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Research Article

Effectiveness and Students′ Satisfaction on Use of Facebook® Page for Teaching Gross Anatomy for Undergraduate Students at Nile Valley University, Atbara- Sudan

Tarig Elsaid [1], Dr. Khalid Elain Awed [2], Dr. Tarig Mohamed Salih Kabashy Elsaid MBBS *[3], Ahmed Elkhouly [4], Abuzer Ali [5], Baligh Elsaid [6]

1. *MD Pediatric surgery SMSB, Baligh Mohamed Salah Kumasi Leased, MBBS (NVU 2014).*
2. *MBBS, MSc., MHPE, PhD, University of Khartoum, Graduate Collage, Medical and Health studies Board, Department of Anatomy.*
3. *Associate Professor of Pediatrics Surgery, Alzaiem Alazhari University.*
4. *Pediatric Surgery consultant, Maternity and children Hospital MCH, Tabouk.*
5. *Consultant general surgery king Khalid Hospital Tabuk.*
6. *Assistant professor, Nile Valley university (Faculty of medicine and health sciences)*

***Correspondence to:** Dr. Tarig Mohamed Salih Kabashy Elsaid, MBBS, Nile Valley University (2009), Consultant Pediatric Surgery SCFHS MCH Tabuk, MRCSED membership.

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Abstract

Introduction: *E-learning signifies a pivotal shift in the future of education, primarily due to technological advancements and the recent COVID-19 pandemic. In the realm of medical education, e-learning embodies a burgeoning concept that necessitates awareness from training organizations, medical schools, and educators regarding the obstacles and potential solutions. Facebook® stands out as one of the most widely used social media platforms among university students. Consequently, it can serve as an effective educational tool for conducting practical sessions in gross anatomy.*

Aim: *The objective of this study was to assess the Effectiveness and Students' Satisfaction regarding the Use of Facebook® Page for Teaching Gross Anatomy to Undergraduate Students.*

Materials and methods: *This experimental study was conducted with 2nd year medical students at the Faculty of Medicine, Nile Valley University. The thorax module was delivered through four practical videos, which were uploaded to the Dr. Baligh Anatomy Facebook® page. Students' performance was evaluated through three pre and post-tests associated with the videos. An electronic questionnaire was utilized to gauge students' satisfaction. Data analysis was performed using the statistical package for social sciences (SPSS) version 20. The means of pre and post-tests for each practical were computed and compared using a paired sample t-test.*

Results: *A total of 84 participants were involved, with the majority aged between 19 and 22 years. Females constituted 76.2% of the participants. The analysis of means indicated a significant enhancement in students' performance across all four practical sessions. The average grades improved by 2.4 marks out of 10 in practical No. 1, by 3.2 marks in practical No. 2 and 3, and by 3 marks in practical No. 4. A favorable response (%) was observed regarding accessibility to Facebook® (70%), its usability as an educational tool (78.6%), the benefits of Facebook as a learning resource (81%), the enhancement of time spent on social media (91.7%), the facilitation of communication with tutors (88.1%), the increase in understanding of thorax dissection (95%), the motivation to learn anatomy (91.7%), overall satisfaction with quality and content (91.7%), their views on the importance of creating similar Facebook®-delivered anatomy videos for other modules (85.7%), and the potential of Facebook®-delivered anatomy videos to address staff shortages (84.5%).*

Conclusion: *Facebook® can be regarded as an effective instrument for teaching practical sessions in gross anatomy, leading to a notable improvement in students' academic performance. Furthermore, students exhibited generally positive perceptions of Facebook® as a learning tool.*

