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## RISK PERCEPTION OF TECHNOLOGY USE AND ANGRY THOUGHTS IN BASIN ADOLESCENTS

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**Abstract:** This paper analyzes how adolescents in Cuenca perceive the risk associated with the use of technology and how this may influence their emotions, particularly anger; therefore, it is important to understand the possible negative effects of technology on the well-being of the population studied, as well as the search for possible solutions to deal with this situation. The research presented here aims to analyze the relationship between the perception of risk related to the use of technology and the manifestation of angry thoughts in adolescents in Cuenca. A cross-sectional and correlational design was used, and qualitative and quantitative methods were employed, including surveys to adolescents and parents, as well as interviews to teachers, which allowed a comprehensive analysis of the investigated fact. For the descriptive and inferential analysis, the SPSS 20 statistical package was used, which facilitated the organization and tabulation of the data for the information on the current situation of adolescents. The results affirm the existence of a disconnection between the perception of the risk of excessive use of technology and the negative emotions they provoke, such as anger and frustration, manifesting a lack of awareness of their involvement in emotional wellbeing.

**Keywords:** Technology, risk, adolescents, emotions, anger.

## INTRODUCTION

Information and Communication Technologies (ICT) are resources, tools, equipment, computer programs, applications, networks and media that enable the acquisition, processing, storage and transmission of information (Ministry of ICT Colombia, 2021). (ICT Ministry Colombia, 2021).

To Soler (2008)(ICT) are nothing more than the use of various technological or computer resources for different purposes, as a way of managing and organizing the context

in which they are used. He asserts that it will take time to find the most appropriate model for the educational process, that its use should not be abused, although its absence is more erroneous, since its use as a didactic weapon is essential.

The dynamics achieved in technological progress has boosted the use of ICTs in such a way that they reach a varied set of practices, knowledge and tools related to the consumption and transmission of information. According to Raffino (2019), in order to define ICTs it should be taken into account that this term is linked to the "Information Society", so it is necessary to consider the way in which information is accessed compared to previous times, where multiple areas are included, ranging from interpersonal relationships, finances, entertainment and usual professional activities.

In this sense, Orosco and Pomasunco (2020) state that ICTs have had a significant impact on adolescents of all social strata. However, an inordinate use without proper guidance can lead to transcendental risks. In fact, studies by Primack et al. (2017) and Twenge et al. (2020) confirm the existence of anxiety and depression among adolescents caused by excessive use of social networks.

According to Quispe and Ricra (2023), technological advances and easy access to virtual media have led to greater use of cell phones, tablets and computers, to the point of making them essential tools in people's daily lives.

On the other hand, Rueda and Chávez (2017) point out that this situation not only impacts family communication, but also generates intrapersonal problems, such as lack of control, impulsivity, carelessness in personal hygiene, incorrect sleeping habits, which can even affect academic progress.

Similarly, Winocur (2006) mentions that the school environment has fostered in adolescents the need to access the Internet, since it is frequently used to search for a variety of information, although it does not justify the excessive use of the technological medium.

In this context, Griffiths and Kuss (2017) have researched Internet and social network addiction and indicate that some adolescents may develop compulsive patterns that affect their daily life, studies and personal relationships; such that the difficulty to disconnect from the devices may cause frustration, negative thoughts or anger when restricting their time in front of the screens.

What has been analyzed up to this point reaffirms the results shown by Rosen et al. (2013) y Erazo et al. (2024) by confirming that the frequent use of mobile devices during study time can result in a decrease in academic performance. This constant distraction hinders the ability to concentrate, which negatively affects the learning process.

Something similar happens with negative online interactions. According to Kowalski et al. (2014)., Garaigordobil and Larrain (2020) y Regalado et al. (2022) among negative interactions address cyberbullying; they reflect on how they can have devastating consequences on the mental health of adolescents; how it generates deep feelings of anger, sadness and insecurity. These experiences can trigger emotional overreactions such as anger.

