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**How Social Media use and Parasocial Phenomenon Influences Lives
of School Children**

MA Thesis

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Abstract

This study examines the influence of social media personalities, particularly digital influencers, on children and preteens, focusing on the development of parasocial relationships and wishful identification. The research investigates the prevalence of internet addiction, the correlation between wishful identification and internet addiction, as well as the relationships between loneliness, age, smartphone ownership, and gender. The findings suggest a positive correlation between wishful identification and internet addiction among children aged 8-12 years old. However, the study acknowledges its limitations, including the restricted sample size due to the requirement of parental consent. Further research is needed to include parents and families to gain a more comprehensive understanding of technological compulsion and its impact on children's well-being.

Keywords: Internet and Digital Media, Social Networks, Children, Preteens, Digital Influencers, Parasocial Relationships, Wishful Identification, Internet Addiction, Loneliness, Age, Smartphone Ownership, Gender, Technology Compulsion.

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Introduction

Internet and Digital Media are increasingly becoming an important part of our lives, for the younger public of children and teenagers mostly. From developed countries as the USA, where 95% of teenagers have access to smartphones (International Telecommunications Unit [ITU], 2017), to developing countries as Brazil, where 79% of children between 10 and 12 years old already have their own smartphone (Mobile Time/Opinion Box, 2021), it is clear that this generation is growing up in a world dependent on digital platforms.

In particular, Social Networks are a vital aspect of achieving satisfaction for preteens and teenagers in general (Folkvord et al., 2019). Although these platforms require a minimum age of 13 years to register, 98% of children between 3 and 15 years old visit the virtual world platforms and 58% of them have access to social networks. For every ten parents of children between the ages of 8 and 12, four say they will let their children access social media before reaching the minimum age (Ofcom, 2021).

The current generation lives in a world saturated with digital media, where these are not only used for entertainment, such as watching movies or listening to music, but also as a form of communication through platforms such as Whatsapp, Telegram and Instagram (Crone & Konijn, 2018) .

The growing popularity of these platforms has worried families, who are faced with the fact that their children are so strongly associated with digital content that they no longer have control over the time and use of these technologies (van den Eijnden et al., 2009). In fact, children under age of 2 are spending an average of 49 minutes a day in front of screens, while children aged 2 to 4 years spend an average of 2h30 a day and those aged between 3 and 5 years already spend more than 3 hours per day in contact with screens (Common Sense Census, 2020).

We remember that the skill of self-control is one of the first and most important skills that

society imposes on the little ones. But not only that, the ability to manage their emotions, time and behavior has profound implications in the adult lives of these individuals (Tao et al., 2014).

Despite the fact that 58% of Brazilian parents say they gave their children smartphones to help them with their studies, for example, most of their time is not spent performing pedagogical tasks, but consuming online media. Within the 5 apps most used by children aged 0 to 12 years are 4 video apps, whether via streaming or social network. They are, in descending order, YouTube (72%), Whatsapp (52%), TikTok (45%), Netflix (43%), YouTube Kids (42%) (Mobile Time/Opinion Box, 2021).

While Netflix's video productions aimed at children require a large structure, writers, studios, etc., videos shown on other platforms are the opposite. Video platforms where the content is produced by the users themselves have a different logic and need little or no structure for recording the videos. The so-called “vloggers”, which compound a significant portion of these creators, focus on content in which they share their routines, opinions, tutorials, games and impressions about the world around them (Hill et al., 2017). The popularity of "vloggers" or “YouTubers” (as they are also known) has grown exponentially in recent years and guarantees the most famous to be nominated for the highest paid professionals on social media.

In the era of the “Attention Economy” where each communication channel competes with its opponents to win minutes of user attention, YouTubers and Influencers were acclaimed by the advertising market (Webster, 2014). This fact happened because the digital market saw a great value attributed to the content produced by YouTubers for their audience. Companies have found an effective way to promote their products and services in this universe through the so-called “influencer marketing” (Ofcom, 2021). Influencer marketing consists of taking advantage of the involvement of influencers with their followers by brands through videos of unboxing, discount

coupons, participating in challenges, etc. In this way, Influencers act as an example of behavior for children and adolescents and encourage consumption and attitudes patterns (Folkvord et al., 2019).

Online spaces such as YouTube and other platforms with user content production work toward for their users to accumulate the so-called “attention capital” (van Krieken, 2012). YouTubers are ordinary people who, in turn, have a significant amount of “attention capital” through their audience. They are those who managed to build close relationships with their viewers through their content and can be seen as celebrities in society today (Driessens, 2016). Despite having an important role in the time of children and teenagers in the online universe, there are little researches on the relationship created between YouTubers and young people.

Children and preteens, in turn, are strongly influenced by those people closest to them who have built an intimate relationship. An evidence of this is the greater easiness that children have to learn from their own mothers in relation to other people (Kremar, 2010). Currently, Influencers have become increasingly familiar figures next to the younger ones due to the high exposure of children to screens and multiplatforms in general.

This peculiar dynamic develops the so-called “parasocial relationship”, which is defined as an emotional relationship between an ordinary person and a media personality (Hoffner, 2008). This is a phenomenon studied since the beginning of celebrity culture (Horton & Wohl, 1956) and currently the concept has been extended to the context of digital influencers, and perhaps even stronger. Corroborating this, 70% of teenagers say they identify more with YouTubers than with traditional celebrities and 4 out of 10 say that their favorite influencers understand them better than their friends (Google, 2016).

Most of the current researches on parasocial relationships has focused on the adult public and still little is known about how this dynamic develops in the public of children and teenagers, especially in a context where digital influencers are increasingly popular among this community. Although we do not know how the parasocial relationship affects the cognitive development of children and teenagers, we do know that children younger than 2 years old can learn sequential tasks from videos of socially significant characters, for example (Lauricella et al, 2011).

On the other hand, one study shows that younger children had the strongest parasocial relationship with TV characters in a sample of children aged between 5 and 12 years (Rosaen & Dibble, 2008). In addition, we know that in this age group (5-9 years) children are using YouTube as a form of entertainment and informal learning (Martínez & Olsson, 2019). There are also reports of children who, despite not having a YouTube channel, start playing as if they had, narrating their games and reminding their viewers to “subscribe to the channel” (Pierson, 2016).

Recently, Tolbert and Drogos (2019) revealed in a research with preteens from 9 to 12 years old, an age group that grows a lot in number and has its attention disputed by platforms and social networks, that gender is an important prognostic factor about which influencers children will identify with the most. Girls were more predisposed to like influencers of the same gender, which they considered funny and smart. While boys tended to like more influencers of their gender who were funny, intelligent and violent. Almost all research participants (98%) had their favorite YouTubers.

The probability of a viewer continuing to watch a YouTuber gradually increases according to the level of their parasocial relationship with that influencer (Lim et al., 2020). Therefore, it is natural to assume that the most successful influencers are those who manage to

create stronger emotional relationships in their viewers and what we call “Wishful Identification”. Wishful Identification (WI) is a component of this type of connection, it is a type of psychological desire to look like a media personality (Feilitzen & Linne, 1975). This desire influences the viewer to shape their own persona with that of their favorite media personality, influencing their opinions, consumption patterns and esthetics (Hu et al., 2020).

It is no wonder that the “YouTuber” profession is the most desired for the future by children aged between 8 and 12 years old (LEGO Group, 2019). So it is safe to say that digital influencers are creating strong connections with preteens. On the other hand, online courses are known for their high dropout rates, in addition to creating a greater distance between the student and the teacher (Boumadan et al., 2020).

In a digital environment where there are few non-verbal signals, students know very little about their teachers (Song et al., 2016). For example, students said that during the Covid-19 pandemic they looked for empathy, reassurance and authenticity in their teachers, but instead reported that their teachers acted “as if we were robots” (Literat, 2021). In fact, a completely different perception from that reported with digital influencers.

Our objective with this work is to understand how social media personalities are influencing children and preteens, either by developing parasocial relationships and/or wishful identification with these influencers. Furthermore, knowing that this public is learning informally and creating strong connections with influencers, we need to investigate whether there are good lessons to be learned from educators and educational platforms whose mission is to teach effectively through distance education.

1. Literature Review

1.1. Relationships in childhood and preadolescence

One of the most fundamental tasks in children's development is the formation of affective and trusting bonds with others. Because it is from these experiences that the sense of “self” emerges in their lives, feeling part of a group and putting themselves in perspective before others, children, pre-adolescents and adults have their relationship needs fulfilled (Hoffner, 2008).

Children develop their first and deepest relationships with those family members who live around them. Over time, friends and teachers become part of the child's universe of references as well, playing the role of behavior models (Cohen & Metzger, 1998). As human beings, we have a fundamental need to create interpersonal bonds, so whatever the context, we tend to look for relationships and models of behavior (Hoffner, 2008).

John Donne (1975) once said that “no one is an island”, illustrating our need to form bonds and connect to models shaping our own way of living and analyzing our surroundings. This need has been studied and analyzed in the last decades by several researchers and we already have some paths developed.

For example, we know that it is necessary to comply with two criteria to develop effective bonds with other people: first of all, it is necessary to meet frequently with the same individual several times until, in fact, they manage to develop a trust relationship; second, these “meets” must take place in a stable temporal context, where each can show care for the other. Frequent relationships with different people or lack of frequent contact with loved ones will result in unsatisfactory connection (Baumeister & Leary, 1995).

In last decades, researchers have dedicated themselves to answering the questions: a) Can we develop the same relationships as a face-to-face meet through technology, such as TV, the Internet or another electronic device, for example? b) Would a relationship mediated by technologies be able to be so deep even though it doesn't have the same level of interaction as a conversation in real life? Researchers are increasingly instigated by these questions (Walther & Parks, 2002).

However, we know that communication technologies are getting increasingly improved with more ability to engage your users in different worlds, whether through games, social networks or streaming networks.

1.2.Children and media consumption

From the end of the 20th century, children develop in front of screens from early childhood. Screens are a significant influence on children's imagination from old tube TVs to current smartphones (Calvert and Wilson, 2008). The difference is that, while in the past decades TV's programs dedicated part of their programming to children, nowadays children and preteens are attracted to content 24 hours a day in the palm of their hand and without proper parental monitoring in many cases.

However, researchers are conscious of how children spend their leisure time long before that. In the so-called "Progressive Era" (1880 to 1930), interest in child development grew in academia, as did the analysis of how children spent their time (Wartella and Robb, 2008). In this period, technological advances and the beginning of capital accumulation by families made it possible for children to start choosing what they would spend their time with. In addition,

inventions such as the car and radio provided new leisure options for the little ones as well (Somers, 1971).

Children's history and media consumption in leisure time are mixed with progressive technological and social changes in society. Since the second decade of the 20th century, there were concerns about leisure time with media for children already (Wartella and Robb, 2008). Back then, children spent their leisure time consuming more (in this order): movies, radio, and later television. It ended up revolutionizing leisure, not just for children but for the entire family. This phenomenon turns out to be more apparent when we compare how children spent their leisure time before and after the emergence of television (Wartella & Mazzarella, 1990).

