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WI-FI NETWORKS AND CONNECTIVITY: NAVIGATING THE EDUCATIONAL INFORMATION SOCIETY

Gilberto Mejía Salazar[1], Sinahí Gabriela Gómez Campos[2], César Rafael Gómez Martínez[3], Sirigui Garibeth Félix Pérez[4], Oswaldo Castro Romero[5]

[1]Autonomous University of Nayarit, Mexico, *ORCID:* https://orcid.org/0000-0002-1879-1299
[2]Autonomous University of Nayarit, Mexico, *ORCID:* https://orcid.org/0000-0002-4580-6230
[3]Autonomous University of Nayarit, Mexico, *ORCID:* https://orcid.org/0009-0002-1513-9120
[4]Autonomous University of Nayarit, Mexico, *ORCID:* https://orcid.org/0009-0004-6943-0639
[5]Nakaima Junior High School, Japan, *ORCID:* https://orcid.org/0000-0001-5701-8138

gilberto.mejia@uan.edu.mx[1]
sinahi.gomez@uan.edu.mx[2]
cesar.gomez@uan.edu.mx[3]
sirigui.felix@uan.edu.mx[4]
oswaldo.castro@khu.ac.kr[5]

Abstract
The following research has a quantitative methodological approach, this study will focus on exploring the dynamics, challenges and opportunities that arise in the use of wireless networks, addressing aspects such as digital security, connection quality, access to information, new forms of interpersonal communication, and their influence on the organization and well-being of individuals and families in the digital age. In accordance with the stated objective, the following research question is derived: How do WiFi networks and connectivity influence the educational and domestic environment, and in what way are they shaping the daily experience of individuals and families in the society of the information? Added to this, the preference for wireless connection (31.3%) highlights the emphasis on mobility and flexibility in Internet access. This type of connection allows people to use devices such as laptops, tablets and Smartphones anywhere within network range. The popularity of this option suggests significant demand for connectivity that is not tied to a fixed location. From all this it turns out that educational connectivity is presented as a lever to improve the management of the educational system, promote innovation and empower schools, teachers and students to play leading roles in the digital transformation. In essence, this statement suggests that connectivity is not simply a means to access information, but also acts as a catalyst for positive change in education, enabling active participation in the digital revolution and contributing to the strengthening and continuous improvement of educational systems.

Keywords: connectivity, education, digital age, innovation, Wifi

Introduction

The rapid growth of modern societies in terms of the use and understanding of technology in people's daily lives has become a fundamental necessity for activities at home, work, educational institutions, industries, government, and beyond. In other words, these technologies have emerged as comprehensive support systems, automating daily tasks that demand attention to the proper development of information-driven societies.

Furthermore, the impact of communications and the internet has left a profound mark on all aspects of society, culture, and intellectual growth. It is crucial to emphasize that most, if not all, individuals can experience this progress as long as they have access to online communication and the necessary skills to utilize it. The core essence lies in the fact that internet-based communication significantly contributes to social, cultural, and intellectual advancement[1]. Thus, this global interconnectedness weaves a network that transcends

physical boundaries, allowing ideas, knowledge, and cultural expression to spread at an unprecedented pace. The diversity of opinions and information on the internet provides fertile ground for social, cultural, and intellectual growth.

In this way, interaction with computer networks offers a landscape for the development of essential activities in society. Communication from home is a benefit that unifies intrinsic elements of human beings, as the exchange of information and the versatility offered by the network are of great importance in the households of internet users. Therefore, the reference to home-based communication underscores the significance of this environment as a central point for active participation in the digital society. By highlighting that this benefit has the capacity to unify fundamental human elements, it suggests that connection to computer networks not only serves a utilitarian function but also addresses essential needs for human interaction and expression. Likewise, by emphasizing the versatility of the network, its ability to adapt to various activities and needs in households is underscored. This approach highlights that technology not only facilitates communication but also integrates flexibly into daily life, contributing to the development and enrichment of individual and collective experiences.

Digital Connectivity

Connectivity is a recent phenomenon that can be defined in terms of infrastructure and technological devices enabling connections to global information networks. It is the first conceptual category within which digital inclusion initiatives can be analyzed [2]. Furthermore, the internet impacts all aspects of life, including social and economic activities. This means that humanity seeks to understand the scale and speed of technological expansion through the degree of closeness that connectivity represents [3]. Given the importance of connectivity in the current era, defined as a recent phenomenon related to infrastructure and technological devices that enable connections to global information networks, connectivity emerges as the first conceptual category for analyzing digital inclusion initiatives. It underscores its fundamental role in how people access and participate in the digital sphere. In other words, connectivity, in this context, is positioned as a key factor for understanding the scale and speed of technological expansion. The degree of closeness that connectivity represents serves as a relevant indicator for assessing the reach and speed with which technology integrates into everyday life.

Certainly, although we live in an era where technology and its devices are widely available, it is noted that there are still individuals who lack access to these resources[4]. In other words, the availability of technological tools is considered crucial for the learning process, but the statement suggests that there is a gap in accessibility, meaning that not everyone can fully utilize these educational tools. This access issue can have significant implications for equity in education, as not all individuals can benefit from the learning opportunities that technology can offer.