Likewise, Turkle (2015) y Zapata and Velásquez (2024) highlight that time spent with technology can negatively impact the quality of interactions with friends and family; they state that this decrease in the quality of relationships can lead to interpersonal conflicts and misunderstandings, which in turn makes it difficult to manage emotions. Lack of emotion management skills in digital environments can lead to disproportionate reactions to minor conflicts, further exacerbating the situation.

The research presented accentuates the complexity of technology events in adolescence, emphasizes the importance of a balanced and conscious use, as well as the development of skills to manage emotions and relationships in the digital environment. Aguilar and Chamba (2019) emphasize the importance of analyzing the implications of technology and invite reflection on its influence on interactions and perceptions. Rojas and Yepes (2022) add that, although information technologies provide positive social transformations, they have also generated problems such as cyber addictions and problematic use of the Internet.

It is important to note that, for adolescents, being part of a virtual social network significantly influences the way they relate to each other and the construction of their identity (Martín and Castiblanco, 2024).. This aspect highlights the need to address the use of technology in a comprehensive manner and how its benefits as well as its challenges should be considered.

The adolescence stage is crucial, it marks emotional and social changes, where young people establish significant relationships and make decisions that will mark their future. According to (Rodríguez et al., 2024):

Adolescence is a crucial stage in the development of the human being, at this stage the individual develops new emotional bonds that can last a lifetime, also at this stage important decisions are made such as career choice, among other important decisions. (p. 22).

Today, the use of digital technologies among young people has become essential, as it transforms not only their way of communicating, but also their way of interacting with the world.

Information and communication technologies have brought about changes and innovations that have significantly impacted the lives of young people, who have integrated these tools into their daily routine. Whi-

le social networks have brought benefits to the population, they have also given rise to one of the most worrying problems faced by young people: addictive behavior (Jasso et al., 2017, p. 2832).

From this perspective, the need for a comprehensive orientation that contemplates both the improvement of family relationships and education on the responsible use of the Internet is highlighted, in order to mitigate the negative effects of this addiction in adolescents.

The use of technology among adolescents has grown exponentially, which generates concerns about the associated risks. Hence, this research focuses on analyzing how the perception of risk in the use of technology stimulates angry thoughts in adolescents in Cuenca.

The relevance of this topic lies in the need to understand and address the negative effects that technology has on the psychological well-being of adolescents, as well as in the search for practical solutions that promote a healthy and balanced use of technology.

The perception of risk in the use of technology is an aspect to consider seriously, in this environment adolescents can face multiple dangers, such as online bullying, exposure to inappropriate content and addiction to electronic devices.

Recent studies Resett (2019) indicates, that adolescents often underestimate these risks, due to their lack of experience and maturity in assessing the long-term consequences of their actions in the digital environment. This distorted perception can lead to impulsive behaviors and, consequently, increased feelings of anger when facing problematic situations online.

Angry thoughts may arise in response to negative experiences in the digital environment, such as cyberbullying or exposure to disturbing content. There are manifestations that the excessive use of social networks and video games, is associated with higher levels

of aggression and hostility in adolescents (García, 2018). These angry thoughts not only impact the emotional well-being of adolescents, but can also have negative repercussions on their interpersonal relationships and academic performance (García, 2018).

In this regard, the Association of American Psychologists (2010) defines thoughts as cognitive schemes that represent hypothetical events through images or ideas, which implies that they are symbolic and covert processes that require imagination and concept formation. On the subject of anger, anger is considered an expression of anger, both as an emotional stage and as a state of mind.

Alcazar et al. (2015) point out that there is little research on the thoughts that accompany anger and aggression in adolescents; they believe that although anger can act as an impulse to face challenges, it is essential to channel it properly to prevent it from turning into aggression towards others. The expression of anger also varies among individuals, which suggests that not all adolescents handle this emotion in the same way.

