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*Open Journal for*  
**Psychological Research**

2025 • Volume 9 • Number 2

<https://doi.org/10.32591/coas.ojpr.0902>

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ISSN (Online) 2560-5372

## **OPEN JOURNAL FOR PSYCHOLOGICAL RESEARCH (OJPR)**

ISSN (Online) 2560-5372

<https://www.centerprode.com/ojpr.html>

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### **Publisher:**

Center for Open Access in Science (COAS), Belgrade, SERBIA

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## Factors that Influence Participation in English Language Learners at Beginner Level

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Received: 11 June 2024 ▪ Revised: 17 November 2025 ▪ Accepted: 5 August 2025

### *Abstract*

The purpose of this case study was to describe and discover the factors that influence participation in an English class of beginner level students at the Language Department of the University of Guanajuato. Knowing the factors that motivate or demotivate students' participation, can help teachers to create strategies and modify aspects in order to increase students' participation. The data collected for this study was gathered through observation, interviews and questionnaires. This process was carried out from October to December 2023. The three methods were triangulated to get a wider perspective about what factors that influence participation, and how participation is seen by the students. The results of the study suggest that students are aware of the importance of participation in a foreign language classroom. Moreover, results show that students feel free to participate when they are in a safe environment.

*Keywords:* classroom environment, participation, L1, L2, games, Mexico.

### 1. Introduction

Participation is one of the most important factors in Foreign Language Learning. According to Snyder (2003) classroom participation requires the student to take a more engaged role in learning, instead of taking a passive and disinterested role in the classroom. Fassinger (cited in Mustaphaa, Rahmanb & Yunu, 2010) defines participation as “any comments or questions that the students offered or raised in class” (p. 114). Since, participation is seen as the active role that students play in their leaning process in class, teachers show a great interest in participation because it allows them to weight students' progress, it is also one of the main means by which students can practice the target language. According to Abebe & Deneke (2015) “When students respond to the teachers' or other students' questions, raise queries, and give comments, they are actively involved in the negotiation of comprehensible input and the formulation of comprehensible output, which are essential to language acquisition” (p. 75). This process of involvement in active participation can help students in developing listening and speaking skills, while sharing their comments and ideas. In order for students to be part of a dialogue, they have to use the language resources available to them, which leads to the use of the target language in a meaningful way. In addition, participation becomes a key motivating factor for learners to keep learning the language.

- Participation in foreign language classroom plays an important role during language learning
- A good classroom environment increases students' participation
- Students who are conscious about the importance of participation in their language learning process take a more active role during their learning process
- The use of L1 during participation at beginner level has advantages

## 2. Literature review

This section presents the main concepts of this research, as participation, classroom environment, also it describes some previous finding that researched have done in this topic.

### 2.1 *Classroom participation*

Classroom participation is a key aspect when it comes to language learning, as it is through active practice that learners can internalize knowledge. Snyder (2003), states that classroom participation requires the student to take a more engaged role in learning, instead of taking a passive and disinterested posture in the classroom. This definition by Snyder has been taken as the foundation for this study, since participation in foreign language learning is seen as very important and fundamental to increase proficiency in the target language. Learning a foreign language goes beyond what can be taught by the teacher, foreign language learners need to implement strategies that help them to actively use the language inside and outside the classroom as a means to increase their practice of the language.

### 2.2 *Classroom environment and participation*

Classroom environment is one of the main factors that influence students' participation in a foreign language classroom. According to Sidelinger (2010), positive social interaction in the classroom, and a collaborative and supportive instructor-student and student-student learning environment, help to the co-construction of learning. Teachers are the main authority in classroom, they are who lead mostly students' participation. Even though little research has been done on how teachers can affect students' participation, it is well known that teachers play an important role in students' participation. A study carried out by Zacharias, (2014) in an Indonesian school, showed that participation was highly affected by past participation's feedback, which mostly resulted to be negative for students. Teacher's attitude can determine students' participation, since the more confident students feel in class, the more open they will be to participate. Teachers that show a positive attitude towards students' questions help to create a safe learning environment, where students feel more secure to participate. At the same time, student-student relationships can determine how secure they feel when participating. When students can experience a good relationship with their classmates, they can construct mutual help during the learning process. Patrick, Anderman and Ryan (2002) state that stressing mutual respect in the classroom fosters positive and open communication among students who can share tentative ideas without fear of ridicule. Students who have a good relationship among them feel more secure of participating.

### 2.3 *The use of games in the EFL classroom to promote participation*

It seems that participating in classroom activities through games is an effective way to engage students. Hadfiel (1990), defines games as "an activity with rules, a goal and an element of

fun” (p. 1). In foreign language classrooms, many teachers have opted for using games as a tool to engage students in learning. Research has been done in this field in order to analyze how games influence participation in foreign language classroom. According to Lukianenko 2014, games increase students’ interaction during pair and group activities. During activities as games, students show more active participation. They can agree or disagreed politely o with their classmates. At the same time, students are able to ask for help, and can maintain constant communication to each other.

#### *2.4 The use of the first language and foreign language during participation at beginner level*

The use of learner’s L1 is a controversial topic in the EFL field. Over the years the use of the L1 has been regarded as something that has to be reduced. However, research on this topic has found that the use of first language (L1) has advantages. Meyer (2008) states that the use of the L1 is essential to minimize language learning anxiety in classrooms. The use of the L1 during participation in beginner level students is more common, since it makes them feel secure. According to Nation 2003 (as cited in Almoayidi, 2018) students hesitate using the foreign language in the classroom, especially if they are not well-equipped with it. For these reasons, the use first language cannot be taken as something negative or that can prevent students from learning the second language. However, it is important to maintain a proper balance of the use L1 and use it only when necessary and until it results beneficial for students.

### 3. Methodology

This section presents the research design, and the methods by which the information was collected and analyzed. The context, participants, the results and limitations of the study are also presented.

#### *3.1 Research design*

The design of this study is qualitative, and it incorporates the social constructionism paradigm, which according to Gergen (1985) “is principally concerned with elucidating the processes by which people come to describe, explain, or otherwise in which they live” (p. 3). This paradigm seemed appropriate considering the objective of this study, which was exploring participation in the foreign language classroom. In addition, to know students’ opinions about participation and the factors that influence it. The research method used was a case study, which purpose is to “enhance our understanding of a phenomenon, process, person or group, not to experiment and generalize to other populations in the tradition of larger-scale survey research” (Paltridge & Phakiti, 2015: 120). The research question guiding this study was: *What factors influence participation of beginner level students of English in the language department of the University of Guanajuato?*

#### *3.2 Researcher positionality*

As a student of an English teaching education program in Mexico, I am interested in investigating participation in the foreign language classroom because I want to know the main factors that influence participation. This can help me in my future as a language teacher. Knowing more about participation will help me to make better decisions in the classroom that affect positively to my students’ participation.

### *3.3 Research context*

This study was carried out in the state of Guanajuato in Mexico. At the Language Department of the University of Guanajuato. In this language school, several languages are taught: French, Chinese, Italian, Japanese, and English. The languages go from level 100 to level 600, 700 or 800 depending on the language, each semester counts as a level. In the case of the English language program, the course consists of 8 semesters or 8 levels (100 to 800 level) I decided to choose this school since it is highly prestigious in the city, and it follows a communicative approach. Most of the students in this school are also students of different programs of the University of Guanajuato, or they are high school students of the same University. English is one of the more demanded languages in the school.

### *3.4 Participants*

This study was conducted with 14 participants (8 women and 6 men) they were between 17 and 22 years old. All of them are Mexicans, they were enrolled in the 100 level of English at the language department of the University of Guanajuato. Some were enrolled in high school, and the rest were University students of different programs of the University of Guanajuato. They are beginner English language students. I decided to carry out my research with them because they are students that in general are very motivated to learn the language and I wanted to know more about the aspects that influence them to participate.

