# Development of the Adolescents' Communicative Culture in the Context of Digitalization of Additional Education

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**Abstract**

In the era of digitalization of education and economy and the development of artificial intelligence, adolescents appear highly competitive compared with other generations in understanding digital technologies, acquiring expertise, and mastering modern means of communication, which normally causes intergenerational conflicts and the loss of an adult's personal and functional authority. The aim of this research was to develop and test a model for developing adolescents' communicative cultures in an institution of additional education. The research emphasizes the significance of personality-oriented, interactive-communicative, and cultural approaches and conducts a comparative analysis of the sources. Methodologically, the study relies on a quantitative method with primary sources. Besides, the findings of the study contribute to the existing limited stress on the importance of adolescents' communicative cultures from the perspective of the digitalization of additional education. The study finds that the use of digital options in education has reduced social interaction among students. However, the students prefer to use digital methods of learning as they find them more convenient for communication. Therefore, the digital communication culture has high potential in the educational sector. The findings are novel as this study is one of the few recent studies that examined how communicative culture has transformed due to digital means in education.

## 1- Introduction

Over the past decade, digitalization has shaped adolescents' lives more diversely. The past decade showed a remarkable shift in technology. In 2011, smartphone users exceeded personal computer users, and this trend is continuing with advanced technological methods. Adolescents use more smartphones than the adult population; according to 2018

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reports, 89% of teens, from thirteen to seventeen, own smartphones, and the number is twice compared of 2012. The ongoing expansion of smartphones has led to a similar development of various digital communication platforms, mainly text messages and social media platforms. It has been reported that the number of adolescents who use social media multiple times a day has increased from 2012 to 2013, which means the number has doubled from 34% to 70%. Smartphones are considered a central hub for communication for both adolescents and emerging youth as well as adults. As digitalization is emerging at a fast pace, researchers are analyzing how it can help shape the development of adolescents' communicative culture [1]. Yau et al. [2] articulated that adolescents are so obsessed with digitalization or smartphones that most of them keep their phones in ring or vibration mode to avoid any notifications, as shown in Figure 1. In modern society, a person's achievements and self-actualization are correlated with his ability to develop useful contacts and perform the most productive communication and interaction with people to reach personal goals. Communication is known as the only way to interact with people to exchange information, expressions, shape beliefs, and have a worldview. Communication is the most important aspect of a person. The effectiveness of a person's communication and the way it is implemented shape a person as an individual in contrast to personal, professional, and social arenas. Many researchers have conducted theoretical research on communicative culture and have used different approaches toward communicative culture. Communicative behavior features are mainly reflected in the communicative culture of adolescents [3]. However, there are particular traits of the individual that develop due to the influential impact of upbringing, character, hereditary factors, and the cognitive, analytical, and social growth of the individual.
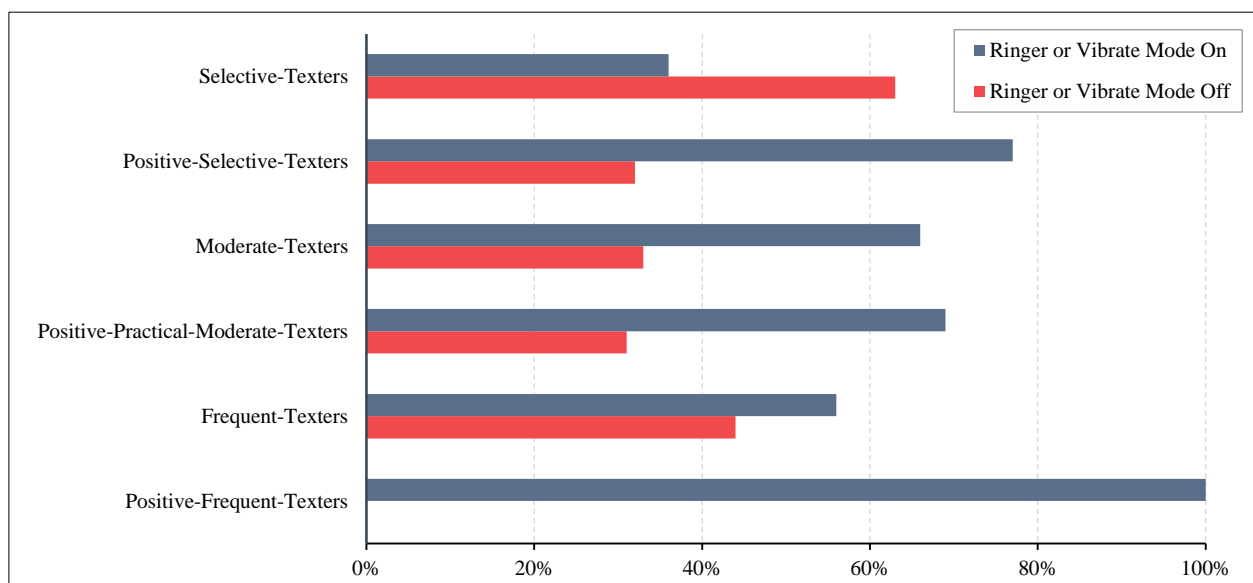