During the 20th century, children had a big shift in the amount of time invested in leisure and in what kind of leisure. In an olden study, M. M. Davis (1911) interviewed 1,140 children in 1910, between ages 11 to 14, and found that 62% of them said they went to the movies once or twice a week. Two decades later, in 1930, these numbers increased with the rise of radio. Sociologists Lundberg, Komarovsky, and McNerny (1934) conducted a study of 795 high school students, where they kept a diary of their leisure habits for a few months. The result they obtained was that both social context and gender influenced how students spent their leisure time. In low-income families, students spent more time working outside the home, while girls spent more time on housework.

At that time, although there was more time being invested in leisure, most of the time it was not spent consuming media. In research by Lundberg and his colleagues, for example, they found that New York teenagers spent 7 hours and 25 minutes on leisure activities during the week and 11 hours during the weekend. Most of this time, however, was spent away from home, with friends, attending club meetings, sports, and churches. The time devoted to media

consumption was not significant even when they were at home. About two-thirds of the young people who took part in the survey spent an hour and a half listening to radio programming, or to be more precise, they spent 11% of their leisure time with the radio. Adding the consumption activities of all available media (radio, cinema, listening to recordings, etc.), the sum of 10 hours per week invested in these types of activities is reached.

This scenario changed after the introduction of a technological innovation in entertainment: the TV. The emergence of the television set was viewed with ambivalence by society at large as were previous inventions. Some critics saw it as an opportunity to keep children safe in their homes, strengthen family bounds and promote education. Others worried about the impact that consumption of media through television would have on children, causing them to imitate undesirable behaviors and become more aggressive. Besides, those who were concerned about the exaggeration of time it would take children to consume televised attractions (Wartella and Robb, 2008).

In the US after the Second World War, television, which was previously seen as a curious technological artifact, began to be introduced into family homes. Household consumption jumped 60% in the five years after the war, largely on account of the purchase of new household items, including televisions. Birth rates increase, elevating the sense of family building as a basilar value in the US and television was seen as a central item in these families' recreation. In just 9 years (1956), the number of homes with a television set jumped from 0.02% to 65%, proving to be not only a embracing media but with rapidly growing one in family homes (Spigel, 1992).

This trend continued in later decades, mainly due to the tendency for homes to have more than one television set. In 2003, for example, 98.2% of US homes had TVs, with an average of

2.4 sets per home (US Census Bureau, 2006). Devices have also spread to other rooms in the house, with 60% of children and adolescents (8-18 years old) having a device in their bedroom and 36% of children under 6 years old as well (Rideout & Hamel, 2006). This certainly had a significant impact on how families and their children viewed their leisure time.

In fact, 50 years after the aforementioned surveys, the scenario has changed radically. According to research conducted by Timmer, Eccles, and O'Brien (1985), where children also kept a diary to record their leisure and media consumption habits, they spent 14 hours and 14 minutes a week just watching TV. Compared to 10 hours of total leisure time 50 years earlier, that's a huge leap.

If at the beginning of the introduction of television sets there was a debate about whether or not they would be a uniting factor for the nucleus and interactions of families, little by little, the scenario became increasingly clear. At the time, most families only had one device per household, leading advocates to the view that it would be a unifying factor for families, bringing its members physically close to each other (Spigel, 1992). However, being physically close to one another does not necessarily increase interactions between individuals. In reality, one can have the feeling of closeness by being next to each other watching the same attraction, but there is no interaction of dialogues and face-to-face contact. According to Maccoby (1951), this would be a “parallel” relationship and not a regular human interaction.

At the beginning of the 21st century, this scenario not only advanced but also accelerated. In 2005, according to Roberts, Foehr and Rideout (2005), children and preteens already spent about 6.5 hours a day consuming various media such as computers, TVs and video games. The use of media has increased so much that even babies and younger children (up to 6 years of age)

have entered the ranks of media consumption, consuming 2h of screens per day (Rideout & Hamel, 2006).

Internet began to spread into homes in the early 2000s, mainly through computers. For example, at the beginning of the decade, 40% of American homes already had computers with internet access. When considering only households with children, this number was changed to 50% (National Telecommunications and Information Administration, 2000).

While most children say they are under their parents' rules about using TVs (Lugaila, 2003), the same does not apply to new media. Previously, parents had control and sufficient technological knowledge to monitor the use of TV by children and teenagers, but with the internet, this is not quite the case. Because it is a new and constantly evolving media, 64% of teenagers say they know more about the internet than their parents, of which 66% agree with this statement (Pew Internet & American Life Report, 2001).

The number of people using smartphones has increased in the last two decades. In 2015, in the US, about 97% of households had TVs, 83% tablets and 77% smartphones. By 2024, it is expected that there will be more than 7 billion smartphones in the world (Statista, 2022). It was to be expected that the introduction of these devices would reach families and children, in particular. In fact, in the first months of life, children are already exposed to the smartphones, even if it is passively, they listen to music and videos (Kabali et al, 2015).

Tablets are important devices for children's media consumption. They attract children's attention because the screen size is larger and they are easier to have the content controlled by the parents, probably. In the UK, for example, seven out of ten children and teenagers (5 to 15 years old) own a tablet, while this number halves in the adult population. In early childhood, the tablet is the main electronic device that children have access to. As children move into pre-

adolescence (13 years old), the scenario changes and practically all preteens own smartphones and spend most of their media consumption time on them (Ofcom, 2021).

Children can not only hold a cell phone but also draw on them by the age of two. Tablets and smartphones attract children's attention for their design, content, colors and their multimedia capabilities. At your pace, children learn to operate apps on smartphones and tablets, elevating them to the number one preferred device for little ones (Yadav & Chakraborty, 2017).

Currently, the numbers show that media consumption through tablets and smartphones is gaining new levels never seen before every year. According to Child Wise Monitor Report (2021), children aged 7 to 8 spend about 2 hours and 54 minutes online per day. That number jumps to 4 hours and 12 minutes when we reach the 11-12 age group. On average, children and teenagers between 7 and 15 years old are spending 4 hours a day on the internet through electronic devices.

If we compare the previously mentioned study by Timmer, Eccles and O'Brien (1985), with children consuming 10 hours of television per week, and the study by Lundberg, Komarovsky, and McInerney (1934), where children and teenagers consume 1 hour and a half of radio programming per week, we will notice the great leap in media consumption. Furthermore, it is important to emphasize that television and radio were almost entirely replaced by electronic devices and internet access.

1.3. The growth of children's content

From the earliest days of film production, children and young people were consuming this content. With the advent of television, the production of children's content has accelerated over time, reaching increasingly younger children. We currently have TV or Internet

programming even for babies as young as a few months. With increase in children's media productions for the most varied means of communication, there has also been increase in concern about the consequences of the consumption of these contents by young people (Hoffner, 2008).

The introduction of radio into the lives of families, especially those in the US, for which we have more data, certainly raised concerns about the content of their programming. From the end of 20's to the middle of 30's, radio stations were dedicated to producing children's content. The four largest radio stations in New York in 1928 produced an average of 40 minutes a week of children's programs, a number that jumped to 21 hours in 1933 (Eisenberg, 1936).

Criticism also came at the same speed of growth. The content of radio programs aimed at children was considered violent, overly exciting, with too much suspense and no educational content at all, critics reported (Hoffner, 2008). In 1934, the "Women's National Radio Committee" created of 28 different women's organizations in the USA began to analyze and select radio programs that were considered positive. This led radio stations to adapt to criticism, and years later (1938) they began to introduce educational children's programs. Programs on music appreciation, children's literature, youth discussion groups and fairy tales were produced at this time.

Additionally, the National Association of Broadcasters has adopted minimum quality standards for its children's programming: content should respect parents and not over-stimulate children. However, over the years, it is speculated that radio stations have reduced their children's programming to avoid controversy with families (Gordon, 1942; apud Hoffner, 2008).

Although in the beginning (1920-1930) there were no productions of films made specifically for children and teenagers, they were certainly part of the audience for these productions. This is not to say that film production companies did not want to attract young

people, on the contrary. In 1929, for example, Walt Disney instituted a series of promotional activities to attract children to movie theaters. Weekly, local movie theaters promoted the “Mickey Mouse Club” to show their productions especially for the youngest (Butsch, 2000).

Since the beginning of the film industry, there have been discussions about whether or not content is appropriate for children and for which age groups, in addition to the attempt by its enthusiasts to sell this media as a revolution in the way of educating children. Thomas Edison, the great inventor and owner of several patents on film projection, proclaimed in 1913 that films would quickly replace school textbooks (Holiday Magazine, 1913). Edison argued that films, unlike books and teachers, could bring fast, lively and with audio information from distant people, places, and ideas, thus having a larger potential to educate than teachers.

The increased attention on the content of films and its impact on the audience were factors that also led researchers to look with larger interest at the topic. The Payne Fund, a private New York organization, financed 12 major research studies on the effects of films on youth from 1928 to 1933. The goal was to bring the best researchers around the issue of films influencing young people in their violent, social and sexual behavior. The conclusion of these investigations validated the hypothesis. Films not only "placed" these ideas in the minds of young people, they were also a "powerful" mechanism for influencing their behavior (Hoffner, 2008).

Likewise, a similar dynamic began to develop with the emergence of television. After the 1950s, television was the means of communication that presented the greatest progressive increase in children's programming. According to Melody (1973), in 1951 there were about 27 hours of children's programming on American television, a number that increased to 36 hours in

1956. In the 1960s, television channels saw "Saturday morning" as an opportunity to vehicular their children's programs, since it was a time of little attraction for other audiences.

Cable television, in turn, took the number of attractions and hours of children's content to a new level. The number of children's channels multiplied in the US and later in the rest of the world as well. There was even a channel aimed at babies and children between 0 and 3 years old in the early 2000s, the BabyFirstTV (Hoffner, 2008). According to Wartella, Heintz, Aidman and Mazzarella (1990), if during the 1980s and 1990s a family subscribed to a cable TV service, it would have access to almost 258 hours per week of content orientated at an audience under twelve years of age.

Soon the concern with the quality of the content shown on television, especially for children, began to be the target of deeper criticism and analysis, as happened with radio. This increased the number of educational attractions on production stations and the release of Sesame Street in 1969 became a landmark for children's educational content on television. From this show it became clearer how children could learn letters, numbers and other educational content that could help their insertion in preschool (Hoffner, 2008).

In the 1990s and early 2000s, the first studies began to arise on the impact of educational programs on younger children. The "Early Window Project" followed the effects of children watching educational content for three years (specifically in the 2-5 and 4-7 age group) from low-income families. The researchers found that children who watched more educational content on television at ages 2 and 3 had higher grades in school at age 5 in math and languages. In a sequel to the study, researchers followed these individuals through adolescence (15-19 years) and found that positive outcomes persisted (Anderson et al., 2001). These results suggest that educational content can help younger children to develop their cognitive skills. Not only that,

since the 1970s other studies have suggested that children can learn constructive behaviors over television (Friedrich & Stein, 1973).

