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Research Article

Use of Technological Resources in School Dropout in Students from Atalaya, Ucayali, 2023

[1]Zoraida Rocío Manrique Chávez, [2]Anthony Rosseau Flores Espinoza, [3]Juan López Ruiz, Alejandro Manuel Ecos Espino, [4]César Eduardo Cuentas Carrera, [5]Ayda Liliana Reyes Ruiz, [6]Greasse Luz Basilio Maraví

[1]Universidad Nacional Intercultural de la Amazonía – Perú
Email: zmanriquec@unia.edu.pe
ORCID: https://orcid.org/0000-0002-0899-8747

[2]Universidad Nacional Intercultural de la Amazonía – Perú
Email: aflorese@unia.edu.pe
ORCID: https://orcid.org/0000-0002-5490-4561

[3]Universidad Nacional Intercultural de la Amazonía – Perú
Email: jlopezr@unia.edu.pe
ORCID: https://orcid.org/0000-0003-4794-1644

[4]Universidad Nacional de Moquegua – Perú
Email: aecose@unam.edu.pe
ORCID: https://orcid.org/0000-0002-3452-5388

[5]Universidad Nacional Micaela Bastidas de Apurímac – Perú
Email: ccuentas@unamba.edu.pe
ORCID: https://orcid.org/0000-0002-7403-9210

[6]Universidad Privada San Juan Bautista – Perú
Email: ayda.reyes@upsjb.edu.pe
ORCID: https://orcid.org/0000-0002-0232-1890

[7]Universidad Nacional Intercultural de la Amazonía – Perú
Email: gbasiliom@unia.edu.pe
ORCID: https://orcid.org/0000-0002-5873-9292

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ABSTRACT

Presently, the integration of technological resources in the educational sector has undergone substantial growth, to the extent that their absence or improper usage may have a deleterious effect on school retention, particularly in rural areas. The objective of this study was to examine the correlation between the use of technological resources and school dropout rates in Educational Institution No. 64122 Maldonadillo de Atalaya, located in the Ucayali region. The research design was of a basic type, with a correlational descriptive approach and a non-experimental design. A sample of 54 children was selected for the study, and two questionnaires were administered. The collected data were then analyzed using SPSS v27 software. The results indicated that 91% of the students exhibited a low level of proficiency in the utilization of technological resources, with significant challenges in the management of audiovisual media (96%), as well as in the application of software and web tools, where at least 80% also encounter difficulties. Regarding school dropout, 40% of the children exhibited a medium level of proficiency, with the academic aspect demonstrating the highest incidence (56% at the secondary level), while the social aspect exhibited the least impact (74% at the low level). The investigation did not identify a significant relationship between the use of technological resources and school dropout in general. However, a low and

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direct relationship was observed between the academic aspect of dropout and the use of technological resources.

Keywords: Technological resources, school dropout, education, childhood.

1 Introduction

The dearth of access to technological instruments such as mobile phones, laptops, and the internet poses a significant educational obstacle, impeding the nation's progress and leading to school dropouts, particularly in rural regions.

The phenomenon of school dropout has manifested itself in multiple educational institutions, impacting the functioning of the educational system due to the considerable number of students who have decided to abandon formal education to focus on other activities. This phenomenon hinders students' access to a comprehensive education, thereby impeding their potential for social and economic advancement (Piracoca, 2019).

According to the Ministry of Education, 230 thousand students withdrew from the education system last year due to insufficient connectivity and technological resources. Furthermore, the Ministry has identified a significant disparity, with over 200,000 primary school students, despite being enrolled, failing to engage in distance education. The predominant factors contributing to this phenomenon are work obligations and the absence of technological devices (Cordero & Ponce, 2021).

