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GENERATION Z IN HIGHER EDUCATION – INVESTIGATING THE PREFERRED MEDIUM OF TEXT IN ACADEMIC READING

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According to Nugin et al. (2016) it is not always easy to determine the exact date of birth of every generation as the transitions have been found to be difficult to pinpoint. (9). According to Seemiller and Grace (2015), the representatives of generation Z were born between 1995 to 2010 and have already entered higher education. Reading online has become one of the most widely used sources of knowledge for learners, especially in the academic contexts (Zarrabi, 2015), thus it is not surprising that for generation Z visual media may as well have the most substantial impact whereas internet and smart devices are the main means of communication making it possible for every question to be answered immediately. Teachers nowadays are faced with a somewhat challenging task to meet the information obtaining needs and preferences of the new generation while belonging to the previous generation themselves. In order to cast light into the process of choosing the most suitable methods and materials as well as the devices for the learners of Generation Z, a research was started in Tallinn Health Care College, with an aim to investigate different generations´ text searching and reading strategies. Current article focuses on describing the preferred medium of text among the representatives of Generation Z. An online semi-structured questionnaire was conducted descriptive analysis conducted. The results direct authors toward further research to investigate the strategies of working with texts keeping in mind the characteristics of Generation Z in order to use the mediums and strategies to create effective learning possibilities in higher education.

Keywords:- *Generation Z, text reading strategies, medium of text, academic reading*

1. INTRODUCTION

In modern classroom environment students are do not belong to one generation only and constitute a group of mixed generations with different experience, skills and preferences. This constantly changing nature of students and an increasingly global-oriented society has initiated the eduational system's need to adapt as the success of higher education will depend upon its ability to respond successfully to such change. (2).

As described by Nugin et al. it is not easy to determine the exact date of birth of every generation as they have been found to be vague and the transitions difficult to pinpoint. (9). in defining the terms for the research, it has been agreed that the representatives of X generation are considered to be born between 1965 and 1979 and the representatives of generation Y between 1981 and 1995. (9). Those born from 1995 through 2010, called the Generation Z have already different motivations, learning styles, characteristics, skill sets and social concerns than those from the previous generations. (14). Research investigating the Generation X, Y and Z strategies of working with texts was started in Tallinn Health Care College with the aim to gain insight into the topic in order to enhance and facilitate the learning process when dealing with mixed generation classrooms. The initiation of the research was influenced by the author's experience of how students of higher educational institution express different attitudes and approach to using digital and printed materials as well as internet in their learning activities which is something that should be considered when designing a lecture. Authors agree that there are students who are more comfortable using a keyboard than writing in a notebook and happier reading from a computer screen than from paper they can hold. (2).

The research is further divided into sections with the aim to gain understanding on different processes taking place while the representatives of different generations select and read texts. Current article will focus on describing Generation Z and their preferred medium of text in reading academic texts.

Students of Tallinn Health Care College were chosen as the sample and 30 questionnaires were sent out and received. The questionnaire consisted of 31 questions on text searching and reading strategies and in the current article answers to three questions are analysed: a) what kind of devices do you prefer when reading texts (e.g. laptop, mobile phone, tablet, printed materials) b) Would you prefer to use video-audio materials instead of texts (very rarely, rarely, sometimes, often) c) please elaborate on your previous choices. Descriptive content analysis was employed to further understand the results of the questionnaire.

Generation Z – digital learners?

The following section focuses on describing the main characteristics of Generation Z. It is claimed that the representatives of Generation Z are empowered with information and communication tools while possessing a mind-set that can change institutions; they have information at their fingertips, they are constantly connected. (14). Students enter classrooms with their personal laptops and smart phones and remain online throughout the lecture, they are in constant field of information and communication which creates a learning environment where teachers must decide in what form and to which extent should the digital gadget be taken into account and be used. There is a vast amount of online information that comes in the form of websites, journal articles, blogs, forums, videos. (14).