If educational content can be learned on television screens, so can violent and sexual content. From the first studies on the effects of violent movies on the minds of young people to the present day, the understanding has grown that children and young people can be negatively affected by this type of content, indeed. According to Hoffner (2008), the three major bibliographic reviews on the subject in the last 70 years point to this understanding.

Researchers' attention began to turn to video games and the internet in the early 2000s. In the case of videogames, the results of researches at the time also pointed in a similar direction: children can learn and imitate the violent behavior of videogames. However, there are no studies that claim that this is the only cause of problematic behavior in children and young people, but one of the factors that can influence the individual (Gentile & Anderson, 2006).

Social networks and streaming platforms have become more popular since 2010. They have substantially increased the amount of content available for consumption by children and teenagers, in addition to introducing a new range of possibilities for interaction between individuals. Not only that, but children and teenagers are not just consumers on these platforms, they can also create their own content and share it with their friends (Tolson, 2010).

Platforms and social networks interconnect and leave gaps so that harmful content can reach children and adolescents. One in four young people admits that they have seen something that unsettled them on the internet (Lareki, de Morentin, Altuna, & Amenabar, 2017). In addition, there are other problems such as password sharing by children, identity theft and exposure to explicit sexual content (Donoso, Rubio, & Vila, 2018).

On the other hand, streaming platforms are today one of the most popular activities among young people. These are online services that provide on-demand audiovisual content to their users, which can or cannot be created by consumers themselves (Caron, Raby, Mitchell, & Thewissen-LeBlanc, 2017). Contents of these platforms aimed at children are not always well analyzed. For example, several videos with the “made for Kids” label on YouTube are considered disturbing and their creators can use techniques to cheat the system and draw the attention of younger children to their videos. In a study published in 2022, researchers found that 60% of videos that had been noted as disturbing since 2019 were still on YouTube's Made for Kids platform (Gkolemi et al., 2022). In addition, there is a risk that children will try to imitate the same behaviors and challenges they watch on platforms (McRoberts et al., 2016).

All these factors together make the bad influence linked to digital technologies one of the biggest concerns for families and schools. In a research conducted in 2017, "Stress in America" revealed that 48% of parents say it is a constant battle to control their children's screen time. Farther, 58% said that they fear the consequences for their children's physical and mental health for the excessive use of social media.

1.4. Parasocial and Identification Relationships

For some decades, researchers have known that human beings have a fundamental need to form affective bonds, so relationships develop naturally with meeting of individuals in different contexts (Cohen & Metzger, 1998). The development of a relationship depends on the interaction between two individuals during a certain period, implying mutual exchange of information (Hinde, 1979).

In turn, children form their affective bonds very early on with the closest family members they live with. Over time, children begin the school period and start to live with new individuals, soon they also begin to be inserted into their circle of affection and relationship. Gradually, they also consume media in various means of communication, this adds another opportunity for bonding. Researchers have questioned for some time whether it would be possible for children to create relationships with symbols consumed through the media, which is now believed to be true (Hoffner, 2008).

In a survey carried out with 21-month-old babies, it was possible to observe the children's ability to learn through videos. Although there is a considerable loss when compared to face-to-face pedagogical interactions, it is notable that babies as young as 21 months were able to learn basic math skills when the video presented had a familiar character in their eyes. According to the researchers, this happens because they had formed parasocial relationships with the characters, which would facilitate video learning (Gola et al., 2014).

The term “parasocial relationship” was initially proposed by Horton and Wohl (1956) in their inspiring work on the topic. The term was used to describe a similar relationship to face-to-face between a spectator and a media figure. Other researchers have also used the term to describe the affective bond between individuals and characters of non-interactive media, such as movies, television, books, and music bands. Giles (2002) argues that after the individual makes the personal judgment of a certain character or attributes specific characteristics to him, the individual will understand that character as a real being in his social circle.

The concept of parasocial relationship merges with other similar concepts such as “imitation”, “attraction”, “similarity” and “identification”. Although the original definition of a parasocial relationship argues that it involves neither or a minimal interaction between

individuals, it is safe to say that any relationship has different dynamics interacting with each other (Hoffner, 2008).

From the moment the first interpersonal connection begins with a media figure or a virtual partner, the process of getting to know the other begins also. The Uncertainty Reduction Theory says that the first contacts in a relationship are marked by high levels of uncertainty and that individuals are motivated to reduce this type of uncertainty in the very first interactions (Berger, 1988). According to this theory, there are some ways to reduce the level of uncertainty in relationships, however, in general, there is a consensus that as bigger the level of communication and interaction, as bigger the level of trust in the relationship (Hoffner, 2008).

Taylor (1973) explains how the process of trust in a relationship deepens. According to the social penetration theory, intimacy develops over time when there is communication and proximity, thus, individuals evolve from superficial interactions to more intimate ones. Regardless parasocial relationships do not offer this type of interaction, media characters often have structured their communication strategy to reveal more intimate facts about their lives, simulating the dynamics of interaction in order to create proximity and identification (Hoffner, 2008).

Younger people use parasocial relationships to express themselves and experience new identities. Being a fan of a media character or celebrity and expressing that connection over conversation, clothing and room decorations communicates these individuals' self-expression and identity. Consequently, this connection develops the desire to look like these media figures, incorporating their characteristics and opinions into their repertoire of self-expression (Maltby et al., 2005).

Internet and social networks have opened a new path for parasocial relationships through screens and it seems that children and teenagers are using these platforms to satisfy their needs for interpersonal relationships (Papacharissi & Rubin, 2000). This new space is indeed a unique universe for the development of parasocial relationships. In the beginning, researchers believed that due to the lack of non-verbal signals and interactions at the level of a face-to-face relationship, the internet would only be able to create superficial relationships and would not have the ability to develop parasocial relationships between individuals (Hoffner, 2008).

In fact, children and teenagers may be searching the internet for compensation for deep relationships that they may not receive within their homes. Since Wolak, Mitchell and Finkelhor (2003) there is evidence that teenagers who have difficulties in relationships with their parents tend to have closer online relationships. Possibly there is a dynamic of correlation between these two social factors, with the internet and social media as a new catalyzer.

1.5. The phenomenon of digital influencers

The evolution of the means of communication has brought the power of creating media content to the masses of people. In this way, people considered “ordinary” began to have the possibility to produce content and become famous in a short time (Hu et al, 2020). Digital Influencers are individuals who have a significant number of followers and who have the power of influence over them (Lou & Yuan, 2019). This is a market that has been growing together with the emergence of new digital platforms. In 2016, the digital influencer market was worth about 1.6 billion dollars, this number jumped to 16.4 billion dollars in 2022 (Influencer Marketing Hub, 2022).

Digital Influencers are considered a type of micro celebrities, who practice self-presentation on social media, consciously adjusting the promotion of their image and personality on networks to attract as many followers as possible (Dhanesh & Duthler, 2019). Perhaps one of the most important characteristics for the success of digital influencers is the personality they build to be displayed on social networks (Khamis, Ang, & Welling, 2016).

Identity represents a series of personal characteristics that are central to individuals and are relatively enduring (Tajfel & Turner, 1986). In general, celebrities possess a variety of symbolic values and provide an important source of meaning for their fans and followers. These meanings define the identity of celebrities and serve as a reference for those who fetch these values in their digital idols (McCracken, 1989).

Despite being a recent phenomenon, the market of digital influencers was already foreseen since the end of the 90s. Michael Goldhaber (1997) popularized the notion of the term “attention economy”, where in a context of information saturation and with the human concentration being limited, this would become a new cumulative type of wealth. He explained that the ability to catch an audience's attention would be crucial to succeed in this new market, as the larger your audience at any given time, the greater your media potential in the future.

Differently traditional celebrities, digital influencers are seen as individuals with social status and attitudes similar to their followers (Hwang & Zhang, 2018). Digital Influencers develop their authority online over actions such frequent posts and high rate of interaction with their followers, making self-promotion one of the key skills for success in this branch (Casaló, Flavián, & Ibáñez-Sánchez, 2018).

The information shared by Digital Influencers reduces the level of psychological and social distance between the parties, develops a sense of accessibility for those who follow them

and increases the feeling of similarity (Kim & Song, 2016). Similarity defined as a degree of overlap between the follower's perception of his own personality and that of the Digital Influencer (Stokburger-Sauer et al., 2012).

Digital influencers have different strategies from conventional celebrities to reach their potential audiences. While conventional celebrities have mainstream recognition, digital influencers are recognized as micro celebrities and are specialists in specific niches such as fashion, games, gastronomy, fitness and many others (Khamis et al., 2016). These niches can be further subdivided based on demographics, location, interests, gender and age of your followers.

Digital Influencers develop a reputation with their audience, either through their unique personality or specific knowledge about certain areas of interest for their followers (Lou & Yuan, 2019). This reputation consequently reflects on the influence on the buying behavior of their followers, who see in digital influencers not only an expert on a certain subject, but also someone close due to the parasocial phenomenon (Xiang et al., 2016).

Previous research has come to different conclusions about the role of celebrities in children's lives. From a point of view, there are researchers who argue that celebrities are important symbols for young people (Power & Smith, 2017; Read, 2011; Tsaliki, 2015), while others question the scale of this importance (Girsh, 2014). As we established earlier, digital influencers are a type of micro celebrities and, therefore, develop dynamics different from those used by traditional celebrities with their audience. Martínez (2017) investigated the influence of micro celebrities, more specifically YouTubers, on children's lives and his conclusion was emphatic: "YouTubers are significant figures in children's lives. They play a part in the construction of identity; the micro celebrities you choose to follow – or distance yourself from –

say something about who you are. They also have a more concrete role as a tool for consumption and as a space for informal learning.”

Beyond YouTubers or digital influencers being a huge social and media phenomenon, their reach has increased over the years. In recent years, there was a significant increase in the use of social networks and streaming platforms by children (such as YouTube and Tiktok), especially in the pandemic period (Gkolemi et al., 2022). For the children's audience, influencers are subdivided into a few different categories, from niches about beauty, joking, challenges, gameplays and pranks. Some of them explore different niches as well (Jerslev, 2016).

Martínez & Olsson (2018), for example, dedicated themselves to exploring the child YouTuber “Misslisibell”, who in 2015 was named “super communicator of the year”. Despite being only a few years older than her viewers at the time, the researchers found that virtually all of the children interviewed already knew the YouTuber, saw her as a celebrity, who provided tips (advertisements) and an “older sister” with advice. The YouTuber in question was already viewed by the Swedish advertising market as a success.