The Student Census Assessment (ECE) has identified a correlation between regions with the lowest academic achievements and those with the lowest income quintiles. For instance, Loreto, Ucayali, Huánuco, Apurimac, and San Martín are among the regions with the lowest income quintiles. Concurrently, a report by the Ministry of Education (2017) indicates that Loreto registered the highest rate of school delay (18%) at the primary level, followed by Huánuco and Ucayali, both with 13%. In Ucayali, the phenomenon of school dropout has been particularly pronounced in rural areas due to the absence of internet access or the scarcity of economic resources necessary to recharge cell phones, thereby hindering students' ability to participate in virtual classes or submit their homework assignments. For instance, at educational institution No. 64122, situated in the Maldonadillo Village Center of the Raimondi district in the province of Atalaya, this predicament is predominantly associated with economic factors. The students in this institution are predominantly from economically disadvantaged backgrounds and reside in rural areas, attending schools with limited infrastructure and resources. The dearth of economic resources impedes parents from procuring mobile phone recharge cards, consequently hindering children's communication with teachers via digital platforms such as WhatsApp or Google Meet. The loss of family members during the pandemic has further exacerbated these challenges, leading to demotivation among young people and a decline in their academic preparation. This predicament has exerted deleterious effects not only on the lives of the students but also on their families and the broader society.

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This predicament has led to a marked decline in the number of students receiving adequate academic instruction, thereby exacerbating existing social, cultural, and economic disparities. Conversely, a lower rate of attrition and an augmented pool of skilled individuals would engender enhanced prospects for advancement, employment, and scientific and technological progress, thereby potentially elevating this region to the ranks of the most affluent and advanced in the province of Atalaya.

In light of these observations, this study was conducted with the objective of examining the correlation between the utilization of technological tools and school dropout rates in Educational Institution No. 64122 in the Maldonadillo Village Center. In this context, the following research question was formulated: Is there a relationship between the use of technological resources and school dropout in Educational Institution No. 64122 Maldonadillo, Atalaya, Ucayali, 2023? The overarching objective of this study is to ascertain the existence of such a relationship within the aforementioned institution during the 2023 academic year.

In addressing the concept of technological resources, Vásconez (2016) asserts that they constitute "the technical means that favor the satisfaction of people's technological needs in relation to education, information, and entertainment."Pérez and Merino (2010) (cited in Ruiz, 2017) delineate technological resources as "those media that employ technology to achieve their educational, informative, and entertainment objectives; they can be tangible (e.g., a computer) or intangible (e.g., a system)."

Gutiérrez and Huayhua (2017) posit that technological resources "represent the means provided by technology to be used in the teaching-learning process with the purpose of making it more enjoyable and didactic."

The dimensions of the technological resources that were considered were:

a) **Audiovisual Media:** Gonzales (2008) indicates that audiovisual media or materials are those technical means through which we expand our visual and auditory capacity. On the other hand, Terraza and Vásquez (2018) point out that "audiovisual materials belong to information and communication technologies (ICTs) that make it possible to carry out new teaching-learning methods that are based on active participation and interaction".
b) **Types of software:** Refers to the various sets of programs and applications developed according to their specific characteristics and functions. These can be classified into three types: programming, application, and systems. (Llamas, 2020)
c) **Web tools:** These are multimedia programs and applications that facilitate interaction through digital platforms, allowing Web 2.0 users to create and share content. (Ureña et al., 2017). According to O'Reilly (2005), web tools are based on communities of services and users, such as blogs, wikis and social networks, whose purpose is to promote the exchange of information and collaboration, thus strengthening collective intelligence.

Educational dropout is defined as the act of failing to obtain the minimum degree required for the completion of compulsory secondary education or ceasing to study after having achieved it (Muñoz, 2009).

School dropout is defined as the failure of a student to fulfill their academic responsibilities, thereby diminishing the efficacy of the education system (Torres et al., 2015). This phenomenon is dynamic, as some students drop out of school only temporarily (Cuesta, 2019).