On the other hand, (Barcelata et al. (2016) points out that personality characteristics are closely linked to coping strategies; therefore, he insists on predicting the use of more functional strategies, such as problem solving. Thus, a clear connection can be established between the way adolescents manage their emotions, such as anger, and their ability to cope with difficult situations.

Addressing the perceived risk of technology use and angry thoughts in adolescents fosters awareness of its dangers, allowing for more informed considerations and contributing to a safer and healthier online environment for all.

Therefore, the objective of this research focused on analyzing the relationship between risk perception linked to the use of technology and the manifestation of angry thoughts in adolescents in Cuenca. We evaluated how

risk perception affects angry thoughts in adolescents, identified the variables that underlie this relationship and analyzed the differences between those who use technology moderately and those who use it excessively.

## **METHODOLOGY**

During the research process, a mixed approach was declared, since qualitative and quantitative methods were combined, with the objective that the result is characterized by a more comprehensive view of the phenomenon studied. The research design was transversal, which allowed for data collection in a single moment in time, facilitating the analysis of the current situation of adolescents in Cuenca.

This was a correlational study to establish relationships between the perception of risk in the use of technology and angry thoughts, the research design was cross-sectional, which allowed data collection at a single point in time, facilitating the analysis of the current situation of adolescents in Cuenca.

From a descriptive scope, the perception of risk and angry thoughts were detailed by means of analytical-synthetic theoretical methods and adolescent surveys, exploring their experiences and assessing their perceptions on both aspects.

A survey was applied to parents to gather information on the behavior of their adolescent children in the family environment, as well as their expectations and concerns regarding the use of social networks and video games; aspects that impact the academic performance and emotional well-being of their children.

Interviews were also conducted with teachers to obtain a detailed view of how they perceive the use of technologies and risk behaviors among adolescents in the educational environment. In addition, we sought to identify the strategies employed by these teachers to address these situations and encourage a positive learning environment.

To analyze the data collected, descriptive statistical techniques such as mean, and standard deviation were used, The results were presented through measures of central tendency, as well as in frequencies and percentages, which were illustrated in tables (Vargas et al.,2018).

In order to establish the correlation between the two variables studied, inferential statistics, Pearson's parametric test, was applied. The organization of the information was optimized using SPSS software, Statistical Package, version 20.

The population was 238 adolescents from the city of Cuenca, Ecuador, specifically eighth, ninth and tenth grade students from the Unidad Educativa Particular Hermano Miguel De La Salle. As an informant sample, 74 students were selected from these educational levels, who constitute the unit of analysis. The selection was made randomly, and included 24 eighth grade students (13 boys and 11 girls), 24 ninth grade students (17 boys and 7 girls) and 26 tenth grade students (14 boys and 12 girls), with an age range between 12 and 14 years old.

Based on a non-probabilistic sampling, where the selection criterion for participation in the research was the voluntary acceptance of the students. For this purpose, the parents of the students were asked to provide their written authorization, thus guaranteeing the confidentiality of personal data. The selection of the participants was carried out and the accessibility derived from the project was considered. (Otzen and Manterola, 2017).

## RESULTS

The perception of risk associated with the use of technology and the manifestation of angry thoughts are categories that, in order to measure their manifestation, a pilot survey was applied to a group of 22 adolescents. The results of this application showed that all participants completed the survey without difficulties, indicating that the questions were relevant, clear and accessible.

It was found that the average response time was between 10 and 15 minutes, a range considered reasonable, which indicates that both the format and the length of the survey were adequate, as well as objective for the population to be studied, which supports the relevance of the instrument.

This result made it possible to identify a starting point for the generalization of the survey in a much broader context, as well as to gather evidence of much deeper experiences in this atareo group.

Once the instrument was validated, a schedule was established for the application of the survey, which was applied online, ensuring that all participants had access to the link. A comfortable and conducive environment was created so that the adolescents felt comfortable responding.

The assessment of the data obtained is based on the level of variability of the answers given by the adolescents; the range reached is 72, indicating that the behavior of the participants is not homogeneous, which offers a rich and varied vision of the topic under investigation and allows exploring different perspectives and experiences among the adolescents.