### *3.5 Ethical protocol*

Following ethical procedures is imperative in research. Gregory 2003 (cited in Ramrathan, Grange & Shawa, 2017: 432) states “Ethics are closely associated with morals and involve embracing moral issues in the context of working with humans.” In this study, all the participants were informed about the research before starting with the observations. Participation was voluntary, and a consent letter was given to them informing about the purposes of the research and the methods that would be carried out in order to collect the data. All the participants agreed to being observed, answering the questionnaire and being audio recorded during the semi-structured interview. The personal information collected included: gender, age and schooling of the participants. Pseudonyms were used in order to protect participant’s identities.

### *3.6 Data collection instruments*

In order to collect the information about the factors that influence participation, three instruments were used. The first instrument was observation, the objective of observing the class was to identify the kind of activities used during class and how much these activities engaged students’ participation. “Observation is the conscious noticing and detailed examination of participants’ behavior in a naturalistic setting” (Croker & Hingham, 2009: 166). Four observations were carried out in order to have information of first-hand about the participation dynamic in the classroom.

The second instrument used was a questionnaire, this questionnaire had closed-response and open-response items. Croker and Hingham (2009), state “Open-response questionnaires provide a way to find out, in an unstructured manner, what people are thinking about a particular topic or issue. As such, open-response questionnaires often serve as the basis for further, more structured research” (p. 201) The questions in this instrument were developed in order to know more about students’ perception in participation in second language classroom and how they carried out their participation.

The third instrument was a semi-structured interview, the purpose of using this instrument was to ask participants a specific question. Magaldi and Berler (2020) states that semi-structured interviews, allows for discovery, with space to follow topical trajectories as the conversation unfolds. During this semi-structure interview, the purpose was to maintain a fluent conversation about the topic.

### *3.7 Data analysis procedures*

The analysis of the data collected was through thematic analysis. “Thematic analysis requires more involvement and interpretation of the researcher... thematic analysis move beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas, within the data, that is, themes” (Guest, MacQueen & Namey, 2011: 10) Since, this is a qualitative study the data collected was the ideas and perspectives of participants, which had to be interpreted and classified by the researcher in order to find patters that lead to the development of possible themes that could answer to the research question.

The analysis process consisted of several steps. First, the data collected of the three instruments was read, and the audios were listened. Secondly, the audios of the interviews were transcribed. Thirdly, the data was reread to highlight the patter in students’ answers in order to develop the possible themes. Finally, a table was made in order to organize the possible themes and classify the answers of the participants according to these themes.

### *3.8 Limitations of the study*

Some of the limitations found in this study was the amount of time to observe the classes, I only had the opportunity to observe four classes. This did not give me the opportunity to observe all the different activities carried out during the whole course and how students’ participation evolves through it. This is something that I would have changed, since the more time a class is observed, more details can be noticed.

## **4. Results and discussion**

This section presents the results and discussion of the study. The section is divided into six parts, each addressing a theme: (1) Students’ perceptions about participation in the second language classroom, (2) Group activities and class dynamics as motivating factors in participation, (3) Class environment, (4) Students’ personality, (5) Teacher attitude towards students’ participation and feedback, (6) The use of L1 and L2 during participation.

### *4.1 Students perceptions about participation in the second language classroom*

This theme revealed that for most of the students, participation is seen mainly as a means to solve doubts about grammar or vocabulary, while for others participation is a means to practice English. During the semi-structured interview, one of the questions aimed at finding out more about what students thought about participation. Students were asked if they liked to participate in class, and their answers showed that they had different perspectives on participation. Evidence also showed that their reasons for participating varied among each participant.

For some participants in this study, participation was useful for solving their questions about language, which results interesting since this revealed that they were more focused on accuracy. Students mentioned that participation helped them to be guided during an activity, for

these students, participation was mainly about asking questions that help them to complete the activities. These questions were related to grammar or vocabulary. In contrast to this, for some students, participation was a means to practice the foreign language. For example, participant 6 stated:

*“Participation is for me as if I were in a situation where I have to speak in English, for example, at a store or at a restaurant.” (Q, Q1.)*

In this extract, the student explains that for her, participation is a means to use English as she would use it in real-life situations. This shows that this student is conscious of the lack of opportunities that she has to use English outside the classroom. For this reason, she wants to take advantage of participating in activities such as role plays. In these activities, students use the target language in the classroom in a meaningful way, which prepares them for real life situations.

#### *4.2 Group and dynamic activities as motivating factors in participation*

One of the items in the questionnaire was focused on finding out if students felt they had enough opportunities to participate. Most of their answers showed that students felt comfortable participating in group activities, since they can compare their answers with their classmates and give their opinion freely. Moreover, students’ answers revealed that the dynamic of the class, where the teacher implemented activities, as games were very inclusive, and they all had the opportunity to participate.

Participants highlighted that when working in group activities, they felt more secure participating. This showed that individual participation can be more overwhelming than group participation. In small groups, students have more opportunity to participate and to express themselves without feeling exposed individually in front of the whole class.

Another motivating factor that came up during this data analysis was the dynamic of the class. All the students revealed that the dynamic in class motivated them to participate and made them feel included in the activities. Participant 6 states:

*“With the willingness, respect and inclusive dynamics of the teacher, nobody is left out of participation.”*

This student mentioned the importance of creating activities where all the class could participate. During the four class observations, the researcher was able to see that many of the activities were games, which engaged students to participate. During these activities, the class was very attentive and cooperative. Dynamic activities as games engage students to participate in class, they feel more relaxed. With dynamic activities, students see language learning as funny and not as tedious.

#### *4.3 Class environment*

This theme revealed the importance of the class environment in participation. Qiu (2022) states that a positive classroom climate is claimed to follow from both the teacher’s and students’ active engagement in social interactions, classroom rapport, and the co-construction of the learning atmosphere. All the students mentioned feeling comfortable participating in class because they felt their classmates were not judging, on the contrary, they tried to support each other. For example, participant 2 explained:

*“I feel comfortable expressing myself in class, I am not afraid of it, there is an environment of respect.”*

Participating in class is something that can be challenging for students, overall in the second language classroom, where they are trying to communicate something in a language that is not theirs. The answer of this student showed how having a safe environment can help students to feel secure when participating. When students participate freely and without the fear of being judged, the learning process can be enriched.

Another important aspect found was how students could change their feeling towards participation after creating a good class environment. For instance, participant 10 mentioned:

*“On the contrary, I feel that there is support among all the class, at the beginning I felt as if my classmates could make fun of me, but then I felt that it is a matter of creating confidence. Now we all support each other.”*

This answer was very interesting, since the student expressed how their feelings about participation changed after seeing the support of their classmates. During the observations the group showed having a good relationship, even the teacher mentioned that this class was noisier compared to his other classes. This was because some students were friends or couples, so they showed confidence in each other. Learning a second language implies a high level of social interaction, for this reason it is important to develop a good class environment, where teacher and students can use the language during activities in a comfortable way, without feeling judged, but supported.