Given that the representatives of Generation Z are used to several simultaneous conversations and moving from one field of information to another rather quickly, it may be that many of these students experience shorter attention spans. Their smart phones provide text, e-mail, messaging and social media all from one location and their phones not only give them the ability to communicate more quickly but to also from anywhere at any time. (14). Digital literacy nowadays means that smart devices and other appropriate tools are used without any delay, and the needed quality information is searched for efficiently. (11). this generation, also referred to as "digital natives" by Palfrey & Gasser (2008) have become skilled at retrieving and manipulating information using technology.

The research started wishes to gain insight into the preferences of the students of Generation Z and answer the question, what is be their preferred medium of text when completing their academic tasks and what are the underlying reasons behind that choice.

Online vs Printed Version Reading

Current section provides the review of several studies conducted to investigate students´ preferences on using electronic materials versus printed materials. The general understanding on the previously conducted research enables to gain more detailed insight into the reasoning behind the choices on medium of text.

Ackerman and Goldsmith (2011) stated in their study that on-screen learners did not score as well as on-print learners when performing untimed reading tasks. Their study also presented a significant difference of overconfidence between the groups when predicting performance levels, reflecting OSLs' distorted sense of their own proficiency. (1).

Yoram Eshet-Alkalai and Nitza Geri's (2007) study of reading comprehension, when reading news online or on print shows high school students performing better using online format, but college students comprehending better when reading the news in print. They suggest that different people place different values on information, and this impacts the differences in format preference for reading the information. (4).

A study performed in the United Kingdom investigating the reading habits of young people reports that 52% of the children claimed that they prefer to read online materials rather than in print. (12)

In the University of California, a survey was conducted on academic e-book usage by its students, staff, faculty, and researchers at all ten campuses. Almost 500 of the 2561 responses were from undergraduates and a positive response to questions "Do you use e-books for your academic work?" and "When doing your academic work, do you generally prefer print books or e-books?" was given. 49% of the total respondents stated their preference for printed books, 34% for

electronic and 17% answered that they had no preference or that it depends on the context of the usage. Post-doctoral researchers indicated the highest preference for ebooks (49%), followed by graduate students (35%). (7).

In the University of Maryland, more than 1300 members of faculty, staff and students in the humanities and social sciences were surveyed about their attitudes towards and usage of electronic books in 2012. Results revealed that most of the respondents preferred academic materials in printed version but were used to resorting to electronic versions for conference proceedings. Even with technological advances and greater electronic options, most of the 390 undergraduates in this study state that they still prefer reading their academic texts in print format when they want to achieve a deep learning outcome. (3). Students also included reasons for preferring online format saying that e.g. their learning is not affected by reading format and they can focus just as well using printed or online materials. Technological features that allow electronic highlighting and notating lessen the interactive advantage of print, and this factor will likely increase as they become more integrated in e-formats and platforms. Students also describe the electronic find-feature as helpful in their studies. Besides the lower cost, the major factor is greater convenience when accessing and archiving materials online. Many respondents also mention the additional drawback of carrying heavy books: "I commute to campus and having physical copies of all the materials is too much weight to carry around all day." Most students recognize the dilemma their format options present: take advantage of a better learning experience with print, or save energy, time and money with electronic? (3).

Philologist and linguist George Zipf of Harvard developed the Principle of Least Effort (PLE) in an attempt to explain and understand general human activity, its main concept being that individuals adopt a course of action that requires the least effort. (13). It can aid in understanding why students often choose to read their academic texts online even when they believe they learn better when reading from print. Factors such as faster, easier and more convenient accessibility to electronic material, the discomfort of carrying heavy books, and the greater ease in which they can find specific information electronically are mentioned frequently by the students throughout the comments. (3).

Students in lower socio-economic strata who do not have ready access to electronic devices and printers or cannot afford to print textbooks might be settling for the least expensive format over the most optional learning experience. An inadvertent outcome of higher education's efforts to negate the effects of the "digital divide" may be the creation of a "print divide" which, because print is still the most effective learning format, favors students who can afford it. (3).

A large Australian study of textbook use in higher education institutions reported that almost all courses in Science, Mathematics, Business and Education prescribed a textbook as being essential for student learning (5)

Mizrachi (2016) describes the study where students were divided into two random groups: one was given a reading in print and the other the same text electronically in PDF format. Subsequent comprehension tests showed that the print readers scored significantly higher than those who read on the electronic format even when their different reading abilities were factored in. All the subjects in this study were teenagers, therefore it appears that the effect of format on deep reading effectiveness exists as an actual cognitive phenomenon and is not determined by generational differences. (8).

