

## Education for Digital Natives

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### ABSTRACT

The current generation of young children has been described as “digital natives”, having been born after 1980 into a ubiquitous digital media environment. The greater majority of people today are digital natives. They are tech-savvy with a very vibrant social media presence. They were born into a world of peak technological innovation, where information was immediately accessible and social media increasingly ubiquitous. They have some peculiar characteristics which have attracted the attention of researchers. These unique characteristics create predictable, serious problems between digital native learners and digital immigrant teachers, indicating that educational systems must change to catch up with modern times. The traditional education systems do not cater to the needs and interests of digital natives. This paper presents some ways educators can understand digital natives and change their teaching styles accordingly.

**KEYWORDS:** *digital natives, digital immigrants, characteristics, education, 21st century learner*

### INTRODUCTION

Technology has spanned the globe, connecting device, and people of all nations. It has become integrated into personal, professional, and social aspects of our lives. Technology has had a great impact on education. In schools, workplaces, and communities around the world, technology is becoming increasingly embedded into daily tasks. It has a far-reaching impact on our lives and relationships. As technology becomes more and more ubiquitous, educators cannot ignore the impact it is having on education.

One of the most remarkable changes brought about by these technological advances is the birth of an entire generation of digital children. Born during the age of globalization, digital natives (individuals born after 1980) have embraced the Internet, digital devices, social media, and smartphones. They enter schools with technology as way of life. The change to a digital-based education, has challenged the content and classroom management styles of teachers. Teachers seek to assist students in knowledge acquisition for the purpose of obtaining jobs, being

informed global citizens, and becoming well-rounded productive members of society [1]. The role of the teachers has evolved from the “sage on stage” to the “guide on the side” during the digital age.

Digital technologies are at the heart of our economic and social life. They have transformed everything from education and healthcare to social services. Today, our schools are not effectively meeting the needs of the 21st-century learners. The 21st-century learners often struggle to be understood by their teachers in the digital age.

There is a need for our educational systems to listen to the voices of the digital natives or face a future with disgruntled, disconnected learners. This paper intends to encourage students, teachers, school administrators, and families to collaborate in developing learning environments best suited for 21st-century learners [2].

### THE DIGITAL WORLD

Today students are growing up in a digital world and educators must employ new approaches to make

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learning real and relevant to them. The marriage between digital technologies and demographics make the digital world inevitable. The digital world is real, and it exists today as their way of life [1]. Digital technologies affect all citizens in general and digital citizens in particular in the following ways [4-6].

1. **Digital Government:** Government transcends all sectors in a given society. It provides the legal, political, and economic infrastructures to support other sectors of the society.
2. **Digital Citizenship:** Traditionally, citizenship involves nationally bounded membership. Digital citizens share their creative ability using a wide range of digital tools and technologies.
3. **Digital Law:** As governments and organizations around the world move their services and transactions online, there is the need for regulation. Digital law is digital responsibility for actions and deeds online. It deals with issues on the intersection of law and the Internet.
4. **Digital Rights and Responsibilities:** Every citizen needs to be made aware of his or her privileges and responsibilities in the digital world.
5. **Digital Identity:** A digital identity or electronic identity is the digital representation of the information on a person, organization or object. Like real identity, a person's digital identity may include username, passwords, date of birth, social security, and online search activities.
6. **Digital Culture:** The digital culture is the mixing of culture and computer. It refers to practices and cultures emerging from digital technologies.
7. **Digital Literacy:** To be digitally literate is to have access to a broad range of resources using digital tools. Digital literacy refers to a set of competencies that allow one to function and participate fully in a digital world.
8. **Digital Divide:** Digital divide refers to the inequality of access to the Internet technology. It is about the disparity between the technological haves and have-nots.
9. **Digital Safety:** Digital safety is a branch of cybersecurity that deals with people and the levels of online comfort, convenience, and privacy. It may be regarded as the act of staying safer online.
10. **Digital Ethics:** Digital ethics deals with how we conduct ourselves when we use digital media. It deals with the impact of digital technology on our society and how these issues are resolved.