#### 4.4 Students personality

This theme focused on students' personality. This is another important factor in participation. During observations, the students who demonstrated to participate more in class were always the same. Those students, who were more extroverted, showed more active participation in the different activities. On the other hand, that students that in the interview and in their answers in the questionnaire identified themselves as being shy and little participative, were the same identified by the researcher as less active during class activities. However, these students as the rest of the class showed being conscious of the importance of participation in the second language classroom in order to improve their skills in the language. Regarding in this, participant 2 mentioned:

*“I feel shy when participating, but I am starting to participate more.”*

This student has identified how much his personality influences his participation in class, but also, I could notice that he is conscious of the importance of participation. This has led him to take the step to participate more. When students become conscious of how participation can positively affect their learning process, they start to increase their participation. Also, this student could properly identify the emotion that is generated when participating. The more conscious students are about their emotions, the more they can implement actions to control them, participant 3 stated:

*“I [AN18] prefer to participate individually, I am very perfectionist, and sometimes I don't like what my classmates do.” (I, Q4)*

This participant clearly showed how her personality influenced her participation. She preferred to participate individually, in contrast to most of their classmates who preferred to participate during group activities. Personality can be very important in second language learning, even though it is not a factor that can determine the students' success in second language learning, it is an important factor that influences students' interaction and participation. Students, who are more open to participate in the L2 classroom have more opportunity to develop language skills. However, shy students can use different tools outside the classroom that do not require much interaction in order to improve their language skills.

#### 4.5 *Teacher's attitude towards students' participation and feedback*

The role that teachers play in motivating students' participation is unquestionable at any level. Feedback is a means to help and guide students in their learning process. It is necessary that teachers give positive feedback or help students to reflect on their mistakes in order to help them in their learning process. In theme, it is shown that participants felt comfortable in respect to the attitude of the teacher towards their participation, they mentioned that teacher showed a very positive attitude towards their questions about the questions. Regarding this participant 6 mentioned:

*"The teacher solves our questions, and he never has a negative attitude, he answers our questions nicely." (I, Q3)*

This student mentioned some attitudes that his teacher had when he participated and that made him feel comfortable and supported. As participant 2 described:

*"He gives us the confidence and help us with our questions; he lets us know that it is ok if we make mistakes." (I, Q3)*

This student mentioned that the teacher showed a positive attitude towards their mistakes, he created a safe environment where mistakes were not seen as something bad. During observations, the teacher showed having a good rapport with students and being very flexible. Teacher's attitude towards student participation is very important, since it can motivate or demotivate students' participation during class. Teachers who are flexible and show a good attitude in helping students during participation increase their students' confidence and motivation. Positive feedback after participation influences how students see their mistakes. When mistakes are seen as a means to improve, students do not feel afraid of making mistakes, and they feel free to participate.

#### 4.6 *Use of the L1 and foreign language during participation*

Language proficiency is another factor that during the interview and questionnaire, students could identify as being important when participating. Students stated that one of the main reasons they do not participate is that they do not have enough knowledge on English. Most of the participants said that they preferred to participate in Spanish because it was easier. On the other hand, they said that when they participated in English, it was because they felt that they understood the topic, which made them feel more confident, participant 4 mentioned:

*"I do not dominate the English language, yet. For that reason, it is easier for me to participate in Spanish." (I, Q4)*

This student highlighted her lack of proficiency in English; however, she still participated in class using the L1. This theme was relevant for me, since students are beginner level. It is important to give students the opportunity to participate in any language, with beginner students, participation can be in Spanish in order to give them the opportunity to participate, this can help them to gain confidence and then start using the foreign language, *participant 3 mentioned:*

*"When it is something that I already know, and I know how to pronounce it, it is easier to participate in English." (I, Q1)*

This participant highlights that until she felt secure about the language, she used it when participating. With beginner level students, the use of L1 when participating is common, however, this is not necessarily wrong. It is important that students feel comfortable with the interaction in class, and little by little they can integrate the use of foreign language during participation. During the observations, only few students used English and motivated their

classmates to use it. All the students agreed that they preferred to participate in Spanish until they felt more secure using English.

## 5. Conclusion

The purpose of this study was to discover and describe the factors that influence participation in the second language classroom at beginner level. The findings showed that students see participation as an important means to improve in their language learning. Some of the factors that influence students' participation at this level are: students' knowledge of the language, teacher attitude, engaging activities, relevance of the topic, solving questions about the topic, classroom environment. Only for few participants, participation was seen as a means to get a better grade.

The sample size and the profile of participants limit the generalization of the results. Future research could include older students enrolled in different levels. Finally, the findings of this study could be useful for language teachers how are interested in increasing students' participation at beginner level. Knowing the main factors that decrease and increase students' participation can help teachers to implement strategies to promote participation in second language classroom and co-create a learning environment.

## Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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# Effects of Social Media Detox Interventions on Anxiety and Sleep Patterns Among Adolescents in Selected Secondary Schools in Morogoro Region

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Received: 21 October 2025 ▪ Revised: 17 December 2025 ▪ Accepted: 28 December 2025

## *Abstract*

This quasi-experimental study investigated the effects of a two-week social media detox intervention on anxiety levels and sleep quality among adolescents in selected secondary schools in Morogoro Region, Tanzania. A total of 95 Form Three students (aged 15–17) were involved, divided into two intact classes: an experimental group from Tushikamane Secondary School (n=48) that abstained from social media and a control group (n=47) from Tubuyu secondary school that continued regular use. Pre- and post-tests utilized the Generalized Anxiety Disorder-7 (GAD-7) scale and a Sleep Quality Self-Report Index. The intervention included guided abstinence from platforms such as WhatsApp, Instagram, TikTok, and Facebook, complemented by journaling, mindfulness exercises, and psychoeducation. Independent samples t-tests revealed that the experimental group had significantly lower post-test anxiety scores ( $M=5.12$ ,  $SD=1.84$ ) compared to the control group ( $M=8.23$ ,  $SD=2.01$ ),  $t(93)=-7.31$ ,  $p<.001$ . Similarly, sleep quality improved significantly in the intervention group ( $p<.01$ ). These findings align with international literature on digital wellness and support the feasibility of implementing low-cost, school-based screen-time interventions. The study concludes that structured social media detox programs can meaningfully enhance adolescent mental health and sleep patterns and recommends their integration into school counseling and health education initiatives in Tanzania.

**Keywords:** social media detox, adolescents, anxiety, sleep quality, quasi-experimental design, mental health, digital wellness, screen time.

## 1. Introduction

### 1.1 *Background of the study*

The last two decades have witnessed an unprecedented transformation in the ways adolescents interact, socialize, and construct their identities, largely due to the pervasive rise of digital technologies. The advent of mobile internet, smartphones, and social media platforms has redefined communication dynamics, particularly among youth. Today, platforms such as WhatsApp, Instagram, TikTok, Facebook, and Snapchat have become deeply embedded in the daily routines of young people, functioning not only as tools for communication but also as spaces for self-expression, identity formation, and peer validation (Clark et al., 2018; Khalaf et al., 2023). Adolescents use these platforms to build and maintain relationships, seek emotional support, engage in social comparison, and craft digital representations of themselves. This process of digital

socialization has become a crucial developmental task, closely aligned with the psychosocial challenges of adolescence—namely, the development of autonomy, a sense of belonging, and self-identity (Nesi, 2020; Holland & Tiggemann, 2016).

In the Tanzanian context, this global digital trend is increasingly evident. Data from the Tanzania Communications Regulatory Authority (TCRA, 2023) indicates that over 36 million Tanzanians own mobile phones, with more than 33.1 million having internet access. Importantly, over 60% of internet users are under the age of 25, suggesting that digital technologies are primarily youth-driven. A national survey by Restless Development Tanzania (2022) revealed that 81% of secondary school students in urban and peri-urban areas use social media platforms daily, with average daily screen times ranging between 3 to 6 hours, often during evening and nighttime hours. Such prolonged digital engagement underscores how digital platforms have become integral to adolescents' social ecosystems in Tanzania.

