

Facebook As a Supporting Tool for Enhancing Social Interaction Skills in A Physics Teaching Subject

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Abstract

In 21st century, a lot of importance has been given to information and communication technology (ICTs). Integrating technological tools into a pedagogical world has gained a lot of importance everywhere. During Covid-19 situation, various online platforms are being used to teach the physics subject in schools. But it has been seen that these platforms don't help to inculcate social interaction skills among students. Social interaction skills comprised of communication skills, collaborative skills, critical thinking skills, problem solving skills etc. This paper highlights the utilization of ICTs and social media platform such as Facebook that helps to develop social interaction skills among Physics students. This paper examines Facebook group as a better alternative in place of LMS. Descriptive survey design was adopted for the study. The population consisted of 100 secondary school students studying Physics subject. A sample was sub-divided into two groups- Facebook group (50 students) and LMS group (50 students). A structured questionnaires tagged Influence of Facebook on Social Interaction Skills Questionnaire and Influence of LMS on Social Interaction Skills Questionnaire were used to collect data from the respondents. Mean and standard deviation were used to analyse the collected data in order to test the hypotheses. The findings revealed that Facebook group usage had significantly positive influence on social interaction skills as compared to LMS group among Physics secondary school students. It was concluded that Facebook when used effectively helped to improve social interaction skills among Physics students. Social media platforms like Facebook can be used to present the e-modules related to subject course in the sequence and provide opportunities to students' for answering in real time situation. Therefore, this paper emphasis on developing social interaction skills among physics students through collaboration of various ICT tools and social media platforms.

Keywords: Physics, Facebook, Social interaction skills, LMS, e-learning environment

Introduction

E-learning has become an interactive process of gaining and sharing information with everyone via using latest ICTs tools. Nowadays, almost every educational institution has adopted learning management systems (LMS) in order to improve their teaching learning process. There are lot of LMS platforms available these days. But all are not similar with respect to their features and purposes. Basically, LMS is a platform that is meant to organize and manage e-learning within an integrated system. Variety

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of tools are integrated into a single platform. All activity related material of different courses is organized and managed within this single platform.

Now a days, social networking sites are becoming more popular such as Facebook, Myspace so on. Almost every social networking site has its own uniqueness which make users more addicted to it. Facebook is regarded as a popular social media site due to the large number of daily active members (Gwena et al., 2018). Although other sites like My Space and Friendster are also similar, but Facebook is considered to be better among social networking sites. Many researchers are doing their investigation in order to utilize this platform more effectively. These platforms can be used for entertainment, social as well educational purposes (Voivonta & Avraamidou, 2018). In 2010, a closed Facebook groups were created for synchronous as well as asynchronous mode of interaction between their users. It has been found that Facebook group has lot of similar features of LMS. Therefore, it has raised lot of possibilities among researchers to utilize Facebook platform into learning environment and better alternative in place of LMS.

Table 1: Comparison of various features of Facebook group and LMS group

Features	Facebook	LMS
Ownership	Neither belong to any organization nor students	managed and controlled by the educational institution
Login	Users use their own id and passwords	Username and passwords provided by educational institutes
Creation and sharing e-content	Various e-content such as ppts, pdfs, videos, images etc. can be created and shared	Various e-content such as ppts, pdfs, videos, images etc. can be created and shared
Managing and Organizing content	All participants can manage and organize e-content if allowed	Only owner can manage and organize e-content
Interaction	Offers both asynchronous and synchronous mode of communication Discussion via commenting, emojis available	Offers asynchronous mode of communication
Assessment tools	More assessment tools are available as compared to LMS such as mcqs, fill ups, polling questions, virtual hands-on experience based activities etc.	Various tools such as mcqs, fill ups etc. can be used

Emergence of the problem

Physics, which is a physical sciences subject considered to be more difficult for students to learn. Therefore, researchers are making use of social media platforms for educational purposes in order to reduce difficulty level of any subject (Petrovic et al., 2014). This will definitely create interest among students towards physics subject. Utilization of Facebook platform will create positive teaching-learning environment (Thorkildsen & Xing, 2016). The uploading of e-content related to physics subject on social media sites will ensure to create effective learning environment (Daher, 2014).

A creation of unique feature i.e., discussion among users helps to generate meaningful teaching-learning environment (Dohn & Dohn, 2017). The three basic guidelines that contribute in the progress of teaching-learning environment are:

- Teacher's plans
- Uploading relevant e-content
- Evaluation criteria

Teacher's plans consist of objectives related to course. Uploading e-content includes videos, images, ppts, pdfs, hands on activities etc. evaluation criteria include home assignments, mcqs. Social media sites such as Facebook considered to be latest innovative form of ICT (Gok & Unlu, 2021). Social interaction among students through social networking environment will enhance more student engagement by responding to different responses of their friends. Thus, a social networking environment offers an online platform to its users to build social connections among each other (Charlton et al., 2009). The role of Facebook in promoting communication skills has always been a topic of discussion.

