

# **A Study on The Educational Impacts of Social Media use Among Grade Ten Science Students**

## **Chapter I: Introduction**

### **Background of the Study**

The rapid expansion of digital technology has fundamentally transformed how teenagers communicate, access information, and engage with learning. Social media platforms such as YouTube, Facebook, TikTok, Instagram, and WhatsApp have become deeply embedded in students' daily lives, serving not only as tools for entertainment and social interaction but also as informal sources of educational content. Through videos, tutorials, discussion groups, and explanatory posts, students are increasingly exposed to academic material beyond the formal classroom.

In Nepal, Grade Ten represents a critical academic stage, particularly in science education, as students prepare for secondary-level examinations and establish foundational scientific understanding. Many students encounter scientific ideas incidentally through social media without structured guidance or pedagogical oversight. While some learners actively use these platforms to clarify doubts, visualize complex concepts, or explore supplementary learning materials, others primarily engage in entertainment-oriented consumption that may divert attention from academic tasks.

Despite the extensive presence of social media in students' everyday routines, empirical evidence regarding its educational consequences particularly its unguided and informal use remains limited in the Nepali context. Existing studies often emphasize classroom-integrated or teacher-guided digital learning, leaving a critical gap in understanding how students' natural social media habits influence academic achievement and independent learning behaviors. This study seeks to address this gap by examining the educational impacts of everyday social media use on academic achievement and self-regulated learning among Grade Ten science students.

## **Statement of the Problem**

Social media exerts a powerful influence on students' study habits, attention patterns, and learning behaviors, yet its role in academic success remains debatable. While some students perceive social media as a valuable learning aid, others report excessive time spent on non-academic content, potentially undermining concentration, study time, and academic performance.

In government secondary schools in Nepal, there is a notable lack of systematic research examining whether differences exist in science achievement and self-regulated learning between frequent social media users and students who use social media minimally. Moreover, students' everyday, unguided engagement with social media, arguably the most common form of use, has received little scholarly attention. This study addresses this gap by investigating the relationship between everyday social media use, self-regulated learning habits, and academic achievement in science.

## **Objectives of the Study**

The general objective of this study is to examine the educational impacts of everyday social media use among Grade Ten science students.

The specific objectives are:

1. To identify the types of social media platforms used by Grade Ten science students in their daily life.
2. To examine whether students use social media for educational purposes or primarily for entertainment.
3. To compare the academic achievement in science between students who frequently use social media and those who use it less.
4. To examine the impact of social media use on the development of self-learning habits among Grade Ten science students.

## **Research Questions**

The following research questions guide the study:

1. Which social media platforms are most commonly used by Grade Ten science students?
2. Do students primarily use social media for educational purposes or entertainment?
3. Is there a significant difference in science academic achievement between frequent and low social media users?
4. Does everyday social media use influence students' self-regulated learning habits?
5. To what extent is knowledge gained from social media perceived as helpful in learning science?

## **Hypotheses**

1. **H<sub>1</sub>:** There is a significant difference in science academic achievement between frequent and low social media users.
2. **H<sub>2</sub>:** Frequent social media users differ significantly from low users in their self-regulated learning habits.
3. **H<sub>3</sub>:** Self-regulated learning mediates the relationship between everyday social media use and science academic achievement.

## **Significance of the Study**

This study contributes empirical evidence on the real-world educational implications of everyday social media use among secondary school students. Its findings will help science teachers understand how students engage with digital platforms beyond the classroom and whether such engagement supports or hinders academic learning. School administrators and policymakers may use the results to develop context-sensitive guidelines for responsible digital engagement. Additionally, the study will guide students and parents toward more productive uses of social media, fostering stronger self-regulated learning habits, improved academic achievement, and enhanced digital literacy.

## **Delimitation of the Study**

The study is delimited as follows:

1. It focuses exclusively on Grade Ten science students.
2. The research is confined to selected government schools in Vyas Municipality, Tanahun District.
3. The study examines students' everyday, unguided use of social media.
4. A quantitative, non-experimental comparative research design is employed.
5. Convenience and purposive sampling techniques are used.
6. The sample consists of 40 students with equal representation of boys and girls.

## **Operational Definition of Key Terms**

1. **Social Media:** Digital platforms that allow users to create, share, and exchange information and content.
2. **Everyday Social Media Use:** Natural, informal, and unguided engagement with social media as part of daily life.
3. **Academic Achievement:** Students' performance in science measured through a curriculum-aligned achievement test.
4. **Self-Regulated Learning (SRL):** Students' ability to plan, monitor, and regulate their own learning processes without direct teacher supervision.

## **Chapter II: Review of Related Literature**

### **Theoretical Framework of the Study**

This study is guided by the Uses and Gratification Theory and Constructivist Learning Theory. According to the Uses and Gratification Theory, individuals actively choose media to satisfy their needs such as information, entertainment, and social interaction. In the context of this study, Grade Ten science students may use social media either for educational purposes or for entertainment based on their personal interests and needs. The study also draws on Constructivist Learning Theory, which emphasizes self-directed learning and knowledge construction through active engagement with learning resources. Social media platforms provide opportunities for students to access educational content independently, explore scientific concepts, and learn at their own pace. These theories help explain how everyday social media use may influence students' self-learning habits and academic achievement in science.

### **Empirical Review of Literature**

The impact of social media on academic achievement and learning behavior has been a subject of extensive global research. While early studies focused primarily on the distractive nature of these platforms, contemporary research explores a more nuanced "dual-effect" where the outcome depends heavily on the purpose of use whether for entertainment or academic engagement.