Furthermore, it is important to note that teachers must work together for the benefit of their students, establishing effective collaboration not only in the educational sphere but also within the school institution itself. This collaboration will not only enhance the quality of online teaching but also contribute to the holistic development of students, ensuring they fully benefit from the opportunities that technology and online education can provide [5].

Society in the Internet Era

A society with a new dominant structure centered on information technology, whose main characteristic is not the accumulation of data but the application of data to build knowledge and communication devices[6]. In other words, through computerized connectivity, society regularly engages in the management of information, allowing contact with various sources of information. This information is processed through electronic devices that facilitate the dissemination and creation of knowledge, turning these practices into the praxis of constructing a phenomenon that impacts individuals equally.

To this, it is added that society regularly uses computer connections to manage information and stay connected to a variety of sources. This process is carried out through electronic devices that facilitate the dissemination and creation of knowledge. Once implemented, these practices become a tangible reality that affects people in a unified or similar manner. In summary, digital connectivity and information management influence the construction of phenomena that impact society as a whole.

From this, it follows that an informatized society enhances education with strong ties to the way knowledge is acquired and, at the same time, reconstructs this knowledge to disseminate it systematically and in a way that contributes to science and technology. In other words, connectivity is an essential element for the development of various activities and facets that assertively contribute to society.

With this in mind, it is stated that in an informatized society, connection and access to information play a fundamental role in education. Society, being strongly linked to technology, has the capacity to enhance an educational approach that not only focuses on the acquisition of knowledge but also on the ability to reconstruct and share that knowledge systematically. Furthermore, the importance of directing this dissemination toward contributing to science and technology is emphasized. Connectivity is presented as an essential component for the development of various activities and facets in society. In this context, it could be argued that access to information through technology not only improves the learning process but also effectively contributes to progress and innovation in scientific and technological fields. This interconnection between society, education, and technology creates an environment conducive to advancement and collective contribution to knowledge and development.

According to the above, the idea can be represented through the following diagram (Figure 1).

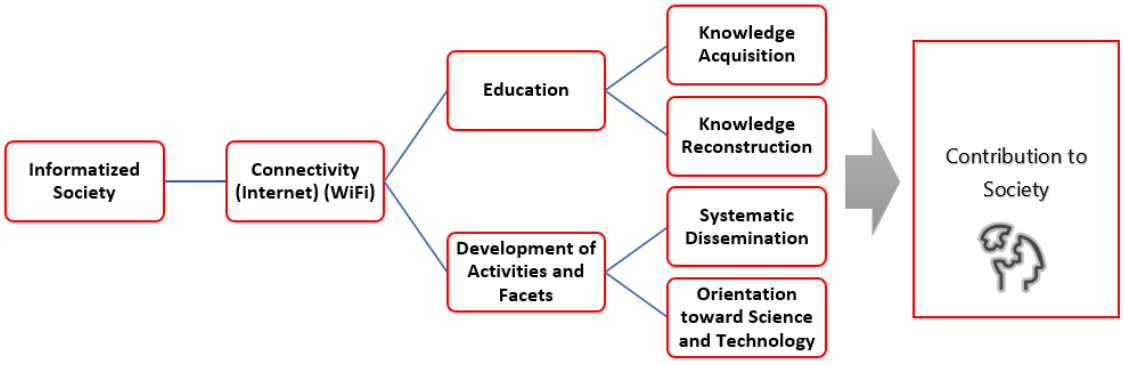

Figure 1. Connectivity and its various activities and facets in society
Source: Own elaboration.

From this, it can be inferred that "connectivity" is a crucial element that influences both education and the development of society, and these two aspects interact with each other. Education is broken down into several elements, highlighting the acquisition, reconstruction, and dissemination of knowledge, with a specific focus on contributions to science and technology. These elements, in turn, contribute to the development of activities and facets that positively impact society.

Virtual education is beginning to bring enormous advantages to society as a whole, revealing significant gaps in the diversity of skills and resources available to the student population that could benefit from this method of training. There is no doubt that these disparities have become the greatest challenges that our nation's higher education system must address [7]. The significant current changes, represented by technological revolutions, the globalization of markets, and the implementation of new information technologies and digital tools, have led to a growing interest in organizational learning [8].

Objective

To analytically investigate the impact of Wi-Fi networks and connectivity in the educational sphere, and to understand how these technologies are transforming daily life in the information society. This study will focus on exploring the dynamics, challenges, and opportunities that arise from the use of domestic wireless networks, addressing aspects such as digital security, connection quality, access to information, new forms of interpersonal communication, and their influence on the organization and well-being of individuals and families in the digital age.

Research Question

In line with the stated objective, the following research question arises: How do Wi-Fi networks and connectivity influence the domestic and educational environments, and in what ways are they shaping the daily experiences of individuals and families in the information society?

