



## How ‘Digital Natives’ Learn: Qualitative Insights into Modern Learning Styles and Recommendations for Adaptation of Curriculum/Teaching Development

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### Abstract

“Digital Natives” have played a huge role in driving Thailand’s 4.0 policy, seeing as they have grown up in the midst of rapid technological development. For their generation, technology has largely influenced their lives such that they possess ways of thinking, media skills, behavioral patterns, and lifestyles that differ from previous generations. This article aims to explore the changing learning patterns of digital natives, both in terms of learning content and styles. Moreover, it also investigates the impact of technological changes on current learning processes and the learning styles of digital learners in Thai society. The study was conducted with 421 Thai digital natives, within the age range of 13–23 years old, who were studying either in secondary schools or universities in Bangkok. Data was collected using questionnaires, in-depth interviews, and free listing techniques, which were later analyzed via content analysis.

The results of the research revealed that 1) Digital learners prefer learning styles that encourage self-development and derive from content that has practical use in real life. Moreover, learning methods that can enhance the potential of each digital native varied across age range, 2) Learning processes in the digital age have transformed. For example, wireless networks have facilitated access to an infinite repository of knowledge; learning is not confined to the classroom; technology has become a key condition for educational success and efficiency, and 3) Changes in the learning processes in the digital age have created social inequalities and caused a loss of privacy on the part of those being monitored through technology. Therefore, the authors suggest that any stakeholders who are responsible for educational management of today’s children and youth should listen to learners’ opinions in order to jointly review the learning content necessary for Thai digital natives’ self-development and practical use in real life. In so doing, digital natives can make use of their learning and become an important force for driving their families, communities, and Thai society towards the future.

**Keywords:** Thai Digital Natives, Urban Areas, Learning Content and Styles, Learning Development, Curriculum and Teaching Development

### Introduction

One of the most important agendas of the Thailand 4.0 policy is to retrain Thai people of the 4.0 era to become a key driving force that helps the country move beyond the middle income trap and become a developed country. Thai digital natives are considered to be at the forefront of this human force, because they are the main workforce in the present and will remain so for the future. It is imperative for the country to equip people in this age group with the necessary characteristics and skills to become “the perfect human capital of the 21<sup>st</sup> century” with ‘head’, ‘hand’, ‘health’, and ‘heart’. The key tools that can be used in cultivating this group of people are designing ‘learning processes’ – designing, implementing, cultivating, adapting, etc. learning processes and educational models that are in line with the changes and needs of society in order to prepare the young Thai generation with high knowledge and skills, as well as the ability to innovate. Moreover, changes in education need to be made in order to provide equal opportunity for Thai learners (Buranachart, 2015).



“Digital Natives” generally refers to those who are in Generation Y (born between the years 1982 and 2005) and Generation Z (born from the year 2006 onwards) (Institute for Population and Social Research, Mahidol University, 2016). They are people born and raised in an era where society is immensely influenced by advanced technologies and the drive for innovation. Their thinking and ways of processing information are different from previous generations. They are called “digital natives” because they are proficient in the digital language of computers, video games, and the Internet (Prensky, 2001). Digital natives are familiar with a variety of media and technological learning methods. Hence, they have their own way of learning by collecting, filtering, and synthesizing data from multiple sources rather than finding the best information from a single source (Dede, 2005).

In the past, parents often perceived technology as a barrier to traditional learning systems, particularly lecture-based learning, because technology was usually seen as a form of leisure time entertainment and associated with games that distract and decrease students’ attention to learning and teachers’ lectures. However, in the modern day where social media has become increasingly ubiquitous, technology has become more and more integrated into the fabric of our everyday lives. As a result, technological tools and social media have become a primary vehicle for learning. They have created new independent learning spaces with the possibility of student-centered learning (Jonassen & Land, 1999). Learning through conventional methods, such as reading from textbooks, has been replaced by the application of educational computer games and a “Just-in-Time Learning Model” which is facilitated by the Internet. Students tend to use the “Just Google It” method, using the Google search engine to search for basic information before further in-depth study on the topic of their interest. In addition, it is proven that the introduction of technology and Internet usage in education can foster essential and necessary life skills, such as problem solving, critical thinking, decision-making, self-learning, and effective communication (Boese, 2016). Moreover, technology has also created a new learning style called ‘Playful Learning’ that emphasizes dynamic interactive communication. We can say that digital natives access and check information from a variety of sources and more quickly through different channels than older generations (Dede, 2005). However, technological advancement has affected the lives of the digital natives and other groups of people not only in terms of learning, but also in terms of social interaction (Diener, 1996).