These web-based technological platforms help to motivate learners and enhance their educational outcomes. The Facebook platform help their users to share e-content in the form of video, text, images. This platform also helps to promote communication among their users. The popularity of Facebook platform among learners has promoted teacher educators to utilize this platform as an educational tool.

Facebook as a supplementary educational teaching tool

Many research studies indicated that Facebook platform provides lot of opportunities to their students to improve their social interaction such as verbal and non-verbal communication skills. This student-centric platform helps to reduce workload among teacher educators (Petrovic et al., 2014). This platform has its full potential to use various features that promotes successful social interaction such as verbal and non-verbal communication skills among their users (Thorkildsen & Xing, 2016). Charlton et al. (2009) found that majority of the university students were utilizing social platforms for just entertainment purposes, while few of them were using for communication purposes. Facebook offers lot of features such as uploading text, images, videos, creating pages etc. (Demir, 2018). Facebook platform regarded as an educational tool for both teachers and students. It considered to be unique alternative in place of traditional teaching method (Ellison et al., 2011). In a Facebook environment, many researchers had seen that through online platforms teachers can interact with their students in better way, providing help in home-assignments, giving notifications regarding upcoming activities, and providing useful e-content in the form of doc, video, ppts, pdfs, links (Kalelioglu, 2017). Even students can interact with others that help to develop their social interaction skills (Fithriani et al., 2019). Utilizing Facebook platform for building up social interaction skills, it has been observed that students share various e-content

related to their subject with each other that include group projects, activities, and announcements. It further helps to promote e-learning community among students. Teachers can create a closed Facebook group that allow only limited participants to have access related to uploaded course-content (Ivala & Gachago, 2012). Moreover, uploaded e-content in the form of video, audio, picture, or text can be shared that helps to boost up students' interaction with others (Diaz et al., 2018). Facebook platform has its positive effects such as to access announcements, expressing their opinions on social issues, booming theoretical problems outside the teaching space setting, speedy diffusion of evidence, making a cooperative working atmosphere (Shraim, 2014).

Theoretical framework

This paper has put two learning theories into its consideration:

Constructivist Theory: This theory focused on the construction of knowledge and interaction of human experiences and their own ideas. Many researchers found that learning process involves interaction among students and teacher educator which help to convey message among them. Most of the users these days are gaining knowledge through web-based platforms. Many researchers have put focused on Vygotsky social constructivist approach in promoting teaching-learning process more effectively. They also emphasized on the role of social networking sites in promoting social interaction such as verbal and non-verbal communication skills among their users.

Collaborative Learning Approach: Many researchers put emphasis on collaborative learning approach that helps learners to involve in various social activities. They learn from each other while involving in these group activities. Thus, collaboration among learners helps to share their ideas among each other. It further promotes social interaction such as verbal and non-verbal communication skills among them. Thus, various features of Facebook platform are in tune with collaborative learning approach. It promotes social interaction such as verbal and non-verbal communication skills among its users (Thorkildsen & Xing, 2016).

Facebook And Social Interaction Such as Verbal and Non-Verbal Communication Skills

The enhancement of social interaction such as verbal and non-verbal communication skills are considered to be main element in making teaching-learning process more effective. Facebook platform provides lot of opportunities to their users that helps to build up social interaction such as verbal and non-verbal communication skills (Daher, 2014). Facebook platform helps its users to explore various uploaded e-content such as video, text, images, pdfs, ppts (Dohn & Dohn, 2017). This uploaded e-content help them to build up communication skills among its users. Users interact with each other via commenting, liking, putting emojis on each other's post. This platform proved to be very much beneficial for shy natured students. As they feel shy while studying in traditional approach method. But Facebook platform eliminates all these kinds of barriers, despite helps them to interact and communicate with other users more freely. This platform acts an educational tool in accordance with social and academic point of view. The creation of Facebook groups enables learners to ask their queries related to content matter. Teachers can put multiple choice questions and students have to answer them individually through their personal accounts. Thus, Facebook act as a supplementary tool that helps to improve their academic performance. This platform also helps learners to socialize themselves by exploring various e-resources uploaded there. Thus, integration of Facebook platform for educational purposes helps to improve social interaction such as verbal and non-verbal communication skills (Thorkildsen & Xing, 2016). Many researchers indicated the misuse of Facebook platform such as overspending their time, distraction, lack of face-to-face

interaction among users. So, there is a need to educate users to utilize this platform more effectively and efficiently.