Background

In the age of rapidly advancing technology and the increasing accessibility of the internet, the adoption of various forms of electronic learning (e-learning) is becoming increasingly popular and is growing significantly, as evidenced by the global expansion and substantial investment in the e-learning industry, which has reached billions of dollars. The recent Covid-19 pandemic and the resulting lockdowns and social distancing measures have disrupted traditional educational systems and conventional classroom teaching, prompting educational institutions worldwide to embrace e-learning as a viable solution. This scenario has highlighted the importance of e-learning, potentially marking a pivotal moment in the future of education. (1) Online learning represents an educational strategy that utilizes the internet to deliver learning materials and supports teaching and learning through a variety of online resources (2). The concept of online learning in medical education is a newly emerging idea that necessitates awareness from training organizations, medical schools, and educators regarding the challenges and potential solutions (3). In low-income countries, remote medical schools often face staff shortages that directly impact their curriculum. Online education may serve to mitigate this issue by providing access to high-quality materials. The challenge lies in innovating methods to deliver this content in a manner that is accessible and affordable for the intended audience. The use of social media for online teaching is becoming increasingly popular and has been established across numerous platforms (4,5). Facebook® is among the most widely used social media platforms by university students. Although it began as a social networking site exclusive to Harvard, it has evolved into a leading social media platform. While Facebook® was not initially intended as an educational tool, the creation of learning groups, the sharing of educational content, and the provision of a space for online discussions render it a suitable medium for integrating social media into online education. (6)

The aim of this study is to investigate the effectiveness of utilizing Facebook® as an educational resource for conducting gross anatomy dissection sessions for undergraduate students, while also assessing their level of satisfaction. The goal is to establish a framework for incorporating social media into the online learning experience.

PROBLEM STATEMENT

There is a necessity for the implementation of accessible online learning methods, especially in schools that are understaffed. This research will offer a model for employing social media as a tool for online medical education.

JUSTIFICATION

Utilizing Facebook® to deliver videos for online learning will provide an economical means for students to access study materials and enable them to customize their learning plans.

OBJECTIVES

General objective

To evaluate the effectiveness of Facebook® page-delivered videos in teaching practical sessions of gross anatomy and to gauge students' satisfaction with this learning approach.

Specific objectives

• To assess the effectiveness of learning via Facebook® page videos through pre and post-testing.

• To ascertain whether Facebook® page-delivered videos positively influence students' motivation to learn anatomy.

• To evaluate the adoption of Facebook® as a learning tool.

Material and Methods

Methodology

Study design:

This study was an experimental study.

Study area:

The study was conducted in department of anatomy, Faculty of Medicine, Nile Valley University, Atbara. Conventionally, the specific module is taught through lectures followed by practical sessions. These sessions are conducted in the museum as well as dissection room. Anatomy is learned by regions. In semester two, students learn introduction and upper limb anatomy. In semester three, students learn thorax and lower limb anatomy. In semester four, students learn abdomen and pelvis anatomy. In semester five, students learn head and neck as well as neuroanatomy.

Study subjects:

The study was carried out on Semester three, second year students at faculty of medicine, Nile Valley University (batch 2018). The total number of students in the batch is 156 students. Males number are 47 while females are109.

Intervention of the study:

- Facebook® page was created in December 2020 in order to conduct the study and named Dr. Baligh anatomy.
- Students accessed to the page by link that sent to them in the batch WhatsApp® group.
- The thorax module was demonstrated in 4 practical videos taped at the dissecting room of the University of Khartoum.
- Details about the study and participant's consent are demonstrated in a google form that should be filled by the participants at the beginning.
- Pre-test for each practical video was conducted through google form for the study subjects before uploading the video. Composed of 10 multiple choice questions.
- The practical videos was uploaded on Dr.Baligh Facebook® page, and made available for the study subjects.
- Assessment for efficacy of the videos was done through post-test that has the same contents of the pre-test.
- Student's response and satisfaction was assessed through electronic questionnaire using Google® form . The questionnaire composed of three sections. Section one is declaration. Section two about believes students about social media benefits ,especially Face book®. Sections three, about Dr. Baligh anatomy facebook page follower's opinions.

Sample size:

Total coverage of 2ndyear students who agree to participate in the study were 84 students. The rest of the students will have the choice to take assessment tests whenever they want.

Data collection method:

- Student's scores in the pre and post tests for each practical video.
- Electronic questionnaire.

Data analysis:

Using statistical package for social sciences (SPSS@) version 26 analyzer), data was analyzed through descriptive and inferential statistics. Numerical variables was expressed in terms of central tendency (mean, median and mode). P-value <0.05 was considered significant. Paired sample T test, one -sample T-test and Pearson correlation were used to compare categorical and numeral variables.

