Teaching and Learning in the 21st Century: An Overview

Johan Eddy Luaran, Jasmine Jain, Roslinda Alias, Roslani Embi, Zawawi Temyati

Abstract: The proliferation of computers coupled with internet access placed a fundamental change to the history of humankind and United Nation report has recently declared that Internet access is a human right (United Nations, 2016). Technological devices not only changed the way we communicate with each other, but reshaped the way we lead our life on a daily basis to a point it becomes a necessity to the major global population. As educators, the questions that often we ask are: What effect do these technological devices bring to teaching and learning? How would it affect the way I teach and learn?

INTRODUCTION

The review on what have been done in the local research scene suggests that the potential of technology in leveraging learning is well-recognized. Through a review done and reported by UNESCO (2012), Malaysia has been identified as among the first few countries to have pioneered an ICT plan into its education system strategy. Ministry of Education Malaysia has provided an "interesting array" (UNESCO, 2012) of plans and policies developed since 1990. Among them are Smart School Roadmap and the Policy on ICT in Education 2010. Similarly, the recognition that technology is transforming learning is also acknowledged in the Malaysia Education Blueprint for Higher Education for year 2015-2025. One of the 10 shifts is dedicated to Globalised Online Learning, specifically placing blended learning models as a staple pedagogical approach in all Higher Learning Institutions in Malaysia (Ministry of Higher Education, 2015). All these efforts in crafting the policy are more ambitious than just using technology in teaching, but it changes the whole framework of pedagogy in the higher level of education.

This chapter provides an overview of teaching and learning in the 21st century, specifically on the areas of heutagogy, gamification and Massive Open Online Courses (MOOC), and the subsequent chapters will draw

specific examples from the Higher Education scenes. This overview first discusses about how learners are viewed in the 21st century.

LABELLING THE LEARNERS

For almost past half century, learners have been labelled according to the generations that they are borne in. The roots of categorizing 21st century learners can be traced back to these labels, where they started with The Baby Boomers, Generation X, Generation Y, Generation Z and Generation Alpha (α). Of these labels, the students who are currently in schools and colleges are those of Gen Z. It is of specific importance that we review the features of these students in order to know of its repercussions by determining what the students know and how they should be guided in teaching and learning.

Generation Z is defined as babies born in 1970s and 1990s, who are also commonly identified as The Millennials and digital natives, based on their dependence upon technology (Prensky, 2006). These digital natives grow up with a world which is largely influenced by the World Wide Web as they are born after the invention of microcomputer. The term "digital native" was first coined by Prensky (2006) when he observed that the school is still teaching in the 20th century while the students are already rushed into the 21st century. He calls for reinvention of teaching and learning in school to make education relevant for the 21st century students. Digital natives, has been described as fluent in using and acquiring new technology, and the usage is almost intuitively where it has been akin to be "an extension of their brains" (Black, 2010, p.95). This is understandable as they are exposed to various media like watching Sesame Street when growing up, and then to MTV when they are teenagers, and continue having easy access to microcomputers and phones with internet access. Hence, they are accustomed to communication via social media, catching up on television show via online stream, blogs, microblogs and thrive on instant gratification that these technologies are able to provide them with.

With so much participations in online conversation and digital activities, it might seem that this generation prefer physical isolation, but it was observed that they work well when they are collaborating with other people. They are also comfortable and actively contributing to curating digital content in

8

the Internet. Throughout the centuries, the role of technology in teaching and learning has been rapidly evolving. Skinner (1954, p.97) declared that human are always on the "brink of change" and extensive revision on practices need to constantly take place to adjust to these changes. The changing environment and exposure of technology usage resulted in the ways of thinking and processing information which are different from past generations. Woods (2006) believes that the human brain's digital input has rewired it, helping it to respond faster, sieve information, and recall less. Yet, despite the differences in these Digital Natives' learning, it is still recognizable as Prensky (2006, p. 10) stated, "[T]hey're already busy adopting new systems for communicating (instant messaging), sharing (blogs), buying and selling (eBay), exchanging (peer-to-peer technology), creating (Flash), meeting (3D worlds), collecting (downloads), coordinating (wikis), evaluating (reputation systems), searching (Google), analyzing (SETI), reporting (camera phones), programming (modding), socializing (chat rooms), and even learning (Web surfing)".