The term "school dropout" is understood to signify the absence of enrollment in an educational institution, a consequence of a multitude of factors originating from diverse domains, including the classroom environment, the student's socio-family context, and their personal circumstances (Vivanco, 2020). The phenomenon occurs when a student formally disengages from their educational institution, a decision influenced by a multifaceted interplay of factors stemming from school, personal, family, and social domains (Venegas et al., 2017).

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The dimensions of school dropout considered were the following (Cárdenas, 2003):

a) **Family aspect dimension:** The family is regarded as the fundamental unit of society and is widely acknowledged as the preeminent institution in shaping individuals' values. However, in contemporary society, the family unit has undergone a significant deterioration in its image and structure across various demographic sectors. This decline is evidenced by various societal challenges, including suicide, domestic violence, child and adolescent abandonment, and drug addiction. The composition of the family unit can vary widely, ranging from the simple to the complex, arising from marriage or cohabitation. The dynamics of family relationships are influenced by a myriad of cultural, affective, and economic factors that impact its members. Within the context of our nation, it has become a prevalent phenomenon for both parents to be engaged in employment, a circumstance that considerably curtails the amount of time allocated for interaction with their children. This paucity of interaction can give rise to alterations in the behavior of children and adolescents, which are further influenced by the stress and fatigue experienced by the members of the family nucleus.
b) **School aspect dimension:** School behavior refers to the manner in which students develop within the classroom environment. This phenomenon can be observed and measured within the context of the educational environment. Each student possesses a unique emotional repertoire, shaped by both innate tendencies and acquired experiences. When a student's interactions are characterized by balance and harmony, they are regarded as being well adapted to their environment. Conversely, when students exhibit negative attitudes, some teachers resort to the imposition of authority through force or threats to achieve their objectives. Disciplinary problems or misconduct in the classroom usually involve some degree of violence, which can range from passive resistance to direct confrontation, including defiance and insult to the teacher, which alters the school environment.
c) **Social dimension:** They are related to the possibility of access to education that all citizens should have. In addition, they include the creation of an appropriate environment for learning and the active participation of students in decision-making on education policies, which is also part of this social dimension.

2 Material and Methods

The research employed a fundamental approach, characterized by a correlational level and a non-experimental, cross-sectional, descriptive-correlational design. This methodological decision stemmed from the fact that the variables were not manipulated, but rather, the phenomenon was studied at a specific time, as happened in reality. Furthermore, a meticulous examination of the characteristics inherent to each variable was undertaken to subsequently ascertain the extent of their interrelations (Hernández et al., 2014).

The population comprised 199 primary school children from I.E. No. 64122 Maldonadillo de Atalaya. A sample was taken of the fifth and sixth grade children of the institution, of whom only a total of 54 children participated (48% men and 52% women). The sampling method employed was non-probabilistic, as it was based on intentional choice (Sierra, 2015).

The Questionnaire on the Use of Technological Resources by Espinoza and Arias (2021) was utilized, comprising 18 items that evaluate the dimensions: Audiovisual media (6 items). Software Types (6 items) and Web Tools (6 items). Additionally, the School Dropout Questionnaire by Gómez and Clemente (2018) was utilized, comprising 12 items that assess the dimensions: Family aspect (4 items). School Aspect (4 items) and Social Aspect (4 items).The reliability of the instruments was evaluated through the measurement of internal consistency using Cronbach's Alpha Coefficient, finding a value of 0.79 for the Questionnaire on the Use of Technological Resources and 0.82 for the School Dropout Questionnaire, which indicates that they are reliable instruments. The data collected were then subjected to statistical analysis using the SPSS version 27 software program.

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3 Results

91% of the children have a low level in terms of the Use of Technological Resources, while 9% have a medium level (Table 1). In this sense, the difficulties that children present in handling technology in the development of their learning process can be evidenced.