The successful engagement of digital influencers with the general public, especially with children and preteens, has drawn the attention of the advertising market, which has taken advantage of the spotlight of micro celebrities as a new form of commercial insertion (De Veirman et al., 2017). There is still few researches about mechanisms of engagement and loyalty of digital influencers on young people, something that can be useful in teaching children critical thinking about social media, but also serve as a guide for digital educational platforms, which are still seen as cold and robotic (Literat, 2021).

2. The Purpose of this Study

The purpose of this study is to examine the relationship between internet (or screens) addiction, parasocial relationships with digital influencers, and loneliness among children aged 8-12 years old. With the pervasive use of screens and potential consequences on children's well-being, this research aims to investigate the role of screen addiction, as measured by the Internet Addiction Test (IAT), in relation to the development of parasocial relationships, wishful identification, and feelings of loneliness in this age group.

The study seeks to address the following research questions:

- Is there a connection between screen addiction, as measured by the IAT, and feelings of loneliness among children aged 8-12 years old?
- To what extent does internet addiction influence the formation of parasocial relationships with digital influencers among children and preteens?
- Is there an association between internet addiction and age, gender and school tuition value?

By investigating these research questions, this study aims to provide insights into the complex interplay between internet addiction and the aforementioned factors. Understanding how internet addiction influences the formation of parasocial relationships, wishful identification, and loneliness among children and preteens can contribute to the development of targeted interventions and educational strategies to promote healthy technology use and digital well-being in this age group. The findings of this research can inform parents, educators, and policymakers on the potential risks associated with excessive screen time and guide efforts to promote balanced and responsible media consumption habits among children and preteens.

3. Method

As outlined in the previous section, the purpose of this study was to examine internet addiction, loneliness, and wishful identification among children aged 8-12 years old in five schools (four private schools and one public school) through individual interviews. In this section, we describe how the research was designed and conducted, ensuring the quality of the research and research ethics at all stages. The chapter is divided into subchapters, including the sample, data collection, and data analysis.

3.1. Sample

The study's sample consisted of children aged between 8 and 12 years, and in total, 203 children were interviewed, comprising of 48.8% girls and 51.2% boys.

The sample selection was based on the schools where they were enrolled, and their participation was voluntary. The selection process involved obtaining authorization from parents or guardians who signed a consent form that explained the study's purpose and methods.

3.2. Data Collection

Data collection was conducted through individual face-to-face interviews with each participant, using three instruments: the Internet Addiction Test (IAT), the Children's Loneliness Scale (CLS), and the Wishful Identification Test (WIT).

The instruments were chosen based on their reliability and validity in assessing internet addiction, loneliness, and wishful identification. The Internet Addiction Test (IAT) was administered to assess the level of internet addiction among the participating children. The choice of this instrument was based on its established validity and reliability in measuring internet addiction in various populations, including children. The instrument's reliability was ensured by using a standardized protocol for administration and scoring.

The Children's Loneliness Scale (CLS) was employed to measure the level of loneliness among the children. The rationale for selecting this instrument was its well-established psychometric properties and its applicability to children aged 8 to 12 years. The instrument's reliability was ensured by following a standardized procedure for administration and scoring.

The Wishful Identification Test (WIT) was used to evaluate the extent of identification with online personas or characters among the participating children. The choice of this instrument was based on its relevance to the research questions and its established validity and reliability in measuring identification with media characters. The instrument's reliability was ensured by using a standardized protocol for administration and scoring.

A questionnaire with 20 questions adapted from the three instruments was developed to gather the data. The interviews were conducted in person, in a private setting within each school.

3.3. Data Analysis

Data analysis was conducted using descriptive and inferential statistical methods to identify patterns and relationships between internet addiction, loneliness, and wishful identification. The data collected from the questionnaires were coded and analyzed using SPSS statistical software. The interview data were transcribed and coded for themes and patterns, which were analyzed using content analysis. Overall, this study's data collection and analysis procedures were designed to ensure the quality of the research and research ethics, enabling the reader to replicate the study if necessary. The instruments and their exact descriptions are presented in the appendices for reference

3.4. Hypothesis

The hypotheses for this study include the following:

- A) Internet addiction will be positively correlated with loneliness among children aged 8-12 years old. It is expected that children who exhibit higher levels of internet addiction will also report higher levels of loneliness.

- B) Wishful identification with online personas or characters will be positively correlated with internet addiction among children. The hypothesis is that children who engage in wishful identification with online personas or characters will show higher levels of internet addiction.

C) Level of identification with online influencers will be positively correlated with the sensation of loneliness. This hypothesis suggests that children who experience higher levels of loneliness are more likely to engage in greater identification with online influencers or social media personalities.

These hypotheses were formulated based on previous research that has shown associations between internet addiction, loneliness, and wishful identification. The specific instruments chosen for this study, the IAT, CLS, and WIT, were selected for their reliability and validity in assessing these constructs. The data collected through individual interviews will be analyzed using statistical methods to examine the relationships between these variables and provide insights into the phenomenon of internet addiction, loneliness, and wishful identification among children aged 8-12 years old.

4. Results

4.1 Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	203	8	12	10.39	1.021
Gender	203	0	1	.51	.501
Own_Smartphone	203	0	1	.79	.406
Wishful_identification	75	1.750	4.750	3.86167	.535707
Internet_Addiction_test	203	1.00	5.00	3.1921	.82806
Children_lonliness_scale	203	2.250	3.500	2.99692	.201494
Valid N (listwise)	75				

Above table presents the overall descriptive statistics of the variables used in the analysis. The age variable has 203 observations. The minimum age is 8 years and maximum age is 12 years in the data. The mean age is 10.39 with 1.021 years standard deviation.

The gender variable also has 203 observations. It has 0 = female and 1 = male. The mean value is 0.51, which means that sample has a probably fair distribution of both genders in the sample. The standard deviation of .501 underlines this balanced gender representation.

The "Own_Smartphone" variable indicates whether participants own a smartphone, also a binary variable. The mean value of .79 suggests that a large majority of the participants, almost 79%, own a smartphone. The standard deviation is .406, indicating that the data points are quite tightly clustered around the mean.

"Wishful_identification" seems to be a continuous variable, ranging from 1.75 to 4.75 with a mean value of 3.86. The standard deviation is .54, showing a moderate spread around the mean. However, this variable has fewer valid responses than others (only 75), which may affect the reliability of these statistics.

The "Internet_Addiction_test" likely measures the level of internet addiction among participants on a scale from 1.00 to 5.00. The mean value is 3.19, suggesting a moderate level of internet addiction in the sample, and the standard deviation of .828 indicates a moderate spread in the responses.

Finally, the "Children_loneliness_scale" seems to measure feelings of loneliness among the children, on a scale from 2.25 to 3.5. The mean value is close to 3, which may suggest a moderate level of perceived loneliness. The standard deviation is relatively small (.20), indicating that the responses are closely clustered around the mean.

Overall, the above data table provides a descriptive overview of the sample, offering insights into the age and gender distribution, smartphone ownership, wishful identification, internet addiction levels, and feelings of loneliness among the participants.

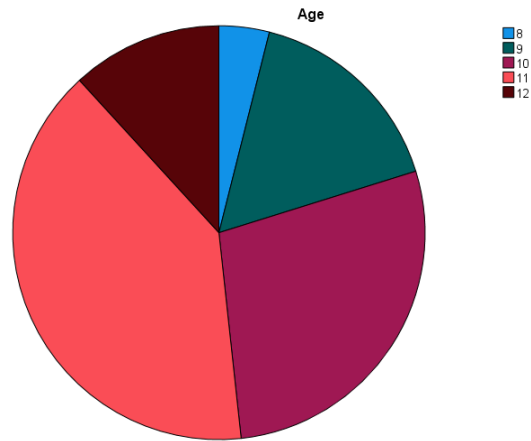
4.2. Frequency Distribution Analysis

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8	8	3.8	3.9	3.9
	9	33	15.6	16.3	20.2
	10	57	26.9	28.1	48.3
	11	81	38.2	39.9	88.2
	12	24	11.3	11.8	100.0

	Total	203	95.8	100.0	
Missing	System	9	4.2		
Total		212	100.0		

The above table offers a frequency distribution of the variable "Age" in a dataset encompassing 212 observations. However, there are 9 missing values, reducing the valid sample size to 203 observations.

Among the valid cases, children aged 8 years old constitute a small proportion of the sample, representing 3.9% of the sample, or 8 children. The cumulative percentage column reflects this as well, indicating that 3.9% of the sample is 8 years old or younger.



As we move up in age, the frequency and the corresponding percentages increase. There are 33 children who are 9 years old, making up 16.3% of the sample. Thus, the cumulative percentage up to the age of 9 is 20.2%, meaning that 20.2% of the sample is 9 years old or younger.

The largest age group in the sample is the 11-year-olds, who account for 39.9% of the sample or 81 children. This pushes the cumulative percentage up to 88.2%, indicating that 88.2% of the sample is 11 years old or younger.

Finally, the 12-year-olds account for 11.8% of the sample, or 24 children. With the inclusion of this age group, the cumulative percentage reaches 100%, implying that all valid age data has been accounted for.

The distribution of ages in the sample leans towards the older ages, with the majority of the sample being 11 years old.

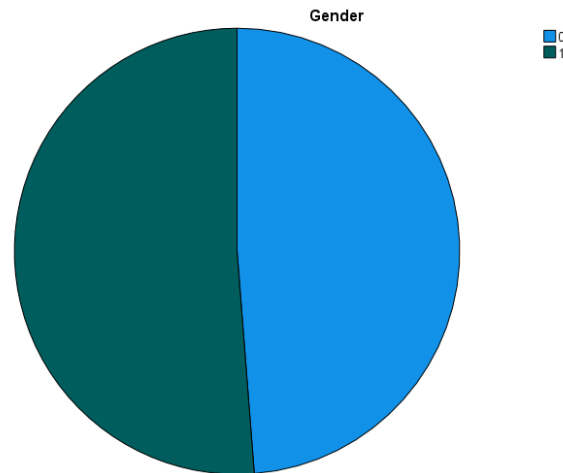
4.3. Gender

Gender			
Frequency	Percent	Valid Percent	Cumulative Percent

Valid	0	99	46.7	48.8	48.8
	1	104	49.1	51.2	100.0
	Total	203	95.8	100.0	
Missing	System	9	4.2		
Total		212	100.0		

The table above elucidates the frequency distribution of the variable "Gender" in a dataset of 212 observations. However, there are 9 missing values, which reduces the valid sample size to 203 observations.