On the flipped side of a coin, the educators, who are commonly digital immigrants, tend to work in ways which worked for them decades ago when they were in school. As educators become more aware of the dynamic landscape of education and the different characteristics of the 21st century students, there need to be an understanding and actions on how best can the needs of today's students be addressed.

21ST CENTURY TEACHING AND LEARNING

The attributes of learners are changing, notably from one generation to another catalyzed by the fundamental changes caused by the advancement in technology. These changes call for us to revisit how teaching and learning should be in the 21st century. This chapter presents the changes in teaching and learning in which transformation is taking its course. It would be apt to look at the changes done at the younger age of schooling and then progress to the older age to provide a landscape of dynamic educational endeavor occurring in Malaysia.

From 3Rs to 4Cs

The mission of education is to ensure that learners master the 3Rs in order to succeed in higher education and beyond. However, the 3Rs known as Reading, Writing ('riting) and Arithmetic ('rithmetic) are no longer sufficient in the 21st century world. Studies made by World Economic Forum (2016) showed that transformation in education needs to be embraced as 65% of learners entering schools will be upon graduating, working for jobs that is non-existing in today's world. These research indicate that learners need to be equipped with all the necessary skills in order to survive and flourish in the 21st century when they graduate. The 21st century skills, also term 4Cs- Creativity, Collaboration, Critical Thinking and Communication are listed as staple skills learners need to develop and possess in order to prepare them for increasing complex life of the 21st century. In P21 framework of Learning in the 21st century, the 4Cs are placed under the category "Learning and Innovative Skills", viewed by educators, parents, researchers and businesses as the set of skills vital for a student to be competent in their work life and beyond (P21, 2007a).
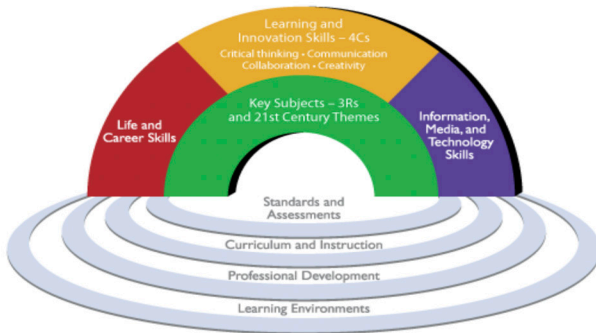
Figure 1: P21 Framework for 21st Century Learning (P21, 2007a)

a) Creativity: Creativity can be viewed as a skill where learners are able to think differently and involve creating worthwhile notions and ideas. This may involve working with others as well because thinking creatively may be an idea which is reevaluated and reflected by taking into account feedback from others. Creativity, as it generates something

new, may result in innovative endeavor or products. The Revised Bloom's Taxonomy by Anderson and Krathwohl (2001) has placed "Creating" as a Level 6 educational goals, where it demands high cognitive thinking for learners to be able to create, and it is viewed as a valuable educational goal to inculcate higher order thinking among learners. Educators are encouraged to incorporate such educational goals for their learners so that they may have platforms to train their mind and hone their skills for creative thinking.

b) Collaborations: In the most basic sense, collaboration refers to the ability to work well with others to achieve the common goal. Lai, DiCerbo and Foltz (2017) has listed three sub-components of a successful collaboration:

> i) Interpersonal communication, which refers to the ability and skills to communicate both verbally and non-verbally with teammates
> ii) Conflict resolution, which focuses on the skills and ability to acknowledge and resolve crisis for the best interest of the group, and
> iii) Task management, which concerns about the skills and ability to set goals and organize tasks to achieve that goals. This also requires the ability to track progress and re-adjust strategies along the way to meet the outcomes desired.