**Figure 1. Cell phone mode during homework [2]**

The impact of digitalization on cultural practice and experience in an environment is enormous. It not only influences technological factors, production, and distribution but also influences engagement, learning, and formation in a knowledge community. Brdesee [4] has presented a symbolic view of the influence of digitalization on cultural and societal practices, which is important for an adolescent to know. Figure 2, given below, shows that digitalization is revolutionizing information-sharing platforms, the financial sector, and others. Digitalization comes under technology, and adolescents are familiar with both terms as they are the major users of digital technology. Informational diversity is expanding in the age of digitalization, and this intensity is correlated with the rising flow of diversified information, which has an educational and scientific essence. Receiving and rectifying it in most modern techniques has a significant impact of information sources on critical thinking, opinions, and intellectual and cross-generational communication's nature. These communication systems, along with social and educational development sources, include information diversity. However, big pedagogical issues are created due to information diversity. Two terms, normative and non-normative, define the commutative behavior of adolescents. In normative situations, a person adapts communication and behavior methods to the environment, and in standard communicative events, such behaviors are observed. Alternatively, the non-normative method violates normative standards. Nowadays, all such behaviors are interrelated with digitalization, as it is shaping modern society's functions. Due to increased information diversity, technology has been integrated with education [3]. The main factor behind digitalization in education is pandemics like COVID-19, which turned education into a digital mode by introducing education on social platforms such as Zoom, Google Class, LMS, and many more. Developing a communicative culture for adolescents in this digital age has become a serious problem, and many modern parents and teachers are facing this issue. This is because of the change in communication that has occurred due to the accretion of communication through virtual means. This communication is becoming less real and lively and more virtual. These real communication's fundamental characteristics are distorted daily due to digitalization change. Nowadays, virtual communication determines a new way of representing a person [3]. This resulted in a drastic change that has affected the way education is delivered and obtained.
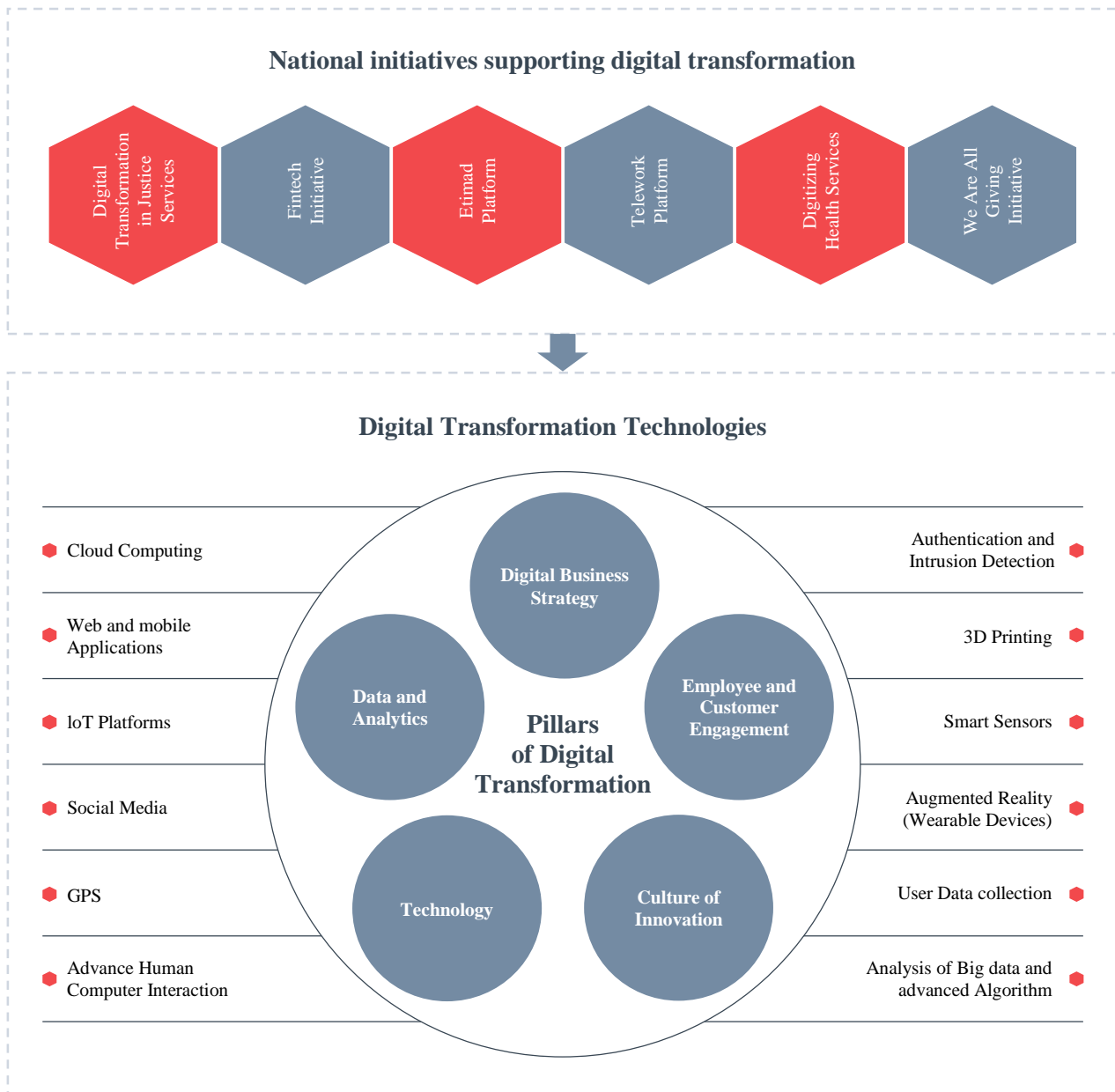
**Figure 2. Pillars, initiatives, and technologies of digitalization**

Additional education is a short study program or training or a short course or certification where approved criteria are met. The main purpose of additional education is to prepare members who have the competency to perform a reserved task [5]. Digitalization in education has created an efficient, communicative culture. Digitalization in education includes not only e-learning platforms such as social media and other websites but also software, applications, personal computers, mobile devices, the internet, and various other technologies to educate all students all over the globe [6]. It can be seen that during the COVID-19 period how digitalization shifted the mode of education. More e-learning platforms were created, such as Coursera, Udemy, EdX, LearnWords, Teachable, and many more. It changed the communicative culture of adolescents as all students were taking classes through the online mode of learning, and they initiated communicating through the digital mode. This was the most efficient way in terms of time and money, as we observe that the physical mode of learning demands more money and transportation costs and other living expenses. Because of digitalization, adolescents have started to see their lives as more systematic and structured. Table 1 shows the use of digitalization in education after the emergence of COVID-19. Additionally, 185 million pupils were affected as 45 nations in the area of Europe and Central Asia stopped their schools during the height of the outbreak. Teachers and administrators were unprepared for such a change because of the sudden nature of the situation. Therefore, they were compelled to quickly construct emergency remote learning solutions. The pandemic has caused the education system to shift to digital domains so that education can be provided to students at all times. However, this has brought various technical and social challenges, as remote education was never practiced on a large scale before the pandemic. Therefore, a major issue in remote education was communication. This study has a key focus on communicative culture in digital education systems to enhance this aspect further so that education can achieve higher efficiency in digital paradigms.

**Table 1. COVID-19 has improved the level of digitalization in education [7]**

| Impact Variables | Chang Percentage |
|---|---|
| Flexibility in teaching-learning processes through digitalization | 62.74% |
| Emergence of innovative ways in education | 25.19% |
| Enhanced communication culture for adolescents | 26.67% |
| Student skills improved related to digital tools usage | 60.74% |

### 1-1- Objectives and Aims of the Research

This research was conducted to analyze the different factors in education digitalization. Several objectives are established:

- The first objective of the study was to determine how digitalization and its information intensity play a role in developing the communicative culture of adolescents.