Results from a similar study of reading comprehension across paper, tablets, and computers among college students in China also show a significantly better performance when reading in print than on the other electronic formats in both shallow and deep levels of comprehension. (8).

To summarize, several studies reveal that in reading for deeper understanding students preferred printed materials, whereas the choice of a medium also depended on the type of information needed. Shorter academic texts were preferred to be read in online versions. In some cases, online materials were preferred out of convenience or because printed materials would be more expensive to obtain, having a possibly negative effect on acquiring deeper understanding of the investigated subject.

2. RESEARCH METHOD

2.1. Methods

Research was started in Tallinn Health Care College to investigate, describe and compare reading strategies among the representatives of generation X, Y and Z presuming that representatives of generation X and Y and Z use different reading strategies. An online questionnaire in Microsoft Office environment was created to be filled by the representatives of all generations. The questionnaire is anonymous.

The data was analysed using descriptive statistics which summarizes and describes the received information. Inductive content analysis was used to investigate and interpret the respondents´ answers thus acquiring information on their views and preferences in working with specialty texts.

Research uses elements of qualitative and quantitative research methods to effectively analyse the data and use it in drawing efficient conclusions. Current article only focuses on the answers of Generation Z with the focus on their preferred medium of text in academic reading.

2.2. Sample and Questionnaire

Sample was created using simple random sampling method. The choice of the sample was flexible and purposeful. Respondents were the students of Tallinn Health Care College. Altogether 30 representatives of Generation Z filled the questionnaire. The online questionnaire was sent to the students and the principles of anonymity was explained. Filling in the questionnaire was voluntary.

An online semi-structured questionnaire consisted of 25 statements on the text reading strategies, 3 multiple choice questions on preferences considering the design and medium of the text, and three open questions on the translation process when working with a text in student's third language was prepared and conducted. In the current article the analysis of the answers to three questions from a questionnaire are introduced:

a) What kind of devices do you prefer when reading texts (e.g. laptop, mobile phone, tablet, printed materials)?
b) Would you prefer to use video-audio materials instead of reading the texts (very rarely, rarely, sometimes, and very often)?
c) Please elaborate on your previous choices.

RESULTS AND DISCUSSION

The section offers the respondents answers to the questions illustrated by a figure and followed by a discussion.

The first question investigated the medium the text was preferrably read from – computer/laptop, mobile phone, and tablet or printed from. Question offered a range of answers to each possibility using a Likert scale: very rarely, rarely, sometimes, often, and very often. Second question investigated whether it would be more preferred to use video-audiomaterials than text and the same set of possibilities were given to choose from. Open question requested respondents to elaborate and explain their choice.

1. Answers to the first question: What kind of devices or materials do you prefer when reading texts? Are presented on Figure 1. It is revealed, that the most preferred device was computer as 23 respondents marked the option of "very often" and 4 as "often".

The scale rankings "rarely" and "very rarely" was chosen by none of the respondents. The second most popular device was revealed to be tablet, where 20 respondents marked it to be the preferred device "very often" whereas there is a difference in using the scale rankings, as 8 respondents marked the tablet to be used "rarely". Mobile phone and printed materials shared similar responses, mobile phone was marked to be used "very often" and "sometimes" by 8 respondents and "very rarely" by 5 respondents. Printed materials were preferred "very often" by 6 respondents and "sometimes" by 8 respondents; "very rarely" by 6 respondents.
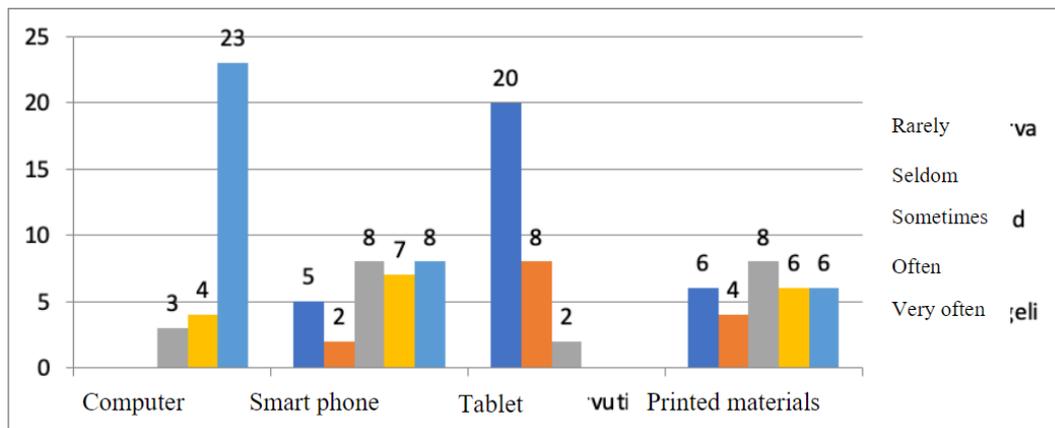