Table 1. Level of Use of Technological Resources

Levels	f	%
High	0	0
Middle	5	9
Low	49	91
Total	54	100

Note. Results obtained from the application of the instrument

At the same time, it is evident that at least 80% of the children in the educational institution have a low level in terms of the use of web tools and types of software, and it is also observed that audiovisual media are the technological resources that represent the most difficulties for children (Table 2).

Table 2. Dimensions of the variable Use of Technological Resources

Dimension	High		Middle		Low	
	f	%	f	%	f	%
Audiovisual media	0	0	2	4	52	96
Types of software	0	0	7	13	47	87
Web Tools	2	3	9	17	43	80

Note. Results obtained from the application of the instrument

In the case of the use of audiovisual media for the development of academic activities, the analysis of the items related to this dimension (Figure 1) reported that at least 80% of the children have difficulties in using the computer and laptop (Items 3 and 4); and especially in the use of TV (Items 1 and 2) as well as the use of the multimedia projector (Items 4 and 5).

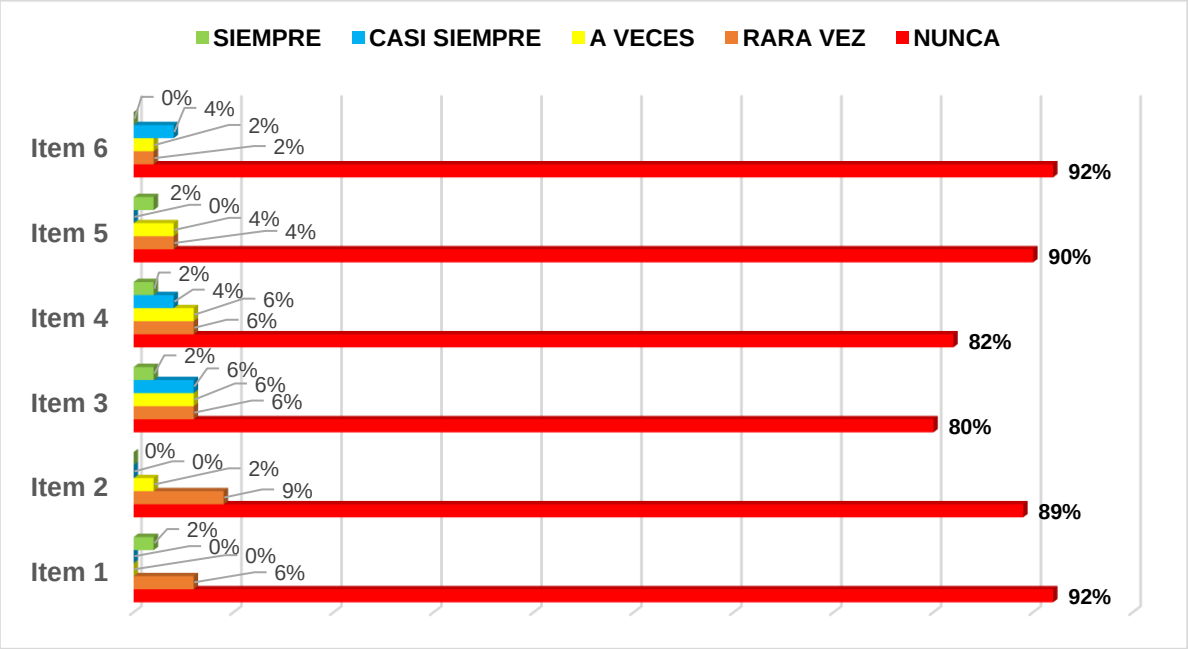

Figure 1. Response profile in the Audiovisual Media dimension

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Regarding the difficulties faced by children in the use of various types of software (Figure 2), it was identified that at least 72% have problems using the Word text editor (Item 7) or some simulation software (Item 11). These difficulties are even greater when using PowerPoint (Item 8) or when working with programming languages (Items 9 and 10). In addition, 59% of children have a low level of use of virtual platforms to carry out their academic activities (Item 12).