- To determine the main challenges in developing a communicative culture.

- To analyze the impact of digitalizing education on the communicative culture of adolescents.

- To analyze the communicative culture in adolescents in the era of technology and the use of digital technology among them.

### 1-2- Scope of the Research

The scope of this research is limited to Indonesia and Russia, and the participants are adolescents and those who use digital technology for their education. Each individual was asked to read the survey thoroughly and respond to the questions asked. The factors included in this study are the communicative culture of adolescents, digitalization in education, and the impact of digitalization on the communicative culture of adolescents' development.

### 1-3- Significance of the Research

This research was conducted to develop several significant factors. The research has great significance in terms of finding ways for not only teachers and students but also for parents, so they can upgrade the quality of education from the old school of learning to modern and efficient ways of learning. This research provided intensive insight to readers into the digitalization of education, which includes e-learning and learning through various social media platforms such as Google Meet, Zoom, LMS, and many other online platforms. The study shows how digital technology has taken the place of real and lively communication and replaced it with virtual communication under the aegis of digitalization. This research plays a vital role in describing why digitalization is important for creating a virtual environment in the context of education and communication to create a communicative culture for adolescents.

### 1-4- Research Structure

The study follows the standard research structure and contains five chapters, beginning with the introduction. The introduction part further explains the background and provides a brief insight into digitalization in education and its influence on the development of adolescents. Additionally, the introduction explains the objectives and aims of conducting the research and how it is significant, and what value it will provide to the readers and society. The scope of the research is described in the introduction, along with the geographical limitations. An introduction is followed by a literature review where all the factors of the research are narrated, including the communicative culture of adolescents, digitalization in education, the use of digital technology among adolescents, the development of adolescents' communicative culture in the digitalization era, and challenges in the development of communicative culture. The hypothesis of the study is conducted in the literature review. The third chapter is about materials and methods, where the philosophy of the research, the design of the study, the approach of the study, data collection, the research instrument, the analysis of data, and ethical considerations are analyzed. The fourth chapter is about results and discussion, in which the findings of the research are discussed. The last chapter of the research is the conclusion, which provides the main findings of the study, its strengths, limitations, recommendations, and future directions.

## 2- Literature Review

### 2-1- Communicative Culture of Adolescents

The term "communicative culture of adolescents" refers to the concept that allows people to have a culture where communication is promoted. Effective communication is key for people to maintain good relations with each other and manage conflicts effectively if they arise. Communication also allows people to share their knowledge and exchange information and ideas, which is why it is considered an essential component of a human. Many researchers, like

Makarova [8], have significantly contributed to the research on developing a communicative culture. The communicative culture of adolescents considers the communicative behavior of a person based on their traits, like their past experiences, personality, nature, and character [9, 10]. Hence, according to Zhichkina [11], the communicative culture of adolescents can be divided into normative and non-normative categories. Normative behavior comprises the communication style adopted by individuals, influenced by their surroundings. Whereas the non-normative behavior includes specific patterns of actions that contradict and is opposite to the certain requirements. Maintaining these normative or non-normative behavior built in a person or a child depends upon the level of communicative culture maintained by their parents or teachers. For example, a low-level communication culture can lead to inefficient interactivity among people [3], while an average or high communication level can help people possess a high perpetual and interactive ability. In such a system, they understand the importance of effective and healthy communication by respecting other thoughts and behaviors.

### 2-2- Digitalization in Education

The concept of digitalization in education refers to teaching students by using the technologies like mobile, computers, and the internet, applications of all ages or levels. Digitalization in education is the need for the time as the paradigm has changed massively toward the digitalization of every operation the digitalization in education has also been seen during the last five years. The massive shift of education toward digitalization has also occurred because of the recent COVID-19 pandemic. To implement digitalization, education institutes must digitalize themselves by offering learning and experience to their students digitally, for which they require not only such tools and resources but also well-trained staff [12]. For this, the process of digitization is required, which is the concept of presenting the analog information digitally, which is why According to Bloomberg [13], it is not the process that is digitized; the information is digitized. In the rapidly changing and innovating world, digital skills have become a need for time, which is why the educational sectors must consider developing these in students. Digitalization in education possesses various advantages that cannot be foreseen. According to Kaur [14], digitalization in education helps increase students' productivity; for example, they can access more information while studying on the internet than in an understandable textbook and on complex and easily accessible anytime. Besides, the other major merit of digitalization in education has also proved to be environment-friendly. A scanned document present digitally does not need unnecessarily multiple copies for backup, which also adds to cost reduction and an eco-friendly way.

### 2-3- Digital Technology's Use by Adolescents

The impact of digital technology on children, especially adolescents, has remained a controversial topic because of its mixed impacts of it on children. The rising concept and influence of smartphones and social media have raised the concerns of parents and the public. The use of digital technology contains the use of various devious contexts with adolescents; the device that is mostly used by them is smartphones. However, studies have shown mixed impacts between the relations of influence of digital technologies on adolescents' well beings [15]. Researchers over the past three decades have been trying to find the effects of it, but no probable reason could have proved whether the technology fosters or hamper adolescents' well-being. According to Twenge [16], the rise in the usage of the internet has caused social issues among adolescents, causing depressive behavior. The effects of digital technologies can only be mitigated through parental support and restrictions; for example, limiting the screen time of their children can help major negative impacts. However, this behavioral control should also be maintained in a way that is friendly and healthy for the parents. As too many restrictions can also harm children, resulting in metering secrecy with their parents. Hence tackling their adolescent smartly while developing healthy communication is the only way to mitigate these effects.

### 2-4- Development of Adolescents' Communicative Culture in the Digitalization Era

The development of communicative culture is essential in the current digital era to downsize the impact these technologies are creating on the current generation [17]. This digital advancement is, although paving the way for the advance to preset their opinions freely, giving them a sense of freedom; however, it is also hampering children's development through inappropriate use, especially at an early age. These risks can only be mitigated if there are enough parents and children in the communication environment. According to Kapetanovic et al. [18], the adolescent's problems are mostly driven when there is a lack of discussion and communication, due to which the child develops a sense of secrecy that gives birth to major physiological problems like depression and anxiety that the current generation is facing. In the research conducted by Kapetanovic et al. [18], these same behavior problems were identified in 12 different cultures. In conclusion, parent-alone communication can only reduce the external and internal risks attached to digitalization.

