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Research Paper

# A Study on the Association between Online Education and the Social Competence of Indian College Students Post Pandemic

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## ABSTRACT

The Covid-19 pandemic has impacted various fields, including the educational system. It has transformed our learning experiences as many students and teachers were forced to adapt to the online mode of education. Despite the vast amount of information about the effects of the pandemic in the education sector, there is limited knowledge regarding how social competence among students, especially young adults in India were seriously affected. Social competence is defined as the socio-emotional, behavioral, and cognitive skills that an individual must possess. To harmoniously have a successful social adaptation, a level of these factors is needed. The study aims to study the association between Covid 19 and the duration of education in Indian college students post-lockdown by using both paper-pencil tests and online surveys as tools. The sample consisted of 250 students from Bangalore City between the age of 18 to 24. The study measured social competence and the duration of online education and attempted to understand if a correlation existed between the two variables.

***Keywords:*** *Mode of education, online education, social competence, Covid-19 pandemic, post-pandemic, social adaptation, interpersonal skills, prosocial behavior, academic behaviour.*

Schools were shut down throughout the lockdown as a result of the pandemic, and students and teachers switched to online teaching and learning. The pandemic presented both public and private schools with a number of difficulties, including an increase in attrition, educational losses, and the digital gap. COVID-19 also became an impetus for the implementation of digital learning in the classroom. An entire era of students may be negatively impacted over time by the pandemic's cumulative impacts. Students are dealing with severe issues like learning loss, diminished learning abilities, and an unhealthy dependence on technology and the internet. Across the world, educational systems have been impacted by the COVID-19 pandemic (UNICEF, 2022). Over 77 million children and adolescents around the world had their schooling disrupted (UNICEF, 2022). In an effort to reduce the possibility of community transmission, institutions have turned to online learning

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as a vital lifeline. Owing to the COVID-19 disease outbreak, numerous schools all over the world started using videoconferencing tools like Zoom, Google Classroom, and/or Google Meet to conduct lessons. However, these may have detrimental effects on the social competence of students owing to the lack of in-person social interactions. The deficiencies in social competence may even carry forward long after the pandemic has ended (Rashid et al., 2022). In light of this, the current study aims to explore the association between the duration of online education and the social competence of college students, post-pandemic.

Learning is situation - and context-specific. Online learning educational experience, while it may be a materially rich and stimulating learning environment, may also be a socially isolating and lonesome one. Due to the lack of practical knowledge, students will be held

accountable once things return to normal. There was a lot of talk about how the COVID-19 pandemic would provide extremely different learning changes depending on whether or not kids had access to computers and parental help during the classroom closures, which would lead to more diversity in learning issues (OECD, 2020). The social, psychological, and intellectual abilities and behaviours kids need to successfully adjust to their social environment are referred to as social competence (Gresham, 1988). Despite its straightforward description, social competence is a difficult topic to define since it depends on the child's age and the demands of a certain context to acquire the skills and behaviours necessary for healthy social development (Gresham, 1988).

Social competence is a broad topic encompassing a diverse skill set. While many definitions exist for this skill, this paper will follow the comprehensive definition given by Frank M Gresham. Gresham believes social competence to be one of the most basic human capabilities. He calls upon Thorndike's three types of intelligence, including social intelligence, to strengthen his case. Gresham views social competence as a "multidimensional construct" composed of three components: adaptive behaviour, social skills and demographics (Gresham, 1988). The demographic is especially important to consider as individuals of different ages, and SES will show different levels of social competence. People expect a greater, more sophisticated level of social competence for older individuals.

Social competence is important as it determines an individual's adjustment to their environment. The development of social competence is deterministic of one's functioning in society and reduces the risk of developing behavioural and emotional problems (Orpinas, 2010). Those with high social competence can participate and take responsibility for their own welfare and that of others, whereas those with low social competence cannot do the same (Gresham, 1988). Under adaptive behaviour and social skills, there are even more subdivisions (Gresham, 1988). For this study, three specific components of social competence will be looked into, including nearly all the sub-components under adaptive behaviour and social skills. To facilitate easier analysis, the components of social competence have been divided into attitude towards academic performance, prosocial behaviour and interpersonal communication.

Attitude towards academic tasks will include components like academic performance, personal responsibility and functional academic skills. This study will measure the attitude towards academic tasks using the Grit-S scale. Duckworth, Peterson, Kelly and Matthews (2007) define grit in terms of "perseverance and passion for long-term goals". If viewed

from the lens of McClelland's motivation theory, high levels of grit reflect that the individual has a great need for achievement. Interpersonal communication is a broad category. In terms of Gresham's theory, it is inclusive of cooperative behaviours, communication skills, assertive behaviours, personal responsibility, peer reinforcement behaviours and social initiation behaviours. Rubin and Martin (1994) state that interpersonal competence is an "impression of a person's ability to manage interpersonal relationships in communication settings."

Naturally, the development of social competence depends on exposure to other people and different social situations. It is by entering meaningful interactions that social competence is developed, and since it is a construct that is malleable, it evolves even past childhood (Junge et al., 2020). This means deprivation from social situations and in-person interactions can impact social competence regardless of age. This situation was brought about during the COVID-19 Pandemic. This calls for attention to be brought towards the social competence of individuals of different ages post the pandemic. Do they perhaps show abnormally low scores? Does the time spent away from people and "normal" social situations have an impact on the social competence of individuals? Recent studies on social competence have not focused on the relation of the construct with online education. The body of research focuses on the relationship between social competence, academic prowess and emotional intelligence. An interesting note to be made is the lack of research on social competence done on adults. As social competence is viewed as a developmental concept, and all individuals are expected to form steady identities before they enter emerging adulthood, the literature on the social competence of adults or even university students must be given greater attention.

Voinea and Sitoiu (2021)'s article is about how personal, professional and social changes were inculcated at different levels of life, affecting social skills, including critical thinking, emotional intelligence, presence, empathy, time management and self-regulation to adapt to the environment. Such competencies are seen as 'transformative', which creates newer value judgements and helps in tension and dilemma reconciliation and handling with responsibility.

There were significant changes in their personal life, especially those in the education sector due to adapting teaching trends, either through online or hybrid systems. The significant changes that occurred during the pandemic required prompt actions from individuals; hence, problem-solving and optimism mainly fostered resilience.

The study by Yunus Gunindi (2022) aimed at determining whether there is any significant difference in the social skills of preschool children who continued their education process in online and face-to-face settings during the pandemic. Although parents could spend more time with their children during the pandemic, it was not productive due to financial insecurity, increased health concerns, lack of social and physical activities, and psychological problems. Thus, the social skill development of children who could not communicate effectively with other people is affected. There is a decrease or complete disappearance of children's social stimulation, social interactions, social relations, and increased negative feelings while decreasing their skills to control and manage feelings and behaviour.

Qutishat et al. (2022) studied how traditional learning in schools and universities took an unexpected turn through online classrooms, with the students being monitored regarding attendance and participation. An apparent decline in academic participation and interaction was prominent. Network issues cause communication gaps, device incompatibility, environmental issues (background distractions), psychological issues like isolated feelings, struggle to adapt, time management, lack of motivation and communication, and too much academic work caused due to unstable instructions can also contribute to less interaction. Offline classes are preferred, which does not mean that online classes are uncomfortable for some. Many teaching methods are suggested to need alterations to boost interaction and lessen distraction among students. There are below-average interaction levels of students in online classes, although it was successfully implemented. The study establishes a strong relationship between student interaction and academic success.

A study conducted by Cecilia Brown (2013) and examined the relationship between the use of technological communication and social skills among college students. The first part (Study 1) analyzed social skills, social anxiety, technology use, and technology preference among college students. The second part (Study 2) focused on expectations that women use technological communication more than men. Individuals who used technological communication more often would have poor social skills, which was supported. Anticipated women would lead more technologically dense lifestyles than men, which was only minimally supported.

The article by Stefan Hrastinski (2009) suggests the possibility of the theory of online learning as being viewed as equivalent to online participation. The only way to modify online learning is through improving participation. Learner participation can have the following processes: a mechanism that maintains and involves relationships with others, supported by both physical and psychological instruments, maintaining synonymity associated with writing and expression and finally, involving strong collaboration with peers. However, it can include social relations of all kinds. The study argues that online participation is the driving force for online learning. Participation is also associated with positive factors in learning, including satisfaction and retention. The study's conclusion is said to have been having a fundamental role in changing current research and online learning practice.

The COVID-19 pandemic created an unfathomable situation. A virus invisible to the naked eye had the world locked up in their houses for nearly two years. Even today, many office employees work from home. While it has opened up many different avenues and shown the power of the online world and technology, it has also come with repercussions. Journal articles have shown that people found a kind of safety in wearing masks and now deal with anxiety about taking them off. Masks acted as shields, preventing people from engaging socially with others and allowing them to hide their physical appearance or any perceived flaws. Individuals with social anxiety report a worsening of their symptoms in light of having to take off their masks in a world that is slowly moving past the pandemic (Saint, 2021). Such situations bring to mind questions about how different facets of social competence may have been impacted by the pandemic.

Barak et al. (2016) focused on identifying self-regulation skills required for online learning and characterising the cognitive transfer of on-campus and online undergraduate students. The study revealed that cognitive strategies and regulation of cognition are significant for

successful online learning. The study also revealed a lack of self-discipline and poor communication skills as barriers to both, especially to online learning.

Social interaction plays a key role in identity formation (Para, 2008). The process of identity formation continues well into adulthood (Kroger et al, 2010). It may also play an important role in emerging adulthood as young adults make an effort to establish roadmaps for the future. Many emerging adults were deprived of social interactions at such a key developmental stage. Trapped behind screens, they had no real human connections or interaction. Education and educational institutions equip individuals with knowledge and provide environments to engage in enriching discussions and casual conversations. Being in such stimulating environments aids in understanding how one must interact with different people. One cannot engage in a conversation with a professor in the way they engage with a friend.

Educational institutions were reduced to Google and Zoom meets, and students hid behind switched-off cameras and chat boxes. Many students could have gone through entire semesters without contributing a single thought to their classes.

Cockerham et al. (2021) studied adolescent well-being and social interaction during the shift to online education. Semi-structured interviews were used, followed by thematic analysis. Another issue the article highlights is the link between high levels of technology use and weaker social skills. Students expressed concerns regarding the lack of opportunities to establish social connections. 76% of the respondents viewed the limited social opportunities to be the worst part of the pandemic. The ability to interact socially is vital to online education, but establishing a social presence in virtual settings is a challenge for most.