Methodology

The methodological approach adopted was quantitative, focused on the observation of the study object, the implementation of measurements based on statistical processes, and the application of tests to the collected data with the aim of generalizing the results objectively [9]. The sample selection was carried out through non-probabilistic convenience sampling, in which the sample units were chosen based on the researcher's convenience or accessibility[10].

The final sample consisted of 166 individuals. During data processing, the statistical program SPSS was chosen to conduct detailed analyses. Frequency tables were generated, providing a systematic visualization of the collected data, thereby enabling the creation of a precise and meaningful statistical summary to facilitate the interpretation of the results. Thus, this methodological approach ensured a structured presentation of the information, contributing to a deeper understanding of the patterns and trends present in the data.

Results

Based on the results obtained from the surveys, the following data is presented:

The predominant age group was 15 to 25 years (69.3%), followed by 26 to 35 years (16.3%), 36 to 45 years (11.4%), 46 to 50 years (2.4%), and only a small portion of the surveyed students were over 50 years old (0.6%). This information provides a clear view of

the age distribution within the surveyed population, highlighting the predominance of individuals in the 15 to 25 age range.

Similarly, we found that 35.5% of the students are male and 64.5% are female. These percentages represent the proportion of each group in relation to the total number of students (Figure 2).

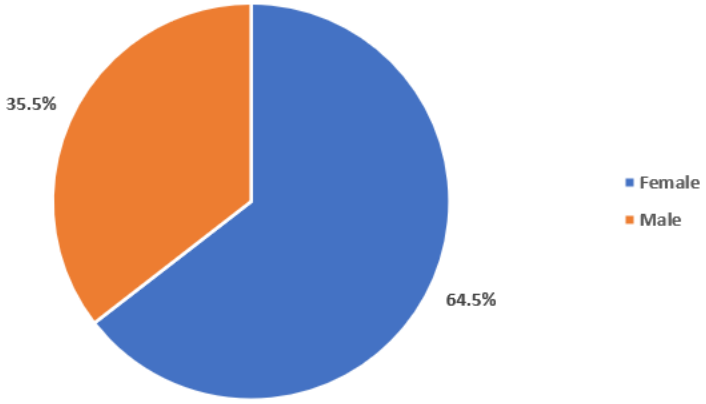

Figure 2. Gender of the Students

From the above, there appears to be a majority of female students in the studied population or group, as their percentage is higher than that of male students. This data is useful for understanding the demographic composition of a specific group and may be relevant in various contexts, such as educational planning, gender equality, or gender-based decision-making. Additionally, respondents were asked, where do you use the internet to conduct research? The results show that 80.7% do so from home, 2.4% at school, 10.2% at internet cafes, 4.2% at work, and only 2.4% use the internet from another location (Figure 3).

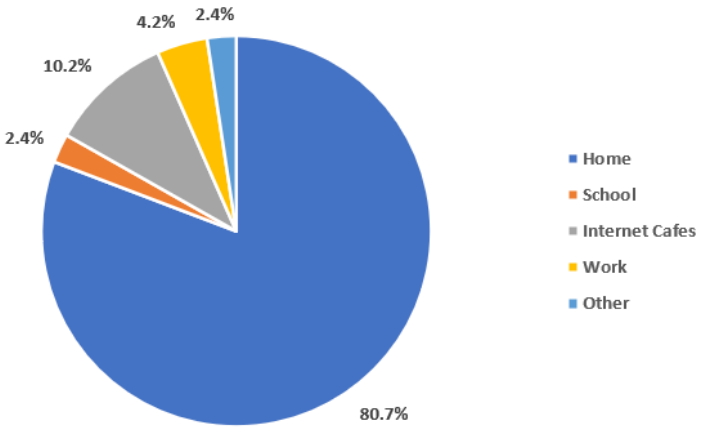

Figure 3. Where Internet is Used for Research

These data show that the majority of respondents primarily use the internet for research at home, with 80.7% choosing this method. This may be due to the comfort and accessibility of the internet at home. On the other hand, schools, internet cafes, and workplaces are also common locations, but to a lesser extent.

Additionally, respondents were asked, what type of equipment do you have? The results show that 28.9% have a desktop computer, 34.3% have a laptop, 3.6% have a tablet, 21.7%

have a mobile phone/smartphone, 4.8% have another type of computing device, and only 6.6% do not have any equipment (Figure 4).

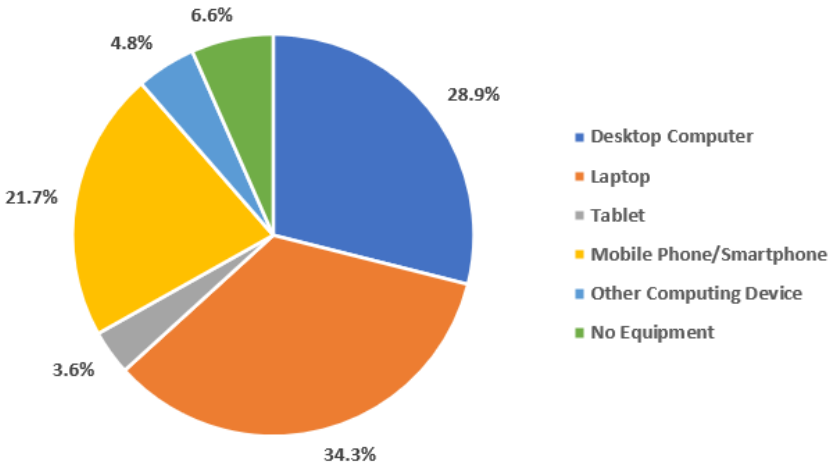

Figure 4. What Type of Equipment Do You Have?