Significance of the study

The study is expected to be useful to teachers, students, curriculum planners and administrators of secondary schools. The study is expected to provide useful information to teachers regarding the effectiveness of Facebook as an instrument for supporting social interaction skills. The outcome of the study will aware students regarding usage of Facebook platform and its effect on social interaction skills and academic performance. This may also help curriculum planners to redesign and implement various curriculum plans accordingly.

The recent developments in technology have affected educational field. Moreover, this influence has been seen in many other fields of knowledge such as science, astronomy etc. Most of the instructional institutions are utilizing various kinds of technologies as a main part of learning among students. These technological tools help to get more information and allows its users to share their ideas with others. Therefore, this new teaching-learning environment helps to create virtual environment that promotes interaction among students and teacher. This helps to enhance more skills among them. The availability of enriched teaching-learning environment helps to promote interaction as well as sharing of knowledge and resources with others. Many researchers have examined that utilizing these kinds of technological platforms helped to facilitate teaching-learning process more effectively. Moreover, students and teachers were no longer found to be dependent on traditional method of teaching. They found to utilize various features of these technological tools that help to create attractive teaching-learning environment. In this digital world, most of the students are spending their time on social networking sites. Therefore, Facebook can be regarded as a supplementary teaching tool in this technological scenario. Many research studies have focused on the importance of Facebook platform in promoting social interaction and communication skills among students. Thus, this present paper aims to show the influence of Facebook in improving social interaction and communication skills among its users.

Objective of the study

- To study a significant difference in mean scores of social interaction skills between Facebook group and LMS group among secondary school students.

Methodology

The present study falls under the domain of descriptive study that was completed with survey method. The sample for the present study consisted of 100 secondary school students studying Physics subject. A sample was further subdivided into two groups- Facebook group (50 students) and LMS group (50 students). A random sampling technique was used.

Tools used

Following tools were used for the collection of data.

1. Self-structured Questionnaire: The information was collected through questionnaire based on
 - a) Influence of Facebook on Social Interaction Skills Questionnaire
 - b) Influence of LMS on Social Interaction Skills Questionnaire.

Data from Facebook group was collected through Influence of Facebook on Social Interaction Skills Questionnaire, whereas data from LMS group was collected through Influence of LMS on Social Interaction Skills Questionnaire. Both instruments have 9 items each respectively, which was placed on five-point rating scale of Very High Extent (VHE), High Extent (HE), Average Extent (AE), Low Extent (LE) and Very Low Extent (VLE). The scales were scored using 5, 4, 3, 2, and 1 point respectively. Mean and standard deviation were used to analyze the data and test the hypotheses of the study at 0.05 level of significance.

Hypotheses related to study:

- There exists no significant difference in mean scores of social interaction skills between Facebook group and LMS group among secondary school students.

Analysis of descriptive statistics

The scores of the Facebook group and LMS group students were subjected to descriptive statistics such as mean and Standard deviation (S.D.). The obtained scores on social interaction skills are given in the Table 2

Table 2: The scores of social interaction skills of Facebook and LMS

Variable	Groups	N	Mean	SD	S.Ed	t-value
social interaction skills	Facebook	50	32.92	2.48	0.467	28.44
	LMS	50	19.64	2.179		

A Summary of descriptive statistics on social interaction skills of Facebook group and LMS group students

From the table 2, the mean score on social interaction skills of Facebook and LMS students is 32.92 and 19.64 and S.D is 2.48 and 2.179 respectively. t value came to be 28.44 which was found to be significant at 0.05 level of confidence. Therefore hypothesis “There exists no significant difference in mean scores of social interaction skills between Facebook group and LMS group among secondary school students” is rejected. It is concluded that social interaction skills of Facebook users are greater than LMS users. A bar diagram is drawn to depict the mean score of social interaction skills of Facebook group and LMS group students in Figure 1 below:

