments as compared to classroom learning environments. Using a self-determination perspective, Oga-Baldwin examines online-learner-perceived satisfaction of the basic psychological needs of autonomy, relatedness and competence. He argues that digital learning tools have limited long-term effects on learning if they are not able to meet these three psychological needs of the learners. The author offers a theoretical discussion on how the differences and similarities between virtual and physical learning environments may be reconciled in order to better motivate Net Gen learners towards positive learning outcomes.

Whereas the previous authors chose to focus on external factors affecting motivation in online learning, *Kah Loong Chue* takes a broader approach in Chap. 4, and investigates the effects of the internal factors of personality traits on motivational processes. In his study, the author adopts the Big Five personality model, a trait theory postulating that people occupy different points on a continuous spectrum of trait dimensions that includes extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. Chue adds to the findings of the previous chapter by further exploring the relationship between the Big Five trait dimensions and the basic psychological needs of twenty-first-century learners. Like Oga-Baldwin, this author adopts the perspective of the self-determination theory of motivation to investigate possible correlations between learners' perceived needs satisfaction and their personality traits.

In Chap. 5, *Cathy Gunn* goes beyond the discussion of what motivates students, to an investigation on a specific approach towards promoting learner motivation. She proposes online assessment as a key feature of twenty-first-century learning environments that can enhance student engagement and provide timely feedback to students. She argues that online assessment tasks can be designed to match the needs and expectations of Net Gen learners, such as autonomy in user-generated content and tasks, fast responses from tutors and peers and opportunities for 'scaling up' in terms of their competence.

In Chap. 6, *Ashwini Datt* and *Trudi Aspden* contribute a different perspective to the discussion by presenting an overview of how Net Gen learners can be motivated to develop personal knowledge management skills. These authors argue that the Net Gen learners possess technical skills to utilize technology for social interactions and networking but not for educational gain. They describe an innovative learning design, using the WebQuest strategy to scaffold the use of various Web 2.0 tools, used to encourage and motivate students to develop transferable personal knowledge management skills that can be used beyond their student life.

Finally, in Chap. 7, *Collie Conoley, Beatriz Bellow, Mercedes Oromendia*, Elisa Vasquez and *Jane Close Conoley* bring a closure to this section by presenting the risks and benefits of the Net Gen involvement with online experiences, and how these may affect learners' well-being. Their arguments are based on the five elements of the PERMA model of well-being, whereby PERMA is the acronym for the five elements of well-being, **P**ositive emotions, **E**ngagement, **R**elationships, **M**eaning, **A**ccomplishment (Seligman, 2011). Although these have been introduced in the preceding articles, this chapter goes deeper into the discourse pertaining to how online experiences may affect learner well-being in each of these aspects.

1.6 Part 2: Leading Twenty-first-century Learning

'The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency' (Gates n.d.). By this, Bill Gates stipulates that implementing new technologies would be to no avail if there were no proper governance to ensure an efficient system in the first place. In the educational context, this translates to the leadership in learning, and refers to the institutional administration overseeing major decision making, policies and processes needed for the operation and growth of the organization.

Introducing Part 2, Leading Twenty-First-Century Learning, *Irene Ng,* in Chap. 8, explores how the instructional leadership practices of successful school principals lead to the development of a positive school climate catering for the needs of twenty-first-century learners. She posits that research conducted on effective schools indicated school leadership as one of the most important factors affecting student learning, adding that the school leader's involvement in nurturing and promoting a positive learning climate has the greatest impact on school achievement. This chapter explores how school leadership can provide support to the creation of a positive digital learning environment that sustains the engagement of Net Gen students.

In Chap. 9, *Maria Sit* presents the challenges that teachers face in a constantly changing education landscape, wherein they need to play catch up with the new technologies used by their students for learning. Following Irene Ng's earlier recommendation for school leaders to provide positive learning environments within their institutions, this author explores how they may do so by fostering amicable relationships with their teachers, and by encouraging and supporting them in their professional development. Sit believes that professional development courses

should focus on enhancing teachers' understanding of their Net Gen students and preparing them to be better role models as learners and practitioners of twenty-first-century competencies.

Using technology to scaffold learning is not without challenges, as *Bee Leng Chua, Oon Seng Tan and Woon Chia Liu* attest in Chap. 10. These authors share their experiences in leading the use of technology for the facilitation of problem-based learning tasks in pre-service teacher education. They further discuss the tensions and implications of pre-service teachers' use of online digital tools in carrying out problem-based learning tasks. The chapter paints a realistic picture of the implementation of pedagogical and technological innovations, in the hope that educational leaders will be better informed about potential difficulties in the implementation process.

In Chap. 11, *Constanza Tolosa, Martin East and Helen Villers* present outcomes of a 4-year study on a school's implementation of a foreign language curriculum through a technologically rich programme design. They showed how, under astute leadership, a vibrant language-learning programme was implemented in line with the expectations of the Net Gen. A key component of the programme was the incorporation of technology-mediated exchanges between students in two different countries, New Zealand and Columbia, who took part in an online reciprocal peer-tutoring programme. Besides gains in fluency and language proficiency, surveys and interviews conducted with students from both countries showed benefits in terms of improved engagement with peers, as well as motivation towards learning a foreign language and culture. This chapter also discusses the influence of the school's leaders in shaping and enacting the school's vision for language learning, thus establishing the links between leadership support and effectiveness in the design and implementation of technology-infused curricula.

