International Journal of Multidisciplinary Research and Development
Online ISSN: 2349-4182, Print ISSN: 2349-5979
Impact Factor: RJIF 5.72
Received: 03-08-2018; Accepted: 06-09-2018
www.allsubjectjournal.com
Volume 5 Issue 9; September 2018; Page No. 17-20

Power point or Prezi? Which one is better for anatomy education?

Dr. Shabnam Mohammadi[1*], Farzad Mirzakhani[2], Raheleh Baradaran[3], Ghasem Sazegar[4]
[1] Neurogenic Inflammation Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
[2] Department of Medical informatics, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
[3, 4] Department of Anatomy and Cell Biology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran a

Abstract
The use of educational software for teaching can transfer a large amount of information to aid better understanding for the third year students. Therefore, the aim of this study was to compare the application of Prezi and PowerPoint software in the teaching anatomy of midwifery students in Mashhad University of Medical Sciences. This quasi -experimental study was performed on 25 midwifery undergraduate students. One topic of anatomy lesson with the same content was presented using both Prezi and PowerPoint software. The students' survey was performed using standard questionnaire about PowerPoint and Prezi software. The data collated for the study were analyzed with SPSS software using descriptive statistics. The level of understanding, learning and motivation of students were higher in the presentation that made use of the Prezi software than the PowerPoint software ($p \leq 0.001$). The teaching Anatomy with the use of Prezi was better compared with PowerPoint software in terms of animation ($p \leq 0.001$), content ($p \leq 0.001$), design ($p \leq 0.001$) and slide visuals ($p = 0.03$). From the students' attractive and dynamic point of view, the possibility of using images, adding files and high zoom capabilities were the strengths of the Prezi software. While the easy printing of slides and the lack of the need to use the internet to provide a slide were the strengths of the PowerPoint software. The results of this study showed that the students' learning and motivation were increased in the presentation of teaching anatomy using Prezi software than the same presentation using PowerPoint software. Students also had a positive attitude toward animation, content, design, and visual in Prezi than in PowerPoint software. The zooming of an object to a size of up to 100 times the original in Prezi software, especially in the teaching of tiny branches of vascular and nerves, is important.

Keywords: anatomy training, Prezi software, power point software, midwifery students

1. Introduction
Taking into account the advancements in technology in the field of new computer software and the trend of the new generation, it is best to bring many of the training and courses for students in line with the technology of the day [1]. The use of films, photos and animations along with educational texts leads to a balance in listening and visual learning and subsequently increases the interest of learners towards learning. The use of educational software provides an opportunity to enhance learning and motivate increase in terms of diversity, attractiveness and modernity [2].
Although the ideal method for learning anatomy is through the study of the human body in the dissection halls, universities are faced with a lack of corpses to carry out this process [3, 4]. The anatomists' concern is to increase the knowledge of medical graduates [5] hence, the need to look out for educational processes to supplement educational methods [6]. An achievable means of doing this is the use of educational software that can transfer a large amount of information to the student for better understanding [7].
PowerPoint software is one of the most used office software packages that was first developed in the business world and then in the field of learning. This software allows the use of chart, table, animation and audio files. PowerPoint was originally designed for Macintosh operating system. In August of 1987, Microsoft purchased it, and thus, Microsoft PowerPoint turned into Microsoft's graphics section [8, 9].
Prezi software is a software used for presentation that was built by the ZuiPrezi Institute in Hungary in 2009 and it is based on Flash-based speech. In Prezi software, instead of writings that create a slide show with excellent graphics, the camera moves. Prezi software is based on the layout of the map. It gives a platform to input all the information you want from text and image to animation and movie and sound into the frame. After defining the item path, the content can create an animation. Prezi software has the ability to simultaneously provide multiple people without being present at one place [10].
Studies have shown that the use of educational software in teaching has increased in the last two decades. Shigli and colleagues reported in 2017 that PowerPoint presentation was influential in understanding lessons in dentistry [11]. Another study used PowerPoint to teach undergraduate student physiology lessons. The results showed that PowerPoint was effective not only in students with visual and auditory learning style but also in students with writing and kinesthetic styles [12]. In another study, the impact of presentation with two PowerPoint presentations and problem-based learning methods in fifth-year family medicine students were investigated. The results showed that both traditional PowerPoint presentation and problem-based learning were

equally effective [13].

