Research Article

Egemen Sen and Hatice Sahin*

Medical students and habits of access to information

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published online September 3, 2021**Abstract**

Objectives: Today's trainers met with technologies later in their life and these were not available before however trainers learned to use them. Students, on the contrary were born to the environment that these devices were widely used, technology-internet is one of the indispensable elements of life today. The aim of this study is to analyze medical students' habit of accessing to information at Ege University.

Methods: The research is in cross-sectional design. The research data were collected from the students of Ege University Medical Faculty. A 17-item questionnaire was used for data collection.

Results: A total of 293 students responded to the survey. All of the students have at least one technological product to reach information. While 79.9% of the students stated that they have the ability of multitasking, 55.3% of the students indicated that they were able to focus less than 25 min. A majority (68.3%) of the students use technology in all areas of life, while 46.6% of the students use technology in the area of education.

Conclusions: The knowledge that there may be changes in learning and teaching between generations is especially important for medical education. Nowadays, educators in medical education are generation X while students are generation Y-Z. The educators should be aware of these differences and manage rationally.

Keywords: generation; information technologies; learning difference; medical education; medical student.

*Corresponding author: **Hatice Sahin**, Professor, MD, Medical Education, Faculty of Medicine, Ege University, Izmir, Bornova, Turkey, E-mail: hatice.sahin8@gmail.com. <https://orcid.org/0000-0002-5200-7533>

Egemen Sen, Medical Education, Faculty of Medicine, Ege University, Izmir, Bornova, Turkey. <https://orcid.org/0000-0002-0823-2928>

Öz

Amaç: Eğiticiler kendi çocukluklarında mevcut olmayan teknolojilerle yaşamlarının ileriki yıllarında tanışmış ve kullanmayı öğrenmiştir. Oysaki eğitim verdikleri öğrenciler bu teknolojinin yaygın olarak kullanıldığı bir zamanda doğdukları için teknoloji-internet hayatlarının doğal bir parçasıdır. Bu çalışmanın amacı, Ege Üniversitesi Tıp Fakültesi öğrencilerinin bilgiye erişim alışkanlıklarını incelemektir.

Gereç ve Yöntem: Araştırma kesitsel desenedir. Araştırma verileri Ege Üniversitesi Tıp Fakültesi öğrencilerinden toplanmıştır. Veri toplamak için 17 maddelik bir anket kullanılmıştır.

Bulgular: Ankete toplam 293 öğrenci yanıt vermiştir. Öğrencilerin tümü bilgiye ulaşmak için kullanılan en az bir teknolojik ürüne sahiptir. Öğrencilerin %79.9'u çoklu görev becerisine sahip olduklarını belirtirken, öğrencilerin %55.3'ü 25 dakikadan az odaklanabildiklerini belirtmiştir. Öğrencilerin çoğunluğu (%68.3) teknolojiyi hayatın her alanında kullanırken, %46.6'sı teknolojiyi eğitim alanında kullanmaktadır.

Sonuç: Kuşaklar arasında öğrenme ve öğretmede değişimler olabileceği bilgisi özellikle tıp eğitimi için önemlidir. Günümüzde tıp eğitiminde eğitimciler X kuşağı, öğrenciler Y-Z kuşağıdır. Eğitimciler bu farklılıkların farkında olmalı ve süreci akılcı yönetmelidir.

Anahtar kelimeler: Tıp Eğitimi; Kuşak; Öğrenme Farklılıkları; Bilişim Teknolojileri; Tıp Öğrencisi.

Introduction

In the last decade, it is noteworthy that some of our students, assistants, and even some of our young colleagues have different behaviors or attitudes towards events. However, we are not interested in these differences in the daily workload and we often ignore the reasons for the differences, sometimes even we think “they are not like us”. However, as we have seen in the case above, the people we are within, particularly younger ones, are different from us.

When we look at the topics in which individuals are different from each other, we can see that the dates of birth, the historical events in which they were born, the characteristics of being individual, their way of thinking, their way of learning, their acquaintance with technology, their communication techniques and, most important of all, their goals for life-occupation are different from us [1]. These differences have been defined as generations in the literature. Rather than interpreting these differences as positive or negative attitudes of individuals in social life, or categorizing and labeling individuals, our aim should be to perceive these differences as a wealth and to see as a method of better understanding each other. For this reason, the generation which the individual belongs and its characteristics which reflected in learning and teaching should be taken into account.