**11. Digital Games:** Digital games involve programming computers to play games. They have become the fastest growing section of the entertainment industry.

**12. Social Media:** Traditional social media include written press, TV, and radio. Modern social media, also known as social networking, include Facebook, Twitter, Instagram, Pinterest, and YouTube.

## DIGITAL NATIVES AND DIGITAL IMMIGRANTS

Today, a revolution is taking place—the shift of culture to computer-mediated forms of production, distribution, and communication. This culture is invariably known as digital culture, cyber culture, Internet culture, information culture, etc. The digital culture is the mixing of culture and computer [7].

As far as the digital world is concerned, there are two types of people: “digital immigrants” and “digital natives.” Digital native refers to those who were born in the digital era, i.e., Generation X and younger. Prensky coined the phrase digital native in 2001. To avoid cultural conflicts, it is essential to differentiate between digital natives and digital immigrants. Prensky provides the following definitions [8]:

**Digital Immigrant** - A digital immigrant is an individual born before 1980 who had to learn technology almost like a second language.

**Digital Native** - A digital native is an individual born after 1980 immersed in technological lifestyle.

While digital immigrants live in two cultures (the pre-digital and the digital), digital natives are only exposed the digital culture. While those who are born after 1980 are called digital natives, those born prior to 1980 are digital immigrants. While digital natives are assumed to be inherently technology-savvy, digital immigrants often have some difficulty with information technology [9]. Natives understand the value of digital technology. They have an intuitive mastery of computers, electronic devices, and mobile devices. Figure 1 compares digital natives and digital immigrants [10], while Figure 2 provides some examples of digital natives [11]. They are often characterized by their age and as the generation that has experienced the total infusion of technology since birth. Because this generation is so well connected, their inspiration and views are drawn from regions across the globe. More time is spent on smartphones or watching TV, and less time is spent cultivating meaningful social relationships. Figure 3 shows how digital citizens spend their time [12].

## CHARACTERISTICS OF DIGITAL NATIVES -

The personality traits or behavioral characteristics of digital natives are exhibited in ways that often may be in contrast with other generations. The characteristics of digital natives include [13-15]:

- They live in the world of computers and video games;
- They are constantly connected to the online world;
- They have the capacity to use digital technology transparently;
- They express themselves in ways mediated by digital technologies (primarily mediators of human-to-human connections);
- They have plenty of friends in social networking sites (including people who they have never met in person);
- They feel comfortable in online spaces;
- They rely on online spaces to search for all the information they need (they learn through browsing);
- They have a tendency to attend to several things at once – multitasking;
- They receive and process information at a rapid pace;
- They share photos and videos with their friends all over the world;
- They are individuals who spend much time engaged in virtual world activities;
- They can often spot falsehood and insincerity from a mile away.
- They often view technology as being accessible to all and integrative into daily life.
- They are fast-paced, visually-oriented, nonlinear, always-on learners.

## EDUCATING DIGITAL NATIVES

As a society, America needs our future generations to be healthy, educated, and productive individuals. Those who are born after 1980 are called digital natives. It has been observed that our 19th century educational style and approach do not serve our 21st century students well. In the traditional classroom environment, the teacher stands at the front of the room and uses chalk-and-talk approach, as illustrated in Figure 4 [16]. Today's schools are not preparing students for digital workplace and are doing their students a grave disservice in the process. It is time for more educators to change, adapt, and utilize modern technologies to engage our students.

The differences between the generations inevitably result in conflict, tension and misunderstanding between teachers and students. High school teachers and college professors often face situations where throughout lectures, students update their Facebook profiles, text, surf the net, respond to email, and much more. They also concerned that many students spend long hours on their cell phones and online gaming all day long [17]. In order for teachers to be able to meet the educational needs of digital native, the following must be well understood.