Data presentation:

Data was presented in pi- charts, bar charts, tables

Ethical consideration:

- Ethical clearance was obtained from Research Ethical Committee of Faculty of Medicine, Nile Valley University.
- Informed consent was obtained from participating students that participation is completely optional, no penalty for choosing not to participate, and they have the right to withdraw whenever they want.
- All students had access to the video had the right to whether participate in the study or not.

Results

The study included 84 second year medical students at Nile Valley University, Faculty of Medicine and Health Sciences who agreed to participate in the study. Total number of four demonstrative videos with an average duration of twelve minutes was made to cover the thorax module. The videos reached large number of Facebook® users (Table 2) and the number of views for each video exceeded the number of study participants in all videos (eg. Practical (1) video possessed 1700 viewers). Regarding interaction with posted practical videos in terms of like, share and comments demonstrated in table (3) with highest figures of interaction for practical (1) video: 205 likes, 46 comments and 17 shares.

Regarding demography of the viewers: 76.2% were females, while 23.8% of the viewers were males (figure 1).

In practical one pretest, the total number of students who attempted the test was 78 students with mean score 6.81 out of 10. While in the posttest, the total number of students who attempted the test was 78 students with mean score 9.24 out of 10 (table 4). The results showed significant statistical difference between the two means.

In the second and third practical participation decreased to a total of 72 students for the pretest with mean score 5.07 out of 10. While in the posttest, the total number of students who attempted the test was 72 students with mean score 8.21 out of 10 (table 5). The results showed significant statistical difference between the two means.

In the 4th practical participation decreased to a total of 63 participants for the pretest with mean score 5.24 out of 10. While in the posttest, the total number of students who attempted the test was 63 students with mean score 8.24 out of 10 (table 6). The results showed significant statistical difference between the two means.

Interestingly, the followers of the page from the participants are 82 (97.6%) which exceeds the number of participants who attempted the tests. With regard to visiting frequency to the page, 54 of participants (64.3%) always visit the page looking for new videos (figure 4). Table(8) describe the positive response rate (%) of participants in relation to : accessibility to Facebook® (70%), usability as educational tool (78.6%) , beneficiary of Facebook® as learning tool (81%), improvement of spent time in social media (91.7%), facilitation of communication with tutor (88.1%), augmentation of understanding of thorax dissection (95%), encouragement in learning anatomy (91.7%), overall satisfaction about quality and content (91.7%), their opinion of importance to do similar Facebook® -delivered anatomy videos to other modules (85.7%) and the capacity of Facebook® -delivered anatomy videos in solving staff shortage issue (84.5%).

Pre-test and Post-test analysis:

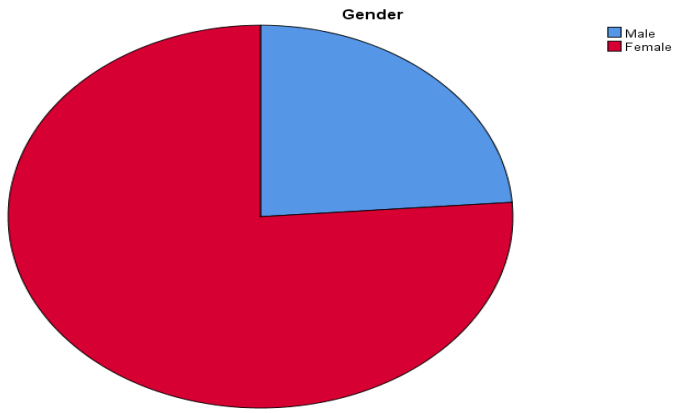

Figure (1) : Distribution of participants according to gender

	Frequency	Percent
One	78	36.6
Two/Three	72	33.8
Four	63	29.6

Table (1): Number of participants in each practical test

Practical video	Prevalence to Facebook® users
Practical (1)	4704 Facebook® user
Practical (2)	1995 Facebook® user
Practical (3)	2258 Facebook® user
Practical (4)	1480 Facebook® user

Table (2): Prevalence of practical videos to Facebook® users

	Practical video (1)	Practical video (2)	Practical video (3)	Practical video (4)
Number of likes	206	88	83	66
Number of comments	46	17	3	5
Number of shares	17	5	4	2