Those born before 1945 are named the silent generation, born from 1946 to 1964 are named baby boomers, born 1965–1980 are generation X, born in 1981–1995 are generation Y, born from 1995 to 2009 are generation Z, and those born after 2010 are called generation alpha [2].

When we look in general, learning and teaching characteristics of generations, we see that our parents are baby boomers, we are X, most of the colleagues in our working life are Y, our children-our students are Z, our grandchildren are generation alpha [3]. In recent years, it is noteworthy that majority of students do not attend to lectures in formal education. Studies on the subject show that the students elaborate this lack of willingness to attend the lectures with the statement “my expectation from my teachers is to give information that I can’t find on the web any moment”. The trainers of today met with technologies later in their lives which were not available before (such as television, telephone, computer, smartphone, internet) and learned how to use them. However, our students were born to the environment that these devices were widely used, technology-internet is one of the indispensable elements of life [4, 5]. As a result, they allow less time to read and learn, but had to think faster. For this reason, although the amphitheater lectures have a visual component, the students need teaching strategies apart from making presentations. Several important points should be taken into account in managing this difference effectively in learning and teaching.

The aim of this study is to analyze the medical students’ habit of accessing to information at Ege University.

Materials and methods

The research is in cross-sectional design. The research data were collected from the students of Ege University Medical Faculty. No

sampling was performed because the data was collected with electronic form, but all volunteering students were included in the study. A 17-item questionnaire was prepared for data collection. In the survey, besides demographic variables, there were variables related to having information about how to access information, multitasking, concentration time, frequency of using different learning resources, study habits, consistency of teaching strategies and learning strategies, reason and method of searching information. The questionnaire consisted of multiple choice, poly-choice, visual analog scale (VAS) style answers. The questionnaire was transformed into an electronic form. The link of the survey was announced to all medical school students and they were asked to answer. Reminders were made three times by the class representatives and social media for the students to respond.

SPSS 25.0 package was used to evaluate the data. In the calculation of hypothesis tests, α : 0.05 was accepted.

Approval was obtained from Ege University Scientific Research and Publication Ethics Committee for the research (07.11.2018–09/01-55).

Results

A total of 293 students responded to the survey. The distribution of the responding students by class is shown in Figure 1. It is seen that the highest participation is in the fourth grade. 57.3% of the students were in the preclinical and 42.7% were in the clinical period.

The birth dates of students were examined in terms of evaluating intergenerational differences in access to information. According to this, 86% of the students ($n=251$) were born in 1999 and before, we define them as generation Y. Students who were born in 2000 and after, defined as generation Z, were 14% ($n=41$). One student has not specified the date of birth.

All of the students owned at least one technological product to reach information. While 58.4% of them had computers (desktop-laptop) and smart phones, 19.5% had tablets additionally. Majority of the students (79.9%) stated that they have the ability of multitasking. Interestingly, 55.3% of the students indicated that they were able to focus

Figure 1: The number of the respondent students in regard to their classes.

less than 25 min while learning. Multitasking ability of the Y and Z generations showed no difference (Chi-Square=0.518, $p=0.47$). Majority (68.3%) of the students used technology in all areas of life, while 46.6% of the students used technology in the area of education. While the rate of using technology in all areas of life was 67.7% among generation Y, this rate was 73.2% among generation Z. Using technology in all areas of education was 48.2% in generation Y, and was 36.6% in generation Z. The distribution of students' use of learning resources is given in Figure 2.

When students' study habits are evaluated, it was determined that the study habits were not different between the classes (Figure 3).

While 37.3% of the students preferred courses to be taught with a single method, 62.7% preferred courses to be taught with at least two different techniques. Only 4.8% of the students preferred self-learning method using the resources given by instructor. The study habits of the students do not change according to the generations (Figure 4).

A remarkable percent of students (46.6%) stated that they developed their own learning strategies instead of teaching strategies used in medical education. Interestingly, 55% of the students stated that the availability of course materials via internet would not affect their attendance to classes. Being generation Y or Z showed no difference on these propositions (chi-square=8.00, $p=0.155$; chi-square=6.57, $p=0.418$, respectively).

Figure 2: Distribution of students' use of learning resources.

Figure 3: Distribution of students' study habits.

Figure 4: The study habits of students according to generations.

When we evaluate what induces the curiosity in students and trigger them to research a topic, no difference between generation Y and Z (Chi-Square=1,278, $p=0.528$) was detected however the majority of the students did their research on the question of “what this information is” (Figure 5).

Google was the top search engine used by students in accessing academic knowledge (53.2%). Using online databases (Pubmed, Uptodate, etc.) was only used by 23.5%.