### 2-5- Challenges in the Development of Communicative Culture

The challenges in developing the communicative culture between parents and adolescents have served as a major issue in today's era too. Studies have shown that parents and children don't share the bond and level of ease to be able to share issues comfortably [19]. The result is contrary to it, which can be due to different states of mind or different levels of inference [20]. The more the disclosure is between the parents and the adolescents, the less the chances are for

adolescent delinquency. Hence, parents should maintain a healthy communicative environment with their children. This can be done only when both respect each view or perspective of viewing the world as due to age differences, both of them possess a different level of inference. Besides, parents should be more informed of their children's digital involvement, and if necessary, they should time or limit their usage of these technological devices like smartphones, etc. Besides, parents should also occasionally monitor their children's activities on these technological devices to ensure that the knowledge or information their child is consuming is not sensitive to their age or inappropriate. Moreover, parents should encourage their children to make healthy use of these advancements; this can serve as a healthy mechanism between them.

The hypothesis that can be developed on the basis of the information found in the literature review is that digitalization is the current meet of the demand; whether it has a positive or negative impact on adolescence, it is here to stay and innovate with time. However, it is the human responsibility how to advantage of these technologies in which the parents play a crucial role in the impact it is creating on the younger generation. Developing a communicative culture between their children can help mitigate the risks of the negative impacts on it their children. Digitalization possesses enormous positive impacts from which their children can benefit. It has with no doubt, made every aged group person easy and benefit all from its merits. Hence, it is necessary to use these innovations in a way that does not hamper the development of a person.

The hypothesis can be written as follows:

*H1: Digitalization can play a crucial role in the development of an Efficient Communicative Culture for an adolescent.*

*H2: Digitalization is important in education for the productive development of students.*

*H3: Advancement in digital technologies has a mixed impact on adolescents.*

*H4: The development of communicative culture is important for adolescents.*

*H5: Challenges involved in the development of communicative culture through digitalization for adolescents can be reduced through cooperation and understanding.*

## 3- Materials and Methods

### 3-1- Philosophy of the Research

Research philosophy depicts the beliefs and assumptions relevant to knowledge development. Saunders et al. [21] proclaimed that research philosophy is the utmost layer of the research onion that reflexes one's skills to question actions. The different types of research philosophies include critical realism, interpretivism, positivism, postmodernism, pragmatism, and positivism. As per the author, positivism is the research philosophy based on the scientific method to assess the problem through measurable outcomes. In comparison, interpretivism focuses on one's feelings and observations. The positivist approach seems appropriate for the research regarding the development of adolescents' communicative culture in the context of the digitalization of additional education. The positivism approach helps derive quantifiable results and leads to statistical and comparative analysis for driving the best method for adolescents' communicative culture. Ryan [22] elucidated that positivist research philosophy is useful in conducting research with human bias. It helps adapt scientific and empirical research paradigms that neutralize the researcher while gathering the information and data analysis. Therefore, choosing a positivist research philosophy helps use the scientific methods for research. It facilitates producing the results without human biases that contribute to the research community. Thus, positivism seems appropriate for developing adolescents' communicative culture in the context of the digitalization of additional education.

### 3-2- Design of Study

Research design represents the structure or plan of the research by gathering information for a specific purpose. The study's design maximizes the information output while minimizing human biases or errors [23]. Mackey & Gass [24] propounded that research design consisted of different entities, including data collection, evaluation, interpretation, and proper usage of outcomes. The different types of research design include descriptive, correlational, experimental, semi-experimental, review-based, exploratory, meta-analytic, and interpretative. This study uses an experimental research design to develop adolescents' communicative culture in the context of the digitalization of additional education. Saunders et al. [21] elucidated that an exploratory research design is useful in collecting primary data through open-ended questions. It provides a notion to know the insights of the phenomenon through understanding target audience perceptions, experiences, and ideas. The current research emphasizes the significance of personality-oriented, interactive-communicative, and cultural approaches. It conducts a comparative analysis of the sources for developing adolescents' communicative culture in the context of the digitalization of additional education. Therefore, using an exploratory method is a feasible, time-saving, and cost-saving approach that seems appropriate for current research.

### 3-3- Approach of the Study

The research approach of the study is related to building and planning the foundation of the study. Landrum and Garza [25] articulated that the research approach provides a guideline for the researchers to conduct research as per the defined approach of the study. The different research approaches can include qualitative, quantitative, and mixed research approaches. Given the current study, i.e., the development of adolescents' communicative culture in the context of digitalization of additional education, a quantitative research approach seems appropriate. The rationale for selecting the quantitative approach is that it facilitates driving the results based on numerical terms. Rahman [26] elucidated that the quantitative research approach involves the in-depth study of the phenomenon by assessing people's experiences, beliefs, behaviors, and attitudes. Therefore, in developing the adolescent's communicative culture, the quantitative research approach helps generalize pedagogical experience findings in future studies as results derived in numerical forms. Moreover, the quantitative research approach facilitates observation and conversation of study by using the scientific approach. However, the qualitative research approach is useful in defining the causal relationship among variables. Therefore, the quantitative research approach seems appropriate because it facilitates obtaining the results in numerical forms, runs the statistical analysis and provides results appropriately.

### 3-4- Data Collection

To conduct research, the data collection approach involves two types of data, i.e., primary, and secondary data, to gain knowledge. Primary data is the firsthand data directly collected from the target audience, whereas secondary data are already published data gathered from websites, databases, and others [24]. To conduct the current study, i.e., the development of adolescents' communicative culture in the context of the digitalization of additional education, seems appropriate. The rationale behind is the primary data collection approach that facilitates identifying the adolescents' experiences, pedagogical experiences, and others. Sarkies et al. [27] elucidated that the primary data collection collects the data with the help of surveys, interviews, and others. It includes the direct interaction of the researcher with the sample of selected size, which requires a high level of interpersonal skills. The high level of interpersonal skills facilitates the researchers to collect error-free data. Hence, primary data collection is appropriate for the current study; it helps collect fresh data that fill the gap between children and adolescents by restraining their authority.

### 3-5- Research Instruments

Research instruments depict the tools used to collect, measure, and analyze the underlying subject. It depicts the data collection tool used to gather data from the sample. As illustrated above, current research uses primary data to fulfill its goal. The primary data collection approach includes surveys, interviews, and others [27]. This survey strategy seems appropriate for this study. A survey approach is a primary data collection research instrument that facilitates collecting the primary data. Saunders et al. [21] articulated that the survey strategy facilitates collecting firsthand data from the selected sample size. For the current study, the data collected from the survey facilitates the researcher to use statistical tools and drive results that help build children's adult community. Hence, a survey research instrument can help collect the data to fulfill the aim of the study, i.e., the development of adolescents' communicative culture in the context of the digitalization of additional education.