Although digital technologies provide many educational, informational, and relational benefits, a growing body of literature suggests that excessive or unregulated social media use can have detrimental effects on adolescent mental health. A systematic review by Khalaf et al. (2023) synthesizes global evidence linking high-frequency social media use with an array of psychological outcomes, including elevated anxiety, depressive symptoms, poor sleep, low self-esteem, and body dissatisfaction. These outcomes are often mediated by online behaviors such as cyberbullying, social comparison, trolling, and compulsive reassurance-seeking. Similarly, other studies (e. g Fisher et al., 2016; Fardouly & Vartanian, 2016) demonstrate how adolescents who are highly active on social media platforms are more likely to be exposed to toxic social interactions, unrealistic body standards, and pressure to curate idealized online personas. All these factors exacerbate psychological vulnerability.

Adolescents are particularly susceptible to the harmful effects of excessive screen time due to their developmental sensitivity. Neurologically, this is a period marked by increased sensitivity to peer influence and heightened emotional reactivity, while hormonally, it is a time of rapid biological changes. These changes make adolescents more prone to risk-taking behaviors and less equipped to self-regulate (McEwen, 2017; Baumeister et al., 1998). The World Health Organization (WHO, 2021) underscores the critical role of sleep in adolescent development, recommending 8 to 10 hours of uninterrupted sleep per night. Yet, behaviors such as nighttime scrolling, chatting, or video watching suppress melatonin production and delay sleep onset, leading to circadian rhythm disruptions. Studies by Carter et al. (2016) and Alshobaili & AlYousefi (2019) confirm that bedtime use of mobile devices significantly correlates with poor sleep quality, shorter sleep durations, and increased daytime drowsiness. Alarmingly, Khalaf et al. (2023) report that 36% of adolescents wake up at least once during the night to check their phones, and 40% use a mobile device within five minutes before going to bed.

In Tanzania, there is growing anecdotal evidence of these effects manifesting in secondary school settings. Teachers, school counselors, and parents across regions such as Morogoro have observed increased cases of students displaying digital dependency, emotional instability, irritability, and disengagement from classroom activities. These behavioral concerns are often attributed to irregular sleep schedules, social media addiction, and online peer conflicts. Despite these alarming trends, empirical research on the psychological and behavioral effects of social media use among Tanzanian adolescents remains scarce. Most existing studies are either qualitative, urban-centric, or anecdotal, leaving a critical gap in evidence-based understanding that could inform national education policy, health interventions, and school-based support systems.

In order to mitigate the adverse effects of excessive digital consumption, researchers have begun exploring interventions aimed at reducing screen time. One such intervention is the social media detox, which involves a voluntary or structured abstinence from social media use for

a specified period. International studies have begun to establish the efficacy of this approach. For instance, Vanman, Baker, and Tobin (2018) in Australia demonstrated that even short-term abstinence from Facebook improved psychological well-being, enhanced emotional clarity, and reduced stress. Similarly, Allcott et al. (2020) found that deactivating Facebook for four weeks led to lower anxiety levels, improved sleep, and increased offline social interactions. Khalaf et al. (2023) argue that such interventions if culturally adapted can significantly enhance adolescent mental wellness, particularly when implemented in school or family settings.

Nonetheless, the applicability of social media detox strategies in African contexts, particularly in Tanzanian secondary schools, remains largely unexplored. Cultural attitudes toward technology, digital literacy levels, access to alternative recreational spaces, and family dynamics all shape how such interventions are received and sustained. Furthermore, Tanzanian adolescents face a unique blend of academic pressures, socio-economic constraints, and limited access to professional mental health services which may mediate the outcomes of any digital intervention. Therefore, context-specific studies are urgently needed to determine the effectiveness, acceptability, and sustainability of digital detox strategies in this population. This study intended to contribute to filling this knowledge gap by investigating the effects of a two-week social media detox intervention on anxiety levels and sleep quality among Form Three secondary school students in Morogoro Municipality in Tanzania.

### *1.2 Statement of the problem*

Social media has become an integral part of adolescents' daily lives in Tanzania, with widespread use among secondary school students. Although these platforms provide opportunities for communication, creativity, and access to information, their overuse for non-academic purposes has raised growing concerns among educators, parents, and mental health professionals. A national survey by Restless Development Tanzania (2022) found that more than 80% of students in urban and peri-urban schools use social media daily, often for prolonged periods extending into the night. This pattern of excessive and unsupervised social media use has led to a range of negative behavioral and psychological effects, including reduced sleep quality, increased anxiety, digital dependency, and academic disengagement. International research supports this trend. Studies by Khalaf et al. (2023), Carter et al. (2016), and Nesi (2020) show that adolescents who engage in nighttime screen use often experience disrupted circadian rhythms, lower melatonin levels, emotional instability, and poor cognitive performance the following day. Teachers in Morogoro Region report a noticeable increase in students presenting symptoms of fatigue, inattentiveness, irritability, and absenteeism. Similar concerns have been raised by parents who observe mood changes, poor concentration, and behavioral withdrawal in their children.

Despite these observable effects, Tanzania lacks empirical data on how structured interventions such as temporary abstinence from social media may help improve adolescent mental well-being. Existing international studies (e.g., Vanman et al., 2018; Orben & Przybylski, 2019; Allcott et al., 2020) demonstrate that even short-term social media detox programs can reduce anxiety and improve sleep quality. However, these studies are grounded in high-income countries, where digital support systems, counseling services, and parental controls are more advanced. Therefore, their findings may not be directly applicable to the Tanzanian context, where such infrastructures are limited. In addition, Tanzania's education system currently lacks formal mechanisms for addressing digital dependency among students. While the Tanzania Institute of Education (TIE) advocates for holistic student development, there is no structured digital health education included in the secondary school curriculum. School-level responses to digital overuse are fragmented, informal, and largely reactive. The absence of school-wide interventions or national guidance on adolescent screen use represents a major policy and practice gap. Given the

rapid digitalization of adolescent life in Tanzania and the potential consequences of unregulated media use, there is an urgent need to investigate effective and context-specific solutions. This study intended to fill that gap by evaluating the impact of a two-week social media detox intervention on adolescents' anxiety levels and sleep quality in selected secondary schools in Morogoro.

### *1.3 Purpose of the study*

The purpose of this study was to examine the effectiveness of a structured short-term social media detox intervention on reducing anxiety levels and improving sleep quality among adolescents in selected secondary schools in Morogoro Region, Tanzania.

### *1.4 Research objectives*

The specific objectives of the study are:

1. To assess the impact of a two-week social media detox intervention on anxiety levels among adolescents in secondary schools.
2. To evaluate changes in sleep quality and sleep patterns among adolescents following the social media detox intervention.
3. To compare the pre- and post-intervention outcomes between students who participated in the detox and those who did not.

### *1.5 Research questions*

This study was guided by the following key research questions:

1. What is the effect of a structured social media detox intervention on the anxiety levels of adolescents in selected secondary schools in Morogoro Region?
2. How does abstaining from social media for a two-week period influence the sleep quality and sleep duration of adolescents?
3. Are there significant differences in anxiety and sleep patterns between students who participated in the detox and those who continued their usual social media use?

### *1.6 Significance of the study*

This study holds significant value in addressing the emerging public health and educational concerns related to social media overuse among Tanzanian adolescents. In a rapidly digitalizing society, where young people are increasingly exposed to prolonged and often unregulated screen time, the psychosocial effects of social media require urgent attention. The research has provided empirical evidence on how a structured social media detox intervention can influence psychological wellbeing. The study offers localized insights that are contextually relevant to Tanzanian education and health systems. The findings are expected to support educators, school counselors, and administrators in designing school-based wellness programs that promote healthier digital habits. Furthermore, the study contributes to bridging the research gap in low- and middle-income countries, where studies on adolescent digital health remain limited.