Table (3): Interaction of followers to the posted practical videos

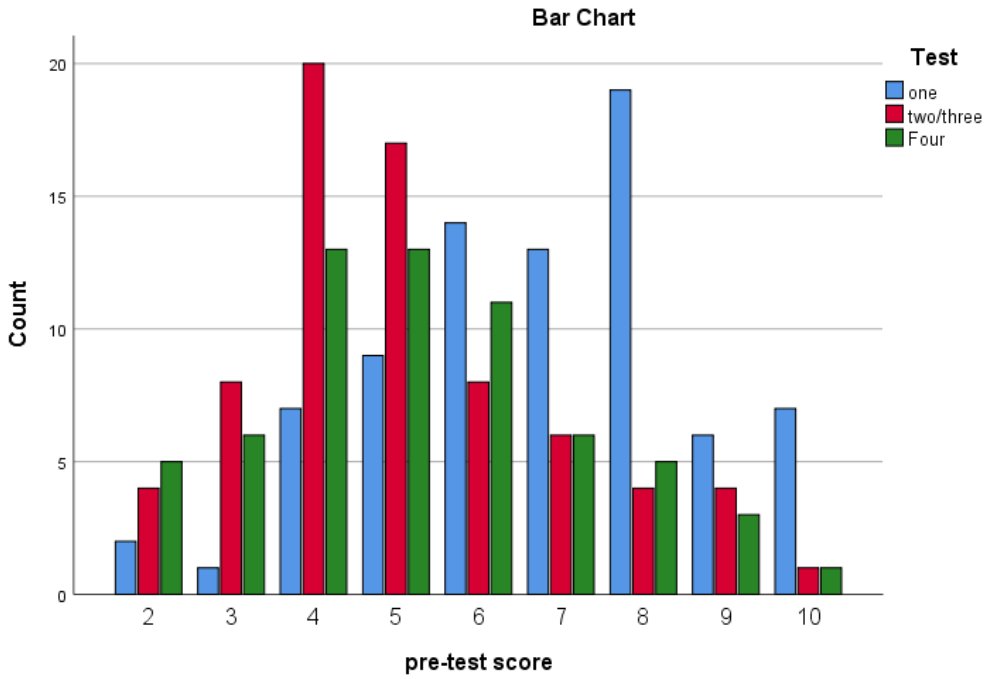

Figure (2) : Showing pre-test score distribution for each practical test

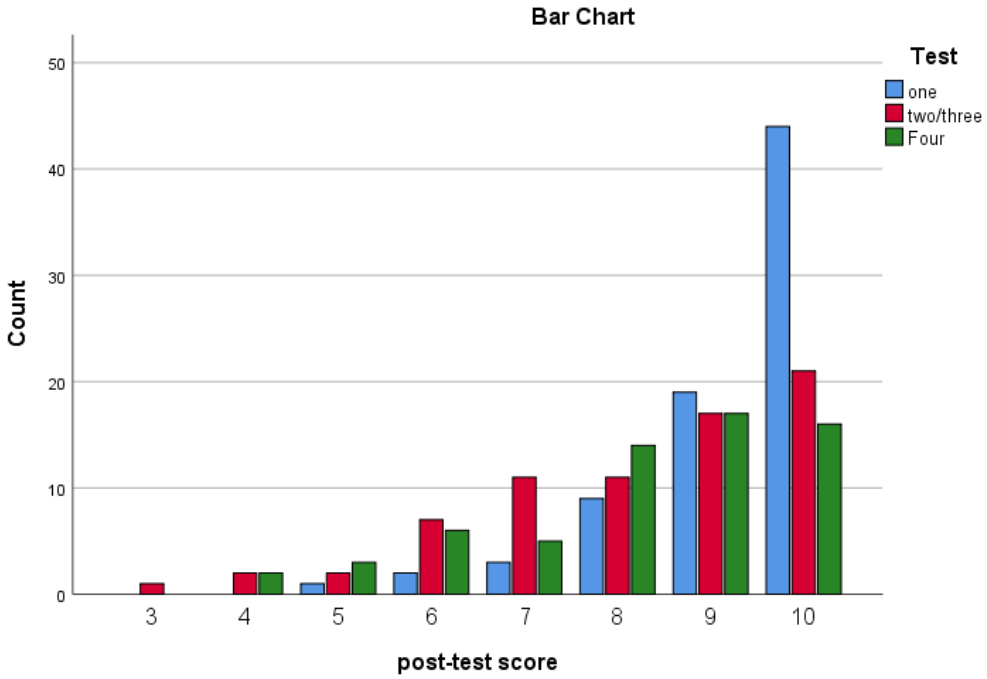

Figure (3): Showing post-test score distribution for each practical test

Paired Samples Statistics					
	Mean	N	Std. Deviation	Std. Error Mean	P value
Post-test (1)	9.24	78	1.107	0.125	0.000
Pre-test (1)	6.81	78	1.914	0.217	

Table (4): Practical test (1) statistics

Paired Samples Statistics					
	Mean	N	Std. Deviation	Std. Error Mean	P value
Post-test (2,3)	8.21	72	1.727	0.204	0.000
Pre-test (2,3)	5.07	72	1.856	0.219	

Table (5): practical test (2,3) statistics

Paired Samples Statistics					
	Mean	N	Std. Deviation	Std. Error Mean	P value
Post-test 4	8.24	63	1.633	0.206	0.000
Pretest 4	5.24	63	1.932	0.243	

Table (6): Practical test (4) statistics