In a review by Lai, DiCerbo and Foltz (2017), it is noted that it is quite convenient for educators to break students into group of five in an assignment with the aim of honing collaborative skills among the students, but the students may end up dissecting the assignments into identical sub-parts and each member in the team work individually to complete each subparts assigned to each of them. Collaborative skill is one of the hardest skills to develop by teachers as it requires close monitoring that the students have achieved all the three sub-components in order to be an effective team player of a collaborative work.

c) Critical Thinking: The fundamental of critical thinking is basically ability to reason, both deductively and inductively to understand the nature of something. It also include the ability to use systems thinking where a person can analyze how parts of a whole system interact with each other to produce the specific outcomes in complex systems. Critical thinking is

different from creative thinking, as critical thinking demands evidences, deep analysis, evaluation of arguments and claims and subsequently ask significant questions which leads to solutions or ideas.

d) Communication: Communication skill not only involve the audible part when ideas are communicated, but it is a skill which also involve the ability to listen effectively to decipher meanings. In the 21st century, good communication skills also involve the use of multimedia and social network, to communicate responsibly and for a range of purpose. In conclusion, good communication involve the skill to articulate thoughts in verbal and nonverbal forms through various technological and non-technological forms and contexts.

Curriculum and Instruction of the 21st century

As learners co-construct understanding in a classroom of 21st century, a facilitator who generally scaffold and guide learners to understanding what they are learning can be an important figure. This facilitator, with the internet as a textbook, might not be able to explain and answer every questions asked regarding the content, but he or she should be able to teach how to search for reliable answers to the questions. In this example, it shows the need for ICT and Information literacy, in order to gain an understanding on the content aimed to be learned.

The first step to a 21st century instruction then, would include one of those skills as part of the learning outcomes of a lesson. In this way, it will create opportunities for the learners and teach the 21st century skills in a discrete manner while placing the key subjects as the context. The instruction of the 21st century also calls for innovative methods which approaches learning via the use of technologies. Hence, the learners are learning as active inquirers and engage their high order thinking skills. All these transformations can be done by tweaking the learning outcomes available, and map out class activities that are aligned to the outcomes.

The standards which then mapped into learning outcomes are evident in various documents, governed by the Malaysian Qualification Agency (MQA) for its qualities and standards. These discussion on embedding 21st century skills should not only be confined into instructions in a classroom, but also include the instructions done online. Instructors or teachers teaching

in an online environment should place a lot of emphasis in developing quality e-content for the same intention- teaching the key subjects while honing the 21st century skills. This is especially true with many educational institutions offering Massive Open Online Courses (MOOC), dedicated series of videos and tutorials to help learners from anywhere in the world to learn and in many cases, earn credits by demonstrating their understanding from learning the course.

With such huge intervention of technology in education scene, it demands students to be independent learners who are motivated to learn and engage with others meaningfully. Such demand of students also requires change of the teaching method. Pedagogy is no more relevant in teaching 21st century learners, but it is debated that teachers should embrace heutagogy which means self-determined learning. This is aligned with the change in learners that we aspire, where we want learners to acquire both capabilities and competencies (Blaschke, 2012). The subsequent subtopic will discuss in detail what heutagogy is, and how it is relevant in the 21st century.

Assessment of the 21st Century

The transformation in teaching and learning in the 21st century also is translated into the assessment practice. Assessment is a cornerstone of good teaching and learning, and it provides us information which inform us about whether the teaching and learning has been effective. Whether its standardized large scale assessment or classroom task used as part of students' assignment, assessment provides valid measures of students; understanding and navigate both teachers and students on what to improve on.

Over the past decades, assessment has a vital role in molding the educational policies around the world, including Malaysia. Summative assessment, for example, becomes a measure for University admissions and streaming of classes in higher level of secondary schools. Furthermore, the decreased weightage of final examination in each courses as suggested by Ministry of Higher Education and strengthen by Malaysian Qualification Agency (MQA) documents for higher education assessment encourage universities to rethink the way education is done, which partially led to

the revision of curriculum framework in the universities, incorporating a preset standard of knowledge, skills and values believed to be necessary for 21st century.