The outcomes of this research can inform national curriculum reforms by providing a basis for integrating digital literacy and mental health education into school programs. It also offers practical recommendations for parents and caregivers on managing adolescent screen time at home. At the policy level, the study supports evidence-based interventions that align with national priorities for youth development, education quality, and mental health promotion. Ultimately, this research seeks to enhance the overall academic performance and emotional well-being of Tanzanian adolescents in the digital age.

### *1.7 Theoretical framework*

This study is grounded in two complementary psychological theories: the Cognitive-Behavioral Theory (CBT) and the Stimulation Hypothesis, which collectively provide a basis for understanding the mechanisms through which social media use and its absence can influence adolescent anxiety and sleep patterns. CBT posits that thoughts, emotions, and behaviors are interrelated, and that maladaptive cognitive patterns can lead to emotional distress and behavioral dysfunction (Beck, 1976). Excessive engagement with social media platforms exposes adolescents to constant social comparison, fear of missing out (FOMO), cyberbullying, and unrealistic portrayals of life all of which can trigger negative thought patterns, increase anxiety, and interfere with emotional regulation. The detox intervention disrupts this cognitive cycle by eliminating the source of negative stimuli, enabling adolescents to reframe their thoughts, reduce psychological distress, and develop healthier behavioral routines (e.g., better sleep hygiene). Thus, CBT offers a lens through which the reduction in anxiety following social media abstinence can be interpreted.

The stimulation hypothesis suggests that digital media use increases physiological and cognitive arousal, especially when used before bedtime (Cain & Gradisar, 2010). Social media platforms are designed to be highly engaging, often stimulating emotional responses and prolonging screen exposure late into the night. This heightened stimulation delays melatonin production, disrupts circadian rhythms, and impairs sleep onset and quality. Therefore, abstaining from social media can reduce arousal levels before bedtime, allowing for improved sleep duration and quality. The observed improvement in sleep patterns among adolescents in the intervention group supports this theoretical proposition. The integration of CBT and the stimulation hypothesis provide a robust framework for explaining both the psychological and physiological outcomes observed. The social media detox intervention serves as a behavioral modification tool that reduces cognitive stressors and physiological arousal, resulting in improved emotional well-being and sleep health. This theoretical framing not only underpins the expected outcomes of the study but also informs the design of future interventions and policy recommendations targeting adolescent digital wellness in school settings.

## *2. Methodology*

### *2.1 Research design*

This study employed a quasi-experimental research design using non-equivalent control group pre-test–post-test design, which is suitable where random assignment of participants is not feasible. The intervention was implemented on an intact class (experimental group), while another comparable intact class (control group) continued with their normal routines. This design allowed for a controlled comparison of the effect of the social media detox intervention on two key outcome variables: anxiety levels and sleep quality among adolescents.

The design is illustrated below:

Table 1.

Group	Pre-Test	Intervention (Detox)	Post-Test
Experimental	Yes	Yes	Yes
Control	Yes	No	Yes

### 2.2 Study area

The study was conducted in Morogoro Municipality, located in Morogoro Region, Tanzania. This region was selected due to its semi-urban setting, diversity of school types, increasing access to digital technologies, and anecdotal evidence of adolescent sleep and anxiety issues. The study targeted co-educational public secondary schools with access to smartphones and internet connectivity among students.

### 2.3 Target population

The target population consisted of Form Three students aged 15–17 years, enrolled at Tushikamane and Tubuyu government secondary schools in Morogoro Municipality. This age group is developmentally vulnerable to the psychological impacts of social media overuse, and is also a critical stage for academic performance and identity formation.

### 2.4 Sample size and sampling technique

A purposive sampling technique was used to select two public secondary schools with comparable academic performance, infrastructure, and student demographics. From each school, one intact Form Three class was selected, yielding a total of 95 participants:

- Experimental group (n = 48): School A (Tushikamane Secondary school) – received the social media detox intervention.
- Control group (n = 47): School B (Tubuyu secondary school) – no intervention, continued routine social media use.

The sample size was deemed sufficient for statistical comparisons given the short intervention period and manageable group sizes.

### 2.5 Intervention procedure

The experimental group underwent a structured two-week social media detox intervention, during which students were guided to voluntarily abstain from all social media platforms, including WhatsApp, TikTok, Instagram, and Facebook. The intervention was implemented with parental and school cooperation. The following measures were part of the detox protocol:

- Daily journaling activities to reflect on mood, sleep, and daily experiences.
- Short daily mindfulness and relaxation exercises in class (10 minutes).
- Monitoring sheets for tracking screen time and sleep duration.
- Weekly brief psychoeducation sessions led by a trained school counselor.

Compliance was monitored through daily self-report checklists and teacher observations. The control group continued their regular social media activities without any restriction or intervention.

### 2.6 Data collection instruments

To measure the dependent variables of anxiety and sleep quality, two standardized and validated instruments were employed. The first was the Generalized Anxiety Disorder Scale (GAD-7), a widely used 7-item self-report questionnaire designed to assess the severity of anxiety symptoms over the past two weeks. Each item is rated on a 4-point Likert scale ranging from 0 (“not at all”) to 3 (“nearly every day”), yielding a total score between 0 and 21. The GAD-7 has demonstrated high internal consistency, with a Cronbach’s alpha of 0.89, and has been validated for use among adolescents in various settings. The second instrument was the Sleep Quality Scale (SQS), adapted from the Pittsburgh Sleep Quality Index (PSQI) to suit the cultural and linguistic context of Tanzanian secondary school students. The SQS is a 10-item self-report tool assessing sleep duration, perceived quality, disturbances, and daytime dysfunction. Items are rated on a 4-point scale, with higher scores indicating better sleep quality. The adapted tool was pilot-tested in a separate secondary school within the same region to ensure face validity and local relevance. The adapted version demonstrated acceptable internal consistency, with a Cronbach’s alpha of 0.81. In addition, a brief demographic questionnaire was administered to collect data on participants’ age, sex, access to mobile phones, and average daily screen time. This background information provided context for interpreting the primary outcomes and enabled subgroup comparisons where relevant.

### 2.7 Validity and reliability

To ensure the accuracy and trustworthiness of the instruments used in this study, both content and face validity were carefully established. Expert reviews were conducted by two educational psychologists and one public health researcher with experience in adolescent behavioral assessment. Their feedback was used to refine item clarity, cultural relevance, and appropriateness for the target age group. A pilot test was then conducted with a sample of 20 Form Three students from a secondary school not involved in the main study. This pre-testing exercise helped confirm the instruments’ face validity and provided insights into student comprehension, item interpretation, and completion time. Based on the results, minor adjustments were made to language phrasing to enhance clarity and contextual alignment. The internal consistency of both instruments was evaluated using Cronbach’s alpha. The Generalized Anxiety Disorder Scale (GAD-7) showed strong reliability, with an alpha coefficient of 0.89. The adapted Sleep Quality Scale (SQS) also demonstrated acceptable reliability, with a Cronbach’s alpha of 0.81. These values exceed the conventional threshold of 0.80, indicating that the instruments were reliably measuring the constructs of interest.

### 2.8 Data collection procedure

The data collection process was conducted in three main phases, in collaboration with school administrators and class teachers, and under the direct supervision of the research team. In *Week 0*, a *pre-test* was administered to both the experimental and control groups. During this phase, students completed the Generalized Anxiety Disorder Scale (GAD-7) and the Sleep Quality Scale (SQS) to establish baseline measures of anxiety and sleep quality. Following the pre-test, the intervention period took place over Weeks 1 and 2. During this time, the experimental group participated in a structured social media detox program, while the control group continued with their regular social media usage and school routines. The research team worked closely with school counselors and teachers to monitor compliance and provide support to the experimental group. At the end of Week 2, a post-test was conducted in both groups using the same GAD-7 and SQS instruments. This post-test allowed for the comparison of pre- and post-intervention scores within and between groups. Throughout the study, ethical procedures were observed, and confidentiality

was maintained. All assessments were administered in classroom settings with the guidance of trained research assistants to ensure standardization.