Tai-ming Wut and Jing Xu (2020) 's study focuses on finding the possible challenges concerned with interactions between teachers and students and amongst students, aiming to find solutions to facilitate more interactions in classroom settings. The social presence theory suggests that the quality of communication and information transmission can be affected by 'social presence' (Chang & Hsu, 2016). The three dimensions of social presence are awareness (personal interactions), affective (emotional connection) and cognitive (Shen & Khalifa, 2008). This study used in-depth interviews to acquire information with complete voluntary participation. Lack of feedback, clarifications, and reactions and the inability to recognize the actual participation of students was evident. Social presence was a significant roadblock that affected peer learning and teamwork.

From changes in educational strategies to the availability of technology, the Covid-19 pandemic has brought particular difficulties for students. Due to the transition to remote learning, students have had fewer opportunities for face-to-face contact with their teachers and peers, leaving many feeling lonely and disconnected. Also, social isolation policies have made it difficult for students to engage in volunteer work and extracurricular activities, essential for forming social relationships and interacting with others. In addition, social isolation policies have restricted students' access to extracurricular activities and volunteer work, which are crucial for fostering relationships and social skills. These activities allow students to interact with others and work together to communicate, solve problems, and collaborate in ways essential for social competence. According to Racquel Hernandez and Jason Jabbari (2022), Covid 19 has a long- term impact on one’s social development. The study highlighted how targeted activities can be used to improve social skills.

Moreover, the pandemic has highlighted the importance of social and emotional learning (SEL) in education. Sri Indah Pujiastuti et al. (2022) examined pre-schoolers socio-emotional development in Indonesia after and before the pandemic. The results suggested that pre- schoolers socio-emotional skills were lower during the pandemic than during the pre-pandemic period. Today, Schools have prioritized SEL to support students' mental health and social development during this challenging time. Schools can help students develop self-awareness, self-regulation, empathy, and social problem-solving skills by providing resources and tools for social-emotional learning. These skills are essential for building healthy relationships, managing stress, and navigating challenging situations.

The COVID-19 pandemic has significantly impacted India's educational system, leading to a move towards digital learning and several difficulties brought on by the digital divide. The Indian government has lessened the effects and supported fair education, nevertheless. In particular, during these difficult times, it is essential to keep putting education first and ensure that all pupils have access to high-quality education. There needs to be research on how the COVID-19 pandemic has affected university students' social skills in the literature. Madhavan's (2022) descriptive cross-sectional study in Kerala suggested that the shift from Online to offline and vice versa was perceived as a complex transition for students who took a considerable time to adjust to the switching process. Despite the pandemic's many effects on students' interpersonal relationships and interactions, there has yet to be much research on the precise implications of social competency.

One reason for this dearth of study could be the pandemic's distinctive character, making it difficult to perform research studies in conventional settings. The pandemic has complicated efforts to assure the validity and dependability of findings and disrupted research activities, including data collection. Also, it has been tough to perform longitudinal research and assess the pandemic's effect on social competence over time due to its rapid evolution. Focusing on the pandemic's immediate repercussions, like disruptions to education and mental health problems, may also contribute to the need for more work on social competency among university students during the pandemic. While there is little doubt that these are important topics for research, less focus has been placed on the pandemic's social and emotional effects on college students. Also, it might be challenging to quantify the pandemic's impact on social competence using conventional research techniques. Social awareness, communication, relationship-building, and conflict resolution are just a few of the many domains that comprise the complex concept of social competence. Research studies, especially those conducted remotely, may require more work to capture social competency skills and behaviors fully.

A study by Tea Pavin Ivanec aimed to explore the relationship between a perceived lack of academic-social interactions in the online setting and learning and self-regulation difficulties experienced during online studying. Students who felt a greater lack of academic-social interactions reported more learning and self-regulation difficulties during online education. The perceived lack of academic-social interactions affects students' perceptions of life disruption caused by the pandemic and adjustment to online studying. Both of these mediators impacted the level of experienced learning and self-regulation difficulties.

In a global setting, little has been written on how the COVID-19 pandemic has affected the Indian student's social skills. There has been little research on the specific implications of social competency among Indian students, despite the tremendous influence of the pandemic

on students' social interactions and relationships. Due to the pandemic's unusual character, it has been challenging to perform research studies in conventional settings, which may be one cause for the need for more studies. It is now difficult to guarantee the validity and dependability of conclusions because the pandemic has disrupted research efforts, including data gathering. Also, it has been tough to perform longitudinal research and assess the pandemic's effect on social competence over time due to its rapid evolution. The emphasis on the epidemic's immediate repercussions, like disruptions to education and mental health problems, may also contribute to why Indian students have little literature on social skills during the pandemic. Although there is no doubt that these are important topics for research, less focus has been placed on the pandemic's social and emotional effects on Indian students. It might be challenging to quantify the pandemic's impact on social competence using conventional research techniques. Social awareness, communication, relationship-building, and conflict resolution are just a few of the many domains that comprise the complex concept of social competence. Research studies, especially those conducted remotely, may take time to fully capture all social competency skills and behaviors.

Most studies on the COVID-19 pandemic's effects on social competence were conducted during the pandemic. The long-term effects of the epidemic on social competence and abilities must therefore be investigated. The magnitude of the pandemic's impact on social competence may not become apparent until long after the outbreak has subsided. The pandemic has disturbed social interactions and relationships in hitherto unheard-of ways. Furthermore, it has been challenging to undertake longitudinal research to follow the pandemic's long-term effects on social competence due to the rapid and unexpected character of the pandemic. During the pandemic, conventional study techniques like in-person interviews and surveys have been complex; distance-gathering methods might only capture part of the spectrum of social competency abilities and behaviors. In addition, the epidemic has produced particular difficulties and pressures that could impact long-term social competence. For instance, prolonged seclusion decreases social engagement, and disrupting daily patterns may affect social skills and relationships. While creating interventions and programs to enhance students' social and emotional well-being, it is crucial to comprehend the pandemic's long-term effects on social competence.

Despite the importance of studying how the COVID-19 pandemic affects social skills, additional longitudinal studies are required to examine the pandemic's long-term effects on interpersonal interactions and social skills. Such research could provide light on the specific difficulties and stressors students faced during the epidemic and guide the creation of interventions and programs to promote their social and emotional well-being.

In conclusion, the dearth of literature on social competency among Indian students during the epidemic emphasizes the importance of more study. Knowing how the pandemic has affected social competence can help with the development of interventions and programs to enhance students' social and emotional well-being. The long-term impacts of the pandemic on social competence should be investigated in future studies, as well as the efficacy of programs designed to foster these skills among Indian students. The need for more reflections on social competency among university students during the pandemic emphasizes the necessity for more investigation. The creation of interventions and programs to assist students' social and emotional well-being can be informed by understanding how the epidemic has affected social competence. Future studies should investigate the pandemic's

long-term consequences on social competence and the efficacy of strategies for fostering these abilities.

***Rationale***

With the pandemic still affecting our daily lives, leading to uncertainty about what will befall us in the future, it is still vital to study how online education has affected students' social competence among students during the lockdown period. Even though the mode of education has shifted from an online platform to an offline one, it is essential to know if students' socially competent behaviours, such as interpersonal communication, prosocial and assertive behaviour and attitudes, still suffer. Socially competent behaviours, such as social and emotional skills inculcated through communication, are vital for students, as research clearly shows it to be linked to academic performance (Durlak et al.,2011; Payton et al., 2008), healthy relationships (Chow et al., 2013; Crawford and Manassis, 2013), and leading to lesser behaviour (Feinberg et al., 2007) and mental health problems (Groeben et al., 2011; Röll et al., 2012).

Social competence inculcates a habit of lifelong learning characterized by behaviours that help an individual function efficiently from both professional and social points of view (Lavall & Aldeguer, 2016). Although the social impact on students due to the pandemic is being studied extensively, there has been a notable lack of literature on this topic. Also, studies in the Indian context are fewer, with more specific interest focusing on school-going students than college and university students. With this goal in mind, the present study will focus on the association between online education and the social competence of Indian college students.

Studying how online learning affects students' social skills can bring light to patterns of social interaction and mutual understanding among them. The lack of social aspects during the pandemic can be understood with the schools and colleges starting anew with offline teaching. It can create new ways to inculcate healthy interactions and social understanding among students.

This can also help in future in case of similar situations where the rapid development in technology and communication can enable more scope for distance learning and work-from-home environments. This study can provide more scope for understanding students' difficulties when they return to offline learning and find ways to overcome them through proper intervention.

***Accessibility, flexibility and convenience are the principal benefits of online education.***

As these factors contribute towards more and more students opting for this mode of education, its association with social competence must be evaluated. Online mode is still preferred and opted for by many educators and students. However, poor infrastructure, network, inaccessibility, unavailability and power can be cons to it (Onyema et al., 2020). These can affect students' social competence, with their academic motivation at stake. Online education can be considered a medium of teaching in the future, highlighting the importance of the present study. A study among Indian college students shows that Indian students are inclined towards online education and learning strategies (Khan et al.,2021). This can help improve online tools' methods for better communication and academic achievement. Analyzing social competence and online education can bring to light this new trend.

Despite the growing trend in online education, a study conducted among students and teachers in India suggests controversial opinions regarding many students and teachers preferring regular classes due to mental and physical discomforts and poor infrastructure. Nevertheless, the same study reports that some students find more attention in online classes (Ambika et al., 2021). The present study also can contribute towards practical applications associated with educational institutions, educators, policymakers and other relevant parties to improve strategies of online tools for education that can also, in better ways, cater to the needs and social competencies of college students.

***Research Objectives***

- O1: To understand if there is an association between the duration of online education and the social competence of Indian college students.
- O2: To understand if different facets of social competence are influenced to different degrees by the duration of online education.

***Research Questions***

- Q1. Is there a significant association between the duration of online education and social competence of Indian college students?
- Q2. Are only specific areas of social competence influenced by the duration of online education?

***Research Hypotheses***

- H0: There exists no association between the duration of online education and the social competence of Indian college students.
- HA: There does exist an association between the duration of online education and the social competence of Indian college students.

## METHODOLOGY

***Participants***

The sampling procedure for this study is convenience sampling. It is a non-probability method of sampling in which the sample is chosen according to the accessibility to the researchers. In this case, geographical proximity is taken into consideration. Thus, the population that the study will focus on is college students from Bangalore City. The sample will be composed of students between the ages of 18-24 who reside in Bangalore and are proficient in English. Students of all genders are included in the sample. The sample will comprise mainly students from a socio-economic status that ranges from upper middle class to middle class.

Access to the internet falls under the implicit criteria as some surveys will be circulated online.

The research was conducted on 270 college students from various courses but only 250 were considered for analysis. College students were selected because people in this age range are moving from childhood to early adulthood; they represent a crucial formative period in human development (Para, 2008). This age group is more likely to go through significant life changes like beginning college, leaving home for the first time, and getting a job. The variables contributing to a successful shift and recovery can be studied during this time because these transformations can be stressful and difficult. As for the exclusion criteria,

students with mental disorders under medications are strictly excluded from the research. Additionally, students from low economic backgrounds and who do not have access to the internet are excluded to maintain the reliability and validity of the research and tests.