In order to enhance learning for Thai digital natives, it is necessary to understand their learning preferences, which need to be consistent with their characteristics and needs. More importantly, the impact of today’s disruptive technological changes also needs to be taken into account. Therefore, this study aims to explore the changing patterns in how digital natives learn, both in terms of learning content and styles. It also investigates the impact of technological changes on the current learning process and learning styles of digital learners in Thai society. In doing so, this study focuses on new-digital natives, who are youths studying in secondary school to university education (within the age range of 13–23 years old). The results of this study will provide valuable insight for human capital development according to the key concepts of the 12<sup>th</sup> National Economic and Social Development Plan and the 20-year National Strategy.

### Research Methodology

Data collection methods for this research included a survey interview questionnaire, in-depth interviews, and a game activity using a free-listing technique. In recruiting the Thai digital native participants, the researchers started by contacting teachers affiliated with various educational institutions in Bangkok to help find students within



the age range of the digital native generation that could potentially be good research informants. Moreover, the selection criteria were as follows. Students must 1) be observant, 2) have knowledge and familiarity with how technology is used in daily life, 3) utilize at least three types of technological devices and social media on a regular basis, 4) have good communication skills, and 5) be willing to provide information as a part of this study.

The participants were selected using purposive sampling. The researchers also used a survey interview questionnaire technique to select participants. The selected participants included spanned genders and their ages ranged from 13–23 years old. Within this population group, they were divided into 3 age ranges according to education: digital natives who were studying in lower secondary, upper secondary, and university levels in Bangkok area. The setting and number of recruitments were divided into Inner Bangkok (137 students), Central Bangkok (140 students) and Outer Bangkok (144 students). In total, 421 students participated in this research.

The researchers then scheduled a date, time, and place convenient to the informants. The researchers described the research process and asked participants for their signatures to give consent for their participation, as well as permission to record the interview. Also, if the participant was under 18 years of age, the researchers would request parental consent prior to the interview and would protect the rights of all the research participants in accordance with the process described and approved by The Research Ethics Review Committee for Research Involving Human Research Participants, Group 1, Chulalongkorn University, Thailand.

The data obtained from the interviews and the free listing technique was analyzed using content analysis in order to answer the research objectives. The content analysis used in this research derived from qualitative-based conceptual insights gained from the interviews, as well as quantitative-based insights centered around top frequency answers from the free-listing method. The transcripts (typed verbal interviews) were read at least three times. This research data collection was a part of a research project entitled Understanding Thai Digital Natives' Characteristics, Behaviors, and Their Views of the Future. The research received funding from the National Research Council of Thailand's Spearhead Strategic Plan on Social Aspects of Khon Thai 4.0.

## Results

The following are Thai digital learners' views on learning styles that are essential to the development of their generation and their views on how learning processes have changed in the digital age:

### 1. Learning Content Most Suitable to the Thai Digital Native's Development

#### 1.1 Learning Styles with Content Consistent with Real Life Usage

According to the free listing technique and further in-depth interviews, the learning content that the new generation of digital natives consider necessary for living in the modern era consisted of *public speaking, accounting, basic computer programming, English, a third language, critical thinking, disaster survival skills, universal social etiquette, human rights, business operation and marketing, personality development, formal letter writing, and basic laws*. These aforementioned subjects are content that digital natives want to learn, because they see them as highly applicable to real life. On the other hand, learning content that the digital natives cannot relate to real life and wish Thai education would review or add more relatable examples and up-to-date learning content were *historical subjects with an emphasis on nationalism, folk music, sewing, planting vegetables, literature, poetry, stringing garlands, boy scouts and girl guide lessons, and territorial defense lessons*. In addition, they preferred moral education to cover more than just Thai traditional ethics, art theories, and Buddhism. Likewise,



overall learning content should not solely focus on memorization since this would discourage potential development of critical thinking or problem-solving skills.

### 1.2 Learning Styles Catering to Each Digital Learner's Age Group Development

For these Thai digital natives, good learning styles need to start by capturing the learner's attention and by focusing on what is expected for them to be responsible learners. This type of learning is seen as active learning that allows Thai digital native learners to learn with open communication and through motivated activities. However, participants in each of the age groups had different details as to how they defined 'their learning style'. For the new generation of digital natives, aged between 13–15 years old, who are in the lower secondary level, they defined their learning style as "Interactive Learning". **Interactive Learning** consisted of various teaching activities including technological tools that can make learning both fun and educational, by using examples from various online media, practicing research skills, and focusing on exchanging knowledge with each other rather than solely receiving knowledge from the teachers. To them, interactive learning increases their interest and enthusiasm to concentrate on what is being taught.