This distribution of data provides a detailed snapshot of how individuals choose and use various technological devices, reflecting the multiple ways in which technology is integrated into their daily lives. When asked, how often do you use your computer equipment at home? the responses were as follows: 34.3% use it every day, 18.1% use it once a week, 36.7% use it two to three times a week, 2.4% use it monthly, and only 8.4% rarely use it (Figure 5).

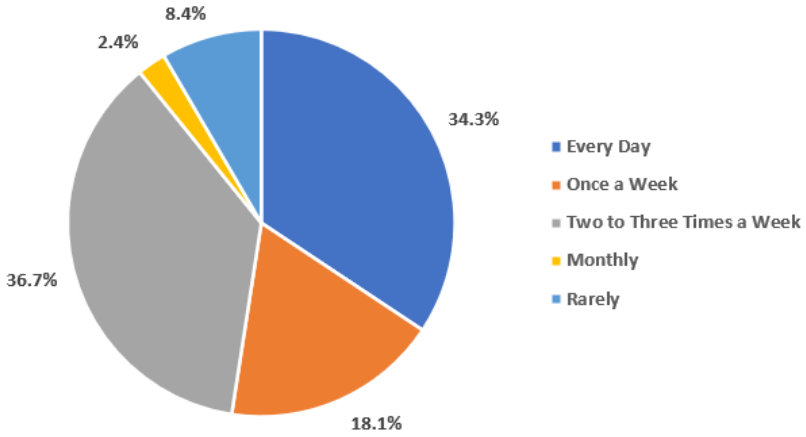

Figure 5. When asked, how often do you use your computer equipment at home?

When asked, what type of connection do you have at home?the responses were as follows: 1.8% have an ADSL connection, 19.9% have a telephone connection, 21.1% have a cable connection, 31.3% have a wireless connection, 7.8% have another type of connection, and 18.1% do not have an internet connection (Figure 6).

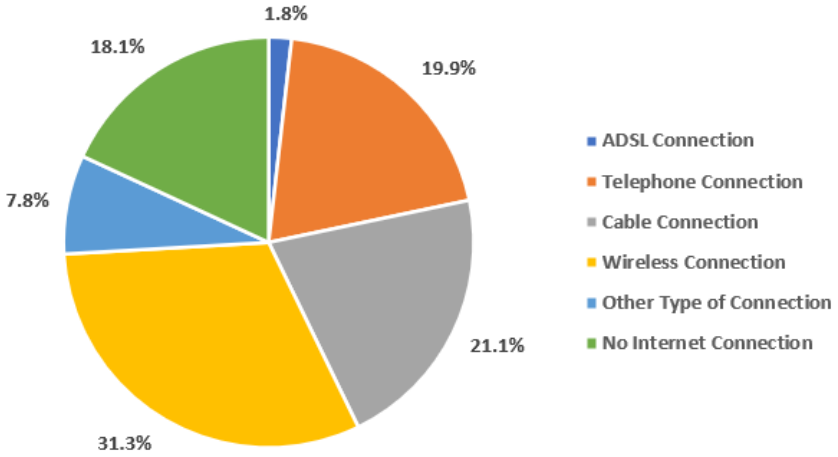

Figure 6. What Type of Internet Connection Do You Have at Home?

The above information provides a detailed insight into the preferences and accessibility of different types of internet connections in households, reflecting the diversity of technological options and the realities of connectivity within the studied population.When asked, how did you learn to use the internet? the responses were as follows: 61.4% learned through their own initiative, 14.5% through computer courses, 19.9% through friends or family, and 4.2% through other means (Figure 7).

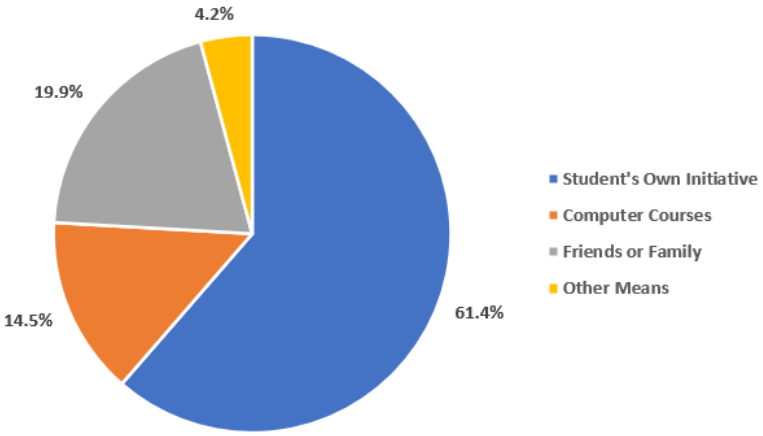

Figure 7. How Did You Learn to Use the Internet?