### *2.9 Data analysis plan*

Quantitative data collected from the anxiety and sleep quality instruments were coded and analyzed using IBM SPSS Statistics Version 26. The data analysis procedure followed a structured approach to address the study objectives and test the stated hypotheses. Initially, descriptive statistics including means, standard deviations, and frequencies were used to summarize participants' demographic characteristics and baseline scores on anxiety and sleep quality measures. To determine the effectiveness of the intervention, independent samples t-tests were conducted to compare the post-test scores between the experimental and control groups. Additionally, paired samples t-tests were performed to examine within-group differences between pre-test and post-test scores, assessing the extent of change over time in each group. Where initial baseline differences were observed between the groups, Analysis of Covariance (ANCOVA) was employed to control for these covariates and isolate the effect of the intervention. The level of statistical significance for all inferential tests was set at  $p < 0.05$ . This multi-tiered analysis framework ensured both group-level and individual-level changes were appropriately examined, enhancing the rigor and interpretability of the findings.

### *2.10 Ethical considerations*

Ethical approval for this study was granted by the Research Ethics Committee of Sokoine University of Agriculture, ensuring adherence to established ethical standards for research involving human participants. Prior to data collection, formal permission was obtained from the Morogoro Municipal Education Office, the heads of participating secondary schools, and the parents or guardians of all student participants. Participation in the study was entirely voluntary. Students provided informed assent, while written consent was secured from their parents or guardians in accordance with ethical guidelines for research with minors. To protect participant privacy, all data were collected and stored with strict confidentiality and anonymity. Identifiable information was coded to prevent linkage to individual respondents. Moreover, participants were clearly informed of their right to withdraw from the study at any point without any negative consequences or penalties. These procedures ensured that the study maintained high ethical integrity and safeguarded the welfare and rights of all adolescent participants throughout the research process.

## 3. Study results

### *3.1 Descriptive statistics*

A total of 95 Form Three students participated in the study, with 48 in the experimental (intervention) group and 47 in the control group. The participants were comparable in demographic characteristics, as summarized in Table 1. The mean age was 16.2 years for the intervention group and 16.3 years for the control group, yielding an overall average of 16.25 years. Gender distribution was nearly equal across both groups, with 49.5% male and 50.5% female participants. Smartphone ownership was high among the sample, with 87.5% of students in the intervention group and 93.6% in the control group reporting personal access to a smartphone. Additionally, a large proportion of participants (83.2%) reported using social media for more than three hours per day, indicating a high baseline exposure to digital platforms which is an important consideration for evaluating the effectiveness of the detox intervention.

Table 2. Demographic profile of participants (N=95)

Characteristic	Intervention Group (n=48)	Control Group (n=47)	Total (%)
Mean Age (Years)	16.2	16.3	16.25
Gender (Male)	24 (50.0%)	23 (48.9%)	47 (49.5%)
Gender (Female)	24 (50.0%)	24 (51.1%)	48 (50.5%)
Owns Smartphone	42 (87.5%)	44 (93.6%)	90 (94.7%)
Daily Social Media Use >3 hrs	39 (81.3%)	40 (85.1%)	79 (83.2%)

Source: Research survey, 2025

### 3.2 Pre- and Post-Test scores

To assess the impact of the intervention on students' anxiety levels, mean scores from the Generalized Anxiety Disorder-7 (GAD-7) scale were compared across the two groups before and after the intervention. Table 2 presents the descriptive and inferential statistics for both groups.

Table 3. Mean anxiety scores (GAD-7) pre- and post-test

Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference	t-value	p-value
Intervention	11.25 (3.62)	6.44 (2.98)	-4.81	6.72	< .001
Control	10.87 (3.48)	10.21 (3.41)	-0.66	1.04	0.301

Source: Research survey, 2025

The results indicate a statistically significant reduction in anxiety levels among students in the intervention group following the two-week social media detox ( $t(47)=6.72$ ,  $p<.001$ ). The mean GAD-7 score decreased from 11.25 (SD=3.62) at pre-test to 6.44 (SD=2.98) at post-test, reflecting a substantial decline in self-reported anxiety symptoms. In contrast, the control group showed a minor, non-significant reduction in anxiety scores from 10.87 (SD=3.48) to 10.21 (SD=3.41), with a mean difference of -0.66 ( $t(46)=1.04$ ,  $p=.301$ ). These findings align with previous studies which have reported that abstaining from social media for even short periods can significantly reduce stress, anxiety, and negative mood among adolescents and young adults (Vanman, Baker, & Tobin, 2018; Allcott et al., 2020). The cognitive relief from reduced social comparison, cyber-stimulation, and digital overload likely contributed to the improvement in emotional well-being. The findings also support the theoretical premise of Cognitive Behavioral Theory (Beck, 1976), which suggests that modifying behavior (in this case, limiting social media exposure) can lead to improvements in affective states such as anxiety. These results provide strong empirical support for integrating structured digital detox programs within school counseling services as a preventive mental health measure for secondary school students in Tanzania.

#### 3.2.2 Sleep Quality Scores (SQS)

Sleep quality was assessed using the adapted Sleep Quality Scale (SQS), a 10-item self-report measure designed to capture duration, efficiency, restfulness, and disturbances. Table 3 displays the pre-test and post-test mean scores for both the intervention and control groups.

Table 4. Mean Sleep Quality Scores (SQS) Pre- and Post-Test

Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference	t-value	p-value
Intervention	22.65 (3.81)	27.13 (3.26)	+4.48	-5.92	< .001
Control	23.08 (4.02)	23.54 (3.97)	+0.46	-0.81	0.422

Source: Research survey, 2025

The intervention group demonstrated a statistically significant improvement in sleep quality following the two-week social media detox. Their mean SQS score increased from 22.65 (SD=3.81) at pre-test to 27.13 (SD=3.26) at post-test, representing a mean gain of 4.48 points ( $t(47)=-5.92, p<.001$ ). In contrast, the control group showed a non-significant increase of only 0.46 points ( $t(46)=-0.81, p=.422$ ). These results support the stimulation hypothesis (Cain & Gradisar, 2010), which posits that digital media especially when consumed before bedtime stimulates cognitive and physiological arousal that disrupts circadian rhythms, delays sleep onset, and impairs sleep quality. In abstaining from social media, participants in the intervention group likely experienced fewer night-time interruptions, improved melatonin regulation, and more restful sleep cycles. These findings are consistent with previous research showing that reducing screen time before bed significantly improves sleep outcomes among adolescents (Twenge et al., 2020; WHO, 2021). The improvement also underscores the feasibility and potential benefit of integrating social media detox strategies into school-based mental health promotion programs to enhance students' sleep hygiene and academic functioning.