In addition, digital natives aged between 16–18 years old, who are upper secondary students, mentioned '**Active Learning**' as the learning style that best fit with their development. They think that teachers should be ethical and have specific expertise, while paying attention to students and not putting too much pressure on students. Teachers should teach straight to the point, be familiar with principles of psychology to better understand their students, have determination, know how to choose fun activities to stimulate their learning, and create a feeling of relaxation and comfort with learning. This kind of learning style would have a huge impact on their learning. While, digital natives who are college students, aged between 19–23 years old, tend to focus more on systematic thinking, critical thinking, and reflecting on one's self-identity. This age group prefers to incorporate both '**Active Learning**' and '**Hands-on Learning**', which focuses more on practical use in real life. This is considered to be a good learning style suitable for their development.

## 2. Changes in the Digital Age Learning Process

In the past, learning was limited by a number of restrictions, namely time, space, learning resources and media, knowledge availability, and what society thinks is appropriate for each gender and age group. Advancement in technology and the internet within urban society has made it possible for digital learners to overcome the aforementioned restrictions. It has released the learners from the bounds and limitations of those things. Technology is also found to result in the following changes:

### 2.1 24/7 Library Access

In the past, important learning resources were mostly located in libraries, which were bounded by service hours. For a library, both time and place significantly determine access, which is inevitably limiting. Today, these Thai digital natives have access to a redefined "library" with an infinite repository of knowledge as far as wireless networks can reach, where there is no opening-closing time for service.

### 2.2 Knowledge "Outside the Classroom"

Learning outside of the classroom is not new for today's learners, as both new and old digital natives all have experiences learning outside the classroom in their everyday lives. Modern teaching and learning materials have also drawn learning resources that can visually present various content that takes place outside of the classroom. Learning is no longer bounded within a four-corner classroom. We can say that learning outside the classroom for today's students is becoming more and more flexible. The study results show that digital natives like



to be in command of their own learning. Students want to be able to choose the topics, agendas, questions, or examples they want to learn from and know more about within any given subject, not directly through assignment by their teachers. Moreover, learning outside the classroom also means that anyone can be the “teacher”, such as parents, and any other people with whom students may interact.

### **2.3 Age is not a Barrier to Learning**

The phrase “age is just a number” is often used in the Thai context to refer to people who are old but see themselves capable of doing the same things as younger people. When it comes to learning, the age of the learners is no longer limited to the school age of students, thanks to the application of technology to learning. While older people can still continue to learn, for younger generations, the age of learners is decreasing as children begin to enter the education system earlier than in the past. In addition, Thai digital natives in this study stated that children’s learning increasingly begins younger and sooner than before due to early exposure to technology.

### **2.4 Changes in the Role of Teachers**

For current teaching, whether at the secondary or tertiary level, the role of teachers needs to extend beyond merely serving as a person who transfers knowledge. The source of knowledge need not rely overwhelmingly on teachers. Instead, students can seek knowledge through a variety of online sources. Digital natives think what is more important is how to process the knowledge from the source and how to appropriately apply it to real life circumstances. Therefore, the duty of teachers in this era needs to focus more on communicating, facilitating, and screening information, since they are no longer the sole medium or vehicle for information themselves.

### **2.5 Investment in Educational Technology**

Investing in educational technology is one of the key conditions for educational success and effectiveness. Today’s teaching and learning should emphasize the use of technology in every human aspect of life to the fullest. These changes students to invest in acquiring these technology tools, which are seen as a worthy investment. For example, students choose to buy e-books instead of hardcopies. Some students invest in a tablet for taking notes and storing documents, because electronic files are more durable and can be kept for longer periods of time. This reduces paper and environmental costs and students can use these knowledge tools for a longer period of time. Furthermore, current online classrooms allow documents related to the course to be published and transmitted in the form of files instead of depending on printing teaching materials. However, technology can be employed in ways that exceed the aforementioned functions. Thai digital natives also referenced cautions that must accompany technology use, such as how they have to be careful and cautious in circulating digital prints and citing original sources.