The average age shown by the participants in the study is 12.49 years; with a standard deviation of 0.835 indicates that there is little variability in the ages. In terms of time spent daily using devices, the average is 9.32 hours, with a standard deviation of 2.901.

Which indicates that adolescents spend a considerable amount of time on these activities each day, although there is notable variability in the time each offers to them. Table 1

How many hours a day do you use electronic devices to communicate?				
	Frequency	Percentage	Valid percentage	Cumulative percentage
	0	1,4	1,4	1,4
	4	1,4	1,4	2,7
	5	2,7	2,7	5,4
	6	12	16,2	21,6
	7	3	4,1	25,7
	8	8	10,8	36,5
	9	11	14,9	51,4
Valid	10	13	17,6	68,9
	11	1	1,4	70,3
	12	12	16,2	86,5
	13	5	6,8	93,2
	14	2	2,7	95,9
	15	3	4,1	100,0
	Total	74	100,0	100,0

**Table 1.** Analysis of daily hours of electronic device use by adolescents in Cuenca

Source: Iñiguez and Córdova/2024

The data reveal that more than 50% of the adolescents surveyed use technology on a prolonged basis in their daily lives. The average usage is between 10 and 12 hours a day reported by 68.9% and 86.5% of respondents respectively, which could have unfavorable implications for their physical and mental health. Only a small percentage, approximately 3%, report using devices for less than 5 hours a day or not using them at all.

Inquiring about the type of technology most frequently used by adolescents, Table 2 shows the frequency, percentage, valid percentage and cumulative percentage of their use.

This analysis reveals that 100% of those surveyed make use of technologies; of these, 43.2% mainly use social networks and video games, while 56.8% are heading towards video games as their main option.

What type of technology do you use most frequently?					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Social networks, Video games	32	43,2	43,2	43,2
	Video games	42	56,8	56,8	100,0
	Total	74	100,0	100,0	

**Table 2.** Assessment of the type of technologies and their most frequent use by adolescents in Cuenca  
Source: Iñiguez and Córdova/2024

Do you consider that the excessive use of technology can have negative effects on your life?					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	No	36	48,6	48,6	48,6
	Yes	38	51,4	51,4	100,0
	Total	74	100,0	100,0	

**Table 3.** Considerations of Cuenca adolescents about the excessive use of technology and its negative effect.  
Source: Iñiguez and Córdova/2024

How concerned are you about the risks associated with technology use?					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Nothing to worry about	21	28,4	28,4	28,4
	Neutral	36	48,6	48,6	77,0
	Little concerned	17	23,0	23,0	100,0
	Total	74	100,0	100,0	

**Table 4.** Results of the surveyed adolescents' concern about the risks associated with the use of technology.  
Source: Iñiguez and Córdova/2024

Results of the application of the five-item Likert scale.						
Items		Strongly disagree	Disagree	Neutral	Agreed	Totally agree
I feel I spend too much time on social networks		23	11	36	1	2
The use of video games makes me feel frustrated.		23	5	42	1	2
I often get angry when I can't access my social networks.		26	0	44	1	2
My online interactions generate more anger than satisfaction.		26	0	44	1	2
The time I spend on my video games affects my mood.		26	0	44	1	2

**Table 5.** Results of the application of the Likert scale to determine the perception of adolescents in Cuenca on the relationship between the use of technologies and angry thinking.  
Source: Iñiguez and Córdova/2024

To understand the statistical results related to the perception of excessive use of technology and its possible negative effects on the lives of adolescents, Table 3, which presents the frequency, percentage, valid percentage and cumulative percentage of responses, was analyzed.

The responses provided show a diversity of opinions among adolescents on this issue. 51.4% recognize the existence of negative effects, which indicated a certain awareness of the risks associated with the intensive use of technological devices.