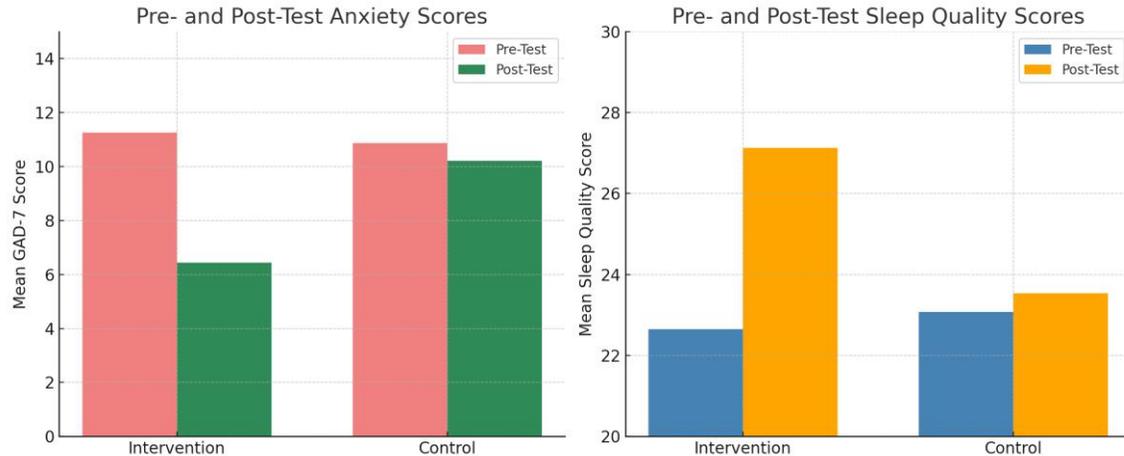
### 3.3 ANCOVA Results (Post-Test adjusted for Pre-Test scores)

To account for minor differences in baseline (pre-test) scores between the groups, an Analysis of Covariance (ANCOVA) was conducted using the post-test anxiety and sleep quality scores as dependent variables and the corresponding pre-test scores as covariates. This allowed for a more accurate estimation of the intervention's effect by statistically controlling for initial group disparities. The results revealed that after adjusting for pre-test anxiety levels, there was a statistically significant effect of the intervention on post-test anxiety scores,  $F(1,92)=32.18, p<.001$ . Similarly, a significant effect was observed for post-test sleep quality scores,  $F(1,92)=27.94, p<.001$ . These findings confirm that the improvements in anxiety and sleep observed in the intervention group were not merely due to baseline differences, but were indeed attributable to the social media detox intervention. These results reinforce the earlier t-test findings and provide further empirical support for the efficacy of digital abstinence in improving adolescent mental health and sleep outcomes in school settings.

### 3.4 Summary of key findings

Students who participated in the two-week social media detox intervention experienced substantial reductions in anxiety symptoms, as evidenced by a statistically significant decline in GAD-7 scores from pre- to post-test. In addition to lower anxiety levels, these students also reported notable improvements in sleep patterns, including increased sleep duration and higher subjective satisfaction with sleep quality. These improvements were consistent across the intervention group and particularly pronounced among students who had reported high baseline screen time (more than three hours of daily social media use). In contrast, the control group who continued their normal digital routines showed no statistically significant changes in either anxiety or sleep scores. These findings suggest that structured abstinence from social media, even for a brief period, can yield meaningful benefits for adolescent mental health and sleep hygiene.

The figure below presents mean scores for anxiety (GAD-7) and sleep quality (SQS) before and after the intervention for both experimental and control groups. The intervention group shows a notable decrease in anxiety and an increase in sleep quality compared to the control group.



#### 4. Discussion and implications

This study investigated the effects of a structured two-week social media detox intervention on anxiety levels and sleep quality among adolescents in selected public secondary schools in Morogoro Region, Tanzania. The findings demonstrated that students in the intervention group, who abstained from platforms such as WhatsApp, TikTok, Instagram, and Facebook, experienced statistically significant reductions in anxiety symptoms and marked improvements in sleep quality. These outcomes were not observed among students in the control group, who maintained their usual social media usage patterns. The magnitude and direction of these effects strongly suggest that the improvements were a direct result of the intervention and not due to confounding factors or natural developmental progression.

These results are consistent with previous international studies that have highlighted the psychological burden associated with excessive social media use among youth. For instance, Vanman, Baker, and Tobin (2018) found that university students in Australia who deactivated Facebook for five days reported lower stress levels and greater overall well-being. Similarly, Allcott et al. (2020), in a large-scale U.S. study, found that reducing social media engagement led to enhanced sleep quality, emotional regulation, and life satisfaction among adolescents. The present study extends this body of knowledge by providing localized, empirical evidence that structured social media abstinence is not only feasible but also effective in a Tanzanian educational context.

From a developmental psychology perspective, adolescents are undergoing critical changes in identity formation, emotional regulation, and social affiliation. According to Erikson's psychosocial theory, the stage of "identity vs. role confusion" is central during adolescence, as young people seek to establish a coherent sense of self. Social media platforms, while offering connection, also present curated images and comparison-driven content that amplify peer pressure and heighten self-consciousness. The constant need for digital validation through likes, comments, and shares can exacerbate emotional distress. The present findings suggest that removing this stimulus, even temporarily, provides adolescents with psychological relief, reduces cognitive overload, and promotes emotional clarity and self-awareness.

Improvements in sleep quality also underscore the biological and behavioral consequences of digital overexposure. Twenge et al. (2020) argue that exposure to screens especially in the evening delays melatonin release and disrupts the body's natural circadian rhythm. This results in delayed sleep onset, fragmented sleep, and daytime fatigue. The students in the intervention group, who abstained from social media and participated in daily mindfulness and journaling activities, reported better restfulness and sleep satisfaction. This is particularly relevant in the Tanzanian context, where recent data from Restless Development (2022) revealed that over 83% of adolescents spend more than three hours per day on social media. Interventions

that reduce digital stimulation and promote healthy pre-sleep routines align with WHO (2021) recommendations for adolescent sleep hygiene and mental health promotion.

The absence of statistically significant changes in the control group further reinforces the validity of the intervention's impact. Their consistent anxiety and sleep scores suggest that without deliberate action, prolonged and unregulated social media use may maintain or even exacerbate psychological strain. This underscores the need for preventive and promotive strategies within schools, particularly in environments where digital literacy is underdeveloped and guidance on healthy media use is lacking. Overall, the findings highlight the viability of low-cost, school-based interventions targeting digital wellness. These interventions are particularly crucial in low-resource settings where access to professional mental health services is limited. Integrating structured digital detox programs into school counseling, health education, and co-curricular activities may serve as a scalable model for enhancing student well-being.

#### *4.1 Implications for practice*

The findings of this study carry significant practical implications for educational institutions, school health programs, and mental health policy frameworks targeting adolescents in Tanzania. They point to the urgent need for proactive measures to address the rising influence of digital media on student well-being.

##### *4.1.1 Integration of digital hygiene into school counseling*

The success of the detox intervention suggests that digital wellness and media literacy should be mainstreamed within school guidance and counseling services. Regular activities such as social media detox challenges, reflective journaling, mindfulness exercises, and digital balance clubs can be institutionalized to cultivate healthier digital habits among students. Such interventions should aim not to demonize technology, but to promote intentional, balanced, and mindful usage.

##### *4.1.2 Teacher and parent engagement*

Both educators and parents are key stakeholders in regulating adolescent digital behavior. They must be sensitized to recognize signs of digital overload, such as sleep disturbances, emotional dysregulation, academic underperformance, and social withdrawal. Schools can organize orientation sessions, workshops, and communication campaigns to promote home-based practices like establishing screen-time boundaries, encouraging device-free study periods, and promoting nighttime device curfews.

##### *4.1.3 School-based interventions*

Given the low cost, short duration, and ease of implementation, structured digital detox programs can be incorporated into school wellness weeks, psychosocial support programs, or integrated with exam preparation periods to mitigate stress. These school-based models provide a non-pharmacological, scalable approach to improving adolescent mental health, particularly in low-resource contexts where professional counseling services are scarce.