The following Inclusion criteria are strictly recorded for research purposes only and were not disclosed at any point in the official documentation or data analysis:

a) Age - 18 to 24 years
b) Gender - Male, Female, and Non-Binary
c) Program - Undergraduate
d) Geographical Stance - Urban Bangalore
e) Implicit Criteria - Access to the Internet
f) Socio-Economic Status - From Upper Middle Class to middle class.

***Research Design***

The study will be a correlational study. The variables concerned are the duration of online education and social competence. The social competence variable has been divided into three components which will be measured separately: interpersonal communication, grit, and prosocial behavior. There are also extraneous variables that have been identified, which include. The extraneous variables are social isolation, support from family, peer support, quality of online education, and socio-economic status.

***Tools and Measures***

This study aims to see if there is a relationship between social skills and the duration of online education. Prosociality, behavior towards academic tasks, and interpersonal competence were identified as three components of social competence. The following measures were utilized for data collection to measure the previously described components: the Prosocialness Scale for Adults (Caprara et al., 2005), the Grit-S Scale (Duckworth et al., 2007), and the Interpersonal Communication Competence Scale. (Rubin & Martin, 1994). The research analysis was done with the help of Jamovi software.

Prosociality Scale, developed by Caprara et al. (2005) in Italy, measures different types of prosocial behavior and sympathetic and/or empathetic reactions. This study will use the scale to measure one of the dimensions of social competence: prosocial behavior. It is a 16-item scale in which participants rate their tendency to engage in prosocial behavior from the following responses: 1 = never/almost never true; 2 = occasionally true; 3 = sometimes true; 4 = often true; 5 = almost always/always true. It will be administered as a pencil-paper test and circulated as an online form. Studies have supported the convergent validity of the scale, and Cronbach's alpha for the scale is 0.94. To establish convergent validity, self-report measures relevant variables such as agreeableness, friendship quality, empathy, and aggressiveness. The reliability and validity of the tool were established first in a sample of 358 young adults from Italy aged between 23-33. Cross-cultural studies have established reliability and validity in representatives from the USA, China, Spain, and Chile in participants between 16-35 years of age. The total sample size was 1630.

The Grit-S is a short version of the Grit Scale developed by Duckworth et al. (2007). It is a measure of persistence and passion for long-term goals. The scale is composed of 8 items, in which participants respond to each item with one of the following responses: Very much like me; Mostly like me; Somewhat like me; Not much like me; Not like me at all. The questionnaire is scored by calculating the sum and finding the mean. Items 1,3,5, and 6 have

reverse scoring. The scale will measure behavior towards homework/academic tasks in this study. The reliability and predictive validity of the scale were established using 4 samples, 2 consisting of the United States Military Academy (2526), 1 from the finalists of National Spelling Bee Contests (175), and the last composed of 139 Ivy League graduates. The measure is valid and reliable, with alphas ranging from 0.73 to 0.83 across the 4 samples.

The Interpersonal Communication Competence Scale was developed by Rebecca M. Rubin and Matthew M. Martin in 1994. It is a self-report measure that examines ten dimensions of interpersonal communication. The scale consists of 30 items to which the participants must respond by choosing one of the following responses: Almost Always, Often, Sometimes, Seldom, Almost Never. The score is determined by calculating the mean of the responses. Items 5, 9, 11, 13, 20, and 30 are reverse-coded. The scale requires that items be jumbled before administration. In our scale, items 5, 4, 11, 22, 10, and 6 are reverse-coded. In this study, the scale will be used to measure interpersonal skills. It will be administered as a paper pencil test and an online questionnaire. The reliability and validity were established in a sample of 477 student volunteers with an average age of 20.92. The Cronbach alpha stands at 0.86. Concurrent validity was established using the Communication and Cognitive flexibility scales.

***Operational definition***

- **Mode of education:** Medium of activity aimed to foster social skills, transmit knowledge and inculcate individualistic character traits.
- **Social Competence:** A construct composed of interpersonal skills, prosocial behavior and behavior towards academic tasks.
- **Interpersonal skills:** As determined by the score on the Interpersonal Communication Competence Scale.
- **Prosocial Behavior:** As determined by the score obtained on the Prosociality Scale for adults
- **Behavior towards academic tasks:** As determined by the score obtained on the Grit scale

***Procedure***

Participants were approached to complete the questionnaires from Bangalore's urban areas. The participants will be briefed on their participation in the research study titled "A study on the association between online education and the social competence of Indian college students" as a part of an undergraduate program. The participation would be entirely voluntary, with the researchers selecting participants based on convenience sampling. After building rapport with the participants and obtaining informed consent, they would be asked to complete the questionnaires, which will take an average of 15-20 minutes. The questionnaires aim to measure social competencies in students after the pandemic and compare them to competence levels before the pandemic, measuring interpersonal skills, prosocial behavior, and students' behavior towards academic tasks. Data collection will mainly focus on individuals in their respective colleges and universities, using questionnaires. In addition, online forms would also be used to obtain data based on participants' and researchers' convenience and accessibility. After the participants complete the questionnaire, they will be informed that they are free to ask any doubts that they may have.

### *Ethical Considerations*

The study is conducted under supervised guidance, adhering to the Ethics of Research Standards of APA format. The samples of the study are included without any discrimination or biases. The investigators will respect the dignity and worth of all people and the rights of individuals to privacy, confidentiality, and self-determination. Before the start of the study, a consent form is to be filled out by the participants to confirm their willingness to participate. The informed consent would include the study's purpose, benefits, risks, and procedure. The research would be conducted professionally, respectfully, and courteously. Any data gathered must be held under data protection regulations and stored securely. To avoid any sort of harm to the participant, confidentiality will be preserved. All data or information from the participants will be collected via paper-pencil tests and online forms. All processes, such as assessing and analyzing the data correctly, will be carried out by the administrators/researchers. The administrators will make sure that data is collected safely and confidentially. This way, the confidentiality of the participants will be maintained, and no potential harm will be done to them. The data is assessed and analyzed without bias. Furthermore, the investigators will have autonomy, meaning they can withdraw from the study whenever it suits them. Participants will not be forced to continue the study if they are uncomfortable.

### *Analysis*

The results obtained from the three measures and their association with the duration of online education by conducting a correlational analysis. In a correlational analysis the unit of measurement is the correlation coefficient. This is a unit that ranges between +1 to -1. It indicates the strength and the direction of the relationship. The closer the unit is to 0, the weaker is the relationship or association between the variables. There are three possible outcomes: positive correlation, negative correlation and no correlation. A positive correlation means that the variables move in the same direction by the same amount and a negative correlation means that they move by the same amount in opposite directions.

All 3 tests use a 5-point Likert scale. The scores will be calculated by summing the responses to each item and calculating the mean. The Grit-S Scale and the Interpersonal Communication Competence Scale have reverse scoring, which must be kept in mind. Then the sample means will be calculated for each assessment.

The scores from each of the measures will be compared to the duration of online education. This will allow for a close understanding of how different facets of social competence are associated with online education and to what extent, that is, if any association exists at all.

## RESULTS

This study is concerned with examining the correlation between social competence and the duration of online education. Social competence was divided into 3 components: prosociality, behaviour towards academic tasks and interpersonal competence. For data collection, the following scales were used to measure the previously mentioned components respectively: The Prosocialness Scale for Adults (Caprara et al., 2005), The Grit-S Scale (Duckworth et al., 2007) and the Interpersonal Communication Competence Scale (Rubin & Martin, 1994). The research aimed at establishing a relationship between the two variables using the scales and data collected on the duration of online education. This chapter will elaborate upon the descriptives of the sample and scores, inferential statistics and discuss the findings in relation to the hypotheses and research questions.

***Research Questions***

Q1. Is there a significant association between the duration of online education and social competence of Indian college students?

Q2. Are only specific areas of social competence influenced by the duration of online education?

***Hypotheses***

- H0: There exists no association between the duration of online education and the social competence of Indian college students.
- HA: There does exist an association between the duration of online education and the social competence of Indian college students

***Sample demographics and coding***

The responses to the questionnaires were collected from university students studying in Bangalore through online and physical forms. Out of the 270 responses that were received 250 responses were considered for the analysis after cleaning the data. The software Jamovi was used for all the analyses. First, the descriptives of the demographic details were established. The demographic details that were collected include age, gender, educational status, year (which provides information as to which year of their degree an individual is currently in) and the duration of online education. It is to be noted that all the data has been coded. In the category of age, the age range of 18-20 was given the code 1 and 21-24 was 2; in gender, male was 1, female was 2 and non-binary was 3; in educational status, undergraduate was 1 and postgraduate was 2; in year 1st to 2nd year was 1 and 3rd to 5th year was 2.

***Table 1 Demographic Details***

| **Variable** | | **Responses** | |
|---|---|---|---|
| **Category** | **Sub-divisions** | **Number (N)** | **Percentage (%)** |
| Age | 18-20 | 115 | 46 |
| | 21-24 | 135 | 54 |
| Gender | *Male* | *96* | *38.4* |
| | *Female* | *149* | *59.6* |
| | *Non-Binary* | *5* | *2* |
| Educational Status | *Undergraduate* | *168* | *67.2* |
| | *Postgraduate* | *82* | *32.8* |
| Year | *1st - 2nd Year* | *144* | *57.6* |
| | *3rd - 5th year* | *106* | *42.4* |
| Duration of Online Education | *1-12 months* | *128* | *51.2* |
| | *12-24 months* | *122* | *48.8* |

*Note: N refers to the number of respondents under each sub division of the concerned demographic variable and % refers to the percentage of respondents under each sub-division.*