## **3. The Impact of Learning Process Changes in the Digital Age**

### **3.1 Educational Technology Brings Social Inequality**

Investing in educational technology is undeniably a key condition for today’s educational success and effectiveness. This is because teaching and learning in the digital era focuses on the use of technology as it is an important part of the learning process. Computers can be seen as the primary and foremost learning equipment that learners need to “invest” in. They vary in levels of performance and functions depending on the type of device, such as a desktop computer, notebook or tablet, all of which vary in terms of cost and affordability. This can place constraints and bar those in lower socioeconomic classes from participation. Although educational institutions typically attempt to provide technological equipment to make these devices more accessible to students in need, in reality, learners who have access to more powerful devices have more opportunity to access things and ultimately





receive a better quality of learning. For example, learners who can afford personal devices and have access to high quality internet network systems can do research and prepare reports anytime, anywhere, and with more efficiency, which gives them an advantage in their studies over those who need to rely on equipment provided by the school.

Meanwhile, teachers are also driven to buy and use technology tools for their teaching since they are required do online teaching. More documents these days are put into files, thereby increasing storage costs. High quality internet network and computer-related equipment – such as computer camera, speakers, and certain specific programs for online classroom teaching, examination, and students-to-teachers individual consultation – also become requirements for this kind of technologically intensive teaching. As a result, inequalities in learning opportunities become inevitable to both students and teachers in the digital era.

### **3.2 Loss of Privacy and Unwilling Exposure**

Online communication has reduced the communication gap between learners and teachers given that students do not need to wait for teachers to be available, and can instead use online media as a channel to contact teachers. However, being able to connect anytime, anywhere, means that learners and teachers are open to interact with each other in an out-of-classroom time and space even in their personal time outside of school hours. Furthermore, when teachers and learners are connected via social media, such as Facebook, whether willingly or unwillingly, the privacy of both parties will never be the same. This is because each party can see the online image and identity of the another.

While technology plays a role as a medium for facilitating teaching and learning, it has also become a tool for problematic forms of surveillance. A clear example is the case of teachers who may become the target of recordings. Some teachers admitted to being concerned about audio and video recordings of their teaching being disseminated outside of onsite and online classrooms. They feel more pressure to always be cautious and careful while teaching. It's more difficult today to have a closed classroom where everything happens and ends in the classroom at the end of a session. In some cases, if there is misunderstanding or dissemination of partial content of recordings, it may negatively affect both the image of the teacher and the educational institution.

## **Discussion**

Social, cultural, and structural changes are greatly influenced by the need to upgrade the quality of Thailand's labor market, which has had a direct and profound impact on education. This has resulted in a change in the basic education curriculum to promote the learning and development of skills necessary for modern society, particularly, technological skills to prepare students to enter the labor market in the 4.0 economy. At the same time, there has been a promotion of the use of technology in education as a teaching and learning medium for greater efficiency in the development of knowledge and skills. Moreover, the expansion of technology use in education in terms of access to information and digital technology has created a new way of learning outside the classroom. Students can learn on their own without space and time constraints through technological devices and online networks.

As technological media becomes an important motivation for learning, it has opened up new learning spaces that lend themselves to a self-learning student-centered approach (Jonassen & Land, 1999). Seeking knowledge in the digital era is no longer difficult because learners have access to a variety of knowledge resources. As the so-called Just Google It! Method suggests, nearly anything is accessible through a search engine search (Boese, 2016). In the digital age, teachers act merely as persons providing guidance on resources or staging opportunities for learning. Learners then further their studies or research on their own in order to discuss or exchange knowledge



with other learners. This learning method contributes to motivation and enhancement of learners' research skills. On the other hand, from the teachers' point of view, there are certain skills that have declined or become more challenging to impart, such as analytical thinking skills, skills for organizing ideas, transferring ideas systematically, and a lack of concentration on long-and-slow content processing. This is partly because students become accustomed to the use of technology as a tool or aid in accessing various sources of information.

In addition, digital natives have created a new learning style that does not rely only on learning in educational institutions. This reflects that a learning space that has been modified and added, expanding the scope to cover both the traditional physical area and the infinite online space. Having both types of learning space is critical for changes in the skills, knowledge, thinking and behaviors that the digital natives need to possess to become capable human resources for the labor market in the 4.0 era. Understanding these changes is therefore important to create a foundation for the development of this group of people to be in line with their characteristics, learning styles and identity. Moreover, since learning can take place anywhere, there can be various stakeholders, such as educational institutions, families, communities, online platforms, and workplaces, who can play their parts in providing learning to enhance the capabilities of digital natives.

Although technology has now played an important role in tackling some forms of social inequality, for example, the invention of computer programs to facilitate disability access (Bigham, Aller, Brudvik, Leung, Yazzolino, & Ladner, 2008) and the use of technology to improve the quality of lives of people in society, at the same time technology may result in unexpected inequalities in education. For instance, an increased reliance on the use of technological devices and online platforms in the teaching and learning process requires students to have devices in order to participate. This, of course, affects students with economic limitations who do not have access to the internet and/or digital equipment. This can result in an even wider inequality in education and access to learning opportunities. If Thai society cannot make accessibility to technology equal, the less fortunate young Thai students will be left out of the education system since nowadays education is based on digital and global connection. Therefore, in order to achieve quality and equity within Thai education in order to groom Thai digital natives to become efficient global citizens, we must overcome this first barrier.