Figure 1 what kind of devices or materials do you prefer when reading texts?

The choice may be perceived as logical, because students do most of their research tasks using their own personal laptop or a computer in library. As it is not free to print the materials at the college's premises, students do not print the materials they use in their academic tasks thus reporting computer to be the most often used medium of text. It is the author's experience that mobile phones are used to quickly search for materials when computer is not available. Printed materials are used to gain deeper understanding on the topic and are thus used outside the quick search.

2. The second question addressed the possibility of using video or audio materials instead of reading texts. The answers offered a Likert scale consisting of very rarely, rarely, sometimes, often, and very often. It was revealed that 14 out of 30 respondents marked the option of using video or audio materials with the ranking "sometimes". 9 respondents as "rarely" and 5 as "very rarely".
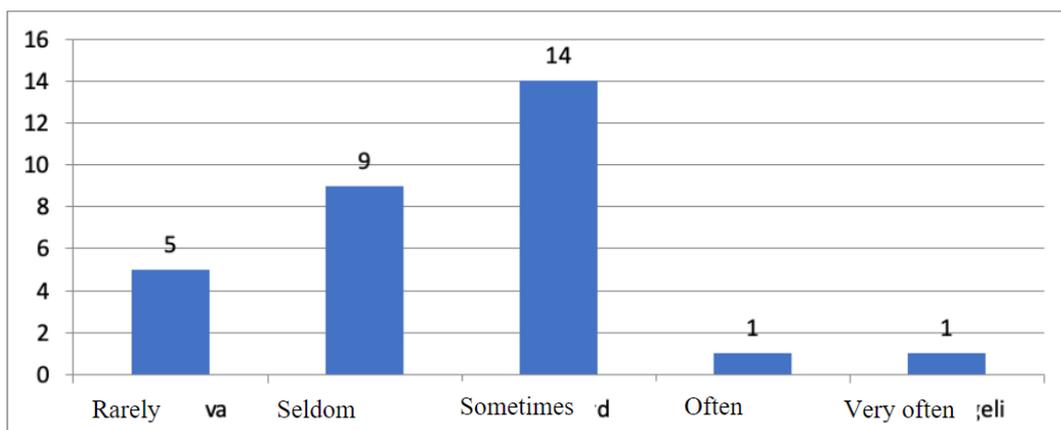
Figure 2 would you prefer to use video-audio materials instead of reading the texts?

The respondents' choice was rather not supportive towards more frequent use of audio and video materials and the most chosen response was "sometimes". It should be noted, that the questionnaire was conducted prior to the COVID-19 pandemics, which instantly raised the amount the studying online and thus reading electronic materials. According to the students responses they preferred reading printed text and not to use video and audio materials. The authors are interested in how the students' perceptions on audio and video materials have changed considering that for several months it was the only medium of acquiring knowledge as the lectures were in online environment and using a library to search and use printed materials was not possible at all or possible to some extent.