When asked, what type of browser do you use to access the internet? the responses were as follows: 19.3% use Internet Explorer, 73.5% use Google Chrome, 2.4% use Firefox, 3.6% use Safari, and 1.2% use another type of browser (Figure 8).

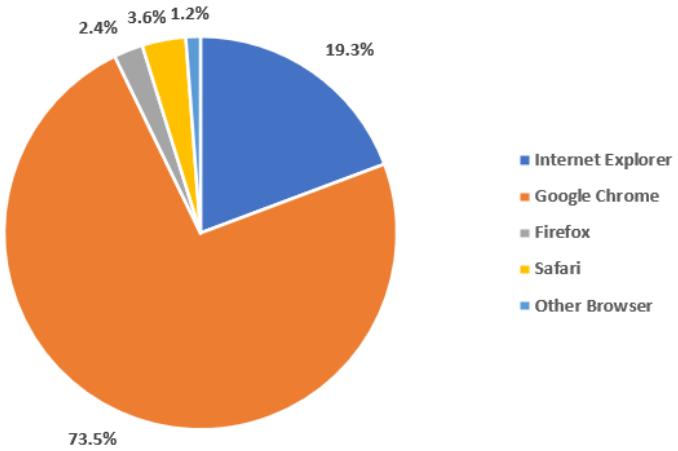

Figure 8. What Type of Browser Do You Use to Access the Internet?

When asked, how many hours per week do you spend browsing the internet? the responses were as follows: 9.6% browse for less than one hour, 41% browse for one to two hours, 30.7% browse for three to five hours, 13.3% browse for five to eight hours, and only 5.4% are unsure how many hours they spend connecting to the internet each week (Figure 9).

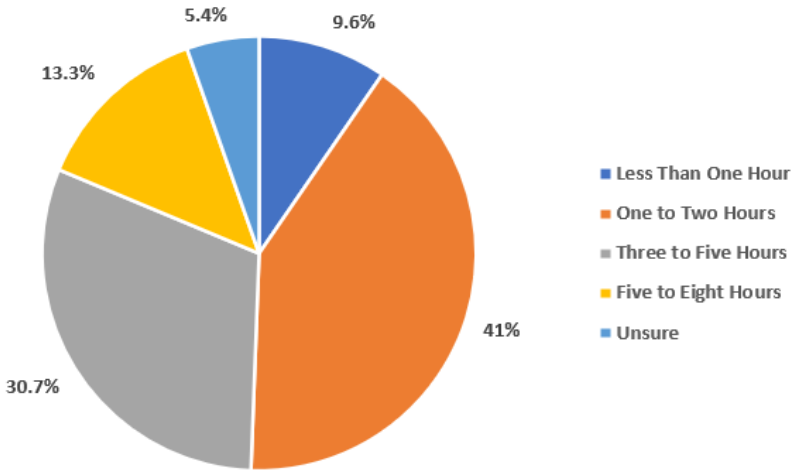

Figure 9. How Many Hours Per Week Do You Spend Browsing the Internet?

When asked, what services do you frequently use on the internet? the responses were as follows: 16.9% use email, 41% use chats, 38% visit web pages, and 4.2% engage in downloads (Figure 10).

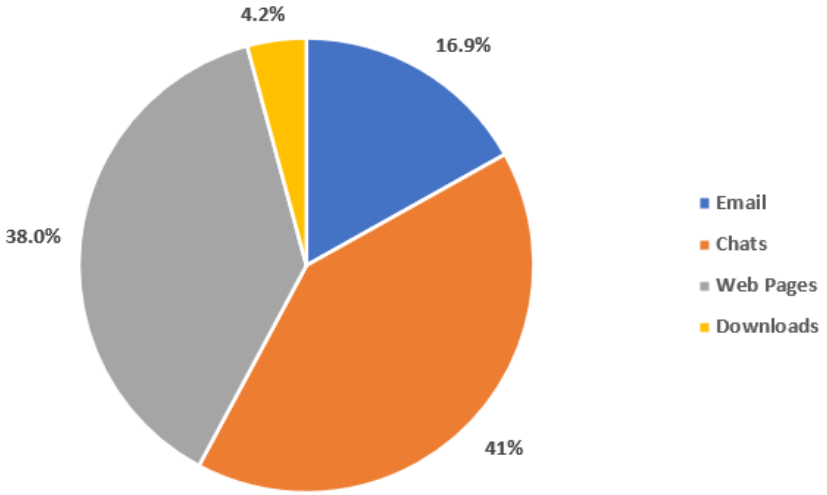

Figure 10. What Services Do You Frequently Use on the Internet?