##### *4.1.4 Policy and curriculum implications*

At the national level, the Tanzania Institute of Education (TIE) and the Ministry of Education, Science and Technology are encouraged to revise curricula to include modules on digital citizenship, media literacy, and adolescent psychosocial development. The findings support the argument that 21<sup>st</sup>-century life skills must encompass emotional resilience and responsible digital behavior alongside traditional academic competencies.

#### 4.1.5 *Need for longitudinal monitoring*

Although the intervention yielded meaningful short-term improvements, the long-term sustainability of these effects remains unknown. There is a clear need for collaborative, school-based monitoring systems that track student digital engagement, psychological well-being, and sleep health over time. Future research should aim to evaluate the frequency, duration, and format of digital detox interventions that yield optimal and lasting outcomes.

### 5. Recommendations

Based on the findings and conclusions of this study, several recommendations are put forward for implementation by key stakeholders including schools, parents, policymakers, and future researchers.

i. Firstly, schools and educators should take a leading role in promoting digital wellness among adolescents. This can be achieved by incorporating digital hygiene modules into school counseling and life skills programs. Such modules should focus on responsible digital use, online safety, and the importance of balancing screen time with offline activities. Additionally, schools can initiate monthly or termly social media detox campaigns, offering students a structured opportunity to reflect on their digital habits and regain focus. For boarding schools in particular, structured phone curfews should be established, alongside clear guidelines that distinguish between academic and leisure digital use. These efforts would help foster a healthier digital environment within the school setting.

ii. Parents and guardians also have a critical role to play in supporting adolescents' mental and digital well-being. They should monitor the amount of time their children spend on screens and encourage engagement in alternative activities such as reading, sports, and other creative pursuits. Moreover, it is important that families support school-led detox initiatives by establishing screen-free periods at home, especially in the evening hours and before bedtime. This approach not only reinforces digital discipline but also contributes to better sleep patterns and improved family interactions.

iii. Policymakers and curriculum developers, including the Ministry of Education and the Tanzania Institute of Education (TIE), should prioritize the integration of digital literacy, screen-time management, and sleep education into the national curriculum at both lower and upper secondary school levels. These topics are increasingly relevant to the lived realities of today's students and should be addressed as part of comprehensive life skills education. Furthermore, it is essential to invest in capacity building for teachers and school counselors so that they are equipped to guide students in navigating digital challenges and maintaining mental health.

iv. Finally, future research should explore the long-term impact of digital detox interventions on adolescent development. Longitudinal studies are particularly recommended to assess sustained behavioral and academic outcomes. Further investigations should also consider how factors such as gender, socio-economic background, and urban-rural school contexts influence the effectiveness of detox strategies. Additionally, there is a need to study the varying effects of different types of social media platforms such as messaging apps versus video-based platforms on adolescent anxiety, sleep quality, and overall well-being. These research efforts would deepen understanding and inform more targeted interventions.

### Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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# Modern Chess Instruction in School: Cognitive Effects, Pedagogical Strategies, and a Model of Accredited Teacher Training

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Received: 8 November 2025 ▪ Revised: 23 December 2025 ▪ Accepted: 31 December 2025

## *Abstract*

Chess instruction in contemporary educational practice increasingly integrates digital resources and interactive technologies. This paper presents an expanded and improved version of an accredited teacher training program in school chess education, with special emphasis on the digital interactive textbook *Through the World of Chess with the Raccoon 1, 2, and 3*, translated from Russian and hosted on the platform of the Chess Federation of Montenegro. The textbook is used in the first year of learning chess as a central digital resource for pupils. In everyday instruction, the platforms chess.com and lichess.org are used for learning, analysis, and play, with lichess being particularly emphasized due to its pedagogical advantages, including interactive studies and free engine analysis. Digital materials and chess software are projected on an interactive whiteboard, significantly enhancing visualization, collaborative analysis, and student engagement. The teacher training program further instructs participants in the use of Swiss Manager and Fritz, exclusively as professional tools for teacher preparation and tournament organization, not as instructional tools for students.

**Keywords:** chess education; cognitive development; teacher training; educational psychology; digital pedagogy.

## 1. Introduction

Chess is increasingly recognized as a didactic tool in contemporary education, fostering the development of executive functions, strategic thinking, concentration, metacognition, and emotional self-regulation. In Montenegro, chess was included as an elective school subject from 2006/2007 (Foundations of Chess, Chess 1, Chess 2) and has been implemented since 2017/2018 within extracurricular activities. Despite changes in curriculum status, the need for high-quality and modern chess instruction remains evident, especially in the context of developing students' and teachers' digital competencies.

The accredited program *Everything You Need to Know About Modern Chess Instruction in Schools* was created to address this need. It trains teachers to use the digital interactive textbook *Through the World of Chess with the Raccoon 1–3*, operate the platforms chess.com and lichess.org, integrate the interactive whiteboard into instruction, apply the rules of play, perform basic arbiter tasks, organize school chess tournaments, and analyze positions using Swiss Manager and Fritz.

Digital pedagogy provides enhanced visual support, increased student engagement, differentiated learning paths, and more efficient teacher preparation.

This paper offers a scientifically structured and internationally relevant analysis of the program, focusing on the cognitive, pedagogical, and technological dimensions of modern chess teaching.

## 2. Method

This study is based on the author's long-term experience in conducting the accredited teacher training program, participant evaluations, classroom observations, and analysis of practical examples from school chess activities. The sample includes approximately 60 teachers and instructors from Montenegrin primary schools who attended the training during the 2022–2025 cycle.

Data sources include:

- program documentation,
- participant evaluation forms,
- observations of teaching practice,
- teacher reflections on the use of digital tools,
- examples from classroom and tournament practice.

The program consists of the following modules:

1. *Foundations of chess didactics* – attention, concentration, logical reasoning, metacognition, motivation.
2. *Rules of chess and arbiter duties* – terminology, clock handling, examples of tournament organization.
3. *Digital interactive textbook* – three levels, published on the Chess Federation of Montenegro platform.
4. *Digital platforms* – chess.com and lichess.org for learning, analysis, and playing.
5. *Digital tools for teachers* – Swiss Manager and Fritz for professional preparation.
6. *Lesson planning and preparation* – annual, monthly, and daily plans with integrated digital resources.

## 3. Results

Findings demonstrate that using the digital textbook and online chess platforms leads to significant improvement in students' attention, working memory, logical reasoning, and problem-solving skills. Visualization through the interactive whiteboard enabled clearer understanding of positions, tactical motifs, and strategic plans.

Students were able to learn at their own pace, analyze their games, and develop metacognitive awareness. Digital platforms—particularly lichess—enhanced motivation and supported differentiated and autonomous learning.

Socio-emotional development was also improved through pair work, group analysis, and the cultivation of fair play. Teachers showed increased confidence in teaching chess and notable improvement in digital and didactic competencies.

#### 4. Discussion

The results align with contemporary theoretical frameworks of executive functions (Diamond, 2013), sociocultural learning theory (Vygotsky, 1978), and metacognitive development. Integrating digital tools enhances planning, attention, visuospatial processing, and strategic reasoning. Lichess proved especially effective due to its user-friendly interface, study creation tools, and high-quality analysis.

For teachers, training in Swiss Manager and Fritz strengthened professional competence, reflective practice, and lesson preparation. Digital pedagogy, combined with traditional teaching approaches, provides a sustainable and modern model for school chess instruction.

#### 5. Conclusions

Chess instruction supported by digital resources significantly enhances students' cognitive, social, and emotional development. The accredited program represents a comprehensive and modern model of teacher training that successfully integrates pedagogical, technological, and psychological principles.

Future research should include quantitative measures and longitudinal tracking to assess the long-term educational effects of digital chess instruction.

#### Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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