#### ***Global Perspectives on Social Media and Academic Performance***

Empirical evidence regarding the relationship between social media and academic achievement remains diverse. **Al-Rahmi and Zeki (2018)** conducted a study which revealed that students who utilized social media platforms specifically for educational purposes such as engaging in group discussions and sharing resources tended to achieve higher Grade Point Averages (GPAs) than those who did not. This is supported by **Bhandarkar et al. (2021)**, who found a positive correlation between academic performance and specific social media activities like reading health-related news and conducting research.

Conversely, many researchers highlight the detrimental effects of unregulated usage. **Boahene et al. (2019)** and **Abidemi (2019)** reported that excessive time spent on non-academic social media activities, such as entertainment and chatting, significantly reduces study time and leads to "media multitasking" during homework sessions. This behavior is linked to lower grades and fragmented concentration. A recent study by the **Pew Research Center (2024)** corroborated this, finding that 72% of students check social media while studying, which directly contributes to procrastination and reduced academic focus.

### ***Social Media in Science Education***

In the field of science, social media serves as a powerful tool for visualizing complex concepts. Ningtyas (2024) conducted a systematic literature review and concluded that platforms like YouTube and TikTok are increasingly used as "open-learning" environments where students access science tutorials and step-by-step demonstrations. These visual aids help bridge the gap between abstract theories and practical understanding, which is particularly vital for Grade Ten students tackling foundational scientific principles.

Furthermore, Abbas et al. (2019) noted that social media facilitates a "natural alliance" with collaborative learning. In science education, where problem-solving and peer-to-peer discussion are essential, platforms like WhatsApp and Facebook groups allow students to solve doubts and coordinate study sessions in real-time, thereby enhancing their understanding of rigorous scientific curricula.

### ***Impact on Self-Learning Habits***

Self-learning, or Self-Regulated Learning (SRL), is a critical component of academic success in the digital age. Research by Lobos et al. (2022) indicates that when students use digital tools with intention, they increase their academic self-efficacy and develop better self-direction. However, the "pulling power" of social media makes self-regulation difficult. According to a study from the University of Pretoria (2023), while students are often aware of the distractions, they struggle with "Fear of Missing Out" (FOMO), which disrupts their independent study routines. Effective self-learning habits in a social media context, therefore, require students to move beyond passive consumption to active, goal-directed information seeking.

## ***The Nepali Context***

Research specific to Nepal reflects global trends but adds unique cultural and infrastructural nuances. A case study conducted by Kharel (2024) on teenagers in Nepal found that social media has fundamentally changed communication patterns, with virtual interactions often replacing traditional study groups.

More specifically, a 2025 study at **Shree Jana Model Secondary School in Surkhet, Nepal**, revealed that approximately 69.51% of secondary-level students reported negative impacts on their academic performance due to social media use. The study found that over 53% of students spent 3 to 5 hours daily on platforms primarily Facebook focusing on chatting rather than academic purposes. This led to decreased CGPAs and late assignment submissions, highlighting a significant gap in digital literacy and "guided use" within the Nepali government school system.

## ***Conceptual Framework of the Study***

The **Conceptual Framework** of this study serves as a visual and logical map that outlines how different variables interact to influence student outcomes. It establishes a causal link between students' digital behaviors and their academic success, mediated by their study habits.

## ***Variable Relationships***

1. **Independent Variable: Everyday Social Media Use** This is the primary driver of the study. It encompasses the frequency of use, the platforms accessed (YouTube, TikTok, Facebook), and the intent behind the use (academic vs. entertainment).
2. **Intervening Variable: Self-Learning Habits** This acts as a mediator. The study posits that social media does not affect grades in a vacuum; rather, it influences *how* a student learns independently. For example, unguided social media use may either foster research skills and curiosity or disrupt time management and focus.
3. **Dependent Variable: Academic Achievement in Science** This is the final outcome measured through achievement tests. It represents the measurable impact of the interaction between social media habits and self-directed learning.

### *Logic of the Framework*

The framework suggests that while **Everyday Social Media Use** provides the environment, it is the development of **Self-Learning Habits** (or lack thereof) that ultimately determines whether the impact on **Academic Achievement** is positive or negative. If a student uses YouTube to clarify complex physics concepts, their self-learning habit improves, leading to higher achievement. Conversely, if social media leads to distraction, self-learning habits weaken, potentially lowering academic scores.

## **Chapter III: Methodology**

### **Research Design**

A quantitative, non-experimental comparative research design is employed. The study uses a survey method combined with an achievement test to compare academic achievement and self-regulated learning habits between frequent and low social media users.

### **Population and Sampling**

The population includes all Grade Ten science students in government schools of Vyas Municipality. A sample of 40 students is selected using convenience and purposive sampling.

### **Research Instruments**

1. Social media usage questionnaire
2. Self-Regulated Learning questionnaire (Likert scale)
3. Science achievement test aligned with Grade Ten curriculum

### **Validity and Reliability**

Content validity is ensured through expert review. A pilot study is conducted to establish reliability using Cronbach's alpha.

### **Data Collection Procedure**

Data are collected through a questionnaire survey and a science achievement test administered by the researcher. Prior consent is obtained from the school administration and participants, and confidentiality is maintained throughout the data collection process.

### **Data Analysis**

1. Descriptive statistics (mean, SD, frequency)
2. Independent samples t-test
3. Effect size (Cohen's d)
4. Mediation analysis to test the role of self-regulated learning

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