In summary, approximately 77% of students were scanning for information through online sources.

Students evaluation of learning revealed that 46.1% of the students believed that the correct knowledge can only be learned in lecture classes. A majority (90.1%) of the students stated that knowledge in lecture classes is more reliable because it is filtered by instructor, while 64.8%

think that the information is more current on the internet and 96.6% think that the information on the internet can be verified from different sources. There is no difference between the generation Y and Z in terms of these variables (chi-square=1.159, $p=0.282$; chi-square=1.362, $p=0.243$; chi-square=0.036, $p=0.850$; chi-square=0.140, $p=0.708$).

There is no difference between the generation Y and Z when the students' level of tolerance to errors in learning is evaluated ($F=0.146$, $p=0.703$) (Figure 6).

Discussion

In this study, the habits of the students of Ege University Medical Faculty were examined. Previous studies show that medical students use information technologies

Figure 5: The reasons of students' research of information.

Figure 6: Students' level of tolerance to errors in learning.

intensively [4, 6]. Similarly our study indicated that all students had at least one technological product for use to access information. Most of these technological products were portable. However, frequency of using information technologies for learning purposes is less than their usage in other areas. The lack of availability of the digital learning materials or having trouble access to the network may explain the low usage rate of technological devices as learning resources.

The students stated without any generational differences that they searched the knowledge for curiosity and they mostly used Google in accessing academic knowledge. Similarly, the literature also states that Google is used most in accessing academic knowledge [4–6].

Evans et al. [2], pointed out generation Y's multitasking ability and their focus on "How is this information important?" when searching for any information. In contrast, our research indicated that the Y/Z generation mainly focused on the question "What is this information?" The difference maybe due to cultural differences of the study groups. In medical education which causality of the knowledge is important, it is important to focus on the reason why the students ask "What is this information?" Although they are together in the same generation Y according to the time of birth, their reasons for access to information appear to be different. This situation shows us, even if it is the same generation cultural differences change learning behaviour.

In our study, students were predominantly belonging to generation Y and some of them to generation Z. When the study habits were examined, there was no statistically significant difference between the two generations, but it was found that generation Y used textbooks more, whereas generation Z was inclined to work individually. However, in the literature [2] it is stated that generation Y and Z use more visual materials in learning and teaching. In this respect, our research findings do not show concordance with the literature. This situation in the habit of studying

can be interpreted as lack of availability of visual material in medical education, or it can be interpreted as acquiring knowledge by more conventional methods because of the nature of medical education.

The students' tolerance to errors was evaluated in our study and it was found to be similar with the literature. Tolerance to errors might be an advantage in students' learning activities (e.g., in patient examination skills), but in situations which involve critical patient management (in case of an error is unacceptable) errors might cause big trouble.

The majority of our students were revealed to have a concentration of 25 min in average situation. In the medical education programs where the lectures are 40–45 min each, it is normal for the learner to feel stuck between the walls after a certain period of time.

There are some limitations in our research. Although while planning the research it was aimed to obtain similar data from the students and faculty members, problems were encountered in reaching the faculty members (due to personal data protection law) and the data could only be collected from the students but not from faculty members. Another limitation concerns the collection of data using a digital form. All students were included in the study, however, reminders for students to fill in the data form were insufficient, so the number of respondents remained below the expected level.

Conclusion

The fact that there may be differences in learning and teaching among generations is especially important for medical education. Despite the use of every available teaching strategy, apprenticeship method in medical education will always remain a valid method. This will cause challenges between educators and students from different generations who work in the same place and with close

contact. Nowadays, educators in medical education are generation X and students are generation Y-Z. In order to prevent these differences between the teacher and the learner from becoming a conflict, the learning needs of the students should be evaluated with such researches and the educators should be aware of these differences.

The following strategies can be proposed in order to reduce conflict in medical education and to transform differences into wealth.

- The structure and acquisition of knowledge change and the adaptation of each generation to this change should be taken into account.
- The reflection of generational differences on behaviors and learning should be considered.
- Trainers should take into account that their own learning style is the strategy taken into consideration in the teaching activities, however they should create presentation material considering that there are different forms of learning among students.
- Communication is important for generations to get to know each other better and to eliminate conflicts. For this reason, mutual and explicit communication techniques should be used instead of implicit sentences or allegory in learning.

Further studies are needed on generation differences on access to information and learning, especially on how the cultural variables effects this. The medical educator and medical student who have to be together but have different features of generations will be able to recognize and understand each other with the findings of the future work.

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