In a study by Bender *et al*. (2012), on high school students, they concluded that using Prezi software increased their motivation for learning science lessons [14]. In addition, Mustaffa *et al*. (2013) found that students' attitude toward using Prezi software in Islamic language education was positive [15]. Another study by Brock *et al* in 2013 reported that American students were satisfied with the creative and workgroup of Prezi software. Norwegian students believed that presentations done with Prezi software were tidy and calm [16]. Duffy *et al*. (2005) presented psychiatric training with Prezi software in recent years to medical and physiotherapy students and concluded that Prezi was attractive to students [17]. In another study, Fox *et al*. in 2016 compared the impact of two educational software methods; PowerPoint and Prezi software on teaching English to students. They discovered that students preferred Prezi software to PowerPoint [18]. Thus far, no study has been performed to evaluate and compare the effect of teaching anatomy with slides prepared with Prezi software and PowerPoint. Hence, this study aimed to evaluate its impact on anatomy training of midwifery students in medical science students.

2. Materials and methods

The present study was a quasi-experimental study conducted in 2017 at Mashhad University of Medical Sciences, Iran. In this study, 25 undergraduate students with a mean age of 20.25 ± 2.59 years participated. At first, the lesson of anatomy, which was related to the abdomen, was divided into two parts. Two sessions of content were prepared using PowerPoint software and the same two sessions with the Prezi software by a single teacher. To create Prezi slideshows, a free account was created at http;// prezi.com. To use PowerPoint, the Office suite was installed on computer. Then, a survey was conducted using a standard questionnaire on the variables such as knowledge, attitude and satisfaction about software. The questionnaire has two parts. The first part included demographic questions which included age, sex, marital status and housing status. The second part included 20 questions centered on the knowledge and attitude of participants towards PowerPoint and Prezi software. These questions were 5 in number and required a 'yes' or 'no' answer. These questions also estimated the extent to which participants are familiar to these software and their uses. Five other questions evaluated the students' attitude towards the software; the questions are based on the Likert scale and were scored from 1 to 5. Furthermore, 5 questions each were asked to access the weaknesses and strengths of Prezi and PowerPoint software respectively. There were also 2 open ended questions, if the participants were writing about a weakness or strength.

Data were analyzed using SPSS software version 20 and descriptive statistics.

3. Results

Of a total of 31 undergraduate midwifery students, 25 participated in the study (Table 1). At first, a brief explanation was given to students about PowerPoint and Prezi software. Results showed that 88% of the students suggested the use of Prezi software for teaching embryology, physiology and histology and 80% of student suggested the use of PowerPoint ($p = 0.044$). 100% of students and 60% of the students introduced Prezi and PowerPoint software respective for better understanding ($p \leq 0.001$). In addition, 80% of students and 20% of students introduce Prezi and PowerPoint software respectively as a motivator for learning ($p \leq 0.001$). (Table 2).

In Figure 1, the strengths and weaknesses of the PowerPoint and Prezi software were summarized in terms of students. 40% and 20% of the students believed that Prezi and PowerPoint software respectively were not user friendly. Students mentioned having Internet access to work with Prezi (20%), confusing (8%) and hard print of slideshows (12%) as the weaknesses of Prezi software. While students mentioned not displaying some effects on different systems (80%), need of office installation (60%), lack of high zoom capability (96%), and disassembling some fonts on different systems (60%) as the weaknesses of PowerPoint software. On the other hand, students believed Prezi software was attractive and dynamic (100%), it possess the ability of using images and adding files (92%), high zooming capability (100), and assembling of fonts in different systems (8%) were mentioned as the strengths of Prezi software. 40% were not aware of the need for installation knowledge in the online version, and 44% did not know about the free version of Prezi software.