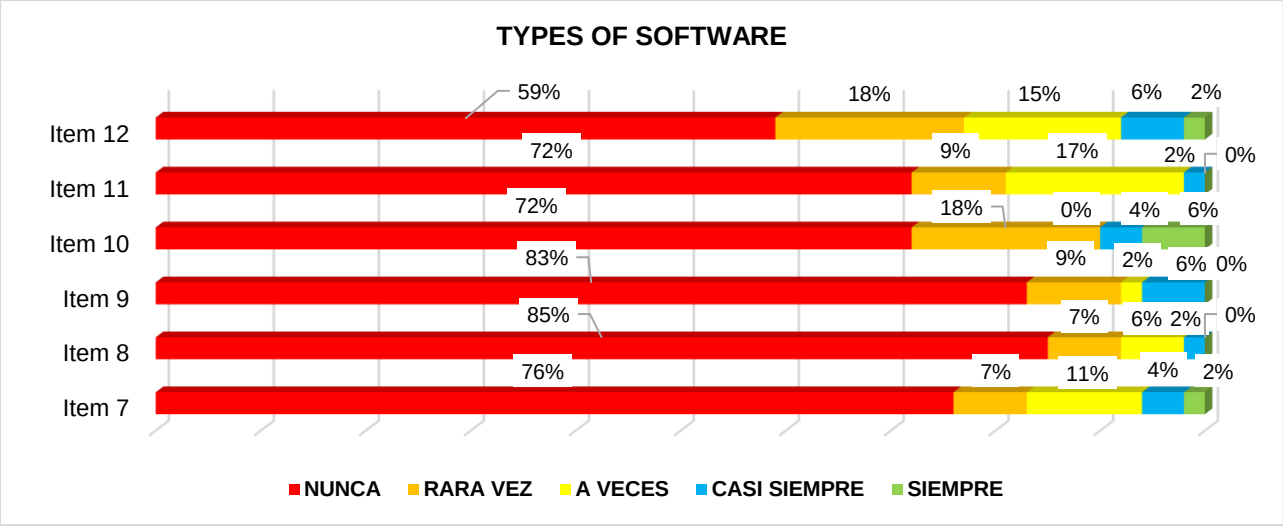

Figure 2. Response profile in the Software Types dimension

With regard to the utilization of web-based tools (see Figure 3), a minimum of 72% of children encounter challenges in their use. It is noteworthy that resources such as email (Item 13), videoconferences (Item 14), virtual forums (Item 15), blogs (Item 16), and wikis (Item 17) are not utilized by at least 70% of children. It is also highlighted that social networks, such as Facebook and WhatsApp, are the tools that children use most frequently to share relevant information related to the development of academic activities (Item 18).

