

**Name of Candidate** : Charu Saini  
**Name of the Supervisor** : Prof. Jessy Abraham  
**Department** : Department of Teacher Training & Non-formal  
Education

**Topic of Research** : Development of a Module based on Social Media for Teaching Pedagogy of Mathematics to B.Ed. Students and Assessing its Effectiveness

**Keywords** : Social Media, B.Ed Students, Module, Pedagogy of Mathematics, Effectiveness

---

## **ABSTRACT**

In the last few decades, our society has witnessed exponential rise in development and used of social media technologies. The proliferation of social media technologies has created a culture wherein individuals are actively involved in creating and sharing content on these social media platforms. To harness the potentialities offered by social media, teachers must be comfortable integrating new technologies into their classrooms. The first-hand experiences gained throughout the teacher preparation program is the most important factor which influences technology integration by pre-service teachers. This directly puts emphasis on reviving teacher education to provide appropriate training to pre-service teachers so that they can efficiently use social media technologies in instructional practices. In this changed scenario, it is imperative for teacher education institutions to provide students with suitable experiences which transforms their role as students who use advanced technology for their own benefits to digitally native teachers who can use technology in meaningful ways to optimize the learning outcomes. Considering the potential and applicability of social media in teacher education and its potential to support social constructivism in totality, the present study has been conceived and designed.

The purpose of the present study is to develop a module based on social media for pre-service teachers with pedagogy of mathematics as a methodology course and assessment of its effectiveness in terms of pre-service teachers learning achievement and engagement. In the present study, an attempt has also been made to study the factors affecting the perceptions of pre-service teachers towards educational usage of social media. The structural model developed by Mazman and Usluel (2010) was extended and used for the same. Survey design (for exploration of perceptions) and quasi-experimental design (for assessment of effectiveness of the module) were used. All the pre-service teachers enrolled in B.Ed. program run by the 26 colleges affiliated with Guru Gobind Singh Indraprastha University, Delhi during the academic

session 2016-17 constituted the population of the present study. For the exploratory study a representative sample of 408 B.Ed. students from four teacher training colleges (selected randomly) participated in the study. For the experimental study, two colleges were randomly selected. A total of 68 B.Ed. students (31 in the Intervention Group and 37 in the Control Group) participated in the study. The tools used for the present study included: Module based on Social Media (developed by the researcher), Social Media Perception Scale (SMPS) (developed by the researcher), Pre-service Teachers Engagement Scale (PsTES) (Appendix 2) (developed by the researcher), an achievement test (developed by the researcher), Cattell's Culture Fair Intelligence Test (Scale 2, Form A). Data collected in the first phase of the study were analyzed using percentage analysis, Exploratory Factor Analysis, Confirmatory Factor Analysis, Structural Equation Modeling, and Cronbach alpha. The data collected in the next phase was analyzed using mean, standard deviation, t-test, Analysis of Covariance (ANCOVA), and Multivariate Analysis of Covariance (MANCOVA).

The results indicated that Facebook, YouTube, and Instagram are the most popular social media tools among pre-service teachers. Also, majority of the pre-service teachers use social media for more than 4 hours daily. The findings suggested that motivational influence is the most important and significant factor that predicts adoption of social media. Moreover, among other factors establishing social relation is the most significant predictor of purposes of social media usage and communication is the most significant factor in predicting the educational usage of social media. These results of ANCOVA analysis indicated the effectiveness of social media-based module in terms of increasing pre-service teachers learning achievement and engagement (as a combined construct). To assess the effectiveness of social media-based module on the four dimensions of engagement, MANCOVA followed by ANCOVA (as post-hoc analysis) was performed. The results indicated the effectiveness of social media-based module in terms of increasing peer engagement and online engagement (when pre-test engagement (combined) scores was used as a covariate) and online engagement (when IQ scores was used as a covariate).

In a nutshell, the present study validates the model extended and used for exploring the perceptions of pre-service teachers towards educational usage of social media. The study also establishes the potential of social media-based module in increasing pre-service teachers learning achievement and engagement. The study therefore strongly supports the use of social media-based instructional approaches in present teacher education practices.