3. Third questions asked respondents to elaborate on the choices given. Answers have been divided into three sections:
   a) Preferring reading the text b) preferring listening to audio files c) preferring watching video files.

a) Preferring reading the text

The preference towards using printed materials was most often mentioned when answering the open question. It was mentioned by 4 respondents that it is easier to understand the text when reading it. 5 respondents commented that they prefer reading the text, as it is easier to concentrate: *"My thoughts might wonder off when listening to audio files".* It was noted by 2 respondents that they preferred to read at their own pace. Other comments included mentioning that finding key words is easier from the written text and it is impossible of have a contact with the lecturer when listening to audio files.

b) Preferring listening to audio files

Student's main comments involved information on audio materials being easier to follow that printed materials and some concepts are easier to understand when watching the video or seeing an image. It was also mentioned by two respondents that for them it is easier to remember the new information when listening to it, referring to their personal characteristics as learners.

The possibility of offering various learning possibility to students is one of the most important conlcusions that can be drawn from the responses to this question. The need to provide more than one route of acquiring knowledge facilitates the learning process and takes into consideration student's differnet learning strategies, resulting in more successful learning experience and acquiring the skills needed for the students' future professional life and personal development.

c) Preferring watching video files

Several respondents mentioned that when comparing video and audio files they would prefer video files as they offer a better visual information, aiding in understanding more complex phenomena: *"Video files help in understanding the topic, I have a more visual memory so I prefer these kind of materials".* It was also mentiond that videos illustrate the topic and give exhaustive explanations: *"Videos are conclusive and summarizing, they enable to make connections and help to remember the new information".* It is the authors´ opinion that videos are used as a complementary means to face-to-face lectures and seminars.

It is worth noting, that survey conducted show that students prefer printed materials when reading academic text. At the same time, personal characteristics and breaking the routine learning methods are considered important and influence the representatives of Generation Z into testing new mediums of text. Authors agree with Mizrachi (2015) that there are multiple factors such as accessibility, cost, complexity of the reading and its importance to the course that affect students' choices and learning behaviour.

The research was started before the COVID-19 pandemics, which had a major impact on learning strategies in general. As nowadays the focus is more on online environments, independent learning and virtual lectures, the medium of text and information in general has moved from lecture halls into online environments. Face-to-face lectures have changed into video lectures. Taking the changing educational environment into consideration, it is valuable to discuss the Generation Z's opinions towards reading online at the pre-pandemic time, and it would be worth conducting research on how their opinions have changed over time. How students perceive and use the resources represents the key to utilising the full value of textbooks in a digital world. (6). the employment of any learning material, including text, video, and audio should be tailored according to the needs of the specific class, generation and subject at hand. The emphasis should be set on the educational implications of any material and technology used. As students become increasingly autonomous and somewhat isolated in their learning experience, perhaps the online medium of text and online learning become even more significant, demanding a more "personal" approach from the technology. Teachers are expected to raise the level of expertise in creating learning opportunities that would enable the personalized and flexible learning experience simultaneously with the electronic mediums of information.

CONCLUSION

Technology and online learning have influenced students´ preferences of learning activities and the choices made when searching and reading academic texts. According to Sharples et al (2012: 6) online learning signifies "a new and disruptive form of education that transcends boundaries between formal and informal settings, institutional and self-directed learning". Students are more autonomous in regard to the learning environment and time, but what has remained the same is the requirement for using evidence-based and credible materials.

Whether the materials used are electronical or printed, the textbook, webpage, video or article will not improve the learning by itself, it is the content used within a specific framework of the addressed topic that defines the quality. The aim of learning is still to create competences that would aid students in their future careers. Using smart devices only because students seem to prefer them is an argument that should be taken into consideration, but the main purpose of reading any materials should be the meaningful learning experience.

The results of the current research suggest that learners belonging to Generation Z value both, printed and electronic materials, whereas it is considered easier to concentrate when reading printed materials. Videos are considered to be an excellent means of summarizing and exemplifying new information. Computers are the preferred medium of text due to the fact that most of the evidence-based materials can nowadays be found from electronic data sources.

Authors of the research emphasize the fact that research was conducted before the COVID-19 pandemic, which had a major influence on the learning process. It deserves to repeat the questionnaire to obtain insight whether and how the preferred medium of text and perceptions about learning in general during and after the pandemic have changed.

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