***Figure 1.0 Age Distribution***

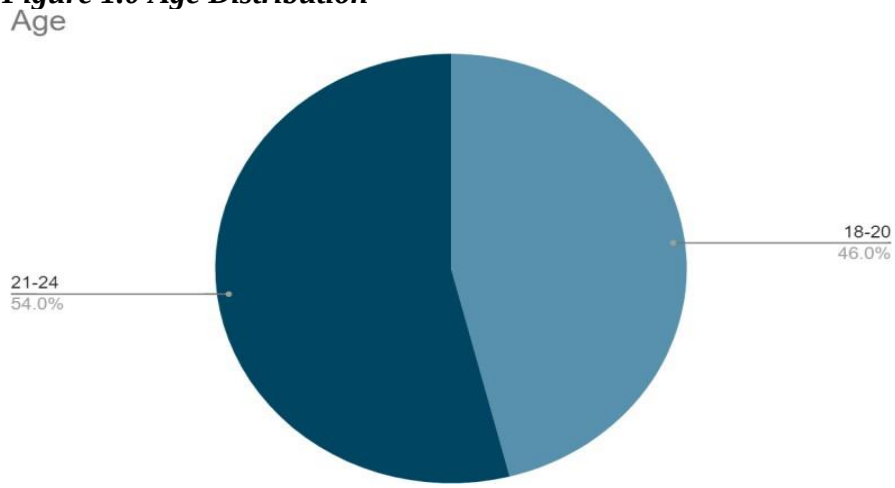



***Figure 1.1 Gender Distribution***

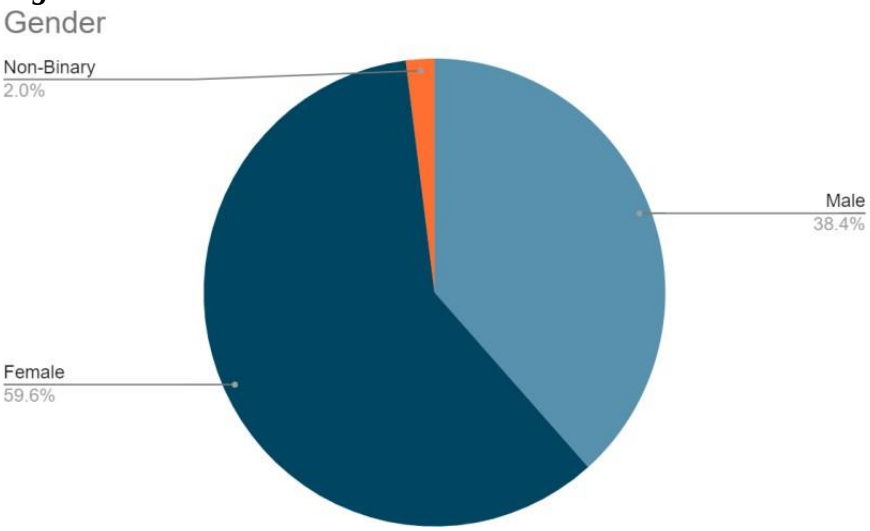



***Figure 1.2 Educational Status***

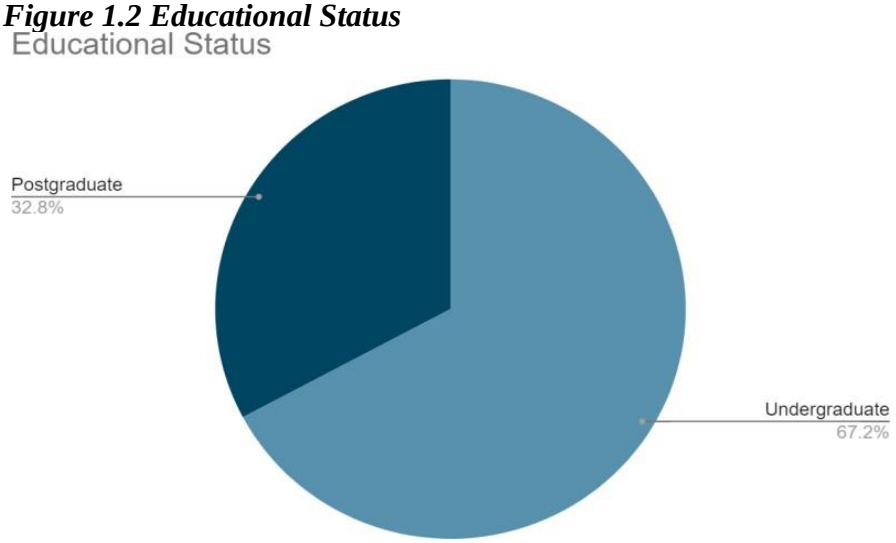


***Figure 1.3 Year Distribution***

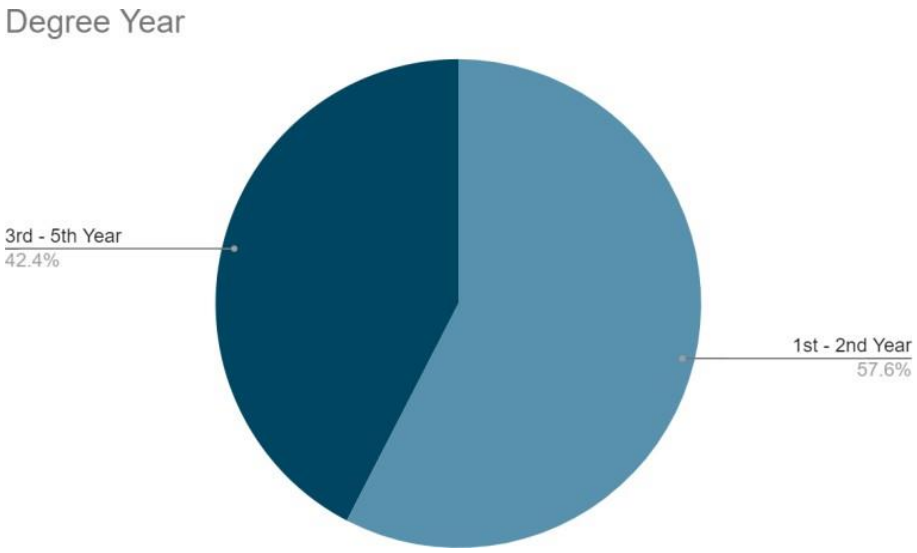
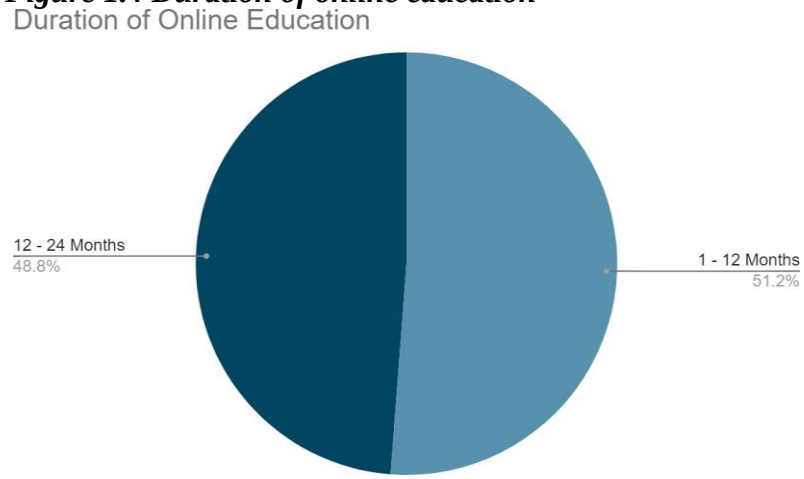



***Figure 1.4 Duration of online education***




The table and the diagrams above depict the demographic details of the sample in this study. The first category is age. Data was gathered from students between the ages of 18 and 24. 46% of the responses came from those aged between 18-20 and 54% from those between 21-24. This means that a majority of the responses came from the former. In terms of gender, the majority of the responses came from females at 59.6%, followed by males at 38.4% and then by non-binary individuals at 2%. While we do recognize the large number of gender identities, for the purpose of this study, only these groups were focused on. The sample was divided into undergraduates and postgraduates under the educational status demographic. A majority of the responses came from undergraduates at 67.2% while the remaining 32.8% came from the postgraduate students. The year measured how many responses came from students who were in different years in their degree. 57.6% of the responses came from students in their 1st or 2nd year and the remaining 42.4% from students studying in either the 3rd, 4th or 5th year. 51.2% of the respondents pursued their education online from anywhere between 1-12 months whereas the remaining 48.8 % studied online for anywhere between 12 to 24 months. Here we see perhaps the most equitable representation from the two categories.

The table and diagrams reveal how the responses are scattered between the demographic variables. The tables and graphs reveal if the scores are concentrated with a particular subdivision within a variable. However, these details alone will not help establish the normality of the sample. For this the descriptives of the sample will also be analysed.

***Table 2 Descriptives of the demographic variables***

| Variables | N | Mean | Median | Mode | S.D | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| Age | 250 | 1.46 | 1.00 | 1.00 | 0.49 | 0.16 | -1.99 |
| Gender | 250 | 1.64 | 2.00 | 2.00 | 0.52 | 0.14 | -1.06 |
| Educational Status | 250 | 1.33 | 1.00 | 1.00 | 0.47 | 0.73 | -1.47 |
| Year | 250 | 1.42 | 1.00 | 1.00 | 0.49 | 0.31 | -1.92 |
| Duration of Online Education | 250 | 1.49 | 1.00 | 1.00 | 0.50 | 0.05 | -2.01 |

*Note: N refers to the number of respondents considered for the study and S.D refers to Standard Deviation. Hereafter, Mean will be denoted as 'M', Median as 'Mdn' and Standard Deviation as 'S.D'.*

The descriptives of the demographics are being discussed to reveal the characteristics of the population. The table depicts the mean, median, mode, standard deviation, skewness and kurtosis of each variable. The skewness and kurtosis helps establish normality of the population. If the skewness lies in between +/- 1 and if the kurtosis lies between +/- 3 then the sample is considered to be normal. If the skewness is greater than +1 then the curve is considered to be positively skewed and if it falls below -1 then it is negatively skewed. Similarly, in terms of kurtosis, if the value is greater than +3 then the curve is said to be leptokurtic with greater distribution of scores towards the tails. If it lies between +/- 3 it is said to be mesokurtic and the scores are evenly distributed between the tails and the peak. Lastly, if the value is less than -3, the curve is platykurtic meaning that the scores are distributed towards the peak.

In table 2, the skewness and kurtosis for all the demographic details help establish normality as skewness lies between +/- 1 and kurtosis lies well within +/- 3 (Pearson, 1905). The median and mode are the same for all categories and the mean for all is close to the median and mode as well, which also acts as proof of normality. The standard deviations across all the dimensions, age (s.d= 0.49), gender (s.d= 0.52), educational status (s.d= 0.47), year (s.d= 0.49) and duration (s.d= 0.50), indicate that a wide dispersion, meaning that the scores are not clustered near the mean.

***Table 3 Descriptives of the 3 scales of social competence***

| Variables | N | Mean | Median | Mode | S.D | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| Prosociality | 250 | 3.80 | 3.81 | 3.75 | 0.55 | -0.21 | -0.11 |
| Grit | 250 | 2.99 | 3.00 | 2.75 | 0.57 | -0.12 | 0.65 |
| Interpersonal Communication | 250 | 100 | 100 | 94 | 11.7 | -0.15 | 0.32 |

*Note: N refers to the number of respondents considered for the study and S.D refers to Standard Deviation.*

The descriptives of the three scales are also given in table 2. While the total scores of the Prosocialness scale for adults and Grit scale is a mean of the responses to all items, the Interpersonal Communication Competence scale requires only the sum for the total score. The skewness and kurtosis of all 3 scales help establish normality. The highest possible scores for prosociality and grit scale is 5. The mean score for prosociality lies at 3.81 which can be rounded off to 4. This tells us that on average the respondents did consider themselves to be quite prosocial with the maximum score being 4.94. The mean score of the Grit sale is 2.99 or 3.00.