### 3-6- Analysis of Data

Data analysis involves the data analysis techniques used to perform analysis on gathered data to derive results for the study. Paradis et al. [28] articulated that data analysis is the critical phase of research where the researcher analyzes data to see whether they achieve results. The research chooses the analysis approaches for data based on the research approach. As illustrated above, the research approach used for the current study is quantitative; therefore, data analysis techniques such as correlation, regression, and others are used to drive the results. Moreover, the current study emphasizes the significance of personality-oriented, interactive-communicative, and cultural approaches and conducts a comparative analysis of the data sources. Besides, the comparisons of the findings and other research findings of the current study will be carried out using the software of SPSS and Excel.

### 3-7- Ethical Considerations

All research was approved by the Ethics Committee, which depicts the ethical considerations of the study. The research is considered voluntary as participants involved in the survey filling are given a choice to participate in the research or not. Consent was given to all the research participants. Ethical considerations are based on not harming any participant. Rhodes [29] articulated that ethical research considerations expect the researcher to conduct research by ensuring the privacy and confidentiality of data to the participants. Therefore, all collected data is stored in a password-locked folder that is shared only with research members. It will ensure the participants that all data are used honestly and are trustworthy. A summary of the findings will be provided to the participants upon request. Hence, ethical considerations improve the credibility of research among readers.

# 4- Results and Discussion

This section presents discusses and analyses the findings and results of this study. The section is divided into two parts; the first part presents the demographic-related findings of the survey, while the second part discusses and analyses the findings of the survey with the use of descriptive statistics.

## 4-1- Demographic Statistics

The researcher surveyed 50 adolescent students, aged between 10 and 24 years, from different educational institutes in Indonesia and Russia. The demographic data of the participants (Figure 3) show that a good proportion of both male and female adolescent students participated in the study. While most participants were male, with a 58 percent participation rate, a good proportion of females also participated in the study having a 42 percent participation rate.
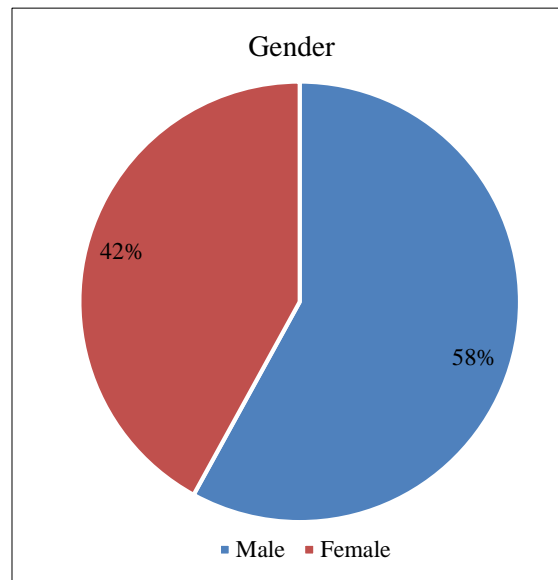
**Figure 3. Gender of the participants**

Moreover, most adolescent students who participated in the study belonged were aged between 14 and 17 years (46 percent). Thirty percent belonged to late adolescence (Ages 18 to 24 years), while the remaining 24% belonged to early adolescence (Ages 10 to 13 years) (Figure 4).
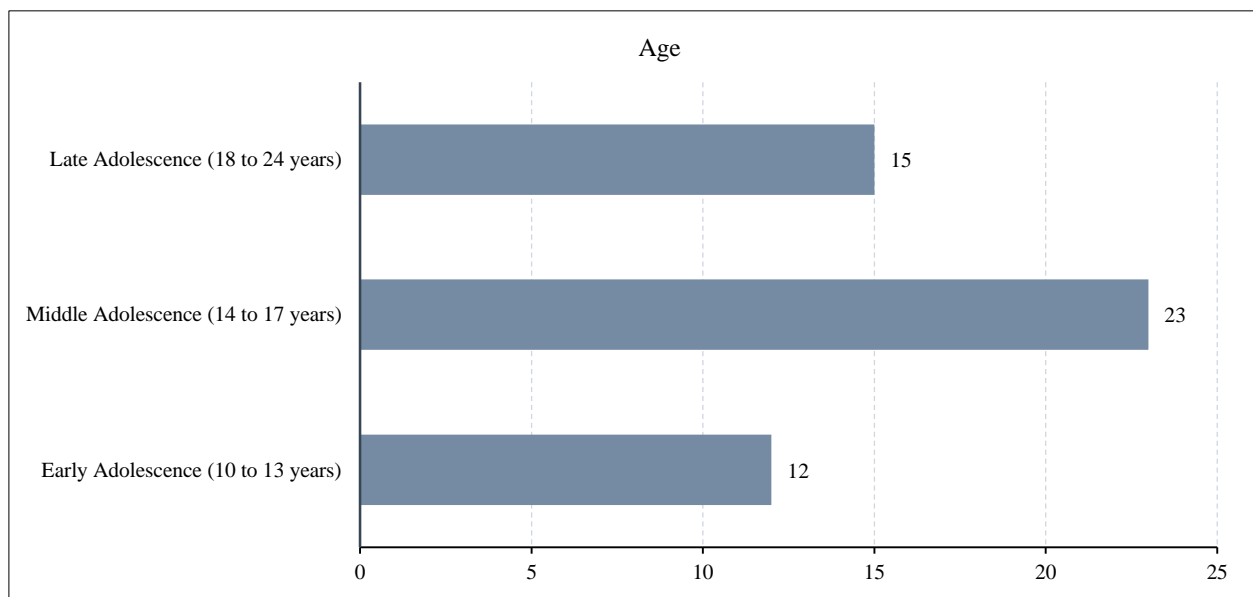
**Figure 4. Age of the participants**