Hence, the assessment of 21st century looks beyond learners' ability to recall discrete knowledge but also demands an assessment on their 21st century skills needed to survive the increasingly global and technology-laden world by the time they leave universities. The strategies in assessing the students has to be shifted in order to assess and subsequently tell us whether a student is ready to meet the challenges of 21st century. The assessment then should not be measuring only discrete knowledge but a range of skills which students need to master such as critical thinking, collaborative skills, examining problems, gather and analyzing information while using appropriate technology. Another note that educators need to remember is that there should not be an ultimate answer to a task, but a range of solutions can be accepted. This reflects the subjective nature of the body of knowledge, and shift the focus on the process of arriving to a solution, rather than the accuracy of the solution itself.

It suggests a few pointers that 21st century assessment need to focus on. Effective feedback and feedforward for example, play a vital role in developing learners that are continuously striving to improve. Another pattern of assessment in the 21st century also showcases the need for students to document their learning digitally by archiving and reflecting their learning via developing e-portfolios to encourage deep learning. These portfolios would also inform instructors about their students learning, and used to demonstrate the mastery of 21st century skills to prospective employers.

HIGHER EDUCATION IN MALAYSIA

The role of education in promoting globalization or development has been much in discussion on different perspectives changing the social impact of the community on how some countries go about on free education, promoting compulsory education and many developed countries now boast 100 percent enrolment rates in primary school and an increase of access to secondary school (Orozco & Qin-Hilliard, 2004). Globalization in education can be seen from an economic perspective, which in many ways can be seen

as key factors as on creative thinking, critical thinking, skills and others pertaining to the rise of globalization. Higher education has become one of the most important sectors for globalization in the sense that it is widening, deepening and speeding up of all kinds of worldwide interconnectedness (Scott, 1998; King 2004; Marginson, 2006).

The higher education scene in Malaysia is an interesting and dynamic one- it never fails to keep up to the best ways teaching and learning can be done, by factoring in the various variable, namely the changing demographic of students, the enrollment of students who are considered as digital natives and the advent of technological advancement. These changes are also in line with how universities are viewed, namely from a corporation that served in disseminating knowledge to preparing society for the future workforce. The latter described how teaching and learning at this level, more intensely, need to focus on skills rather than content, as content is tentative and easily available in the now and in the future. Besides that, the traditional believe in treating all students the same is no longer relevant. The demographics of universities students are changing dramatically attracting more working adults to take up professional development courses, upskilling themselves so that they are more relevant to the workforce. Higher education have to meet the needs of these learners plus many other younger learners who are varied in terms of their age and experiences, placing policy makers, educators and stakeholder into contemplating how do we deliver more education with more options and with more quality, but with lesser cost incur.

MOOCS

Partial aspects of online education was introduced to help the working adults learn through what was labelled as distance education, and this slowly is changing how higher education institutions operate in order to meet the disparate needs of an increasingly diverse learner population. The latest trend in Malaysia Universities are to employ Massive Open Online Courses (MOOCs), as these courses can be made free for everyone and do not require lecture rooms, teaching assistants and heavy workload of the lecturers. This is because the common lecture could be easily duplicated for various times for different classes instead of increasing the workload of lecturer to repetitiously teach the same content depending on the classes

enrolled for the course in the traditional method. The same applies too for lecturers who is teaching same courses for every semester, where MOOC content can be readily made available for students to watch, and the lecturer can then focus on provided tailored-made tutorials to meet the learning needs of the students. Five public universities in Malaysia was placed under the Ministry of Higher Education's purview to implement fully MOOC courses for their niche programs via Open Learning, enabling access to education to everyone in and outside of Malaysia without a cost. There is also instances where learners are able to gain credit for the MOOCs they participated in and completed, which could lead to revenue generations for the university and the MOOC platform provider.