When asked, what domain is your email account registered under? the responses were as follows: 68.7% use Hotmail, 21.1% use Gmail, 1.8% use Yahoo, and 8.4% use another type of messaging service (Figure 11).

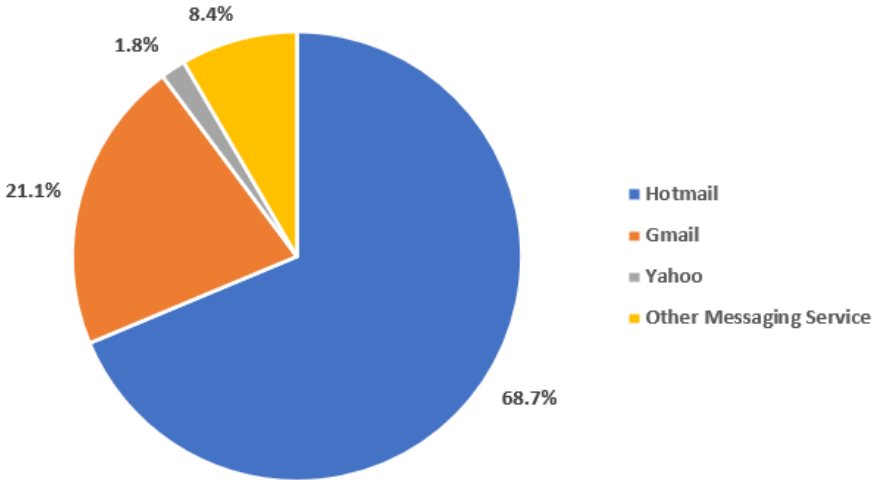

Figure 11. What Domain is Your Email Account Registered Under?

Similarly, respondents were asked, which social networks do you currently connect to? The responses were as follows: 76.5% connect to Facebook, 6% connect to Google+, 5.4% connect to YouTube, 7.8% connect to WhatsApp, and only 4.2% connect to another type of social network (Figure 12).

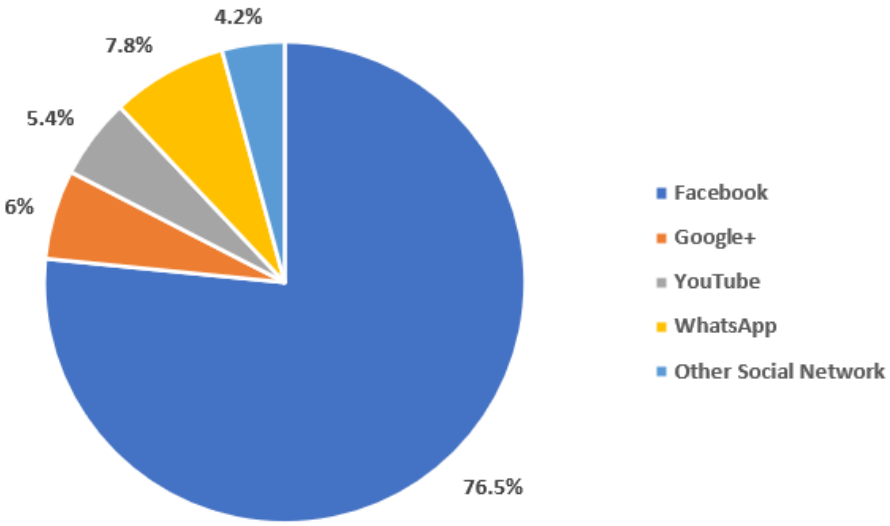

Figure 12. Which Social Networks Do You Currently Connect To?

When asked, do you send attached documentation via email? the responses were as follows: 28.3% stated they never do so, 44% do so occasionally, 21.7% do so constantly, and 6% do so very frequently (Figure 13).

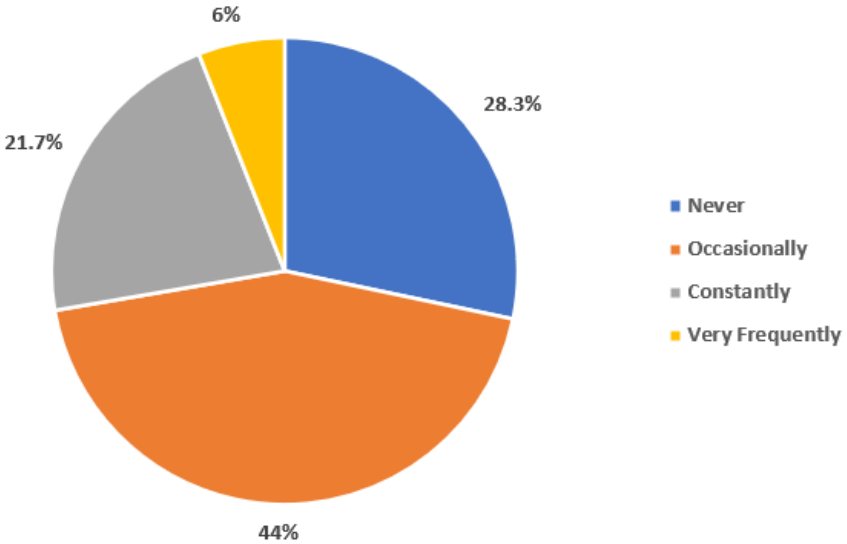

Figure 13. Do You Send Attached Documentation via Email?