### 1. Technology-driven Culture:

Perhaps the most characteristic of digital natives is their native use of technology. Digital natives prefer to learn in collaborative and technologically-driven learning environments. The ubiquity of digital technology has significantly impacted the brain structure of digital natives, the way they think and learn, their spirituality, and their social skills. Digital natives have never known a world without the Internet and associated communication technologies. The technologies digital natives are associated with include computer, smartphones, iPads, and other handheld devices such as small, portable tablets, and literally all kinds of technology. Other devices include PlayStations, digital cameras, DVD players, and blog. These devices represent the communication and interactive tools used by digital natives to socialize and connect with online with their friends, family, and acquaintances. These digital devices as necessities to thrive in the digital world and global age. They form the most avid consumer group, worldwide, for technology-based products. It is estimated that they have spent over 10,000 hours playing videogames, sent and received over 200,000 emails and instant messages, spent over 10,000 hours talking on cell phones, and over 20,000 hours watching television before they even graduate from college [18]. A sociologist explores the many ways that young people's enchantment with digital devices is weakening their ties to people, places, jobs, and other stabilizing structures, and what that means for all of us. Time spent watching TV is associated with less time spent reading, ultimately leading to inferior educational outcomes.

### 2. Different Learning Style:

Digital natives are young, digitally-mined learners. They prefer to learn with the Internet, digital devices, social media, and digital games. Their lifestyles have challenged schools to re-examine the purpose of how learning should be conducted. Teachers and students struggle over the use of digital devices and technology in the classrooms. Prensky argued schools must pay attention to 21st -century students and seek

to understand digital natives. He argued that no longer can schools afford to neglect what he viewed as a shift in the kind of learning styles and learning experiences needed to support digital natives.

### 3. Participatory Learning:

Participatory culture is the norm for young people and digital natives are not inspired by passive learning. Digital natives consider the quest of knowledge as a participatory process. They learn via participation. They see the instruction to sit and receive as archaic. Their preference is to view visuals, videos, or games. This unique trait creates predictable, serious problems between baby boomer or digital immigrant teachers, indicating that educational systems must change to catch up to modern times. It is time for more educators to change and adapt modern technologies so that the students are engaged and enthusiastic participants rather than reluctant, passive, unprepared-for-the-world learners. Digital natives have a permanent identity on the Internet where they are consuming and producing content at the same time [19].

### 4. Creativity:

Digital natives are creative in their ability to use technology due to their early exposure and familiarization. They bring a lot of relevant skills into the workplace. They are intuitively solving problems around the world. They can bring fresh points of view and ideas to a business. They are credited for noticeable contributions to the workplace. For example, digital natives are sometimes credited with making the push to adopt the cloud [20].

### TEACHER AND STUDENT RELATIONSHIPS

Teaching is one of the greatest professions there is. This is a universal perception of education as a career. In the digital age, the role of a teacher has fundamentally changed. Leaning heavily on tech in the teaching is the only option modern educators have. It is incumbent upon teachers to understand when and how to incorporate technology into the classroom. The teachers must be equipped with the tools and resources to ensure that the students are prepared with the skills and knowledge to solve the problems of tomorrow.

Teachers often assume the role of digital immigrants and students often assume the role of digital natives. Digital immigrants' learning patterns focus on logical rationale, while digital natives are fluent in acquiring and learning all sorts of digital devices. To understand the relationship between digital immigrants and digital natives, the following issues should be considered [1]:

- **Tension:** There is always tension in the 21st - century classroom between digital native students and digital immigrant teachers. Students tend to become easily bored with pre-digital age learning environments or non-digital learning activities. Due to their capacity to gather and create new information, digital natives often regard themselves as equal or even superior to their teachers in terms of technology.
- **Value Relationship:** The teacher-student relationship should be valued in order to overcome the digital divide in the 21st -century classroom. The digital native voice should be valued and listened to. Teachers should value their opinions and make necessary changes based on valid suggestions. They should accept and accommodate digital native learning lifestyles. Valuing, respecting, and trusting student voice equates to listening, responding, and leading with digital natives. Both students and teachers should move from tension-filled experiences to create 21st -century learning environments conducive to meeting the needs of digital native learners. Listening to student opinions can empower them to share their ideas. As students feel empowered, they develop self-confidence and the ability to think clearly and rationally.
- **Comfortable Environment:** Naturally, students desire to be around their teachers. A student feels comfortable in the presence of a caring teacher. To make students feel comfortable in the classroom, make a conscious effort to make them to smile, to pat shoulders gently, and to address each student by his/her name. Feeling comfortable with the teacher creates the feeling of being understood, appreciated, no conflicts, and a desire to smile.