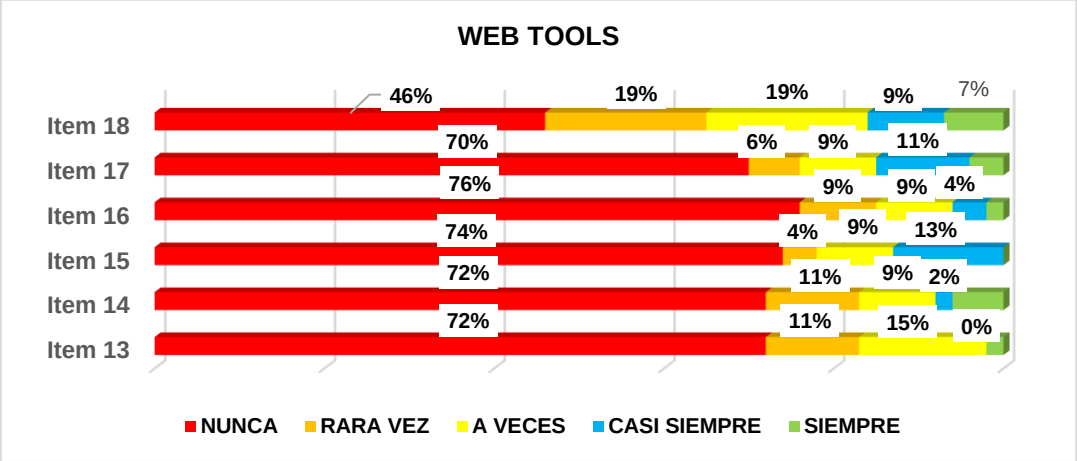

Figure 3. Response profile in the Web Tools dimension

Concerning the phenomenon of school dropout (see Table 3), the study revealed that 39% of the children exhibited a medium level of problematic behaviors, while 61% displayed a low level of such

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behaviors. These findings suggest that the majority of the children encountering difficulties in their educational development exhibit a low level of problematic behaviors.

Table 3. School Dropout Level

Levels	f	%
High	0	0
Middle	21	39
Low	33	61
Total	54	100

Note. Results obtained from the application of the instrument

As for the dimensions of school dropout, it was found (Table 4) that the social aspect has a low incidence in school dropout, since 74% of the children indicate it as such, followed by the family aspect with 54%. Conversely, the school aspect has been found to be a significant contributing factor to the phenomenon of school dropout, with 56% of children exhibiting a medium level of influence.

Table 4. Dimensions of School Dropout

Dimension	High		Middle		Low	
	F	%	f	%	F	%
Family Aspect	2	4	21	39	31	57
School Aspect	0	0	30	56	24	44
Social Aspect	1	2	13	24	40	74

Note. Results obtained from the application of the instrument

In the family aspect (Figure 4), it stands out that 72% of the children state that they do receive help from their parents in their homework (Item 1), although 65% of the children express little communication with their parents (Item 2). It is also found that 78% of children express that their parents prefer their children to attend classes and not stay at home (Item 3) and that 57% of children indicate that their parents tend to argue a lot at home (Item 4).

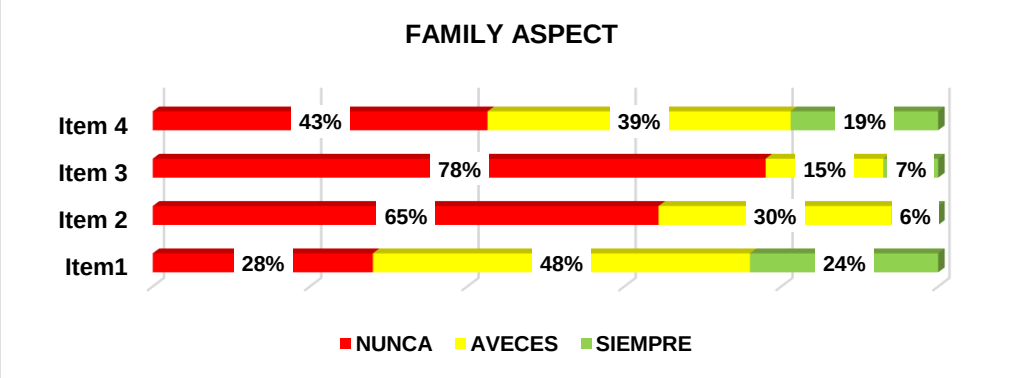

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Figure 4. Profile of responses in the Familiar Aspect dimension

In the school realm (Figure 5), 46% of the children express that they have felt demotivated to attend school (Item 5) and 78% of them express that they receive help from the teacher (Item 6); however, 67% state that they do not usually understand their explanations (Item 8) while 56% of the children express that they do not like to participate in the activities organized by the school (Item 7).