When asked, do you download resources from the internet at home? the responses were as follows: 14.5% stated they never download resources, 38.6% do so occasionally, 31.9% do so constantly, and 15.1% do so very frequently (Figure 14).

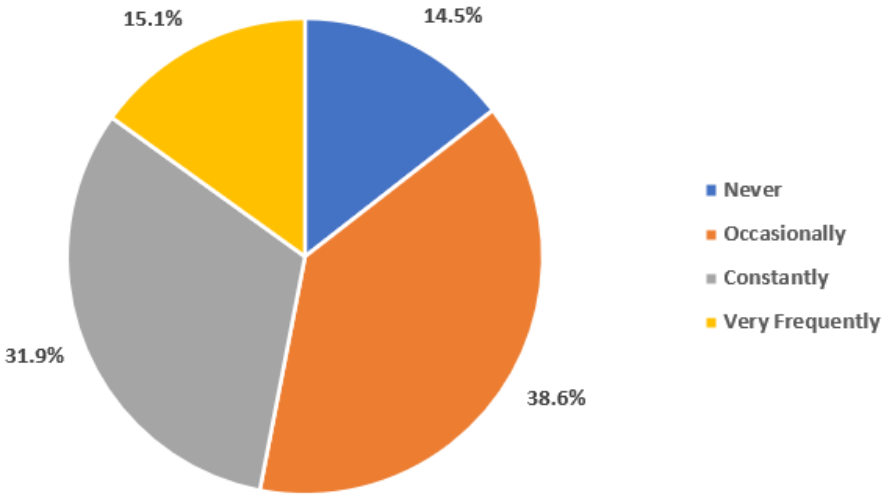

Figure 14. Do You Download Resources from the Internet at Home?

When asked, do you use instant messaging tools? the responses were as follows: 10.2% stated they never use them, 43.4% use them occasionally, 28.3% use them constantly, and 18.1% use them very frequently (Figure 15).

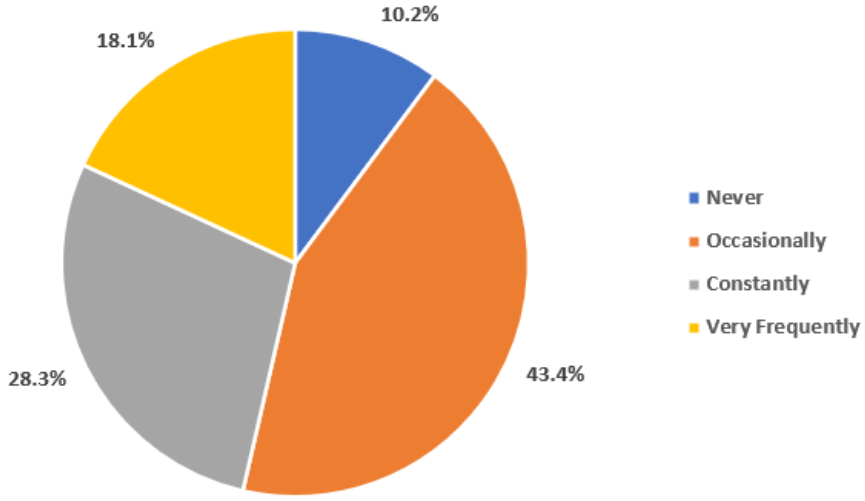

Figure 15. Do You Use Instant Messaging Tools?

Finally, respondents were asked, how important are technologies in your daily life? The responses were as follows: 6% stated they are not important at all, 4.2% said they are slightly important, 51.8% said they are important, and 38% said they are very important (Figure 16).

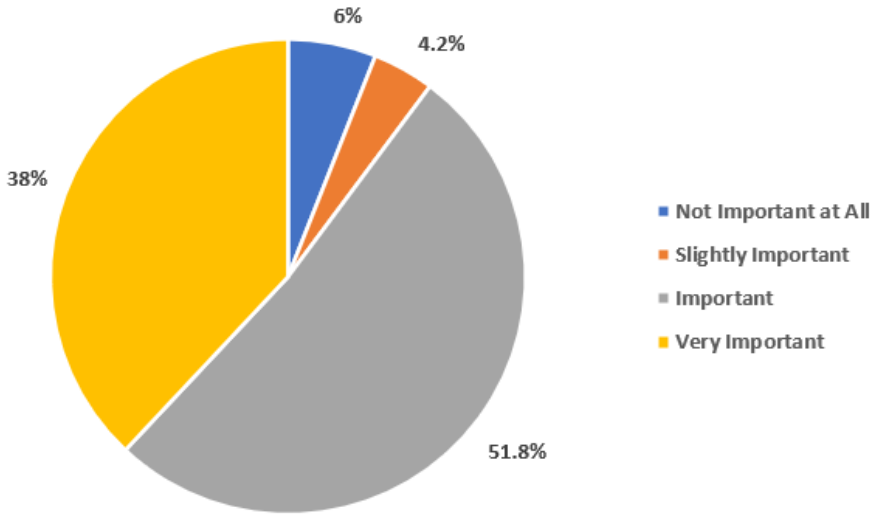

Figure 16. How Important Are Technologies in Your Daily Life?