The critics of MOOCs however, is skeptical about this wave in education as they fear that such move may water down the quality of education. While a long-term sustainable model for MOOC is still questionable, many other educators are perplexed about how students are retained and assessed in MOOC. A report alleged that MOOCs typically has 90% drop out rate, with superficial learning occurring to the rest of the 10%. Although giving free education to thousands of people is a noble act, skeptics are not convinced that merely transmitting information via pre-recorded videos is education, because education does more than just that- it involves teacher teaching learners what to do with that information, how to acquire skills to look for information and mastering those skills for life after study. Many who are opposing MOOC as a mean for replacing authentic learning is also advocating that there is a big problem with assessment. The typical MOOC would provide a multiple-choice question or short-response question after 4 to 5 minutes of videos, which is viewed as rather ineffective assessment of learners' understanding.

As higher education and its entities evolve, it is expected that what happen in the classroom will change dramatically. Physical learning spaces perhaps will be shrink in terms of the frequency of usage as more and more classes are migrated online, and educators have to really think about how to put learners' skills into action, planning the content being learnt into a social context, and where accessibility to the instructor is always available to clarify any doubts about the learning.

While the discussion can go on debating about whether face-to-face or

online learning is more effective for learning, there is definitely a consensus on the significant advantage of technology in adding content processing by learner. Even a Youtube video can be paused, fast-forwarded, rewind and replayed- and all these are functions not present in traditional mode of lecture. Educators equipped with technology too can add in simulations, asynchronous discussions, and links for extended readings, while learners are able to self-assess their understanding of the topic. Another advantage of online learning is the duration needed to complete the program. With MOOC, prospective students do not have to wait until pre-requisite courses are offered in order to advance into the program and finish earlier. Even when there is shortage of manpower for teaching, the candidates can seamlessly enroll into the prerequisite MOOC courses, participate actively and complete the course with credit. For students who wanting to finish the program and apply for a better job, MOOCs seemed to be a good choice, especially for the digital natives who are used to individualized learning through various means simultaneously. Hence, the hope is to see a balanced blend of both online and face-to-face elements in MOOCs.

In the subsequent chapters, the development of MOOC, its acceptance and its challenges in Malaysian universities are shared to provide readers ideas on how the universities are coping with the advancement of technology and in the same time, keeping teaching and learning interesting and meaningful.

HEUTAGOGY

Part of the movement of the online education has been placing ample focus on MOOC because of the different ecosystem and environment it provides to learning compared to other online education alternatives. MOOC as the name suggest, is open to all and hence includes massive number of learners. Any educators would understand that this takes a different pedagogical model given the complexity of catering to the needs of diverse participants' interests and background. It is important to recognized learners' motivation and their purpose of presence in the MOOC courses to make them effective (Beaven et al., 2014; Clow, 2013; Downes, 2012). Such identification requires different type of pedagogical approach.

The first generation of pedagogical theory in the delivery of MOOC was

the cognitive behaviorism involving only content transmission, typically found in the one-to-many distribution model (Anderson & Dron, 2011). The delivery of such MOOC normally is done through lecture series, with integrated quizzes given in chunks to assess understanding and maintain focus to the content being taught. In more comprehensive cases, the process is also supplemented by articles, case studies and videos as extensions to enhance the learning (Agonacs & Matos, 2017). The design was thought to be insufficient as MOOC mature and spread, as researchers felt that such learning can be rather segregated and does not meet the diverse needs of the leaners (Poplar, 2014). The second generation then, based on social constructivism started to emerge with more MOOC instructors integrating wide range of collaborative activities in their courses. According to Anderson and Dron (2011), social constructivism in MOOC allows each learners to "construct means by which new knowledge is both created and integrated with existing knowledge" (p.85). The basis of this theory emphasize on the communication and relationship with others in the process of learning in order to assimilate, accommodate and develop schemas (units of understanding) which may be similar or contradict with the previous experience that the learners has already construct for himself (Piaget & Inhelder, 2008). The practices translated from these beliefs then emphasize on socially-intensive activities, such as group discussions, group assignments and case studies as a group. The role of instructor, although active, is as a facilitator which provide the passage of learning.