The variable "Gender" is a binary variable, with '0' and '1' representing female and male, respectively. Among the valid cases, the category '0', females



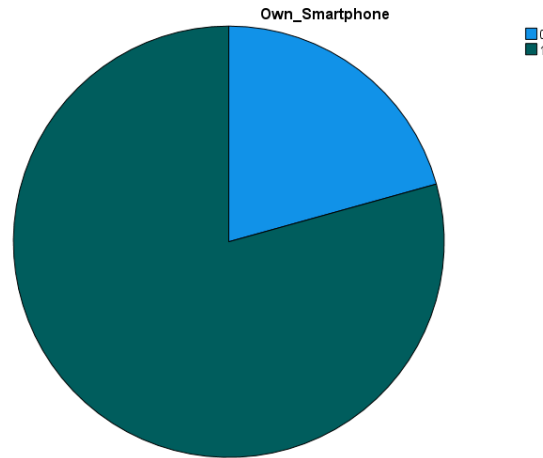
include 99 participants, accounting for 48.8% of the sample. This percentage also appears in the cumulative percent column, indicating that almost half of the valid sample falls into the '0' category.

The category '1' male, on the other hand, includes slightly more participants, with 104 observations. This category accounts for 51.2% of the sample. As the final category in the variable, the cumulative percentage reaches 100%, indicating that all valid gender data has been accounted for.

4.4. Own Smartphone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	42	19.8	20.7	20.7
	1	161	75.9	79.3	100.0
	Total	203	95.8	100.0	
Missing	System	9	4.2		
Total		212	100.0		

The table above details the frequency distribution of the variable "Own_Smartphone" in a dataset of 212 observations. However, there are 9 missing values, which brings the valid sample size down to 203 observations.



The "Own_Smartphone" variable appears is also a binary variable, with '0' representing No and '1' indicating the presence of a smartphone. Among the valid cases, 42 participants, or 20.7% of the sample, fall into the NO category. The cumulative percentage mirrors this, indicating that nearly a fifth of the sample does not own a smartphone.

The Yes category includes significantly more participants, with 161 observations. This group accounts for 79.3% of the sample, suggesting that a substantial majority of the participants do own a smartphone.

4.5. Correlation Analysis

4.5.1. Wishful Identification, IAT, and CLS Correlation Analysis

		Wishful_identification	Internet_Addiction_test	Children_Online_ss_scale
Wishful_identification	Pearson Correlation	1	.264*	.152
	Sig. (2-tailed)		.022	.192
	N	75	75	75
Internet_Addiction_test	Pearson Correlation	.264*	1	.137
	Sig. (2-tailed)	.022		.051
	N	75	203	203
Children_Online_ss_scale	Pearson Correlation	.152	.137	1
	Sig. (2-tailed)	.192	.051	
	N	75	203	203

*. Correlation is significant at the 0.05 level (2-tailed).

The table above elucidates the correlations among three variables: "Wishful_identification," "Internet_Addiction_test," and "Children_loneliness_scale." The associations are measured using Pearson's correlation coefficient, which ranges from -1 to +1, with -1 indicating a perfect negative correlation, +1 indicating a perfect positive correlation, and 0 indicating no correlation.

"Wishful_identification" and "Internet_Addiction_test" show a significant positive correlation of .264, as also indicated by the asterisk. The significance level, as reflected by the p-value (.022), is less than .05, confirming the statistical significance of this correlation at the 95% confidence level. This suggests that as the level of wishful identification increases, so does the score on the internet addiction test.

However, "Wishful_identification" and "Children_loneliness_scale" show a positive correlation of .152, but the p-value (.192) is more than .05, indicating that this correlation is not statistically significant at the 95% confidence level. This suggests that the relationship between wishful identification and children's loneliness scale scores is weak and could be due to random chance.

Lastly, "Internet_Addiction_test" and "Children_loneliness_scale" demonstrate a positive correlation of .137. However, similar to the previous relationship, the p-value (.051) is more than .05, suggesting that this correlation is not statistically significant at the 95% confidence level. This indicates a weak and possibly random association between internet addiction and children's loneliness scale scores.

In summary of this section, only the correlation between wishful identification and internet addiction is statistically significant in this sample, while the relationships between wishful identification and children's loneliness, and between internet addiction and children's loneliness, are not.

4.5.2. Age vs Wishful Identification, IAT, and CLS Correlation Analysis

		Correlations			
		Age	Wishful_identification	Internet_Addiction_test	Children_loneliness_scale
Age	Pearson Correlation	1	-.016	.210**	-.012
	Sig. (2-tailed)		.890	.003	.864
	N	203	75	203	203
Wishful_identification	Pearson Correlation	-.016	1	.264*	.152
	Sig. (2-tailed)	.890		.022	.192

	N	75	75	75	75
Internet_Addiction_test	Pearson Correlation	.210**	.264*	1	.137
	Sig. (2-tailed)	.003	.022		.051
	N	203	75	203	203
Children_loneliness_scale	Pearson Correlation	-.012	.152	.137	1
	Sig. (2-tailed)	.864	.192	.051	
	N	203	75	203	203

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The table presents the correlations among four variables: "Age," "Wishful_identification," "Internet_Addiction_test," and "Children_loneliness_scale." These correlations are measured using Pearson's correlation coefficient, which ranges from -1 to +1.

The correlation between "Age" and "Wishful_identification" is -.016 with a p-value of .890, indicating a very weak, non-significant negative correlation between the two variables. This suggests that age and wishful identification do not significantly correlate in this sample.

However, "Age" and "Internet_Addiction_test" demonstrate a statistically significant positive correlation of .210, as indicated by the double asterisk. The p-value of .003, which is less than .01, confirms the statistical significance of this correlation at the 99% confidence level. This finding implies that as age increases, so does the score on the internet addiction test.

The correlation between "Age" and "Children_loneliness_scale" is -.012, with a p-value of .864. This indicates a very weak, non-significant negative correlation. Essentially, age and the children's loneliness scale scores do not significantly correlate in this sample.

In conclusion for this section, the correlations between age and internet addiction, and wishful identification and internet addiction, are statistically significant, while the other correlations are not.

4.5.3. Own Smartphone vs Wishful Identification, IAT, and CLS Correlation Analysis

		Correlations			
		Own_Smartphone	Wishful_identification	Internet_Addiction_test	Children_online_ss_scale
Own_Smartphone	Pearson Correlation	1	.237*	.248**	.090
	Sig. (2-tailed)		.041	.000	.199

	N	203	75	203	203
Wishful_identification	Pearson Correlation	.237*	1	.264*	.152
	Sig. (2-tailed)	.041		.022	.192
	N	75	75	75	75
Internet_Addiction_test	Pearson Correlation	.248**	.264*	1	.137
	Sig. (2-tailed)	.000	.022		.051
	N	203	75	203	203
Children_loneliness_scale	Pearson Correlation	.090	.152	.137	1
	Sig. (2-tailed)	.199	.192	.051	
	N	203	75	203	203

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The table above provides correlations among four variables: "Own_Smartphone," "Wishful_identification," "Internet_Addiction_test," and "Children_loneliness_scale." These associations are examined using Pearson's correlation coefficient, with the significance of the correlations indicated by the p-value.

The correlation between "Own_Smartphone" and "Wishful_identification" is .237, which signifies a positive, statistically significant correlation at the 95% confidence level (p-value of .041). This suggests that children who own a smartphone tend to have a higher level of wishful identification.

For "Own_Smartphone" and "Internet_Addiction_test," the correlation is .248, which is statistically significant at the 99% confidence level (p-value of .000). This correlation suggests that children who own a smartphone tend to score higher on the internet addiction test.

However, the correlation between "Own_Smartphone" and "Children_loneliness_scale" is .090, with a p-value of .199. This indicates a weak, non-significant positive correlation, implying that smartphone ownership does not significantly correlate with children's loneliness scale scores in this sample.

Only the correlations between smartphone ownership and both wishful identification and internet addiction are statistically significant, while the other relationships are not.

4.5.4. Gender vs Wishful Identification, IAT, and CLS Correlation Analysis

Correlations

		Gender	Wishful_identification	Internet_Addiction_test	Children_loneliness_scale
Gender	Pearson Correlation	1	-.072	.033	.052
	Sig. (2-tailed)		.537	.640	.457
	N	203	75	203	203
Wishful_identification	Pearson Correlation	-.072	1	.264*	.152
	Sig. (2-tailed)	.537		.022	.192
	N	75	75	75	75
Internet_Addiction_test	Pearson Correlation	.033	.264*	1	.137
	Sig. (2-tailed)	.640	.022		.051
	N	203	75	203	203
Children_loneliness_scale	Pearson Correlation	.052	.152	.137	1
	Sig. (2-tailed)	.457	.192	.051	
	N	203	75	203	203

*. Correlation is significant at the 0.05 level (2-tailed).

The table above reveals the correlations among four variables: "Gender," "Wishful_identification," "Internet_Addiction_test," and "Children_loneliness_scale." These relationships are measured using Pearson's correlation coefficient, which ranges from -1 to +1, with -1 indicating a perfect negative correlation, +1 indicating a perfect positive correlation, and 0 indicating no correlation.

The correlation between "Gender" and "Wishful_identification" is -.072, with a p-value of .537. This indicates a weak, non-significant negative correlation between the two variables, suggesting that gender and wishful identification do not significantly correlate in this sample.

The correlation between "Gender" and "Internet_Addiction_test" is .033, with a p-value of .640. This weak, non-significant positive correlation implies that gender does not significantly correlate with the scores on the internet addiction test in this sample.

The correlation between "Gender" and "Children_loneliness_scale" is .052, with a p-value of .457. This weak, non-significant positive correlation suggests that gender does not significantly correlate with the scores on the children's loneliness scale in this sample.

The relationships between gender and the other variables are not statistically significant.

4.5.5. Tuition Value vs Wishful Identification, IAT, and CLS Correlation Analysis

		Correlations			
		TuitionValue	Wishful_identification	Internet_Addiction_test	Children_Online_ss_scale
TuitionValue	Pearson Correlation	1	-.085	-.435**	.072
	Sig. (2-tailed)		.467	.000	.309
	N	203	75	203	203
Wishful_identification	Pearson Correlation	-.085	1	.264*	.152
	Sig. (2-tailed)	.467		.022	.192
	N	75	75	75	75
Internet_Addiction_test	Pearson Correlation	-.435**	.264*	1	.137
	Sig. (2-tailed)	.000	.022		.051
	N	203	75	203	203
Children_online_scale	Pearson Correlation	.072	.152	.137	1
	Sig. (2-tailed)	.309	.192	.051	
	N	203	75	203	203

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The data presented above in the correlation matrix table signifies the relationships between Tuition Value and three other variables, namely Wishful_identification, Internet_Addiction_test, and Children_online_scale.

Firstly, there is a weak negative correlation between Tuition Value and Wishful_identification, as indicated by a Pearson Correlation of -0.085. This suggests that as the tuition cost increases, the tendency towards wishful identification tends to decrease slightly. However, it's important to note that this correlation is not statistically significant with a p-value of 0.467, which exceeds the conventional threshold of 0.05. This suggests that the observed correlation might be due to chance, and we cannot confidently assert a real relationship between these two variables in the population.