Education has evolved into a two-way street where teachers and students teach and learn together. Digital immigrants can teach digital natives about the importance of human contact and the limitations of technology. Digital natives can teach digital immigrants how to engage and motivate younger generations in a manner that is comfortable to them.

Digital immigrants can learn to be more open and objective, and willing to engage with learners of differing backgrounds. Educators should acknowledge that digital natives can develop into leaders of their communities. Digital natives should be loved, supported, respected, guarded, and understood. Their interest will always dictate teacher's ability to create learning experiences regardless of their own technological savvy [21].

**CONCLUSION**

Technology has dramatically changed our homes and social lives. It is not only becoming omnipresent. Digital technologies and the Internet have revolutionized the way people gather information and acquire new knowledge. The use of the term “digital native” has become popular in public and political debate. The term, coined by Marc Prensky in 2001, come from a digitally bombarded world. Research on digital natives is important for developing 21st - century education.

Schools have struggled to integrating technology into their curriculum and training teachers to teach digital natives. Teachers are compelled to use technology to reach and adapt to this new generation of students and engage them in new and exciting ways. For this reason, technologies that empower teachers are rapidly gaining popularity. More empirical research must be conducted in order to improve our understanding of digital native generation. More information about digital natives can be found in books [21-36] and the following related journals:

- Journal of Education
- Journal of Educational Issues
- International Journal of Education
- International Journal of Technology in Education and Science
- International Journal of Educational Technology in Higher Education
- International Journal of Educational Methodology
- World Journal of Education
- IEEE Transactions on Education
- Australasian Journal of Educational Technology

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Figure 1 Comparing digital natives and digital immigrants [10].



Figure 2 Examples of digital natives [11].

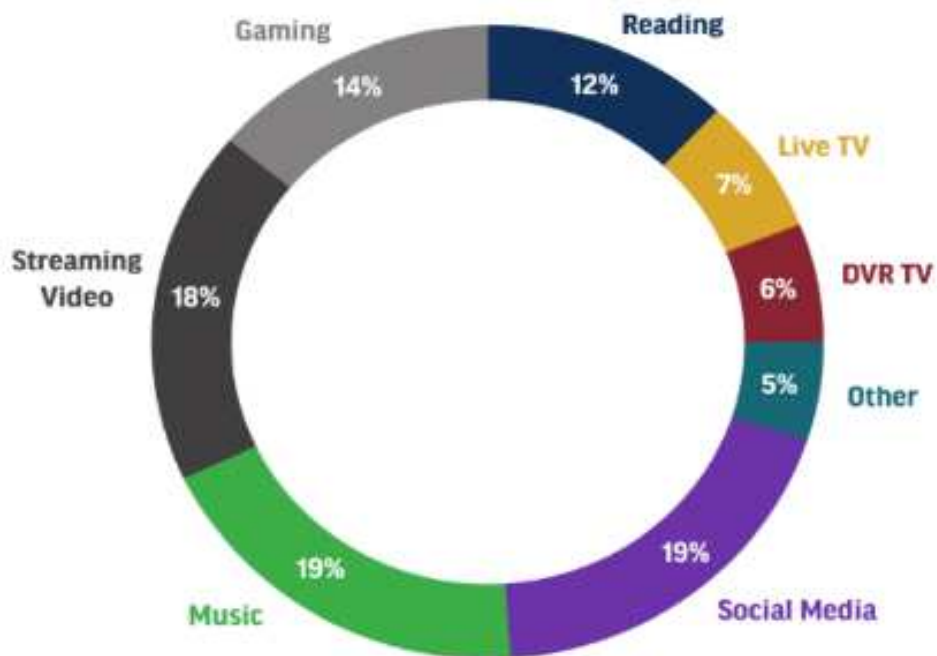


Figure 3 How digital citizens spend their time [12].



Figure 4 Traditional chalk-and-talk classroom