As a closure to this section, *Caroline Koh,* in Chap. 12, presents a review of recent research and findings on the role of leaders in initiating, implementing and sustaining the integration of new technologies in education. In addition, the chapter discusses the challenges encountered by educational leaders, as well as some of the effective practices and strategies they employed when tasked with the integration of technology with learning.

1.7 Part 3: Curriculum Design and Pedagogy for the Twenty-first-century and Net Gen Learners

One of the main challenges encountered by educational leaders, practitioners and learners is the lack of alignment of the curricula with new technologies to support student learning. At all levels of schooling, conventional curriculum design followed the product model (O'Neill 2010; Tyler 1949) which was teacher centric, focused on content delivery and was performance-oriented with precise assessment outcomes. However, this model does not sit well with twenty-first-century Net Gen learners, who consider it their prerogative to decide on what and how they should

learn, and for whom curriculum content may not be as important as the acquisition of competencies and skills. The needs and expectations of the Net Gen are thus better addressed using the process model (Knight 2001; Neary 2003; O'Neill 2010), since the latter takes on a more learner-centric approach, offers opportunities for students to participate in the design of their curricula and has greater emphasis on learner development and skills mastery.

Introducing Part 3, Curriculum Design for the Twenty-First-Century Net Gen Learner, *Judine Ladbrook* and *Judy Parr,* in Chap. 13, suggest a framework targeting at the design of student learning for and in a networked world. They posit that this should include considerations of the knowledge, skills and dispositions that young people would require to operate with agency in twenty-first-century contexts. In addition, they propose that curriculum designers should take note of the attributes of the Net Gen in terms of how they learn and what motivates and engages them.

From what transpired in Part 1, Net Gen students revel in showing what they can do and in getting feedback on their accomplishments. In Chap. 14, *Alan Ovens, Dawn Garbett and Rena Heap* draw on findings from an ongoing learning enhancement project to explore the potential of having students use Web 2.0 applications with mobile devices, to enable instructors to easily assess student learning and reflect on future pedagogical actions. The flow of feedback from students to instructor/facilitator could enable the latter to more effectively respond to and adapt to the learning needs of the students. This chapter also considers the role that technology and assessment provides for motivating, leading and designing learning for the Net Gen.

Alexander Seeshing Yeung, Zhu Chen and Bingyi Li continue the exploration into the use of technology in Chap. 15. While reviewing pedagogical and psychological factors related to technology use, this chapter investigates how to utilize technology to its full potential for language-learning purposes and overcome obstructive factors related to current technology use. The authors surmise that it is important for teachers to ensure that technology use does not detract teaching from the learning objectives. They propose that for the best outcome of language assessment, both technological use and non-technological approaches may be useful depending on the desired outcome. Furthermore, subject-specific professional training in technology application should be a priority for teacher education—teachers need to be deliberately trained to incorporate technology into their language pedagogy.

Whereas the previous chapter focuses on technology in language learning, *John Williams, Kathrin Otrel-Cass, Elaine Khoo, Bronwen Cowie, Kathy Saunders and Suskia Van Der Merwe* in Chap. 16, presents findings from a teaching and learning research initiative project on networked inquiry learning in science lessons. This project investigated the planning and implementation of inquiry learning projects by science teachers from three secondary schools in New Zealand. The author found that e-networks motivated students to exercise agency, collaborate and co-construct knowledge using a wide range of resources. Like other authors in this book, he also postulates that the positive outcomes are contingent on the interplay of teacher organization and school provision of an effective technological infrastructure and support for flexible curriculum design.

The next two chapters of this book focus on the development of innovative twenty-first-century pedagogies and curricula. In Chap. 17, for instance, *John Yeo* suggests how the theoretical tenets discussed in the previous chapter can be further developed by equipping twenty-first-century learners with problem-finding competencies. This author posits that doing well academically can no longer warrant a good career. Rather, one needs to help the learner develop an inquiring mind and problem-solving skills. He suggests that one should start by teaching students to identify unique problems, and that educators should first walk the talk and develop creative minds predisposed to generating problems.

In Chap. 18, *Susan Sim* presents how one can nurture the youngest of the Net Gen with what she terms 'the playful curriculum', a new initiative for pre-school education in Singapore. The author discusses how, in order to develop twenty-first-century competencies, there is the need to provide a curriculum that is age appropriate, holistic and learner centred. 'Learning through play' becomes a central tenet in pre-school curriculum due to the vast opportunities that play offers in developing children socially, emotionally, physically and cognitively. In addition, the chapter explores how active learning can be encompassed through purposeful play and how new technologies can facilitate the interpretation and implementation of play in pre-school classrooms.

1.8 Epilogue

The book concludes with the editor's final discussion, in Chap. 19, of the major findings from the chapters. It draws together the key ideas, with the aim of establishing the links between motivation, leadership and curriculum design in the transformation of learning in the twenty-first century. Knowing the intricate relationships between these three domains will facilitate the tasks of researchers and educators in their endeavour to create a better learning environment for the present and future cohorts of the Net Gen.

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