Interestingly, the fact that more than 50% of respondents identify possible unfavorable effects reflects an increased awareness of issues such as screen addiction, mental health problems such as anxiety or depression, as well as their impact on interpersonal relationships.

This analysis reveals a divided opinion among adolescents about the dangers of excessive use of technology in their lives. Although 50% of them do not perceive any associated problems, the rest do recognize the potential negative effects.

Hence, in order to learn about adolescents' concern about the risks associated with the use of technology, Table 4 was considered.

The findings indicate that overall concern among adolescents is low; approximately 77% feel neutral or somewhat concerned about the risks associated with technology use. Only 28.4% express significant concern. This reflected the existence of a lack of awareness of such risks.

The category with the highest incidence is neutral, with an estimated 48.6%, which indicates that these adolescents do not have a clear feeling on the subject, which may be due to a lack of information or discussion about the potential risks of excessive use of technology, or because they have not experienced significant problems in this regard.

In the study, a Likert scale with five items was applied to evaluate the responses of adolescents from Cuenca on the relationship between the use of social networks and video games with anger. Table 5 shows the different perceptions and levels of anger reported by the participants according to their use of these platforms.

In this case, a relationship between the perception of risk and anger in adolescents was revealed; it was noted that they are not aware of the impact of technology on their emotional wellbeing.

In this context, the information is complemented by the survey of parents or relatives of adolescents, regarding the perception of their behaviors in the family environment, where a mean of 3.05 exhibits a moderate view of the environment in which their children develop, however, the standard deviation of 0.911 which indicates differences between opinions regarding family experiences that may emotionally affect the population studied.

Despite the fact that adolescents spend an average of 3.81 hours playing video games, what concerns parents most about their possible effect on academic and emotional performance is that they do not see a clear connec-

tion between the use of social networks and school performance, although the mean of 2.52 reflects concern about their emotional impact.

In this aspect, parents show great concern for the time their children spend interacting with technological media. In addition, the data obtained illustrated a weak correlation (0.246) between the quality of communication at home and the time adolescents spend as a family.

Correlations			
		CFC	F. Family
CFC	Pearson correlation	1	.246*
	Sig. (bilateral)		.036
	N	73	73
F Family	Pearson correlation	.246*	1
	Sig. (bilateral)	.036	
	N	73	73

\*. Correlation is significant at the 0.05 level (bilateral).

**Table 6.** Correlation between communication in the home (frequency and quality) and the time the family spends together with the active participation of the child.

Source: Iñiguez and Córdova/2024

Regarding communication in the home and the time the family spends together with the active participation of the child; the values in Table 6 express the significance (p-value) is 0.036, suggesting that this correlation is statistically significant.

An interview was also conducted with 7 teachers of the Unidad Educativa Particular Hermano Miguel De La Salle on the impact of technologies on adolescents.

All teachers agreed that technology facilitates access to information and collaboration, but also generates distractions that affect attention and learning. They emphasize that, to mitigate these effects, they have implemented strategies such as establishing clear rules and encouraging discussions on the responsible use of technology, although their effectiveness varies.



They express that they try to integrate the responsible use of technology through collaborative projects, but face the challenge that some students do not take advantage of these opportunities. In addition, they manage anger in the classroom by promoting an environment where students can express their emotions and discuss their causes, emphasize the importance of showing how to manage anger constructively, and, in some cases, offer personalized attention to students in need. They recognize that each student is unique and that patience and empathy are fundamental in this process.

## **DISCUSSION AND CONCLUSIONS**

How adolescents perceive the risk of using technology intensively to communicate has become a very relevant topic nowadays. The use of several screens at the same time has even been associated with mental health problems, such as anxiety and depression, and is often not recognized as such.

Authors such as, Lanz et al. (2013) expose in their works the importance of promoting healthy habits in the use of technology, as well as the impacts associated with the excessive use of social networks, in adolescents, that young people express about the acquisition, use, management and risks of these platforms.