This falls right in the middle, which indicates that the respondents do not consider themselves to hold a particularly positive or negative attitude towards academic tasks. The mean score of the ICCS is 100. The lowest score attainable is 30 while the highest is 150 with the average being 90. Considering this, the sample does lie above the average. The standard deviation scores for all scales, prosocialness scale (sd= 0.55), grit-s scale (sd= 0.57) and ICCS (sd=11.7), indicate that the scores are dispersed from the mean. This can be interpreted to understand that the majority of the scores are not clustered near the mean.

***Table 4 Scores of the dimensions of Interpersonal Communication Competence Scale***

| Dimension | N | Mean | Median | Mode | S.D | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| Self-Disclosure | 250 | 8.69 | 9.00 | 9.00 | 2.55 | -0.125 | -0.428 |
| Empathy | 250 | 10.7 | 11.00 | 12.00 | 2.04 | -0.289 | 0.043 |
| Social Relaxation | 250 | 10.00 | 10.00 | 10.00 | 1.98 | -0.138 | 0.114 |
| Assertiveness | 250 | 9.53 | 10.00 | 9.00 | 2.33 | -0.105 | 0.124 |
| Altercentrism | 250 | 10.30 | 10.00 | 10.00 | 1.75 | -0.187 | 0.647 |
| Interaction management | 250 | 9.80 | 10.00 | 11.00 | 0.49 | -0.335 | 0.909 |
| Expressiveness | 250 | 9.64 | 10.00 | 10.00 | 2.24 | -0.354 | -0.081 |
| Supportiveness | 250 | 10.90 | 11.00 | 12.00 | 1.91 | -0.134 | -0.111 |
| Immediacy | 250 | 11.20 | 11.00 | 11.00 | 2.12 | -0.234 | -0.433 |
| Environmental Control | 250 | 9.51 | 10.00 | 10.00 | 1.97 | -0.331 | 0.522 |

*Note: N refers to the number of respondents considered for the study and S.D refers to Standard Deviation.*

Table 4 displays the measures of central tendency, as well as the standard deviation, maximum and minimum scores and the skewness and kurtosis of the 10 dimensions of the Interpersonal Communication Competence Scale. The skewness of all 5 dimensions in this table are within the range of -/+ 1 which means that the data is not skewed. The kurtosis for all 5 are within the range of -/+ 3. Taken together this implies that the data in the table is normally distributed. As the data is normally distributed, the measure of central tendency will be mean. In all dimensions the maximum attainable score is 15 and the minimum is 3, with the average being 9.

In self-disclosure, the mean lies at 8.69 which can be rounded off to 9. This means that the sample do not consider themselves to be too open or closed off in revealing information about themselves. In the empathy dimension, the mean is 10.7, suggesting that the respondents believed that they were more empathetic on average. The mean for social relaxation is 10. This lies slightly above the average point of 9. Social relaxation is an index for low anxiety in everyday interactions. The mean for assertiveness is 9.53, which means on average the sample feels that they do stand up for themselves. Altercentrism is a measure

of the level of interest in or attention paid to others. The mean is 10.3, which means on average, the sample does show interest in others.

Interaction management measures the individual's ability to navigate through conversations, this includes taking turns while talking, shifting between topics and so on. Here the mean is 9.8 which suggests that the sample overall do not believe themselves to be particularly skilled or unskilled in this dimension. In expressiveness, which involves non-verbal communication, the mean is 9.64. In supportiveness the mean is 10.9 which can be rounded off to 11, showing that the population believes that they are egalitarian and supportive of others.

Immediacy measures how approachable an individual is. The mean here is 11, which shows that the sample considers themselves to be approachable and available for conversation.

Environmental control shows an individual's ability to accomplish their predetermined goals for which the mean is 10, showing that the sample believes in their success in this dimension.

***Inferential Statistics***

This section will present the correlation between the duration of online education and the 3 facets of social competence: prosocial behavior, behavior towards academic tasks and interpersonal competence. As the interpersonal competence scale has 10 dimensions, the correlation between the duration and each of those dimensions will also be explored. As the population was normal parametric tests were used to assess correlation, namely Pearson's correlation test. The correlation is denoted by the letter 'r' and a value between +/- 1. This is the correlation coefficient (Akoglu, 2018).

***Table 5 Correlation between prosociality and duration of online education***

| | | **Prosociality** | **Duration** |
|---|---|---|---|
| Prosociality | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.023 | - |
| | p-value | 0.717 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 2 Correlation between prosociality and duration of online education***

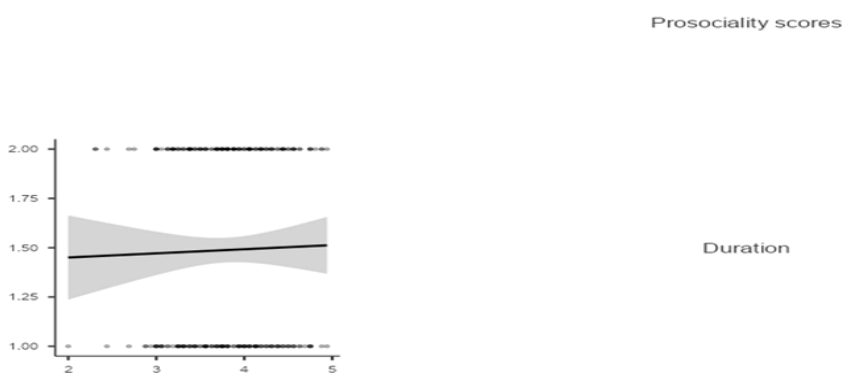


Table 5 shows that the two variables, prosociality and duration of online education have a correlation coefficient of 0.023. This indicates that there is either extremely weak positive correlation or almost no correlation as indicated by figure 5 as well. The p-value of 0.717 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 6 Correlation between scores on the grit-s scale and duration of online education***

| | | Grit Scale | Duration |
|---|---|---|---|
| Grit Scale | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.021 | - |
| | p-value | 0.740 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 3 Correlation between scores on the grit-s scale and duration of online education***

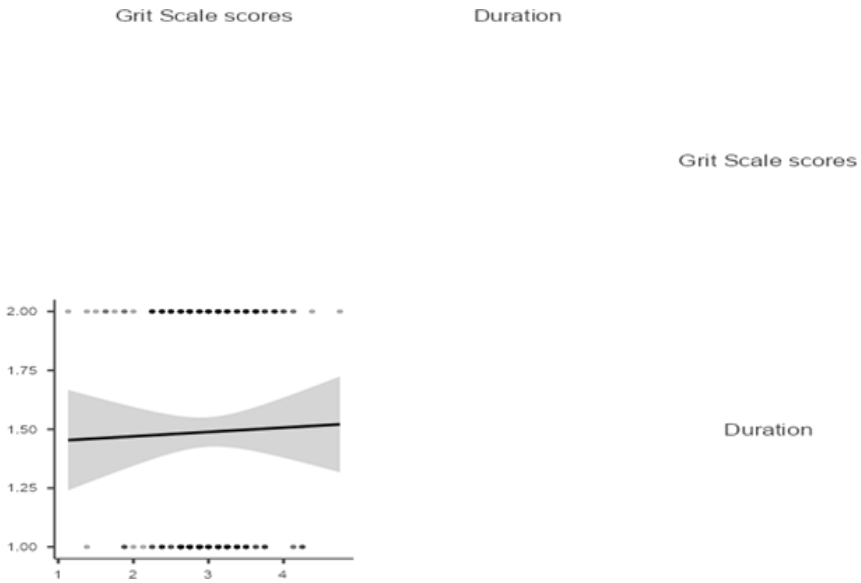



Table 6 shows the correlation between the scores on the grit-s scale and duration of online education. Pearson's r of 0.021 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 6. The line of correlation is almost straight but slightly tilted upwards confirming that there exists a negligible positive correlation. The p-value of 0.740 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 7 Correlation between scores on the Interpersonal Communication Competence Scale and the duration of online education***

| | | ICCS | Duration |
|---|---|---|---|
| ICCS | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.061 | - |
| | p-value | 0.339 | - |

*Note. * p < .05, ** p < .01, *** p < .001. ICCS stands for Interpersonal Communication Competence Scale.*

***Figure 4 Correlation between scores on the Interpersonal Communication Competence Scale and the duration of online education***

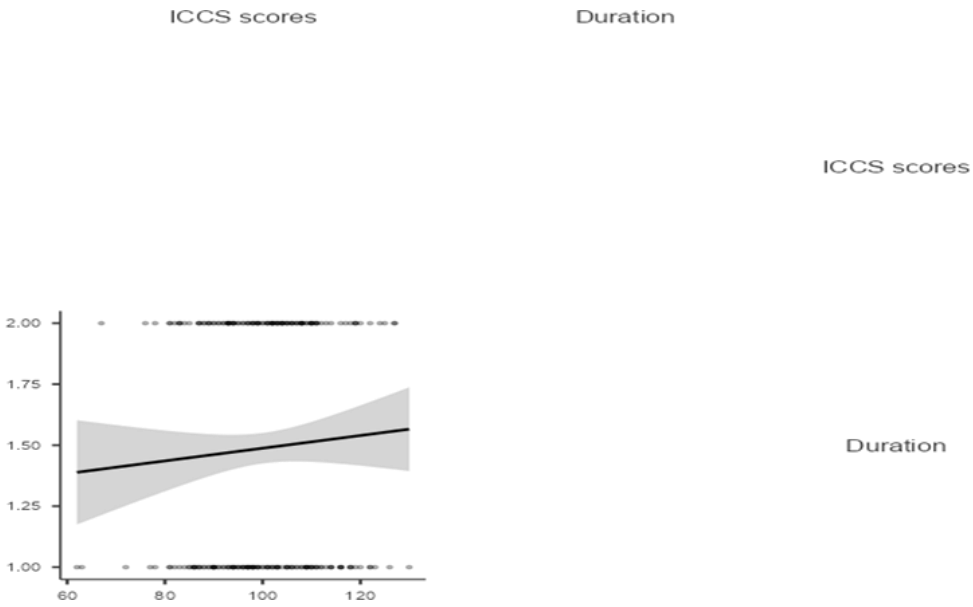



Table 7 shows the correlation between the scores on the interpersonal communication competence scale and duration of online education. Pearson's r of 0.061 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 7. The p-value of 0.339 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.0 Correlation between self-disclosure scores and the duration of online education***

| | | **Self-Disclosure** | **Duration** |
|---|---|---|---|
| Self-disclosure | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | -0.033 | - |
| | p-value | 0.606 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.0 Correlation between self-disclosure and the duration of online education***