While on the strength of PowerPoint, 60% of students believed PowerPoint was attractive and dynamic. The ability of using images and adding files (80%), easy to print slides (96%) and the absence of the use of the Internet to deliver presentations were mentioned as the strengths of PowerPoint. Some suggested reducing the time taken by students to take notes and the possibility of having it as PowerPoint strengths in open questions. Table 4 shows the results of students' attitude towards presentation with PowerPoint and Prezi software. Statistical analysis results showed that the teaching of anatomy with Prezi was better than PowerPoint software in aspect of animation ($p \leq 0.001$), content ($p \leq 0.001$), design ($p \leq 0.001$), and slide visual ($p = 0.03$) and students had a positive attitude compared to PowerPoint in presentation anatomy lessons.

Table 1: Demographic Characteristics of the midwifery student (N = 25)

Demographic values		N	Percent (%)
Gender	Male	0	0
	Female	25	100
Mean Age (year)		20.2 ± 2.59	-
Ranging age		18-26	-
Marital status	Married	4	16
	Single	21	84
Living	in dormitory	8	32
	in house	17	68

Table 2: Levels of knowledge and awareness of students about the use of PowerPoint and Prezi software in presentation of anatomy lesson

Variable	Prezi	Power point	P value
Do you know the software?			

Yes	0	25 (100%)	≤0.001
No	25 100%)	0	
Do you suggest software to others or for another course?			
Yes	22(88%)	20(80%)	0.44
No	3(12%)	5(20%)	
Do the software provide better education and understanding of anatomy lessons?			
Yes	25(100%)	15(60%)	0.001
No	0	10(40%)	
Was the software a motivation to learning?			
Yes	20 (80%)	5 (20%)	≤0.001
No	5 (20%)	20 (80%)	

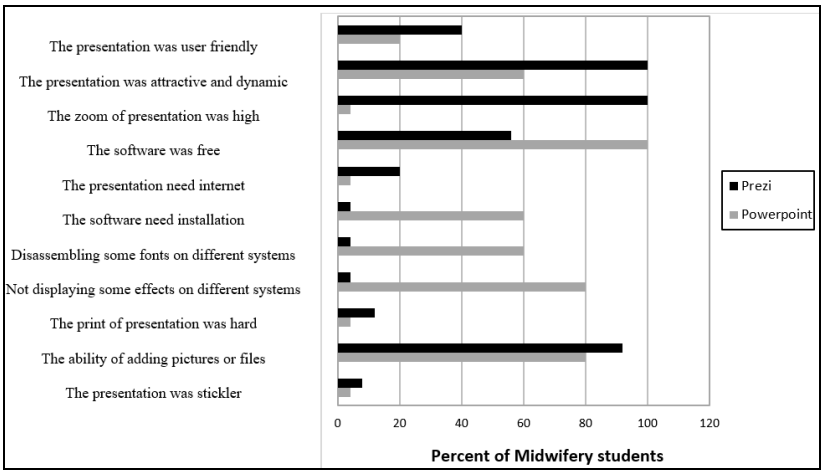

Fig 1: The strengths and weaknesses of anatomical education with PowerPoint and Prezi software from the perspective of undergraduate midwifery students

Table 3: Attitude of midwifery students about presentation with Prezi and PowerPoint software