In this regard, the work of Duarte et al. (2023) (2023) further explores the tendency for Internet addiction levels to be an important marker if we want to discover and study self-injury in adolescents, this contribution presupposes that the perception of risk in the use of technology is understood as a growing process.

It is of vital importance to address addictions to the excessive use of the Internet and its various platforms, especially communication platforms most used by adolescents and the dynamics within families, the knowledge in these environments of the risks, as the only premise to provide strategic solutions to the feelings derived from the harmful use of technology.

The excessive use of video games represents a psychosocial risk for adolescents, affecting their social and family skills and relationships, as well as their personality development.

This can cause multiple negative effects on their physical health due to the lack of healthy lifestyle habits (Carreño and Luna, 2020).

The authors Medina and Andrade (2024) study and provide valuable analysis and concepts on the complexities and diverse effects that social networks and their unregulated use by adolescents have on their mental health. They warn of the need for decision-makers to implement proactive, effective and sustainable educational strategies that allow young people to have a safer, healthier and more comfortable browsing environment in the digital environment and in communication.

It is essential to promote state and family policies that guarantee a healthy emotional and psychological development of adolescents in the current context of the information society.

The concern for adolescent mental health is reflected in the research of Palacio (2021) who identified how the use of digital social networks can influence suicide attempts in this age group. His study highlights that, although there is a relationship between the use of these platforms and the risk of suicide, the impact is mediated by individual, family and social factors, as well as by the environments in which young people develop. This means that the use of digital social networks could increase the risk of suicide attempts in vulnerable individuals.

This risk is exacerbated by the problematic use of technology, as evidenced by the results from Sierra et al. (2016) who found that a significant number of adolescents have Internet addiction. This addiction can contribute to a range of emotional and behavioral problems. Marín (2018) points out that excessive Internet use generates low frustration tolerance in adolescents, as well as feelings of anger, impulsivity and social isolation.

These factors not only aggravate the emotional situation of young people, but can also be a catalyst for risky behaviors, such as suicide attempts, creating a worrying cycle between technology use, anger and mental health.

Finally, Arellanos and Arellanos(2019) highlight that family communication is a crucial factor for the emotional well-being of adolescents. An inadequate family environment can lead to problems such as depression, stress, anxiety and loneliness. In contrast, an environment characterized by warmth, respect, empathy and good communication fosters the development of good manners and a high level of psychological well-being.

Therefore, it is essential to promote effective communication in the family environment to mitigate the risks associated with the use of technology and promote healthy emotional development in adolescents.

In conclusion, adolescents show a notable disconnect between their perception of the risk of excessive use of technology and the negative emotions they experience, such as anger and frustration. Although some are aware of these emotions, they tend to minimize them, suggesting a lack of awareness of how their digital behavior influences their emotional well-being. This may increase the occurrence of mental health problems. Parents' positive acknowledgment of the home environment, as well as their concerns about the time their children spend on technology, warns of the need for a supportive environment. It is crucial to promote spaces where adolescents can channel their emotions and discuss their causes. Given that they spend an average of

9.32 hours per day in an environment related to digital devices, it is essential to implement interventions that encourage a healthy balance between technology use and other activities, including education on risk perception and emotional management.

The research identified some limitations, but in spite of that it is recommended to be a sustained trend the study on: Bullying in social relationships in the field of digital networks, as well as the approach of comparisons between the behavior of adolescents in their relationship with the use of technology, these and other variables can provide information of interest for future studies on the socioemotional factor in the context of social networks and digital environments in general, for this atareo group.

Among the limitations, the limited time available to apply the data collection instruments stands out. It is advisable to increase the sample size to validate and generalize the results, as well as to establish indicators to evaluate the impact achieved.

In addition, due to the importance and generality of the phenomenon under study, it is suggested to socialize in other social and educational contexts. It is essential to consider the level of preparation and professional performance of students, teachers and directors to carry out this important process, a planning process to ensure the necessary techniques, tools and logistics for a research that expands the sample, diversifies the geographic areas and the target groups so that the result will go even deeper into these issues.

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