Analysis of Dr.Baligh Anatomy Facebook® page followers:

	Frequency	Percent
Yes	82	97.6
No	2	2.4
Total	84	100.0

Table (7): followers of Dr.Baligh Anatomy Facebook® page distribution

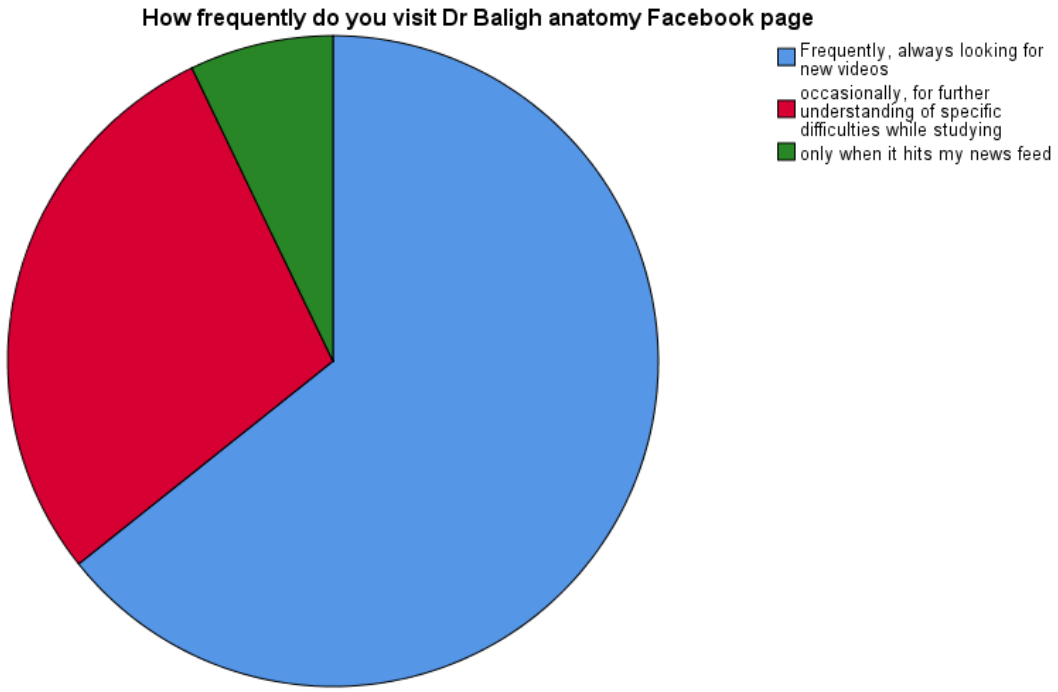

Figure (4): Describing frequently of visit to Dr Baligh anatomy Facebook® page

	Mean	P value	SD	Cronbach's Alpha	Positive response rate
Compared to other means of social media, Facebook® is more accessible and easier to use	3.94	.675	.883	.810	70%
Social media can be utilized as an educational tool	4.05	.109	.835	.810	78.6%
Benefits of using Facebook® as a learning tool outweigh the harms	3.98	.371	.776	.810	81%
Facebook® page-delivered anatomy videos improved my use for time spent on social media	4.42	.000	.680	.810	91.7%
Facebook® page facilitates communication with my tutor	4.30	.000	.673	.810	88.1%
Dr.Baligh anatomy videos augmented my understanding for thorax dissection	4.69	.000	.490	.810	95%