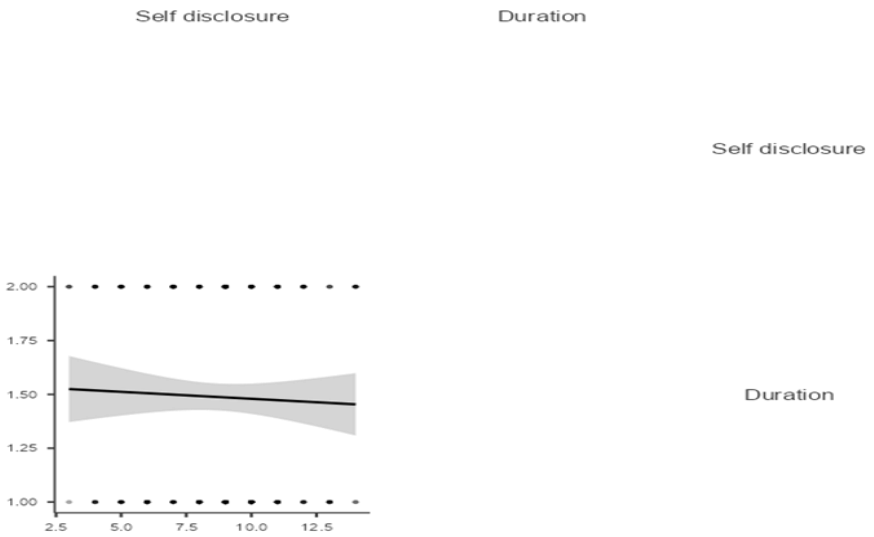


Table 8.0 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of -0.033 indicates once again that there is either extremely weak negative correlation or almost no correlation as corroborated by figure 8.0 in which the line of correlation is sloping downwards. The p-value of 0.606 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.1 Correlation between empathy and the duration of online education***

| | | **Empathy** | **Duration** |
|---|---|---|---|
| Empathy | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.067 | - |
| | p-value | 0.289 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.1 Correlation between empathy and the duration of online education***

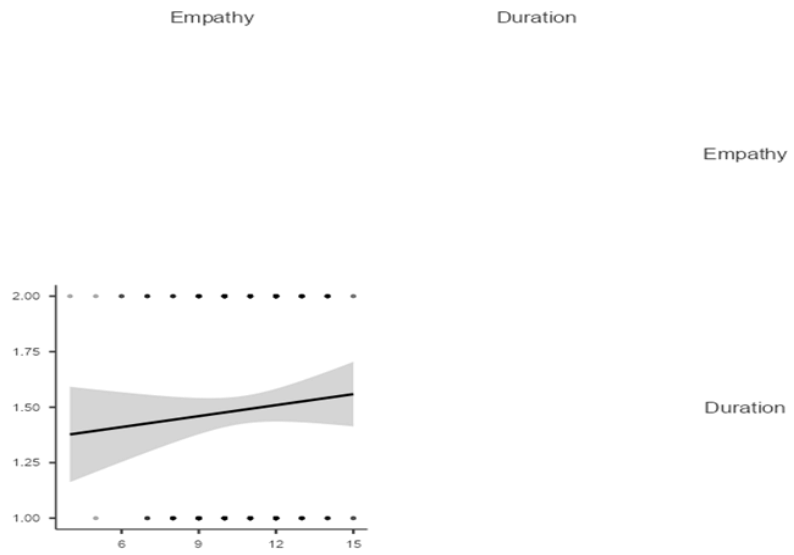



Table 8.1 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.067 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.1 in which the line of correlation is slightly sloping upwards. The p-value of 0.289 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.2 Correlation between social relaxation and the duration of online education***

| | | **Social Relaxation** | **Duration** |
|---|---|---|---|
| Social relaxation | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.043 | - |
| | p-value | 0.499 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.2 Correlation between social relaxation and the duration of online education***

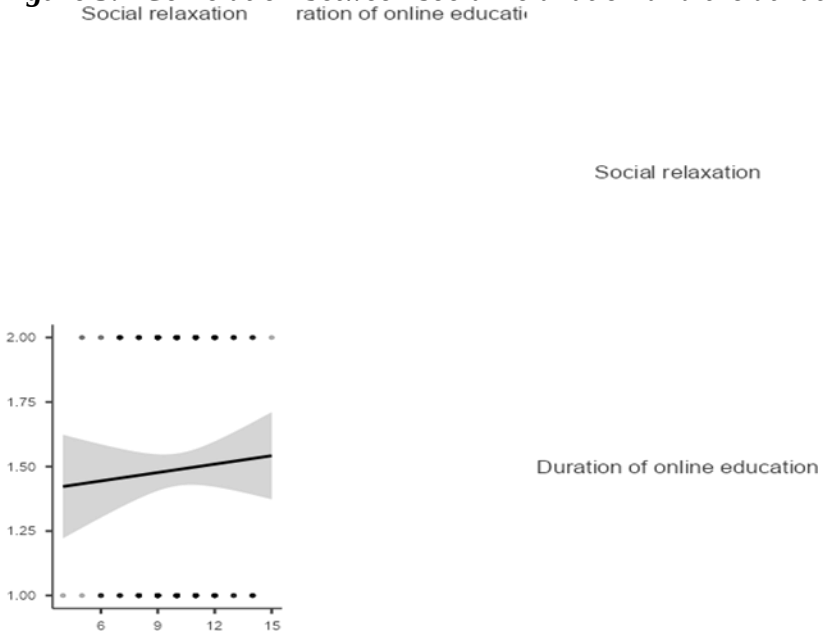



Table 8.2 shows the correlation between the total scores of the social relaxation dimension and duration of online education. Pearson's r of 0.043 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.2 in which there is a slight upward slope. The p-value of 0.499 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.3 Correlation between assertiveness and the duration of online education***

| | | **Assertiveness** | **Duration** |
|---|---|---|---|
| Assertiveness | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.069 | - |
| | p-value | 0.275 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.3 Correlation between assertiveness and the duration of online education***

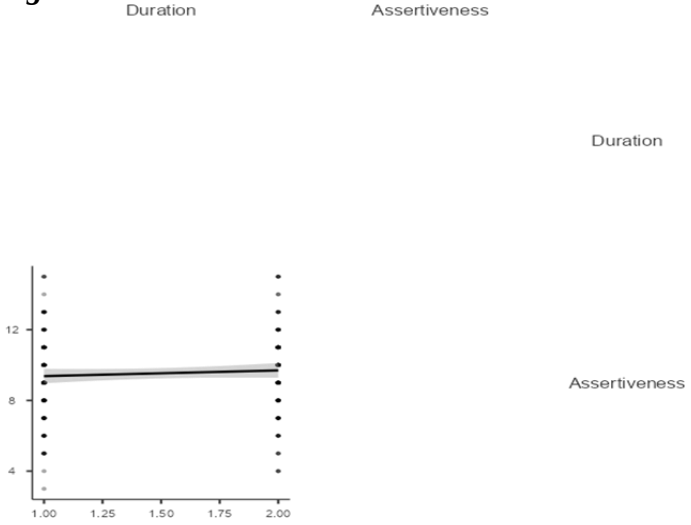


Table 8.3 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.069 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.3. The line of correlation is almost parallel to the x-axis. The p-value of 0.275 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.4 Correlation between altercentrism and the duration of online education***

| | | **Altercentrism** | **Duration** |
|---|---|---|---|
| Altercentrism | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.080 | - |
| | p-value | 0.210 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.4 Correlation between altercentrism and the duration of online education***

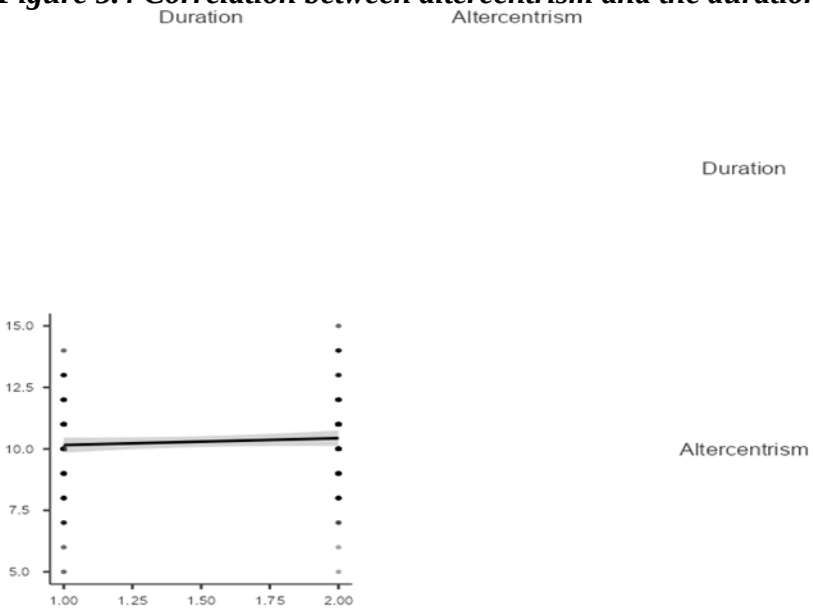



Table 8.4 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.080 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.4. The line of correlation is nearly parallel to the x-axis except for a slight upward slope. The p-value of 0.210 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.5 Correlation between interaction management and the duration of online education***

| | | **Interaction Management** | **Duration** |
|---|---|---|---|
| Interaction management | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | -0.047 | - |
| | p-value | 0.460 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 5.5 Correlation between interaction management and the duration of online education***

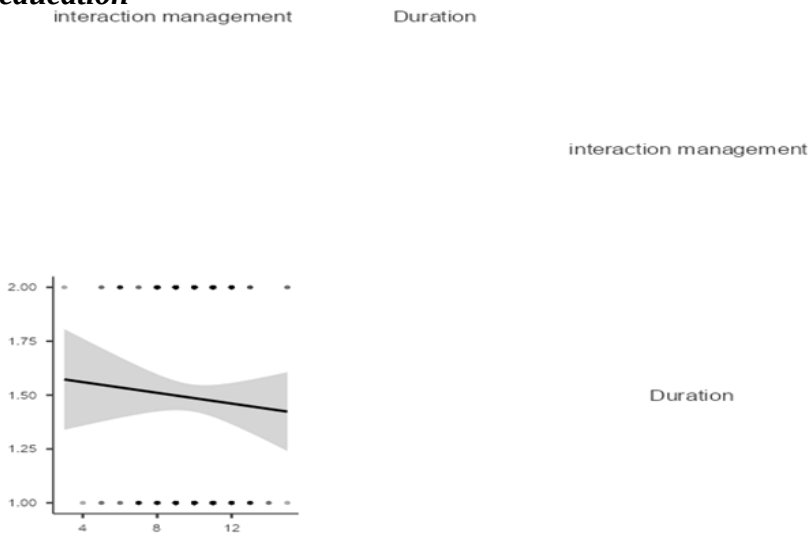



Table 8.5 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of -0.047 indicates once again that there is either extremely weak negative correlation or almost no correlation as corroborated by figure 8.5.