Methods	Very weak N (%)	Weak N (%)	Moderate N (%)	Strong N (%)	Very strong N (%)
Prezi animation	0	0	0	6(24%)	19(76%)
Power point animation	0	0	15(60%)	5(20%)	5(20%)
Prezi content	0	0	0	18(72%)	7(28%)
Power point content	5(20%)	0	20(80%)	0	0
Prezi design	0	0	0	5(20%)	20(80%)
Power point design	5(20%)	5(20%)	15(60%)	0	0
Prezi visual	0	0	0	8(32%)	17(68%)
Power point visual	5(20%)	0	15(60%)	5(20%)	0
Overall evaluation of the presentation with prezi	0	0	0	10(40%)	15(60%)
Overall evaluation of the presentation with power point	0	5(20%)	10(40%)	5(20%)	5(20%)

4. Discussion

The aim of this study was to compare the effect of Prezi and PowerPoint software on anatomy education of undergraduate midwifery students. The results of the study showed that students had a low level of knowledge and positive attitude toward Prezi compared to PowerPoint. In the field of effectiveness of film and educational software, various studies have been performed on students' learning and skills. The results indicated that the use of new educational methods, including software and educational films can improve quality of teaching, learning and understanding.

Shigli and colleagues reported in 2017 that PowerPoint presentation is influential in understanding lessons in dentistry [11]. Another study used PowerPoint to teach undergraduate student physiology lessons and the results showed that PowerPoint is effective not only in students with visual and auditory learning style but also in students with writing and kinesthetic styles [12]. In another study, the impact of presentation with two educational methods; PowerPoint presentation and problem-based learning methods in fifth-year family medicine students was investigated. The results showed that both traditional PowerPoint presentation and problem-based learning were equally effective [13].

Moulton *et al*. (2017) compared the PowerPoint and Prezi software to find the best software, and they concluded that Prezi is better in providing information than PowerPoint. They considered Prezi as a distraction agent and an amusing tool [19].

In a study by Bender *et al*. (2012) on high school students, they concluded that using Prezi software increased their motivation for learning science lessons [14]. In addition, Mustaffa *et al*. (2013) found that students' attitude toward

using Prezi software in Islamic language education was positive [15]. A study by Brock *et al*. (2013) reported that American students were satisfied with the creative and workgroup of Prezi software. Also, Norwegian students observed that presentations done with Prezi software were tidy and calm [16]. Duffy *et al*. (2005) presented psychiatric training with Prezi software in recent years to medical and physiotherapy students and concluded that Prezi was attractive to students [17]. In another study, Fox *et al*. in 2016 compared the impact of two educational methods in terms of software; Power point and Prezi software, on teaching English to students and found that students preferred Prezi to PowerPoint [18].

In the present study, the presentation with PowerPoint software was tedious and could not motivate students. This is perhaps because PowerPoint follows a simple linear process. In this study, students had a little knowledge about Prezi software compared to PowerPoint. Prezi is a relatively new presentation for scientific conferences that can be useful for anatomy education as a complementary learning tool.

However, Internet connectivity in the on-line version and hard to print slides are some of the weaknesses of this software. On the other hand, the failure to perform some effects, the disassembling of fonts on any computer and the lack of zooming were the weaknesses of PowerPoint software.

5. Conclusion

The ability to zoom up to 100 times, especially in the teaching of branches of vascular and nerves, seems important. The level of understanding, motivation and learning the lesson of anatomy was greater with PowerPoint than with the Prezi software. However, in terms of animation, content, design and visuals of slides, the attitude of students were observed to be well coordinated when using Prezi software than when using PowerPoint. Overall, the use of film and animation along with educational texts resulted in a balance in listening and visual learning and thus, increased the level of learners' interest in learning. Due to diversity and attractiveness as a comprehensive approach, Prezi software provides an opportunity to enhance learning and increase motivation.

6. Acknowledgment

The researchers would like to acknowledge the students who participate in the study.