Lastly, in terms of educational levels, most participants were from the secondary educational level, with a 42 percent participation rate, while the remaining 32 percent were from higher educational levels, and 26 percent were from the primary educational level (Figure 5).
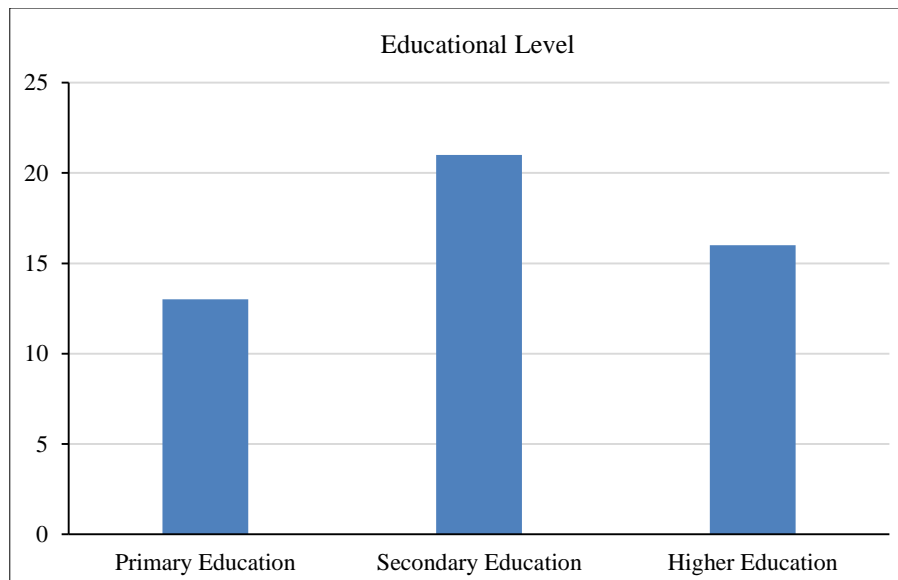
**Figure 5. The educational level of the participants**

### 4-2- Descriptive Statistics

This section discusses the results of the survey about the adolescents' communicative culture in the context of the digitalization of additional education. The survey was divided into two parts. The first part of the questionnaire composed of five items designed to assess the incorporation of digitalization in the additional education of adolescents by analyzing their use of digital tools. The second part of the questionnaire is composed of seven items designed to assess the communicative culture of adolescence in the context of digitalization in their additional education. Table 2 presents the results of the descriptive statistics for the degree of digitalization in the additional education of adolescents.

**Table 2. Descriptive statistics for the digitalization of additional education**

| Items | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Digitalization has been embedded in my education and learning | 50 | 3.00 | 5.00 | 4.0400 | 0.85141 |
| I use various digital tools and technologies for my learning | 50 | 3.00 | 5.00 | 4.2000 | 0.86094 |
| We use digital technologies and online programs for classroom learning and education | 50 | 2.00 | 5.00 | 3.8333 | 0.57463 |
| We have a digital platform (social media group, online application, chat group, etc.) where teachers and students share learning material | 50 | 3.00 | 5.00 | 4.2333 | 0.63888 |
| Apart from my formal education, I use the internet to explore various learning materials and activities | 50 | 3.00 | 5.00 | 4.2000 | 0.75593 |
| Valid N (listwise) | 50 | | | | |

All the responses were found to be valid. The results of the descriptive statistics test of the first part revealed that the value of the standard deviation of all items' responses was found to be lower than the value of the arithmetic mean of the responses. For instance, the arithmetic mean of the responses for the first item is 4.0400, while the value of its standard deviation is 0.85141, which is considerably lower. As the mean value of the data is treated as the central tendency of the obtained data; this implies that if the standard deviation value is lower than the mean value, the data points (responses) would be clustered around the mean value, while if the standard deviation value is higher than the mean value, the data points (responses) would be spread out. In simpler words, a higher standard deviation value implies that the data points are scattered, which means that the responses obtained for the item are inconsistent and have a high variance, while a lower standard deviation value implies that the responses obtained for the item are consistent and free from variance [30]. In the case of this study, responses are found to be consistent and free from any type of significant variation.

The descriptive statistics results also show that the minimum value of most responses is three, while only one item has a minimum value of 2, while 5 is the maximum value marked by the participants. The mean value of all the responses was found to be greater than four except for one, sharing 3.8333 values. Nonetheless, the data appear to be skewed on the right side of the scale (ranging from strongly disagree at 1 to strongly agree at 5). This means that the majority of the participants in the study marked 4 and 5 (agree and strongly agree) as their responses to the given items. Therefore, from the results of the descriptive statistics, it can be deduced that the adolescents in the study demonstrated a high agreement with the use of digital tools and technologies in their additional education, showing a high digitalization of additional education.

**Table 3. Descriptive statistics of adolescents' communicative culture**

| Items | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| I actively interact with my teachers and fellow students via digital platforms, applications, chat groups, and other programs | 50 | 2.00 | 5.00 | 4.2000 | 0.62881 |
| Despite the use of digital ies, I tend to actively interact face-to-face with my friends, fellow students, and teachers | 50 | 2.00 | 5.00 | 3.0230 | 0.80516 |
| I prefer digital media for interacting with teachers and fellow students over face-to-face interaction | 50 | 2.00 | 5.00 | 4.1667 | 0.61026 |
| I feel that digital interactions are better (convenient, easier, etc.) than the social interactions | 50 | 2.00 | 5.00 | 4.0667 | 0.79438 |
| I prefer digital tools and platforms if I want to connect with any teacher or student (for educational queries, learning material, assistance, etc.) | 50 | 2.00 | 4.00 | 3.8333 | 0.87428 |
| Digital tools have helped me in communicating and interacting with other students and teachers as I find it difficult to interact with others in ordinary social settings | 50 | 2.00 | 5.00 | 4.2333 | 0.66089 |
| I have become more proficient in communication because of the use of digital tools and technologies | 50 | 2.00 | 5.00 | 3.6333 | 0.77608 |
| Valid N (listwise) | 50 | | | | |

All the responses to the second part were found to be valid. The results of the descriptive statistics test in the second part showed that the value of the standard deviation of all items' responses was found to be lower than the value of the arithmetic mean of the responses. This implies that consistent responses have been obtained for the items, with no variation in the data points. The mean value of the responses for the first item is 4.2000, showing that a high majority of the participants agreed that they actively interact with their teachers and fellow students via digital platforms, applications, chat groups, and other programs. This presents a positive side of digitalization, showing that adolescents can communicate with their teachers and students apart from their classroom settings. As per Kaur [14], the use of digital tools for educational purposes increases students' productivity as they can engage in the exchange of information. Thus, on the basis of this finding from the extant literature, it is deduced that the use of digital tools accelerates communication among students as they interact with one another via digital tools and platforms. This aspect of digitalization contributes to the development of a communicative culture as the interaction among the students increases due to the rising use of digital tools in education, and they can communicate with one another outside their classrooms as well.