In addition, the results of the study also reflect that there is teaching content in some subjects that is viewed by digital natives as not necessary or inconsistent with living in the present era. For digital natives at the tertiary level (age between 19–23 years old), they think that certain subjects that they have studied in secondary school cannot be applied to everyday life these days, such as sewing, scouts, and planting vegetables, because nowadays there is no need to do these things yourself. Such a phenomenon reflects that the learning content in some educational institutions is irrelevant and difficult to grasp in the minds of students. As a result, learning these subjects in the classroom fails to stimulate interest of learners when learners are not convinced of the benefits and necessity of what they learn in their daily life. Moreover, learning that focuses solely on listening to teachers' lectures cannot attract the interest of digital natives in this era anymore. Digital natives require more attractive methods of learning, such as the integration of new technological tools and media in the classroom. Furthermore, students find that the content of some subjects overlap and are redundant, which they see as a loss of opportunity to learn new things and catch up with changes. Given that everything changes fast, and new innovations are invented all the time, a good education should better develop up-to-date knowledge and skills in areas that are suitable for the practical needs of today's world. The learning should also encourage learners to generate their own



ideas and build on existing ideas rather than passively memorizing things. Such ways of learning tend to be more effective in developing a future-oriented workforce in the long run.

### Summary and Recommendations

Social and cultural changes due to technological developments, especially changes in information and communication technologies, has driven both learners and teachers to use technology as a tool for both learning, teaching, and the transfer of knowledge. While the pursuit of knowledge in the past was limited by conditions of time, space, the type and availability of learning resources, learning media formats, as well as the gender and age of the learners, nowadays digital society has freed the “learners” from these bonds. Learners can seek knowledge “in the classroom” or “outside the classroom” as the Internet has become a “library” that never has opening or closing times for all learners who have access to the network.

At the same time, the “teachers” themselves need to shift their roles from being the center of knowledge transference to instead act as a guide so that learners can lead their own learning process. Teachers have to change from being a knowledge provider to a knowledge facilitator through the use of various teaching media with the main objective of stimulating the thinking process of the learners. This depends on the conditions in terms of resources, personnel, policies, and educational management forms of various educational institutions to be able to promote the learning process. Moreover, at present, teachers have been forced to incorporate technology into their teaching as much as possible, including things like electronic file documentation, electronic work submissions, online research, and the use of online classroom systems, in order to increase the efficiency of teaching and learning, as well as to reduce the use of resources such as paper in the preparation of teaching documents.

However, this efficiency comes at a cost for teaching and learning. This is because not all students have equal access to learning materials. Therefore, one point of concern is that teachers and educational institutions might fall into the position of creating inequalities among learners unintentionally. To avoid this problem, planning is required to manage data collection, restrictions, and conditions of each student in order to reduce inequalities in the learning process as much as possible. In addition, all stakeholders responsible for managing learning content for children and youth should accept opinions or reflections from learners themselves, as they are the ones who will apply the knowledge gained from the education system to develop their own potential and the ways in which they will contribute to their family, community, and society going forward. There should be a revision of any content that is not related to practical use in everyday life. Also, there should be a way to exchange opinions, such as public hearings at the school or institutional level about various courses in the curriculum for both learners and teachers in order to consider whether any courses and teaching methods could be improved. Additionally, some extracurricular activities may need to be revised to focus on applicability in accordance with the demands of the modern world. Most importantly, the knowledge and skills that Thai digital natives consider necessary for living in the modern age should be added to the curriculum. This needs to be done in parallel with the training and development of educators who can guide students to use technology in the most creative and productive ways, not just in the classroom but in their future lifelong learning. Overall, the research results showed that use of technology provides a lot of benefits for Thai digital natives. Not only do technology and the internet provide them with access to a variety of knowledge sources, but it also gives these Thai digital natives the opportunity to search in unlimited fashion for the content they are passionate about. They can now decide how they want to learn and what they want to know. Moreover, this new system of learning also changes the relationships, roles, and power given to the





young Thai digital natives. They are no longer passive learners, but rather can become active educators to their peers and exchange ideas and new knowledge with their teachers. It is essential to support the learning of Thai digital natives by making the aforementioned changes to the Thai educational system.

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