The third generation of pedagogy, although shares the emphasis on both content and social context, it decenters the role of instructor as the one who directs and mediate the learning. Heutagogy, the theory of self-determined learning which is based on the "self-directed principles of andragogy" (Blaschke, 2012) but shifting the learning from self-directed to self-determination. The role of a teacher, is no longer a mediator of learning because learners own up their responsibilities of creating their own learning pathway. Learners set learning goals for themselves, choosing what they intend to learn and the method to learn them. Such characteristics develop the participants' capability of becoming autonomous and reflective learners, solving increasing complex problem by leveraging on their networks and through it, grow their capacities for self-directed and lifelong learning.

With the presence of MOOC which is regarded as an "evolutionary

moment" (Daniel, 2014) for education and is the way forward, many researchers advocate that there is a need for a hybrid of different pedagogical design of MOOC, given that there is still a portion of learners who join a MOOC but find it challenging to work in a low structured context which required self-directedness in learning (Agonacs & Matos, 2017). Beaven et al. (2014) stated that heutagogic model requires three stages for it to be complete, namely moving from pedagogy to andragogy and then to heutagogy. Pedagogy stage allows learners who are not familiar with online environment to gain support through the instructor-led course structure. In a less structured level like andragogy stage, learners who are more mature then self-direct their learning with the instructor's facilitations within the course framework. At the highest stage and with sufficient experience, learners then self-direct their learning path by self-determining their learning objectives. At this stage called Heutagogy, learners possess the highest degree of autonomy (Blaschke, 2012).

From the above discussion, we understand that heutagogy, although appear as a fitting model for the evolving facets of MOOCs, remains subjective to be applied to all types of courses using the MOOC environment. Considerations of blending all three stages of MOOC seems crucial to cater for the needs of diverse learners, who enter the course with wide variation in terms of their capabilities of learning in a structured and less structured ecosystems. With this gap, researchers in the US have suggested few hybrid models to their MOOC, blending both community and task-based designed to their MOOC (Anders, 2015).

With so many advancement and tractions in the development of pedagogies in MOOC learning, this dynamic scene is going to be interesting to explore to see if it fits the local education context. The attempt to review and share the experience of using heutagogy as a pedagogical model in the online learning environment will be extended in the subsequent chapters of this book, where the applications will be made more relevant in the context of local higher education scene.

GAMIFICATION

Besides MOOC and the different pedagogical models of MOOC, infusing learning with games seemed to be in the forefronts of creative ways in getting learners learn. Gamification is defined as the gaming mechanics placed in a non-game context, to increase motivation and engagement. The term gamification has been coined by Marczewski (2012), where the concept gamification was used previously only in the commercial area to incentify customers who visit an outlet frequently by providing them with levels, badges, points or titles (Zichermann, 2011; Deterding 2011). In the recent Horizon report by Johnson et al. (2014), gamification is viewed as a significant development in higher education. However, game based learning predates the digital age by centuries where games such as board games, puzzle games and physical games were being used to keep learners motivated in learning. This is also consistent with what many theorists claimed n saying that learning through play is a staple component for cognitive development for a child (Vygotsky, 1962).

In a more recent years, gamification has landed itself in a more concrete position in encouraging learning due to the advent of mobile phones and internet. Many experts recognized the unique characteristics of games which assist in making learning more engaging for learners. Sandford (2005) claimed that the thematic and narrative threads existing in games allow players to have different identities with different range of characters or Avatars, with which they can build more socially sensitive and emphatic identities while interacting with other gamers. Besides that, the element of experimentation allows players to take risk in testing out several course of action and subsequently able to experience a range of different outcomes as a result of their decision-making. Games also allow players to be increasingly able to make decisions involving complex environments and learn from those experiences. As a result of these characteristics that games possess, players are provided with the opportunities to improve their motivation and engagement, both intrinsically and extrinsically. More importantly, games provide "edutainment", highlighting the symbiosis of enjoyment and learning.