However, the review of past studies has revealed that due to the rising digitalization of additional education, concerns are constantly being raised regarding the possible negative impacts of the rising digitalization on the face-to-face social interactions of young people as they have begun to increasingly use digital tools and technologies for their education and learning-related interactions [31]. This implies that as students tend to actively use digital tools and platforms such as Coursera, Udemy, and EdX to learn words and teachables for their additional education, they may start relying on them and avoid interacting with other people for any type of information exchange. In this regard, to check whether social interactions among adolescent students are declining because of the increasing use of digital tools and technologies in additional education or not, the researcher asked the students if they still tend to actively interact face-to-face with their friends, fellow students, and teachers. The mean value for the responses for this item is 3.0230, demonstrating the neutrality of the responses. Furthermore, the mean value of the third item stating *"I prefer digital media for interacting with the teachers and fellow students over face-to-face interaction,"* is 4.1667, which shows that the data is skewed on the right side and most of the adolescent participants' market choose "agree" or "strongly agree" as their preferred responses to the item. This demonstrates that digitalization in additional education has impacted the communicative culture of adolescents, making them more comfortable with digital interactions compared to face-to-face social interactions. Nonetheless, these findings do not imply that the use of digital tools for additional education has diminished the interaction among students. Rather, it shows that the communicative culture of the students has evolved with the rise of digitalization, as they tend to actively interact and connect with their peers and teachers for various educational purposes.

In line with the aforementioned findings and assertions, the findings of Sigman [32] have suggested that as students are increasingly using digital platforms such as social media sites for their interactions, this significantly reduces the need for them to interact and connect with other people in ordinary face-to-face social settings. This makes them more dependent on digital platforms for learning, communication, and interaction, making it a more accepted and appropriate way to potentially block face-to-face connections. This implies that although face-to-face communication has reduced communication, in general, it has accelerated among students with the convenience of interaction offered by digital tools and platforms. These findings are supported by the survey as well. For the third survey item stating that *digital interactions are better than social interactions*, the mean value was 4.0667, showing that most of the adolescent participants market agreed or strongly agreed as their preferred response to the item. Similarly, the participants also demonstrated high agreement with the item specifying their preference for digital tools and platforms for connecting with their teachers and fellow students, with a mean value of 3.8333. These findings show that adolescents are becoming more accustomed to digital interactions and communication because of using digital tools and technologies in their additional education and learning. Thus, their communicative culture is evolving with the digitalization of their

additional education and learning. In this context, Greenfield [33] has posited that at this time, young people and children have started to interact with digital technologies more readily compared to other people, mainly because of the convenience, freedom, immediate gratification, and control gained from this type of communication. Now that many adolescents may be socializing online for their additional education and learning as much as they are face-to-face, the very definition of the communicative culture of adolescents may be changing. In the not-so-distant future, in a rapidly evolving interactive world, the former can rise as the "norm" in the communicative culture of young people, and the latter became the "yesterday" or something of the "past." These findings suggest that with the rising digitization of additional education, students are becoming more connected and tend to communicate more actively using a wide variety of devices and tools that have developed a communicative culture among adolescents characterized by convenience and instant gratification in terms of getting a response or exchange of information. The changing communication trend is evident in the fact that digital communication among adolescents for their additional education and learning is becoming more accepted and used as compared to interacting with others in social settings. However, it is also enhancing the communicative culture by making the students more connected, due to which communication and interaction among the students are not confined to the classrooms and schools.

The aforementioned findings highlight the positive influence of the digitalization of additional education on the communicative culture of adolescents. In line with the aforementioned findings, it is worth noting that a high majority of the participants demonstrated agreement with the statement that *"Digital tools have helped them in communicating and interacting with other students and teachers as they find it difficult to interact with others in ordinary social settings."* This means that digitalization in additional education may have made it easier for adolescents to communicate for learning purposes, which aids in their additional education. In this regard, it can be noted that many adolescents may find it difficult to communicate effectively in normal social situations, which may hinder their learning. Besides, social awkwardness is one of the major issues among adolescents, which makes them reluctant to communicate in social settings [34]. This implies that many students in their adolescence have social anxiety or social awkwardness, and they may be reluctant to interact in face-to-face settings. This may hinder their communicative abilities as well as their ability to share and exchange information with other students. Similarly, they may not actively participate in educational discussions or engage in debates in the classroom due to their reluctance. However, the use of digital tools and platforms eliminates such issues as it replaces face-to-face social interactions with online interactions. Such students can engage in discussions and learn without feeling socially awkward.

The digitalization of additional education may, thus, enhance their communicative abilities and facilitate their learning. Besides, it is not only simple shyness that hinders social communication, but the geographical distance also makes it difficult for adolescents to communicate effectively. In this regard, the digitalization of additional education has made it easier for such adolescents to communicate and interact with other people for their additional education and learning. Importantly, building a social network in the digital space can be deduced as a fruitful practice for such adolescents that would enable them to share learning material or ask queries that would otherwise not communicate with anyone in face-to-face settings. Therefore, the digitalization of additional education has provided this population subset with the opportunity to connect socially with other students and teachers and support their continued learning, thereby facilitating potential social improvements. These postulations are also supported by the findings of the survey for the item stating, "I have become more proficient in communication because of the use of digital tools and technologies" the obtained responses demonstrated a high agreement, demonstrating that the digitalization of additional education has also positively impacted the communicative culture of the adolescents, making them more proficient in communication by frequently interacting online.

All in all, the findings of the survey revealed both negative and positive influences of the digitalization of additional education on adolescents' communicative culture. Evidently, the rising use of digital tools and technologies in additional education and learning has made adolescents more comfortable with digital communication and interaction owing to greater convenience and control, which have ultimately overshadowed their face-to-face communication culture. Thus, the communicative culture of adolescents has been evolving with the increasing incorporation of digitalization in their education and learning. Alternatively, the digitalization of additional education has also positively impacted their communicative culture by making it possible for adolescents to avoid social awkwardness and develop the confidence to interact with their fellow students and teachers via digital platforms.