Dr.Baligh anatomy encouraged me to learn deeper about anatomy	4.61	.000	.640	.810	91.7%
Overall, I am satisfied with the quality and content of dissection sessions delivered through Facebook® page	4.45	.000	.648	.810	91.7%
In my opinion, Facebook® page-delivered videos should be done in all anatomy modules to strength the delivery of learning objectives	4.26	.000	.793	.810	85.7%
Learning through Facebook® page-videos can solve the issue of staff shortage partially	4.33	.000	.683	.810	84.5%

Table (8): Responses of Dr. Baligh anatomy Facebook® page followers:

Discussion

There is an increase in frequency of conducting studies about the adoption of social media in anatomy teaching, mostly duo to advancement of technology and COVID 19 pandemic. Among social media platforms , Facebook® is the most popular platform used by students. Facebook® has unique features in interaction between the users in form of likes, comments and post sharing. Therefore, this study aimed to evaluate the Effectiveness and Students′ Satisfaction on Use of Facebook® Page for teaching gross anatomy for undergraduate Students at Nile Valley University, Atbara- Sudan.

Regarding the demography of participants, the majority of participants were females (76.2%) which exceeds the exact percentage of females in the batch (69.9%), this indicates that females are more interested in learning through Facebook®. Quite the opposite, In pickering and bicker-dike study there was no difference in ratio between males and females (22).

About effectiveness, this study found that Facebook®-delivered videos clearly increase the students' academic performance by means of marked statistical significance (P value 0.000) in scores of students in post-tests compared to pre- tests scores. Similarly, (Jaffar and Eladl, 2016) found high academic performance of students who followed more in Facebook® anatomy pages (23). As well as was in the study conducted by Pickering and Bickerdike (2017) (22) and Michikyan et al. (2015) (24).

It should be noted that, although the percentage of students who agreed that Facebook® could be an appropriate teaching tool was very high in my study (81%) , while in other studies that were found in the literature this percentage was significantly lower, from 25% to 62% (25,26,27). This result highlights that there upgrading in students perception toward acceptance of Facebook® as a learning tool.

Concerning student satisfaction, High positive responses were found in this study in relation to satisfaction and encouragement in use of Facebook® as learning tool, much the same finding of study conducted by Jaffar 2013 (28).

Considering the communication with tutor, positive response 88.1% was found in my study resembling to study conducted by Dzvapatsva et al. (2014)(29) who found that students using Facebook® for course learning indicated increased contact time with classmates and instructors and scored higher than previous cohort not using Facebook® as a learning tool. This result highlights the role of interaction features of Facebook® (likes, comments and post sharing).

Limitations

There was difficulty in controlling other confounding factors of gaining information (eg. Other social media platforms and anatomy books).

Supplementary Vedios

Dr. Baligh anatomy Facebook page link:
https://www.facebook.com/Dr-Baligh-Anatomy-103570815002575/
Practical video (1) link:
https://www.facebook.com/103570815002575/posts/104064671619856/
Practical video (2) link:
https://www.facebook.com/103570815002575/posts/106941797998810/
Practical video (3) link:
https://www.facebook.com/103570815002575/posts/107016124658044/
Practical video (4) link:
https://www.facebook.com/103570815002575/posts/108167927876197/

Conclusion

Facebook® can be considered as an effective tool in teaching gross anatomy practical sessions and resulted in significant improvement in students' academic performance. It was accessible and Satisfiable for students. It can be used as a complementary tool to teach gross anatomy.

Recommendation:

To encourage anatomy educators to consider Facebook® as learning tool and to involve it as a part of curriculum.

To continue of uploading Facebook®-delivered videos to the remaining anatomy modules.

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