In the arena of higher education, more works have been done to reap the benefits that gaming have to offer. Institute for the Future, for example, is

designing games that foster participation and harvest ideas from other about sustainability in education and health contexts. In another setting in New Jersey, digital simulations is also used to reinforce learner's understanding about certain business models through an application in a mock real world scenarios. Through an online business simulation, learners are challenged to plan and execute a business strategy which addresses the problem given to them. Gamification can also be seen in online learning environment such as on the university learning management systems. Students are awarded with badges and points with their successful attempt on each work assigned by their instructor, seen as Awards for completing missions. These badges can also be associated to their social network profiles such as LinkedIn and Facebook, which furnish the learners with greater sense of accomplishment and recognition.

From the literature and from the local cases as reported in the complied cases under the theme Gamification in this book, there is no doubt promising results on applying gamification into teaching and learning in higher education. With more availability and adoption of technology as well as how more universities are shifting to the Bring Your Own Device (BYOD) practice, gamification will be an easier approach to be incorporated into meeting the learning objectives. However, educators should be aware that mere introduction into lessons is not necessarily effective for a lesson to be meaningful and engaging. Educators should take time to introduce games into lesson planning in a way that it guides the structure of the classrooms. Besides that, educators also need to be consistent in the way pedagogical approach is used in each lesson as routine can become ineffective over time, by which students will no more be motivated by the approach.

CONCLUSION

This chapter reviews the need for transformational teaching and learning to meet the demands of increasingly complex 21st century. The discussion centers on how the infusion of technology in the society changes various aspects of human lives, including the growth of a child in a family and his pattern of learning. The challenges that individuals who leaves school in the 21st century are very different and it is the role of education to prepare them to meet and thrive in these challenges. The preparation here does not

just involve good academic and soft skills, but also the cultivation of various 21st century skills- the 4Cs and various literacies. As we move further into 21st century, the institutions of higher education will need to reassess their priorities and deploy technologies in the right circumstances. When this is done right, online learning can keep institutions of higher learning to be relevant to the new types of learners, expanding their focused group of enrolment to many other countries, and in return, benefit from the highly globalized learning that the internet and diverse students has got to offer. Furthermore, these objectives can be met without the need to build new buildings and classrooms. With this said, the profound disparities existing between how higher education is structured and the need of learners have to be rechecked. The structure of two to three semesters per academic calendar practiced in the 20th century seems obsolete to the current availabilities of online learning and accompanying technologies. In the current century, student is free to learn and go through the courses wherever there is an access to the Internet, allowing eager and competent students to complete studies at a faster pace. This also complement the restrictions on funding due to the new economic environment, where more students can be graduated earlier and freeing up space for more students to be enrolled.

Moving forward, higher education has to adopt a robust model of sustainability- a fresh outlook on improve cost management, innovative delivery of higher education, and a more comprehensive understanding of what students' needs are. The changing landscape discussed in this chapter, such as MOOC and the pedagogy accompanying it, together with strategies such as gamification met the above when done right. Higher education institutions has to be flexible enough to adapt to new changes to remain competitive and relevant to students.

REFERENCES

Agonacs, N. & Matos, J. (2017). Towards a Heutagogy-Based MOOC Design Framework. Proceedings of EMOOCs 2017: Work in Progress Papers of the Experience and Research Tracks and Position Papers of the Policy Track. Retrieved from http://ceur-ws.org/Vol-1841/R01_127.pdf

Anders, A. (2015). Theories and Applications of Massive Online Open Courses (MOOCs): The Case for Hybrid Design. International Review of Research in Open and Distributed Learning, 16(6). Retrieved from https://files.eric.ed.gov/fulltext/EJ1084341.pdf

Anderson, L., & Krathwohl, D. A. (2001). Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. New York: Longman.

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. International Review of Research in Open and Distance Learning, 12(3), 80-97. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/890/

Beaven, T., Hauck, M., Comas-Quinn, A., Lewis, T., & de los Arcos, B. (2014). MOOCs: Striking the Right Balance between Facilitation and Self-Determination. MERLOT: Journal of Online Learning and Teaching, 10(1), 31–43. Retrieved from http://jolt.merlot.org/vol10no1/beaven_0314.pdf.