## 5- Conclusions

### 5-1- Main Findings of this Study

This study analyzed the development of adolescents' communicative cultures in the context of the digitalization of additional education. In this regard, a survey involved adolescent students from educational institutes in Russia and Indonesia. The findings of the study have revealed that the communicative culture of adolescents has evolved with the digitalization of additional education, having both positive impacts and negative repercussions. Conclusively, from the findings of the survey, it has been deduced that, due to the use of digital tools and technologies in additional education and learning, students have become more comfortable with digital communication and interaction compared to face-to-face social interactions, which ultimately leads to declining social interactions among the adolescent students. The

frequent use of digital technologies for learning and interacting with other students significantly reduces the need to interact and connect with other people in ordinary face-to-face social settings. Thus, adolescents have evidently started to prefer digital platforms for interacting and supporting their additional education. Simultaneously, the digitalization of additional education has also rebounded positive developments in the communicative culture of adolescents, as those adolescents who find it difficult to interact with other people due to social awkwardness, shyness, or low confidence can communicate using digital platforms. Thus, the digitalization of additional education has led to both positive and negative developments in the communicative culture of adolescents.

### 5-2- Strengths and Limitations

The study offers valuable insights about the evolving communicative culture of adolescents due to the digitalization of additional education. The findings of the study can be valuable for teachers and educational leaders, as well as operators of digital platforms, applications, and sites, as they can leverage these findings to develop programs for adolescents. Despite these findings, the study also has some limitations. A major limitation is the limited ability to generalize the results. Due to a lack of sufficient time and resources, the data for this study were collected only from adolescent students in Russia and Indonesia. Thus, the scope of the research was narrowed down to Russia and Indonesia only. As a consequence of this, the narrowed data collected has limited the study's ability to generalize the findings of the survey to other geographic contexts.

### 5-3- Recommendations and Future Directions

As it has been established that due to the limited geographic scope of this study, its ability to produce generalized results has also been restricted, it is recommended that future researchers go beyond any specific geographic context and collect data on a global scale, which will pave the way for results that could be generalized for various geographic contexts. Moreover, future researchers can also conduct a comparative analysis of different age groups (adolescents, adults, etc.) or different countries to determine how the developments in the communitive culture of different age groups or different countries differ with the digitalization of additional education around the world.

## 6- Declarations

### 6-1- Author Contributions

Conceptualization, A.K.; methodology, A.K.; software, D.A.K.; validation, V.M.G.; formal analysis, M.E.K.; investigation, A.S.; resources, N.I.N.; data curation, D.I.P.; writing—original draft preparation, O.V.D.; writing—review and editing, N.V.L.; visualization, S.; supervision, A.K.; project administration, D.A.K. All authors have read and agreed to the published version of the manuscript.

### 6-2- Data Availability Statement

The data presented in this study are available in the article.

### 6-3- Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

### 6-4- Institutional Review Board Statement

Not applicable.

### 6-5- Informed Consent Statement

The participants provided their written informed consent to participate in this study.

### 6-6- Conflicts of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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## Appendix I: Questionnaire

1. Female
2. Male

**Please select the option that best describes your age**:

1. Early Adolescence (Ages 10 to 13 years)
2. Middle Adolescence (Ages 14 to 17 years)
3. Late Adolescence (Ages 18 to 24 years)

**Please select the option that best describes your current education level:**

1. Primary Education
2. Secondary Education
3. Higher Education

*Codes*

1. SD - Strongly Agree
2. D - Disagree
3. N - Neutral
4. A - Agree
5. SA - Strongly Agree

| | **Digitalization Of Additional Education** | **SD** | **D** | **N** | **A** | **SA** |
|---|---|---|---|---|---|---|
| 1 | Digitalization has been embedded in my education and learning | 1 | 2 | 3 | 4 | 5 |
| 2 | I use a variety of digital tools and technologies for my learning | 1 | 2 | 3 | 4 | 5 |
| 3 | We use digital technologies and online programs for classroom learning and education | 1 | 2 | 3 | 4 | 5 |
| 4 | We have a digital platform (social media group, online application, chat group etc.) where teacher and students share learning material | 1 | 2 | 3 | 4 | 5 |
| 5 | Apart from my formal education, I use to explore learning material and activities | 1 | 2 | 3 | 4 | 5 |
| | **Adolescents' Communicative Culture** | **SD** | **D** | **N** | **A** | **SA** |
| 1 | I actively interact with my teachers and fellow students via digital platforms, applications, chat groups and other programs | 1 | 2 | 3 | 4 | 5 |
| 2 | Despite the use of digital technologies, I tend to actively interact face-to-face with my friends, fellow students and teachers | 1 | 2 | 3 | 4 | 5 |
| 3 | I prefer digital media for interacting with the teachers and fellow students over face-to-face interaction | 1 | 2 | 3 | 4 | 5 |
| 4 | I feel that digital interactions are better (convenient, easier etc.) than the social interactions | 1 | 2 | 3 | 4 | 5 |
| 5 | I prefer digital tools and platforms if I want to connect with any teacher or student (for educational queries, learning material, assistance etc.) | 1 | 2 | 3 | 4 | 5 |
| 6 | Digital tools have helped me in communicating and interacting with other students and teachers as I find it difficult to interact with others in ordinary social settings | 1 | 2 | 3 | 4 | 5 |
| 7 | I have become more proficient in communication because of the use of digital tools and technologies | 1 | 2 | 3 | 4 | 5 |

## Appendix II: Consent Form

**Title of Study**

Development of the Adolescents' Communicative Culture in the Context of Digitalization of Additional Education

**Principal Investigator**

[*Name*]; [*Department*]; [*Address*]; [*Phone*]; [*Email*]

You are requested to participate in the study that investigates how digitalization of additional education and its information intensity plays a role in developing the communicative culture of adolescents. The research is being conducted in Russia and Indonesia. The researcher intends to determine the impact of digitalization of additional education on the development of the communicative culture among the adolescents in terms of how they communicate and interact and change and evolving trends, etc. As a part of your participation in the study, you are being asked to fill in the provided questionnaire. Please be informed that the questionnaire has no harms and risks, has no item to collect your personal or sensitive information and does not require you to identify yourself. Your response will be anonymous. Besides, your participation in the study is voluntary and you can quit anytime you want without completing the questionnaire.

Please feel free to ask if you have any questions regarding this study. I can be reached at _____. If you are willing to participate in this study, please fill out the following form:

I have clear read the aforementioned information and understand the purpose of the study. I am aware of the fact that participation is voluntary and I can withdraw from the study whenever I can. I understood that there are no potential harms of the study and the responses were recorded anonymously. I give my voluntary consent to take part in this research.


Participant's signature _____                    Date _____