Secondly, a moderate negative correlation exists between Tuition Value and Internet_Addiction_test with a Pearson Correlation coefficient of -0.435, which is statistically significant at the 0.01 level ($p < 0.01$). This implies that higher tuition costs are associated with a lower score on the Internet addiction test. In other words, as tuition fees rise, the tendency towards Internet addiction tends to diminish, and this relationship is unlikely to be due to chance.

Lastly, there is a very weak positive correlation between Tuition Value and Children_lonliness_scale, as indicated by a Pearson Correlation of 0.072. This suggests that as tuition fees increase, feelings of loneliness among children may slightly rise. However, this correlation is not statistically significant ($p = 0.309$), which means this observed relationship may simply be due to chance, and we cannot reliably assert a real relationship between these two variables in the population.

In summary of this section, Tuition Value has a statistically significant moderate negative relationship with Internet_Addiction_test, while its relationships with Wishful_identification and Children_lonliness_scale are not statistically significant.

4.6. Regression Analysis

4.6.1. Wishful Identification Predictor Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.261 ^a	.068	.029	.527931

a. Predictors: (Constant), Own_Smartphone, Gender, Age

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.448	3	.483	1.732	.168 ^b
	Residual	19.788	71	.279		
	Total	21.237	74			

a. Dependent Variable: Wishful_identification

b. Predictors: (Constant), Own_Smartphone, Gender, Age

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.087	.559		7.306	.000
	Age	-.057	.059	-.121	-.958	.341
	Gender	.022	.132	.020	.166	.869
	Own_Smartphone	.415	.190	.286	2.189	.032

a. Dependent Variable: Wishful_identification

The above tables provide statistics for a linear regression model where "Wishful_identification" is the dependent variable and "Own_Smartphone," "Gender," and "Age" are the predictors. The statistics include coefficients for each predictor, the model summary, and an analysis of variance (ANOVA).

The coefficient table presents both unstandardized and standardized coefficients (Beta) for each predictor. The unstandardized coefficient (B) represents the change in the dependent variable for a one-unit change in the predictor, while holding other predictors constant. The standardized coefficient (Beta) compares the strength of the effect of each individual independent variable to the dependent variable.

The unstandardized coefficient for "Age" is $-.057$ with a p-value of $.341$, which is not significant at the $.05$ level. This indicates that age does not have a significant effect on wishful identification. The coefficient for "Gender" is $.022$ with a p-value of $.869$, also not significant at the $.05$ level, suggesting that gender does not significantly influence wishful identification. The coefficient for "Own_Smartphone" is $.415$, significant at the $.05$ level with a p-value of $.032$. This suggests that owning a smartphone does have a significant effect on wishful identification. For each unit increase in "Own_Smartphone," we can expect a $.415$ unit increase in "Wishful_identification," holding all other variables constant.

The model summary provides an overview of the fit of the model. The R Square (or coefficient of determination) is $.068$, indicating that only about 6.8% of the variance in "Wishful_identification" is explained by the predictors "Age," "Gender," and "Own_Smartphone." The Adjusted R Square, which adjusts the R Square for the number of predictors in the model, is $.029$, suggesting that after adjusting for the number of predictors, only about 2.9% of the variance in "Wishful_identification" is explained by the model.

To summarize this section, while owning a smartphone significantly predicts wishful identification, age and gender do not.

4.6.2. IAT Predictor Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.283 ^a	.080	.066	.80008

a. Predictors: (Constant), Own_Smartphone, Gender, Age

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.121	3	3.707	5.791	.001 ^b
	Residual	127.387	199	.640		
	Total	138.507	202			

a. Dependent Variable: Internet_Addiction_test

b. Predictors: (Constant), Own_Smartphone, Gender, Age

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.681	.585		2.876	.004
	Age	.110	.059	.136	1.863	.064
	Gender	.070	.113	.042	.618	.537
	Own_Smartphone	.414	.149	.203	2.779	.006

a. Dependent Variable: Internet_Addiction_test

The above tables present the results of a linear regression model, where the dependent variable is "Internet_Addiction_test" and the predictors are "Own_Smartphone," "Gender," and "Age." These tables encompass the model summary, an analysis of variance (ANOVA), and the regression coefficients for each predictor.

In the coefficients table, both unstandardized and standardized coefficients (Beta) are presented. The unstandardized coefficient (B) indicates the change in the dependent variable per unit change in the predictor, assuming all other predictors remain constant. In contrast, the standardized coefficient (Beta) provides a comparison of the strength of the effect of each predictor on the dependent variable.

The unstandardized coefficient for "Age" is .110, with a p-value of .064. This p-value is marginally above the .05 significance level, indicating that age has a borderline significant effect

on the Internet addiction test score. For every one-year increase in age, we can expect a .110 unit increase in the Internet addiction test score, holding all other predictors constant.

The unstandardized coefficient for "Gender" is .070, with a p-value of .537. Since this p-value exceeds the .05 significance level, it suggests that gender does not significantly influence the Internet addiction test score in this model.

The unstandardized coefficient for "Own_Smartphone" is .414, with a p-value of .006, which is significant at the .01 level. This result implies that owning a smartphone has a significant effect on the Internet addiction test score. For each unit increase in "Own_Smartphone," we can expect a .414 unit increase in the Internet addiction test score, holding all other variables constant.

The model summary provides an overall picture of the model's fit. The R Square, or coefficient of determination, is .080, suggesting that approximately 8% of the variance in the Internet addiction test score can be explained by the predictors. The Adjusted R Square, which adjusts the R Square for the number of predictors in the model, is .066. This means that after accounting for the number of predictors, about 6.6% of the variance in the Internet addiction test score can be explained by the model.

In summary of this section, the model suggests that owning a smartphone significantly predicts the Internet addiction test score, while age has a borderline significant effect, and gender does not significantly predict the Internet addiction test score.

4.6.3. CLS Predictor Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.121 ^a	.015	.000	.201516

a. Predictors: (Constant), Own_Smartphone, Gender, Age

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.120	3	.040	.986	.400 ^b
	Residual	8.081	199	.041		

Total	8.201	202			
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a. Dependent Variable: Children_lonliness_scale
b. Predictors: (Constant), Own_Smartphone, Gender, Age

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.055	.147		20.748	.000
	Age	-.011	.015	-.057	-.754	.452
	Gender	.026	.029	.066	.925	.356
	Own_Smartphone	.058	.038	.116	1.535	.126

a. Dependent Variable: Children_lonliness_scale

The above tables detail the results of a linear regression model with the dependent variable being the "Children_lonliness_scale", and the predictors being "Own_Smartphone," "Gender," and "Age." The tables include a model summary, an analysis of variance (ANOVA), and coefficients for each predictor.

The coefficients table contains both unstandardized and standardized coefficients. The unstandardized coefficients (B) indicate the change in the dependent variable for each unit change in the predictor, holding all other predictors constant. The standardized coefficients (Beta) provide a measure of how strongly each predictor variable influences the dependent variable.

In this model, the unstandardized coefficient for "Age" is -.011, with a p-value of .452. This p-value is greater than .05, suggesting that age does not significantly impact the Children's Loneliness Scale score in this model.

The unstandardized coefficient for "Gender" is .026, with a p-value of .356. As this p-value is above .05, we can infer that gender does not significantly affect the Children's Loneliness Scale score in this model.

The unstandardized coefficient for "Own_Smartphone" is .058, and the p-value is .126. Although this p-value is less than .2, it is still above the .05 threshold typically used to determine statistical significance. Thus, owning a smartphone does not significantly influence the Children's Loneliness Scale score in this model.

The model summary provides an overview of the model's performance. The R Square value is .015, indicating that the predictors explain about 1.5% of the variance in the Children's Loneliness Scale score. The Adjusted R Square, which accounts for the number of predictors in the model, is 0.

In summary of this section, the regression model indicates that age, gender, and owning a smartphone do not significantly predict the Children's Loneliness Scale score.

5. Discussion

The results of the correlation analysis provide insights into the relationships between the variables examined in this study: wishful identification, internet addiction, children's loneliness, age, smartphone ownership, and gender. Let's discuss the results based on the three hypotheses formulated.

Hypothesis: Internet addiction will be positively correlated with loneliness among children aged 8-12 years old.

The correlation analysis showed a positive correlation of .137 between internet addiction (Internet_Addiction_test) and loneliness (Children_lonliness_scale). However, this correlation was not statistically significant at the 95% confidence level, as the p-value (.051) exceeded the predetermined threshold. Therefore, we cannot conclude a significant relationship between internet addiction and loneliness in this sample.

Hypothesis: Wishful identification with online personas or characters will be positively correlated with internet addiction among children.

The correlation analysis revealed a positive correlation of .264 between wishful identification (Wishful_identification) and internet addiction (Internet_Addiction_test). This correlation was found to be statistically significant at the 95% confidence level (p-value = .022). Hence, the results

support the hypothesis that wishful identification is positively correlated with internet addiction among children aged 8-12 years old.

Hypothesis: Loneliness will mediate the relationship between internet addiction and wishful identification among children. The correlation analysis did not directly assess the mediating effect of loneliness. However, we can observe that the correlation between wishful identification and loneliness was positive but not statistically significant ($r = .152$, $p = .192$).

Similarly, the correlation between internet addiction and loneliness was also positive but not statistically significant ($r = .137$, $p = .051$). These findings suggest a weak association between these variables, but additional analysis or mediation tests would be required to determine the mediating effect of loneliness conclusively. Age, smartphone ownership, and gender were also included in the correlation analysis. Among these variables, age showed a statistically significant positive correlation with internet addiction ($r = .210$, $p = .003$) and smartphone ownership ($r = .248$, $p = .000$). However, the correlations between age and wishful identification, age and loneliness, and gender and all other variables were not statistically significant.

The regression analysis for the "Wishful_identification" variable shows that the predictors "Own_Smartphone," "Gender," and "Age" explain only about 6.8% of the variance in wishful identification. The coefficient for "Age" (-0.057) is not statistically significant ($p = 0.341$), indicating that age does not have a significant effect on wishful identification. The coefficient for "Gender" (0.022) is also not significant ($p = 0.869$), suggesting that gender does not significantly influence wishful identification. However, the coefficient for "Own_Smartphone" (0.415) is significant ($p = 0.032$), indicating that owning a smartphone does have a significant effect on wishful identification. This means that for each unit increase in smartphone ownership, we can expect a 0.415 unit increase in wishful identification, holding other variables constant. For the "Internet_Addiction_test" variable, the regression analysis shows that the predictors "Own_Smartphone," "Gender," and "Age" explain approximately 8% of the variance in the Internet addiction test score. The coefficient for "Age" (0.110) is marginally significant ($p = 0.064$), suggesting that age has a borderline significant effect on the Internet addiction test score. For every one-year increase in age, we can expect a 0.110 unit increase in the test score, holding other predictors constant.