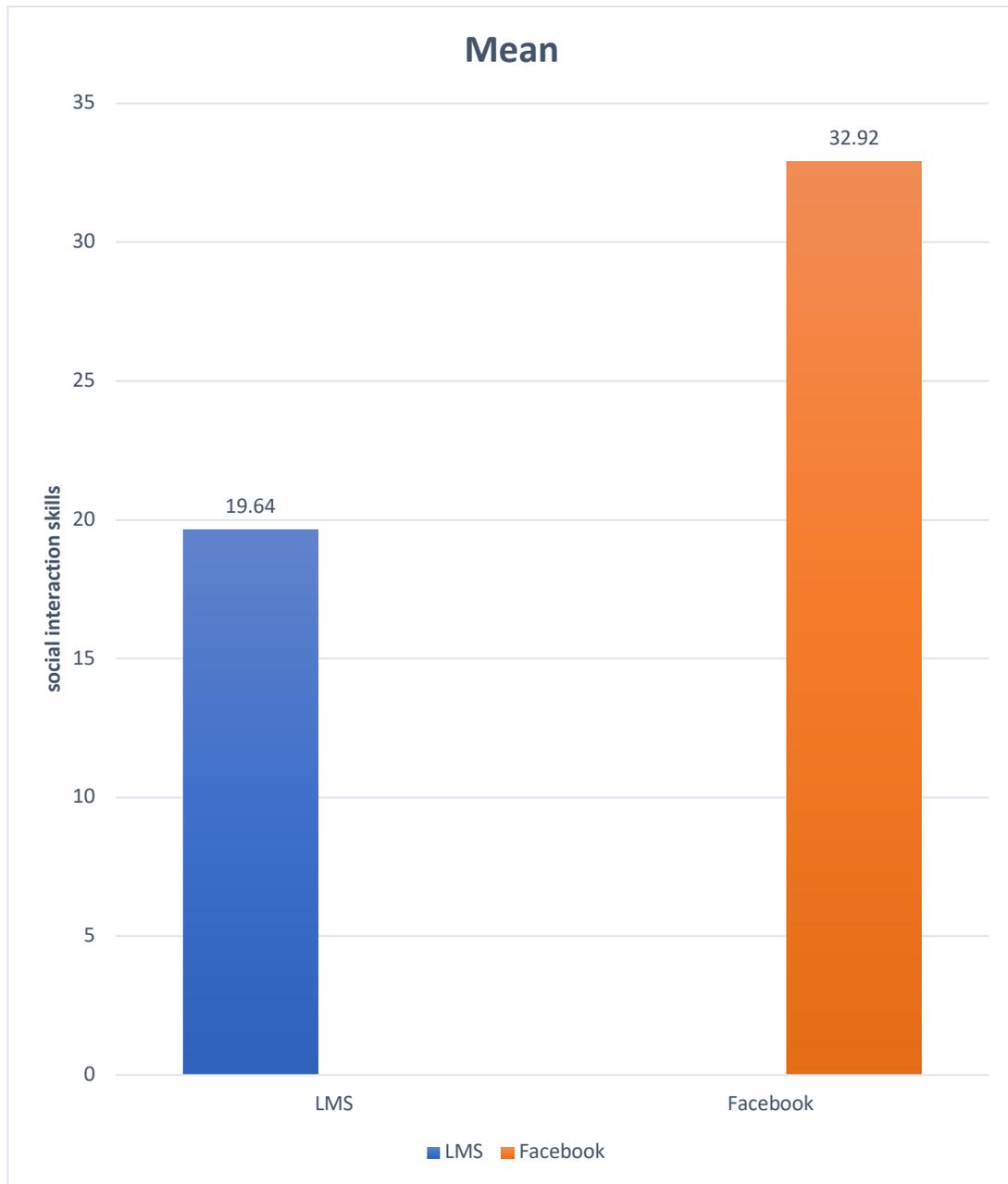


Figure 1: Bar Diagram showing the comparison of mean of Facebook group and LMS group of students in relation to social interaction skills

Results and Discussion

The study examined the influence of Facebook group on social interaction skills among Physics secondary school students. The study revealed that Facebook group usage had positive influence on social interaction skills among secondary school students of Physics subject. It showed that students are more well-connected together which help to create opportunities to learn, collaborate and contribute their knowledge around the world. The finding also supported the earlier findings of Dohn and Dohn, (2017) who reported that Facebook platform helps its users to explore various uploaded e-content such as video, text, images, pdfs, ppts. This uploaded e-content help them to build up communication skills among its users.

Implications of the Study

Facebook platform has not been officially regarded as an instrument of teaching and learning. It has not given any place in formal settings. Physics students are making optimal use of the Facebook platform and it is having salutary effect on their social interaction skills. Teachers need to use various teaching techniques that matches to their students. Their role is to make more smooth interactions and providing guidance to students.

Conclusion

Based on the findings of the study, it was concluded that Facebook group usage positively influenced social interaction skills.

Recommendations

In order to enhance social interactions on Facebook, teacher can upload various topics for their students to promote discussion among them. He can also upload a video/image/pdf/ppt along with inquiry questions. Teacher provides feedback to their students' side by side. It has been seen that those who communicate and build up more social connections on Facebook platform helped to enhance their academic performance and satisfaction. It further helps to enhance a two-way communication among its users where teacher provides feedback and encourages students to actively participate. This will further enhance meaningful learning environment. This uploaded e-content in the form of video/ppts/ pdfs/ images/ home assignment enables its users to share information beyond classroom surroundings. Teachers are available 24*7 in order to interact with their students through online Facebook discussion forum. Social Interactions among student-student and students-teacher enable to create meaningful learning. In physical classroom settings, less interaction may lead to less intellectual development among students. In order to enhance interaction through Facebook, there is a need among teacher educators to have better understanding regarding their role and designing appropriate interactions in online platform that creates meaningful learning environment.

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