There is a downward slope showing the negligible negative correlation. The p-value of 0.460 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.6 Correlation between expressiveness and the duration of online education***

| | | **Expressiveness** | **Duration** |
|---|---|---|---|
| Expressiveness | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.052 | - |
| | p-value | 0.217 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 8.6 Correlation between expressiveness and the duration of online education***

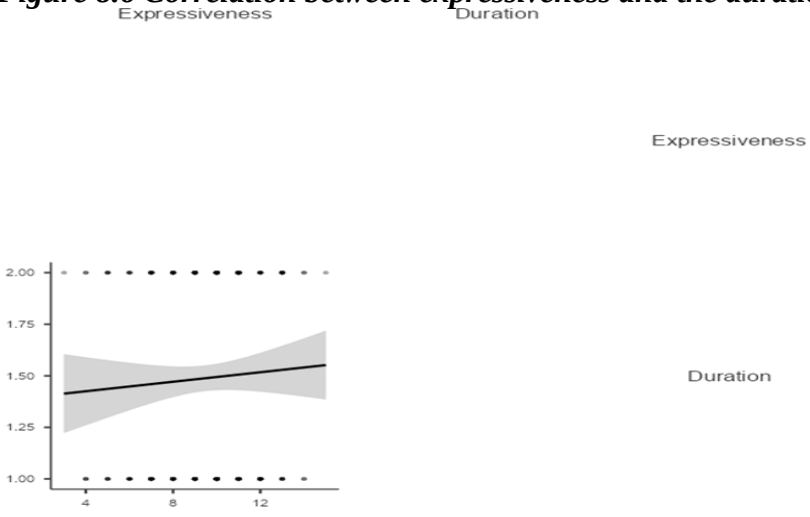


Table 8.6 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.052 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.6 in which there is a slightly upward sloping line of correlation. The p-value of 0.217 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.7 Correlation between supportiveness and the duration of online education***

| | | **Supportiveness** | **Duration** |
|---|---|---|---|
| Supportiveness | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.052 | - |
| | p-value | 0.415 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 8.7 Correlation between supportiveness and the duration of online education***

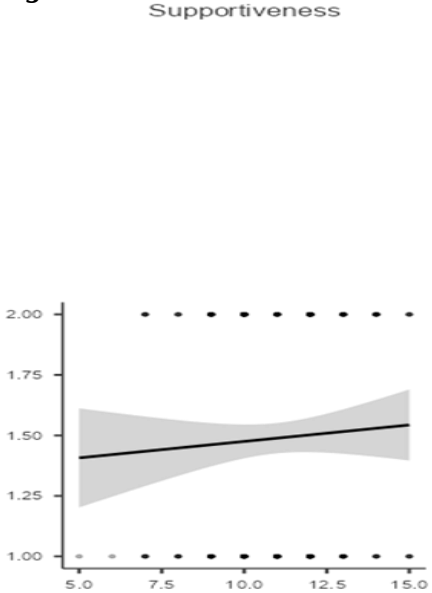




Table 8.7 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.052 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.7 in which the line of correlation is sloping slightly upward. The p-value of 0.415 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.8 Correlation between immediacy and the duration of online education***

| | | **Immediacy** | **Duration** |
|---|---|---|---|
| Immediacy | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | 0.085 | - |
| | p-value | 0.181 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 8.8 Correlation between immediacy and the duration of online education***

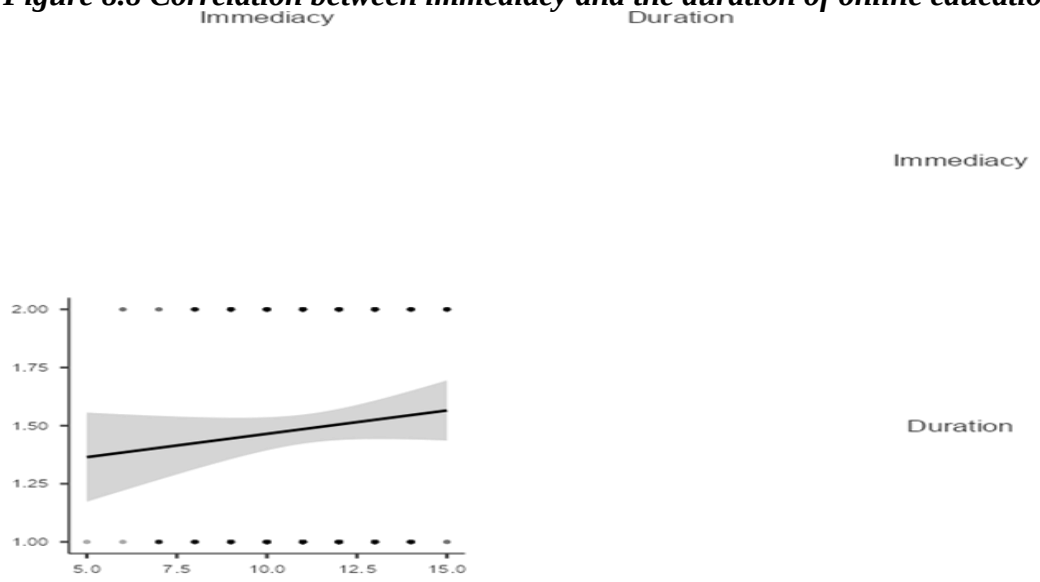



Table 8.8 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of 0.085 indicates once again that there is either extremely weak positive correlation or almost no correlation as corroborated by figure 8.8. The p-value of 0.181 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Table 8.9 Correlation between environmental control and the duration of online education***

| | | Environmental Control | Duration |
|---|---|---|---|
| Environmental Control | Pearson's r | - | |
| | p-value | - | |
| Duration | Pearson's r | -0.018 | - |
| | p-value | 0.775 | - |

*Note. * p < .05, ** p < .01, *** p < .001*

***Figure 8.9 Correlation between environmental control and the duration of online education***

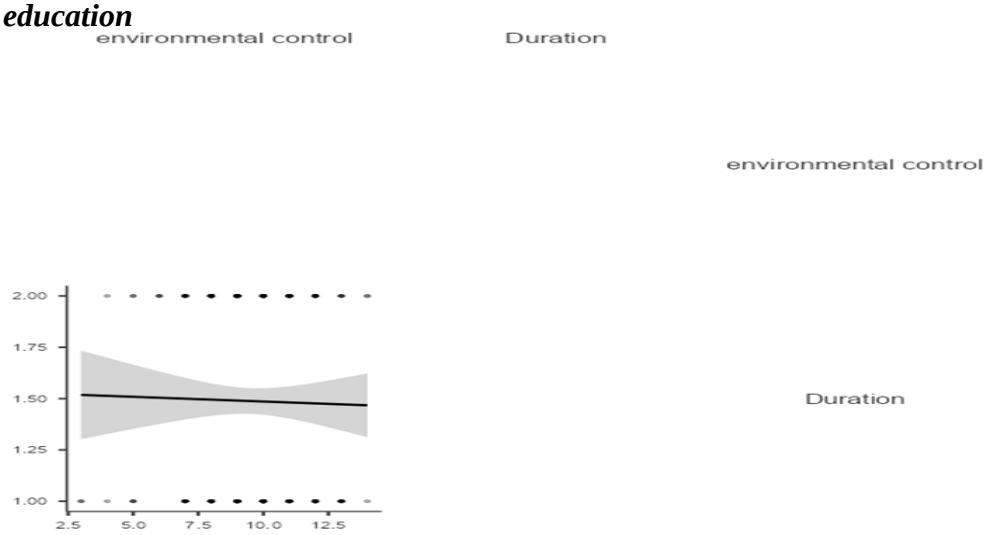


Table 8.9 shows the correlation between the total scores of the self-disclosure dimension and duration of online education. Pearson's r of -0.018 indicates once again that there is either an extremely weak negative correlation or almost no correlation as displayed in figure 8.9 within which the line of correlation is almost parallel to the x-axis, and is sloping downwards slightly.

The p-value of 0.775 is above the level of significance which is 0.05. This means that there exists no significant correlation between the two variables.

***Findings***

From all the tables from 5.0 to 8.9 it has been observed that all the values for the level of significance or p value are above the level of significance, which is 0.05. This reveals that results are not statistically significant. In light of this the null hypothesis will be accepted which states that there exists no significant correlation between the duration of education and social competence of Indian university students. The alternate hypothesis (HA) has been rejected.

*Research Question 1*

Q1. Is there a significant association between the duration of online education and social competence of Indian college students?

Pearson's r for all the aspects of social competence, prosocial behaviour, behaviour towards academic tasks and interpersonal competence all show that there exists no significant association between social competence and the duration of online education. All of the values fall within the range of 0.00 and +/-0.2, which can be interpreted as showing no correlation to extremely weak positive/negative correlation. The p-values for all dimensions further solidify that there exists no significant correlation between the two variables.

*Research Question 2*

Q2. Are only specific areas of social competence influenced by the duration of online education?

The results reveal that none of the areas of social competence were significantly influenced by the duration of online education.

## DISCUSSION

This chapter will present the discussion of the results of the study. Each finding will be discussed in relation to relevant theories and literature on the topic.

The goal of this study was to determine if there exists a correlation between online education and the social competence of university students. While studies have found an association between social competence and online education, this study aims to understand if that relationship carries forward or stays relevant post-pandemic, after the mode of education has been switched back to offline (Azmad & Ahmad, 2022). In this study social competence was further divided into three components: attitude towards academic tasks, interpersonal competence and prosocial behaviour. The basis for this division lies in Gresham's (1988) theory of social competence and the Adolescent Multidimensional Social Competence Questionnaire, both of which include the following components (Gómez-Ortiz et al., 2017). In order to determine this, the software jamovi was used.

It was hypothesized that the social competence of the students would lower with the increase in the duration of online education. For the purpose of this study 3 separate scales were used to measure the three facets of social competence. The scales are: The Prosocialness Scale for Adults (Caprara et al., 2005), The Grit-S Scale (Duckworth et al., 2007) and the Interpersonal Communication Competence Scale (Rubin & Martin, 1994). The findings will now be interpreted in the light of the research questions this study hoped to address. The descriptives will be discussed before addressing the research questions and hypotheses.

***Descriptives***

The data was gathered from Indian university students from Bangalore between the ages of 18-24, belonging to middle class families. Among the 250 valid responses, the majority of the responses came from females, with 149 responses being from this category. The results also show that the majority of the responses, 168 responses precisely, came from undergraduate students largely. This may also be due to the sampling method used and the fact that the researchers had easier access to undergraduate students. The same reasoning can stand as an explanation for why the majority of the responses came from participants between the ages of 18-24. The descriptives of the sample were collected in order to determine how representative it is of the population. As participation was voluntary, the sampling techniques used were both convenience and self-selection or volunteer sampling, and this too can impact how representative the sample is. For example, while the study hoped to represent people of different gender identities, only 5 non-binary individuals volunteered to take part in the study.