The coefficient for "Gender" (0.070) is not significant ($p = 0.537$), indicating that gender does not significantly influence the Internet addiction test score. On the other hand, the coefficient for "Own_Smartphone" (0.414) is significant ($p = 0.006$), indicating that owning a smartphone has a significant effect on the Internet addiction test score. For each unit increase in smartphone ownership, we can expect a 0.414 unit increase in the test score, holding other variables constant.

Regarding the "Children_loneliness_scale" variable, the regression analysis indicates that the predictors "Own_Smartphone," "Gender," and "Age" explain only about 1.5% of the variance in the Children's Loneliness Scale score. The coefficient for "Age" (-0.011) is not significant ($p = 0.452$), suggesting that age does not have a significant effect on the loneliness scale. Similarly, the coefficient for "Gender" (0.026) is not significant ($p = 0.356$), indicating that gender does not significantly influence the loneliness scale. The coefficient for "Own_Smartphone" (0.058) is also not significant ($p = 0.126$), suggesting that owning a smartphone does not significantly affect the loneliness scale.

In summary, the results provide evidence supporting the positive correlation between wishful identification and internet addiction among children aged 8-12 years old. However, the relationships between internet addiction and loneliness, wishful identification and loneliness, as well as the mediating role of loneliness, were not statistically significant in this sample. These findings emphasize the complexity of the relationships between internet addiction, wishful identification, and loneliness in children, suggesting the need for further research to explore additional factors that may influence these associations.

6. Conclusion

This study aimed to investigate the influence of social media personalities on children and preteens, focusing on the development of parasocial relationships and wishful identification with digital influencers. The results of the correlation analysis provided insights into the relationships between variables such as wishful identification, internet addiction, loneliness, age, smartphone ownership, and gender.

The findings supported the hypothesis that wishful identification is positively correlated with internet addiction among children aged 8-12 years old. However, it is important to acknowledge the limitations of this study, which was confined to a specific number of students who required parental consent to participate. Consequently, other students without consent were excluded, potentially affecting the generalizability of the results. Moreover, the correlation between internet addiction and loneliness was not statistically significant in this sample, suggesting a weak association.

Additionally, the correlation between wishful identification and loneliness was positive but not statistically significant, indicating that the mediating role of loneliness requires further investigation. Future research should consider including parents and families in the study to gain a more comprehensive understanding of the complexities surrounding technological compulsion and potentially explain variations in addiction rates.

The study also revealed statistically significant correlations between age and smartphone ownership with internet addiction. Older children and smartphone owners exhibited higher levels of internet addiction. However, the correlations between age and wishful identification, age and loneliness, and gender and all other variables were not statistically significant. These findings highlight the potential risks associated with technology compulsion, including various mental health disorders, safety risks, and the future well-being of children.

Therefore, it is essential to provide content on self-regulation and digital safety to teachers, students, and families. Educating these stakeholders can empower them with the necessary knowledge and skills to navigate the digital world responsibly and mitigate the negative effects of compulsive technology use. In summary, this study contributes to our understanding of the influence of digital influencers on children and preteens.

It underscores the complexity of the relationships between internet addiction, wishful identification, and loneliness in this population. Further research is necessary to explore additional factors and include parents and families in order to gain a more comprehensive understanding of the phenomenon of technological compulsion. By investigating the habits of parents and families,

we can potentially explain the variations in addiction rates and shed light on effective interventions to address compulsive behaviors related to technology.

Author's declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.

Fernando Lino

01/06/2023

References

- Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science*, 12, 353–9.
- Baumeister, R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497–529.
- Berger, C. R. (1988). Uncertainty and information exchange in developing relationships. In S. Duck (Ed.), *Handbook of personal relationships: Theory, research, and interventions* (pp. 239–55). New York: Wiley.
- Boumadan, M., Soto-Varela, R., Ortiz-Padilla, M., & Poyatos-Dorado, C. (2020). What Factors Determine the Value of an Online Teacher Education Experience from a Teacher's Perspective? In *Sustainability* (Vol. 12, Issue 19, p. 8064). MDPI AG.
<https://doi.org/10.3390/su12198064>
- Butsch, R. (2000). *The making of American audiences: From stage to television, 1750–1990*. Cambridge: Cambridge University Press.
- Calvert, S. L., & Wilson, B. J. (n.d.). Introduction: Media and Children's Development. In *The Handbook of Children, Media, and Development* (pp. 1–4). Blackwell Publishing Ltd.
<https://doi.org/10.1002/9781444302752.ch>
- Casaló, L. V., Flavián, C., & Ibáñez-Sánchez, S. (2018). Influencers on Instagram: Antecedents and consequences of opinion leadership. *Journal of Business Research*.
<https://doi.org/10.1016/j.jbusres.2018.07.005>.

- Cohen, J., & Metzger, M. (1998). Social affiliation and the achievement of ontological security through interpersonal and mass communication. In *Critical Studies in Mass Communication* (Vol. 15, Issue 1, pp. 41–60). Informa UK Limited.
<https://doi.org/10.1080/15295039809367032>
- Crone, E. A., & Konijn, E. A. (2018). Media use and brain development during adolescence. In *Nature Communications* (Vol. 9, Issue 1). Springer Science and Business Media LLC.
<https://doi.org/10.1038/s41467-018-03126-x>
- De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. *International Journal of Advertising*, 36(5), 798–828. <https://doi.org/10.1080/02650487.2017.1348035>.
- Dhanesh, G. S., & Duthler, G. (2019). Relationship management through social media influencers: Effects of followers' awareness of paid endorsement. In *Public Relations Review* (Vol. 45, Issue 3, p. 101765). Elsevier BV.
<https://doi.org/10.1016/j.pubrev.2019.03.002>
- Donne, J. (1975). *Devotions upon emergent occasions*. Montreal, Canada: McGill Queens University Press
- Driessens, O. (2016). The democratization of celebrity. Mediatization, promotion, and the body. In P. D. Marshall & S. Redmond (Eds.), *A companion to celebrity* (pp. 371–384). Chichester: Wiley.
- Feilitzen, C. v., & Linné, O. (1975). Identifying with Television Characters. In *Journal of Communication* (Vol. 25, Issue 4, pp. 51–55). Oxford University Press (OUP).
<https://doi.org/10.1111/j.1460-2466.1975.tb00638.x>

- Friedrich, L. K., & Stein, A. H. (1973). Aggressive and prosocial television programs and the natural behavior of preschool children. *Monographs of the Society for Research in Child Development*, 38(4), 1–64.
- Folkvord, F., Bevelander, K. E., Rozendaal, E., & Hermans, R. (2019). Children’s bonding with popular YouTube vloggers and their attitudes toward brand and product endorsements in vlogs: an explorative study. In *Young Consumers* (Vol. 20, Issue 2). Emerald.
<https://doi.org/10.1108/yc-12-2018-0896>
- Gentile, D. A., & Anderson, C. A. (2006). Violent video games: Effects on youth and public policy implications. In N. Dowd, D. G. Singer, & R. F. Wilson (Eds.), *Handbook of children, culture, and violence* (pp. 225–46). Thousand Oaks, CA: Sage.
- Goldhaber, M. 1997. The attention economy and the net. *First Monday*, 2(4). DOI:
<https://doi.org/10.5210/fm.v2i4.519>
- Gkolemi, M., Papadopoulos, P., Markatos, E., & Kourtellis, N. (2022). YouTubers Not madeForKids: Detecting Channels Sharing Inappropriate Videos Targeting Children. In 14th ACM Web Science Conference 2022. *WebSci '22: 14th ACM Web Science Conference 2022*. ACM. <https://doi.org/10.1145/3501247.3531556>
- Girsh, Y. (2014). Between my mother and the big brother: Israeli adolescents’ views of heroes and celebrities. *Journal of Youth Studies*, 17(7), 916–929.
- Howard Gola, A. A., Richards, M. N., Lauricella, A. R., & Calvert, S. L. (2013). Building Meaningful Parasocial Relationships Between Toddlers and Media Characters to Teach Early Mathematical Skills. In *Media Psychology* (Vol. 16, Issue 4, pp. 390–411). Informa UK Limited. <https://doi.org/10.1080/15213269.2013.783774>

- Hu, L., Min, Q., Han, S., & Liu, Z. (2020). Understanding followers' stickiness to digital influencers: The effect of psychological responses. In *International Journal of Information Management* (Vol. 54, p. 102169). Elsevier BV.
<https://doi.org/10.1016/j.ijinfomgt.2020.102169>
- Hwang, K., & Zhang, Q. (2018). Influence of parasocial relationship between digital celebrities and their followers on followers' purchase and electronic word-of-mouth intentions, and persuasion knowledge. *Computers in Human Behavior*, 87, 155–173.
<https://doi.org/10.1016/j.chb.2018.05.029>.
- Google (2016). Think with Google - Why YouTube stars are more influential than traditional celebrities. Available at: <https://www.thinkwithgoogle.com/marketing-strategies/video/youtube-stars-influence/1> (accessed August 19, 2022).
- Giles, D. G. (2002). Parasocial interaction: A review of the literature and a model for future research. *Media Psychology*, 4, 279–305
- Gkolemi, M., Papadopoulou, P., Markatos, E., & Kourtellis, N. (2022). YouTubers Not madeForKids: Detecting Channels Sharing Inappropriate Videos Targeting Children. In 14th ACM Web Science Conference 2022. *WebSci '22: 14th ACM Web Science Conference 2022*. ACM. <https://doi.org/10.1145/3501247.3531556>
- Hill, S.R., Troshani, I. & Chandrasekar, D. (2017), "Signalling effects of vlogger popularity on online consumers", *Journal of Computer Information Systems*, Vol. 1, pp. 1-9.
- Hinde, R. A. (1979). *Toward understanding relationships*. New York: Academic Press.
- Hoffner, C. (n.d.). Parasocial and Online Social Relationships. In *The Handbook of Children, Media, and Development* (pp. 309–333). Blackwell Publishing Ltd.
<https://doi.org/10.1002/9781444302752.ch14>

Holiday Magazine. (1913). May.

Hu, L., Min, Q., Han, S., & Liu, Z. (2020). Understanding followers' stickiness to digital influencers: The effect of psychological responses. In *International Journal of Information Management* (Vol. 54, p. 102169). Elsevier BV.

<https://doi.org/10.1016/j.ijinfomgt.2020.102169>

Horton, D., & Richard Wohl, R. (1956). Mass Communication and Para-Social Interaction. In *Psychiatry* (Vol. 19, Issue 3, pp. 215–229). Informa UK Limited.

<https://doi.org/10.1080/00332747.1956.11023049>

Influencer Marketing Hub (2022). Key Influencer Marketing Statistics You Need to Know for 2022. [Key Influencer Marketing Statistics You Need to Know for 2022](#)

International Telecommunications Unit (2017). ICT Facts and Figures 2017. <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2017.pdf>.

Jerslev, A. (2016). In the time of micro-celebrity: Celebrification and the YouTuber Zoella. *International Journal of Communication*, 10, 5233–5351.