Black, A. (2010). Gen Y: Who they are and how they learn. Educational Horizons, p.92- 101. Retrieved from http://files.eric.ed.gov/fulltext/EJ872487.pdf

Blaschke, L.M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. International Review of Research in Open and Distance Learning, 13(1), 56-71. Retrieved from: http://www.irrodl.org/index.php/irrodl/article/view/1076/2113

Clow, D. (2013). MOOCs and the funnel of participation. Proceedings of the Third International Conference on Learning Analytics and Knowledge - LAK '13, 185. doi:10.1145/2460296.2460332

Daniel, J. (2014). MOOCs: Evolution or Revolution? Journal of Online Learning Technology, 10(1). Retrieved from http://jolt.merlot.org/Vol10_No1.htm

Deterding, S. (2011). Meaningful Play: Getting Gamification Right. Google Tech Talk.

Downes, S. (2012). Connectivism and connective knowledge: Essays on meaning and learning networks. National Research Council Canada. Retrieved from http://www.downes.ca/files/books/Connective_Knowledge-19May2012.pdf

Johnson, L., Adams Becker, S., Estrada, V., Freeman, A. (2014). NMC Horizon Report: 2014 Higher Education Edition. Austin, Texas: The New Media Consortium.

King, N. (2004) Using templates in the thematic analysis of text. In: Essential Guide to Qualitative Methods in Organizational Research. Sage, pp. 256-270.

Lai, E., DiCerbo, K. & Foltz, P. (2017). Skills for Today: What we know about teaching and assessing collaboration. London: Pearson.

Marczewski, A. (2012). Gamification: A Simple Introduction. Andrzej Marczewski

Marginson, Simon (2006). Engaging Democratic Education In The Neoliberal Age. Wiley Online Library. Retrieved from: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1741-5446.2006.00012.x

Ministry of Higher Education. (2015). Malaysia Education Blueprint (Higher Education) 2015- 2015. Retrieved from https://www.mohe.gov.my/en/download/public/penerbitan/pppm-2015-2025-pt/5-malaysia-education-blueprint-2015-2025-higher-education/file

Orozco & Qin-Hilliard (2004). Globalization: Culture and Education in the New Millennium. University of California Press

Partnership for 21st century learning (P21). (2007a). Framework for 21st century learning. Retrieved from http://www.p21.org/about-us/p21-framework

Partnership for 21st century learning (P21). (2007b). 21st century skills assessment. Retrieved from http://www.p21.org/storage/documents/21st_Century_Skills_Assessment_e-paper.pdf

Piaget, J., & Inhelder, B. (2008). The psychology of the child. United States: Basic books.

Prensky, M. (2006). "Listen to the Natives." Educational Leadership, 63(4), p. 8–13.

Sandford, R. (2005). Games and Learning. A Handbook from Futurelab.

Scott, J. C. (1998). Seeing Like a State: How Certain Schemes to Improve the Human Condition   Have Failed. Yale University Press.

Skinner, B. F. (1954). The Science of Learning and the Art of Teaching. New York: Macmillan.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2012). The Malaysia Education Policy Review. Retrieved from http://unesdoc.unesco.org/images/0022/002211/221132e.pdf

United Nations. (2016). General Assembly on Human Rights Council. Retrieved from   https://documents-dds-ny.un.org/doc/UNDOC/LTD/G16/131/89/PDF/G1613189.pdf?OpenElement

Vygotsky, L. (1962). Thought and language (E. Hanf-mann & G. Vakar, Trans.) Cambridge, MA: MIT Press.

Woods, R. (2006, July 9th). The Next Step in Brain Evolution. Sunday Times (London). Features: Culture, 8.

World Economic Forum. (2016). The Future of Jobs. Retrieved from
http://reports.weforum.org/future-of-jobs-2016/

Zichermann, G. (2011). Gamification Is Here to Stay - Gabe Zichermann
- The Atlantic.