7. References

1. Zhang Q, Zeng T, Chen Y, Li X. Assisting undergraduate nursing students to learn evidence based practice through self-directed learning and workshop strategies during clinical practicum. Nurse education today. 2012; 32(5):570-575.
2. Khatooni M, Alimoradi Z, Samiei-Seiboni F, Shafiei Z, Atashi V. The impact of an educational software designed about fundamental of nursing skills on nursing students' learning of practical skills. Journal of Clinical Nursing and Midwifery. 2014; 3(1):9-16.
3. Winkelmann A. Anatomical dissection as a teaching method in medical school: A review of the evidence. Med Educ. 2007; 41:15-22.
4. Turney BW. Anatomy in a modern medical curriculum. Ann R Coll Surg Engl. 2007; 89:104-107.
5. Waterston SW, Stewart IJ. Survey of clinicians' attitudes to the anatomical teaching and knowledge of medical students. Clin Anat. 2005; 18:380-384.
6. Irby D, Wilkerson L. Educational innovations in academic medicine and environmental trends. J Gen Intern Med. 2003; 18:370-376.
7. Marks SC. The role of three-dimensional information in health care and medical education: The implications for anatomy and dissection. Clin Anat. 2000; 13:448-452.
8. Collins J. Education Techniques for Lifelong Learning: Making a PowerPoint Presentation Radiographics. 2004; 24(4):1177-1183.
9. Brock, David C. The Improbable Origins of PowerPoint. History. IEEE Spectrum. Institute of Electrical and Electronics Engineers. 2017; 54(11):42-49. doi:10.1109/MSPEC.2017.8093800. ISSN 0018-9235
10. Ortega RA, Brame CJ. The synthesis map is a multidimensional educational tool that provides insight into students' mental models and promotes students' synthetic knowledge generation. CBE Life Sci. Educ, 2015, 14(2). Pi: ar14. doi:10.1187/cbe.14-07-0114.
11. Kamal Shigli, Neha Agrawal, Chandrasekharan Nair, Suresh Sajjan, Pradnya Kakodkar, Mamata Hebbal. Use of PowerPoint presentation as a teaching tool for undergraduate students in the subject of gerodontology**.** J Indian Prosthodont Soc. 2016; 16(2):187-192. doi: 10.4103/0972-4052.167940 **.**PMCID: PMC4837778
12. Ankad RB, Shashikala GV, Herur A, Manjula R, Chinagudi S, Patil S. PowerPoint presentation in learning physiology by undergraduates with different learning styles. Adv Physiol Educ. 2015; 39(4):367-371. doi: 10.1152/advan.00119.2015.
13. Khobragade S, Lutfi Abas A, Sudam Khobragade Y. Comparative study on the measurement of learning outcomes after powerpoint presentation and problem based learning with discussion in family medicine amongst fifth year medical students **.**J Family Med Prim Care. 2016; 5(2):298-301. doi: 10.4103/ 2249-4863.192350
14. Bender C, Bull PH. Using Prezi to Motivate Middle School Science Students. Journal on School Educational Technology. 2011; 7(3):10-21.
15. Mustaffa A, Najid N, Sawari S. Students' Perceptions and Attitude towards the effectiveness of Prezi Uses in learning Islamic Subject. 2013; 11(13):24. CORR abs/1312.5781.
16. Brock S, Brodahl C. A Tale of Two Cultures: Cross Cultural Comparison in Learning the Prezi Presentation Software Tool in the US and Norway. Journal of Information Technology Education. 2013; 12:95-119. Duffy R.M, Guerandel A, Casey P, Malone K, Kelly B. Experiences of Using Prezi in.
17. Psychiatry Teaching. Acad Psychiatry. 2015; 39:615-619. doi: 10.1007/s40596-014-0204-x.
18. Fox H, Ankumutinee W, Werwe J, Metcher R. Prezi versus powerpoint in the EFL classroom. Proceedings of 63 rd The IIER International Conference, Phuket, Thailand, ISBN. 2016; 978-93-85973-51-2.
19. Moulton ST, Türkay S, Kosslyn SM. Does a presentation's medium affect its message? PowerPoint, Prezi, and oral

presentations. PLoS One. 2017; 12(7):e0178774. doi: 10.1371/journal.pone.0178774.