Kabali, H.K., Irigoyen, M.M., Nunez-Davis, R., Budacki, J.G., Mohanty, S.H., Leister, K.P., Bonner, R.L.: Exposure and use of mobile media devices by young children. *Pediatrics* 136(6), 1044–1050 (2015)

Khamis, S., Ang, L., & Welling, R. (2016). Self-branding, 'micro-celebrity' and the rise of social media influencers. *Celebrity Studies*, 8(2), 191–208. <https://doi.org/10.1080/19392397.2016.1218292>.

Kremer, M. (2010). Can Social Meaningfulness and Repeat Exposure Help Infants and Toddlers Overcome the Video Deficit? In *Media Psychology* (Vol. 13, Issue 1, pp. 31–53). Informa UK Limited. <https://doi.org/10.1080/15213260903562917>

- Kim, J., & Song, H. (2016). Celebrity's self-disclosure on Twitter and parasocial relationships: A mediating role of social presence. *Computers in Human Behavior*, 62, 570–577.
<https://doi.org/10.1016/j.chb.2016.03.083>.
- Lauricella, A. R., Gola, A. H., & Calvert, S. L. (2011). Toddlers' learning from socially meaningful video characters. *Media Psychology*, 14. doi:10.1080/15213269.2011.573465
- LEGO Group (2019). LEGO Group Kicks Off Global Program to Inspire the Next Generation of Space Explorers as NASA Celebrates 50 Years of Moon Landing. Available at:
<https://www.prnewswire.com/news-releases/lego-group-kicksoff-global-program-to-inspire-the-next-generation-of-space-explorersas-nasa-celebrates-50-years-of-moon-landing-300885423.html> (accessed August 19, 2022).
- Lim, J. S., Choe, M.-J., Zhang, J., & Noh, G.-Y. (2020). The role of wishful identification, emotional engagement, and parasocial relationships in repeated viewing of live-streaming games: A social cognitive theory perspective. In *Computers in Human Behavior* (Vol. 108, p. 106327). Elsevier BV. <https://doi.org/10.1016/j.chb.2020.106327>
- Lou, C., & Yuan, S. (2019). Influencer marketing: How message value and credibility affect consumer trust of branded content on social media. *Journal of Interactive Advertising*, 19(1), 58–73. <https://doi.org/10.1080/15252019.2018.1533501>.
- Lugaila, T. (2003). A child's day: 2000 (selected indicators of child well-being) (Current Population Reports U.S. Census Bureau)
- Lundberg, G. A., Komarovsky, M., & McNerny, M. A. (1934). *Leisure: A suburban study*. New York: Columbia University Press.

- Literat, I. (2021). “Teachers Act Like We’re Robots”: TikTok as a Window Into Youth Experiences of Online Learning During COVID-19. In AERA Open (Vol. 7, p. 233285842199553). SAGE Publications. <https://doi.org/10.1177/2332858421995537>
- Spigel, L. (1992). Make room for TV: Television and the family ideal in postwar America. Chicago: University of Chicago Press.
- Stokburger-Sauer, N., Ratneshwar, S., & Sen, S. (2012). Drivers of consumer–brand identification. *International Journal of Research in Marketing*, 29(4), 406–418. <https://doi.org/10.1016/j.ijresmar.2012.06.001>.
- Martínez, C., & Olsson, T. (2018). Making sense of YouTubers: how Swedish children construct and negotiate the YouTuber Misslisibell as a girl celebrity. In *Journal of Children and Media* (Vol. 13, Issue 1, pp. 36–52). Informa UK Limited. <https://doi.org/10.1080/17482798.2018.1517656>
- Maccoby, E. E. (1951). Television: Its impact on school children. *The Public Opinion Quarterly*, 15(3), 421–44.
- McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of Consumer Research*, 16(3), 310–321. <https://doi.org/10.1086/209217>.
- Maltby, J., Giles, D. C., Barber, L., & McCutcheon, L. E. (2005). Intense-personal celebrity worship and body image: Evidence of a link among female adolescents. *British Journal of Health Psychology*, 10, 17–32.
- McRoberts, S., Bonsignore, E., Peyton, T., & Yarosh, S. (2016). Do It for the viewers!: Audience engagement behaviors of young YouTubers. *Proceedings of the 15th IDC international conference on interaction design and children* (pp. 334–343). <https://doi.org/10.1145/2930674.2930676>.

- Melody, W. H. (1973). *Children's television: The economics of exploitation*. New Haven, CT: Yale University Press.
- National Tele-Communications and Information Administration (NTIA). (2000). *Falling through the net: Toward digital inclusion*. Retrieved Sept 16, 2022, from <http://www.ntia.doc.gov/ntiahome/fttn99/contents.html>
- Roberts, D. F., Foehr, U. G., & Rideout, V. J. (2005). *Generation M: Media in the lives of 8–18-year-olds*. Menlo Park, CA: Kaiser Family Foundation.
- Ofcom (Children's and Parents' Media Literacy Tracker, 2021)
- Panorama Mobile Time/Opinion Box - Crianças e smartphones no Brasil - Outubro de 2021
- Papacharissi, Z., & Rubin, A. M. (2000). Predictors of Internet use. *Journal of Broadcasting and Electronic Media*, 44, 175–96
- Pew Internet & American Life Report. (2001). *Teenage life online: The rise of the instantmessage generation and the Internet's impact on friendships and family relationships*. Retrieved September 25, 2022, from <http://www.pewinternet.org/datasets/index.asp>
- Power, S., & Smith, K. (2017). 'Heroes' and 'villains' in the lives of children and young people. *Discourse: Studies in the Cultural Politics of Education*, 38(4), 590–602
- Pierson, D. (2016). *My Kids Don't Have a YouTube Channel - But They Pretend They Do*. Los Angeles Times. Available at: <http://www.latimes.com/business/technology/la-fi-youtube-kids-20160627-snap-story.html> (accessed August 18, 2022).
- Read, B. (2011). Britney, Beyoncé, and me – Primary school girls' role models and constructions of the 'popular' girl. *Gender & Education*, 23(1), 1–13.

- Rosaen, S. F., & Dibble, J. L. (2008). Investigating the Relationships Among Child's Age, Parasocial Interactions, and the Social Realism of Favorite Television Characters. In *Communication Research Reports* (Vol. 25, Issue 2, pp. 145–154). Informa UK Limited. <https://doi.org/10.1080/08824090802021806>
- Statista. Number of smartphone users worldwide from 2016 to 2024 (in billions). Sep 19, 2022. <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>
- Somers, D. A. (1971). The Leisure Revolution: Recreation in the American City, 1820-1920. In *The Journal of Popular Culture*: Vol. V (Issue 1, pp. 125–147). Wiley. https://doi.org/10.1111/j.0022-3840.1971.0501_125.x
- Song, H., Kim, J., & Luo, W. (2016). Teacher–student relationship in online classes: A role of teacher self-disclosure. In *Computers in Human Behavior* (Vol. 54, pp. 436–443). Elsevier BV. <https://doi.org/10.1016/j.chb.2015.07.037>
- Tao, T., Wang, L., Fan, C., & Gao, W. (2014). Development of self-control in children aged 3 to 9 years: Perspective from a dual-systems model. In *Scientific Reports* (Vol. 4, Issue 1). Springer Science and Business Media LLC. <https://doi.org/10.1038/srep07272>
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel, & W.g. Austin (Eds.). *Psychology of intergroup relations* (pp. 7–24). Chicago: Nelson-Hall.
- The Common Sense Census: Media Use by Kids Age Zero to Eight (2020)
- Tolson, A. (2010). A new authenticity? Communicative practices on YouTube. In *Critical Discourse Studies* (Vol. 7, Issue 4, pp. 277–289). Informa UK Limited. <https://doi.org/10.1080/17405904.2010.511834>

- Timmer, S. G., Eccles, J., & O'Brien, K. (1985). How children use time. In F. Juster & F. P. Stafford (Eds.), *Time, goods, and well-being* (pp. 353–82). Ann Arbor, MI: Institute for Social Research.
- Tsaliki, L. (2015). Popular culture and moral panics about “children at risk”: Revisiting the sexualisation-of-young-girls debate. *Sex Education: Sexuality, Society and Learning*, 15(5), 500–514
- US Census Bureau. (2006). *Statistical abstract of the United States – information and communications*. Retrieved September 15, 2022, from <http://www.census.gov/prod/2005pubs/06statab/infocomm.pdf>.
- van den Eijnden, R. J. J. M., Spijkerman, R., Vermulst, A. A., van Rooij, T. J., & Engels, R. C. M. E. (2009). Compulsive Internet Use Among Adolescents: Bidirectional Parent–Child Relationships. In *Journal of Abnormal Child Psychology* (Vol. 38, Issue 1, pp. 77–89). Springer Science and Business Media LLC. <https://doi.org/10.1007/s10802-009-9347-8>
- van Krieken, R. (2012). *Celebrity society*. London & New York: Routledge.
- Walther, J. B., & Parks, M. R. (2002). Cues filtered out, cues filtered in: Computermediated communication and relationships. In M. L. Knapp & J. A. Daly (Eds.), *Handbook of interpersonal communication* (pp. 529–63). Thousand Oaks, CA: Sage.
- Wartella, E. A., & Mazarella, S. (1990). A historical comparison of children’s use of leisure time. In R. Butsch (Ed.), *For fun and profit: The transformation of leisure into consumption*. Philadelphia: Temple University Press
- Wartella, E. A., Heintz, K. E., Aidman, A., & Mazarella, S. R. (1990). Television and beyond: Children’s video media in one community. *Communication Research*, 17(1), 45–64.

- Wartella, E., & Robb, M. (n.d.). Historical and Recurring Concerns about Children's Use of the Mass Media. In *The Handbook of Children, Media, and Development* (pp. 5–26). Blackwell Publishing Ltd. <https://doi.org/10.1002/9781444302752.ch1>
- Webster, J.G., 2014. *The Marketplace of Attention: How Audiences Take Shape in a Digital Age*. MIT Press.
- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2003). Escaping or connecting? Characteristics of youth who form close online relationships. *Journal of Adolescence*, 26, 105–19.
- Xiang, L., Zheng, X., Lee, M. K. O., & Zhao, D. (2016). Exploring consumers' impulse buying behavior on social commerce platform: The role of parasocial interaction. *International Journal of Information Management*, 36(3), 333–347. <https://doi.org/10.1016/j.ijinfomgt.2015.11.002>.
- Yadav, S., & Chakraborty, P. (2017). Children aged two to four are able to scribble and draw using a smartphone app. In *Acta Paediatrica* (Vol. 106, Issue 6, pp. 991–994). Wiley. <https://doi.org/10.1111/apa.13818>

Fernando L

Fernando Lino

01/06/2023

A handwritten signature in black ink, appearing to read 'E. Bardone', with a long horizontal flourish extending to the right.

Emanuele Bardone

01/06/2023

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