Discussion

At this point, a scenario in the modern era is described, where dramatic changes have taken place, highlighting technological revolutions, the globalization of markets, and the introduction of new information technologies and digital tools. The combination of these elements has generated a growing interest in the field of learning. Connectivity forces humans to adapt to an unfamiliar way of life, giving rise to new scenarios that require the use of new technologies to transform physical spaces, which, often unknowingly, are being replaced by virtual environments [11].

That said, it is emphasized that these new technologies play a crucial role in transforming traditional physical spaces. Physical places, which may have been fundamental in daily life, are being replaced or complemented by virtual environments. In other words, constant connectivity and the need for adaptation lead to the creation of new digital scenarios that coexist with or replace traditional physical environments. Ultimately, it is suggested that connectivity not only affects how people interact with information and each other but also has a tangible impact on the configuration and nature of the places and spaces they occupy in their daily lives.

Let us revisit the preference for wireless connectivity (31.3%), which highlights the emphasis on mobility and flexibility in accessing the internet. This type of connection allows individuals to use devices such as laptops, tablets, and smartphones anywhere within the network's range. The popularity of this option suggests a significant demand for connectivity that is not tied to a fixed location. The flexibility provided by wireless connections aligns with the need for internet access in diverse contexts, adapting to a modern and dynamic lifestyle.

Thus, the fact that approximately 18.1% of respondents do not have internet access at home is a relevant observation. This situation could indicate gaps in digital access, implying that a segment of the surveyed population lacks consistent connectivity in their closest and most familiar environment. These gaps may stem from economic, infrastructural, or technological knowledge limitations. It is crucial to address these disparities to ensure that connectivity and its associated benefits are equitably available to all. This finding

underscores the importance of considering digital inclusion as a key aspect of reducing inequalities in access to information and opportunities in modern society. Furthermore, this highlights the importance of addressing these disparities to ensure a more uniform and successful implementation of remote education, ensuring that all teachers are adequately trained and equipped to face the technological challenges that may arise in this evolving educational environment [12]. Ultimately, school connectivity is essential for strengthening educational systems so they can withstand crises and adapt to the digital era. It enables schools to ensure continuity in the delivery of educational services, enrich teaching, and support inclusion [13]. It can promote better management of the educational system, drive innovation, and allow schools, teachers, and students to become key actors and leaders in digital transformation.

Conclusion

In conclusion, interaction with computer networks, particularly from home, emerges as a vital fabric that ties together essential aspects of the human condition, such as communication, information exchange, and adaptability through the versatility of the network. This digital context has deeply and significantly permeated daily activities, reshaping the way we participate and interact in today's society. These findings suggest a high reliance on connectivity and digital technologies in everyday life, both for communication and access to information. They also highlight areas where challenges may exist, such as the lack of connectivity in some households, which could be an issue to address to ensure more equitable digital inclusion. From all of this, it follows that educational connectivity serves as a lever to improve the management of the educational system, foster innovation, and empower schools, teachers, and students to play prominent roles in digital transformation. Essentially, this statement suggests that connectivity is not merely a means of accessing information but also acts as a catalyst for positive change in education. It enables active participation in the digital revolution and contributes to the strengthening and continuous improvement of educational systems.

Finally, the digital context has had a profound and significant impact on daily activities, reshaping the way we participate and interact in contemporary society. The notable reliance on connectivity and digital technologies for communication underscores their central role in everyday life. The reference to challenges, such as the lack of connectivity in some households, highlights the importance of addressing gaps in digital inclusion to ensure equitable access to the benefits of connectivity and technology for all. Overall, the conclusion reinforces the idea that interaction with computer networks has become an inseparable element of the contemporary human experience, with both positive implications and challenges to consider in achieving more equitable participation in the digital society.

Future Research Directions

Within the landscape of technologies, access to internet connectivity opens up a broad field of applied research, particularly in the educational sector, where the primary focus is teaching through these technological tools. In this way, the following continuous lines of research stand out for human development:

- Remote Internet Access in Areas with Unlimited Connectivity: Exploring ways to expand and optimize internet access in regions with limited or no connectivity, ensuring equitable opportunities for education and development.
- Teaching and Learning Applied to Research Development: Investigating how teaching and learning methodologies can be enhanced through technology to foster research skills and innovation.
- Development of Skills and Strategies Involving Substantial Changes in Teaching: Examining the development of new skills and strategies that bring about significant transformations in teaching practices, adapting to the demands of the digital era.

These research directions aim to address current challenges and leverage the potential of technology to drive progress in education and human development.

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