The descriptives of the scores of the different scales show that the participants did consider themselves to be prosocial (mean- 3.81) and interpersonally competent (mean- 100) on average. On the other hand, the sample held a rather neutral attitude towards academic tasks (mean-2.99). They did not view themselves to have too much or too little grit. The standard deviation across all the different dimensions show that there is a wide dispersion, meaning that the scores are not clustered near the mean.

The Interpersonal Communication Competence Scale has 10 dimensions and, the descriptives for these dimensions will be elaborated upon as well. The maximum attainable score is 15 and the minimum is 3 across all dimensions. In self-disclosure, the mean lies at 8.69, indicating that the sample does not consider themselves to be too open or closed off in revealing information about themselves. In the empathy dimension, the mean is 10.7, suggesting that the respondents believed that they were more empathetic on average. Low anxiety in daily interactions is measured by the social relaxation dimension, for which the mean is 10. The mean for assertiveness is 9.53, which means that on average, the sample feels that they do stand up for themselves. Altercentrism is a measure of the level of interest in or attention paid to others. The mean is 10.3, which means on average, the sample does show interest in others.

The capacity to manage discussions, which includes switching between topics and taking turns speaking, is measured by interaction management. Here, the sample does not view itself as exceptionally competent or inept in this dimension, as indicated by the sample's mean of 9.8. The mean score for expressiveness is 9.64, which indicates nonverbal communication. The sample believes that they are egalitarian and sympathetic people, as shown by the sample's mean of 10.9 in the supportiveness dimension. Immediacy is a measure of approachability. The mean here is 11, which shows that the sample considers

themselves to be approachable and easy and open to communication. The ability to achieve predefined goals is demonstrated by environmental control, for which the mean value is 10, indicating that the sample believes they have achieved success in this dimension

**Research Question 1**

Q1. Is there a significant association between the duration of online education and social competence of Indian college students?

This question aimed to explore if social competence as a whole had been impacted by the duration of online education. For this a correlational analysis was taken up using Pearson's correlation. Pearson's correlation is used as the sample in this study is normal. The analysis found that there was no significant association between the duration of online education and social competence.

Between the variables of duration of online education and prosociality, the p-value is 0.717 and Pearson's r is 0.023 as shown in Table 5. This shows that a very weak positive correlation exists but it is not significant as the p-value is above the level of significance which is 0.05. For grit, the Pearson's r value is 0.021 while the p-value was 0.740 as displayed in Table 6. Here again there is an extremely weak positive correlation that is not significant as indicated by the p-value. Finally, in the interpersonal communication facet, the Pearson's r value is 0.061 while the p-value is 0.339 as shown in Table 7. Here too there is an extremely weak positive correlation which is not significant. What is interesting about the results is that while the alternate hypothesis predicted a negative correlation, all 3 facets showed an extremely weak positive relationship. While the correlation is not significant it is interesting to see that the results tilt towards the other direction. The 10 dimensions with the interpersonal communication facet of social competence will be elaborated upon in the interpretation of the second research question.

**Research Question 2**

Q2. Are only specific areas of social competence influenced by the duration of online education?

As social competence is such a vast concept, the study also aimed to determine if only certain facets of social competence are impacted. As concluded from the above interpretation, all the facets show an extremely weak positive correlation that is not significant due to the fact that the p-values of all lie above the level of significance which stand at 0.05. Although insignificant, a few of the r values within the 10 dimensions of the Interpersonal Communication Competence Scale show an extremely weak negative correlation as well. Out of the 10 dimensions, self- disclosure, interaction management and environmental control showed an extremely weak negative correlation while the rest of the scores displayed an extremely weak positive correlation. As depicted in 8.0, the Pearson's r value for self-disclosure lay at -0.033. For interaction management, the r value is -0.047 as shown in table 8.5 and for environmental control it is -0.018 as shown in table 8.9.

While there may be differences in the direction of the relationship between the variables, it is still too weak and insignificant to be considered for the purpose of this study.

The results led to the acceptance of the null hypothesis which states that "There exists no association between the duration of online education and the social competence of Indian college students".

There is a dearth of literature on this topic due to its nascent nature. Most of the studies were conducted during the pandemic as well. Many reported on the importance of social interaction and social presence in the classroom as a booster of communication and learning. According to the social presence theory, social presence impacts the quality of communication and information transmission (Chang & Hsu, 2016). Implying that physical presence is crucial to the processes of learning and communicating. In their study, Wut and Xu (2020) found that the lack of social presence was a barrier to teamwork and peer learning.

However, there also exist studies that report upon a considerably negligible impact of online education on the student's social skills overall. For example, one study by Lestari et al. (2021), shows that about 72.96 met the social skills indicator from an open-ended questionnaire.

This high number shows that the student's social skills were mostly unimpacted by the shift to online education. However, significant dips are realised in peer relation (67.74%) and assertive skills indicators (58.65%) showing that some facets of social competence do remain impacted by this shift to online education.

Studies have shown that students feel isolated and alienated in the online platform and therefore reduce their academic participation. This may be due to the unnatural nature of communication, the lack of non-verbal cues and even technical aspects such as low internet speed. Studies show that students have reported feeling dissatisfied with their informal interactions online, stating that building relationships were difficult online (Horváth et al., 2022) (Azmad & Ahmad, 2022). Students reported that the workload increased significantly during the pandemic. This led to students feeling overwhelmed and losing motivation (Szopiński & Bachnik, 2021). This shows that online education did have a direct impact on the grit of the student. Even the descriptives of the score on the grit scale show that post-pandemic, students do not consider themselves to be especially hardworking. While reduced social competencies are visible in the online platform, according to our study, they do not carry forward to the offline platform.

It is difficult to discuss the findings in relation to existing literature due to the lack of literature on the topic. The existing literature primarily focuses on school-going children and does not expand upon the social competencies of university students post-pandemic. However, even amongst the literature gathered, most indicate a certain degree of association between the variables of online education and social competence. An exploratory study conducted by Rashid et al. (2022), shows that students reported various symptoms of social anxiety and were uncomfortable attending social events held by their college. They reported difficulty in making friends as well. Therefore, it is interesting that the results of this study show no correlation between them.

The lack of correlation may be explained by factors such as time. As the data was collected in January 2023, almost a year had passed since offline classes had resumed. While one to two years of online education could have a significant impact on social competency, it may be true that the students have gotten accustomed to socializing and participating actively once again. The measures used are also self-report measures. The self-report may explain the disparity between what was observed and what was finally found as a result of the study. The students may also evaluate themselves to have higher social competency than is true.

This coincides with the finding by McCroskey and McCroskey (1988). They found that self-report may not be the best measure for communication competence. This is given as only a plausible explanation due to the fact this research was taken up due to the general lack of participation and prosocial behavior that was observed in the classroom. It is not a concrete reason for why the null hypothesis was accepted. Lastly, most of the studies were conducted using interview schedules or questionnaires that were not standardized. This could be another explanation for.

## CONCLUSION, LIMITATIONS & IMPLICATIONS

This research proposed a correlational study between the duration of online education and the social competence of Indian college students. For the purpose of this study social competence was divided into 3 facets, namely, prosocial behavior, behavior towards academic tasks and interpersonal competence. The study made use of three questionnaires to measure the different facets which include: The Prosocialness Scale for Adults (Caprara et al., 2005), The Grit-S Scale (Duckworth et al., 2007) and the Interpersonal Communication Competence Scale (Rubin & Martin, 1994). There are also extraneous variables that have been identified which include social isolation, support from family, support from peers, quality of online education, and socio- economic status. Convenience sampling was used for which the sample is chosen according to the accessibility to the researchers. In this case, geographical proximity was taken into consideration. Thus, the population that the study focused on were the college students from Bengaluru, specifically the urban areas. The participants were approached to complete the questionnaires. During the processes of data collection, coding and analysis the ethical guidelines as specified by the APA were followed.

Our findings led to the acceptance of the null hypothesis which states that “There exists no association between the duration of online education and the social competence of Indian college students”. The literature that was available mostly focuses on school-age children and does not go farther into the social skills of post-pandemic university students. This contradicts the majority of the research that shows a relation between social skills and competence and online education. Time-related considerations, for example, may help to explain the lack of association. Additionally, it's possible for students to overestimate their own social competence.

owing to the fact that this research was undertaken due to the general lack of engagement and prosocial activity that was observed in the classroom.

### *Limitations*

There are limitations to be considered in this study. One limitation of the study is the sampling bias. The validity of this study may be limited by sampling bias, which occurs when the sample is not representative of the population. For instance, if the sample only consists of students from certain regions or institutions, the study's findings may not be applicable to the broader population of Indian college students. Another limitation of this study could be self- selection bias. Self-selection bias can occur when participants are allowed to choose whether to participate in the study or not, and it can limit the study's external validity. In this case, students who are more socially competent or less socially competent may be more likely to participate in the study, which can actually lead to bias in the results. In this study, participation was completely voluntary. They were completely free to quit participation if they felt uncomfortable at any point in time.

Another limitation that is recognized is that this study may have limited generalizability if the findings of the study only apply to a specific population or context. This is because the findings may not be applicable to other populations or contexts. Here in our study, even though the scales used are not culture-specific, the samples were collected mainly from the urban population of Bangalore, which is again specific to a region. This can actually limit the scope of generalizability. Here we have actually used standardized measures of social competence and online education that have been validated across different contexts. So this issue is addressed to a certain extent. However, one possibility to improve the generalizability of the study's findings was that we could recruit a diverse range of participants with different backgrounds and from different regions to increase the external validity of the study.

Another limitation can be that the study can become time-bound as the study was conducted after the COVID-19 pandemic when everything is back to normal from online. The results may differ in findings compared to studies conducted during the pandemic, as the pandemic may have unique effects on social competence and online education, which may have reduced at a later stage. To address this, we could consider conducting longitudinal studies that follow participants over time to examine how changes in online education and social competence are related. We could also consider conducting comparative studies that examine the effects of online education on social competence before, after and during the pandemic.

***Implications***

This research aimed at adding to the literature on the topic. As mentioned previously, there is a severe lack of studies on the long-term impacts of the pandemic on the social competence of students. It can also inspire future research. The study may be limited by its quantitative nature. A qualitative study into the same may offer deeper insights into the struggles of university students after they returned back to online education. Situations such as the COVID-19 Pandemic are unpredictable. Studies such as these, add to a more holistic viewpoint of online education. The study could also provide insight into the impacts of alternate forms of education such as distance education. It could inspire future research into how to maintain social competency while pursuing more convenient and remote forms of learning. The research also adds to the body of literature in the Indian context.

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