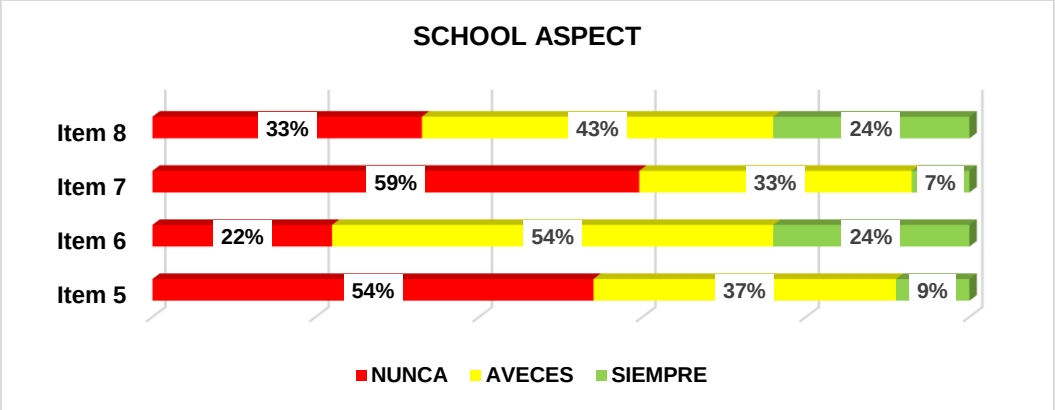

Figure 5. Profile of answers in the School Aspect dimension

In the social domain (Figure 6), only 46% of the children say that they usually do what they like best in their free time (item 9), while 63% of the children express that they do not like to work in a group with their peers (item 10). Furthermore, only 22% of the children reported exhibiting aggression towards their peers (Item 11), while 46% indicated having experienced discrimination from their peers (Item 12).

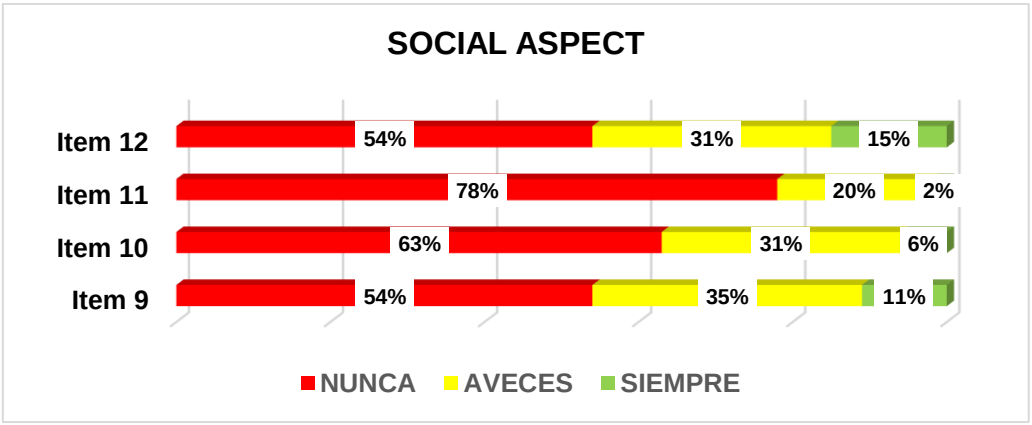

Figure 6. Profile of responses in the Social Aspect dimension

Regarding the determination of the existence of a relationship between the Use of Technological Resources and School Dropout (Table 4), it was found that the correlation coefficient is r = 0.269, which being positive would indicate the existence of a low direct relationship between the variables, however, it is not significant because p = 0.079 > 0.05. Therefore, the null hypothesis (Ho) was accepted, concluding that there is no relationship between the Use of Technological Resources and School Dropout in the children of the Educational Institution.

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Table 4. Relationship between Use of Technological Resources and School Dropout

		Dropout
Use of Technological Resources	Correlation coefficient	0,269
	Sig. (bilateral) (p)	0,079

Note. Results obtained from the application of the instrument

In examining the correlation between the utilization of technological resources and the various dimensions of school dropout, as illustrated in Table 5, it was observed that a significant relationship was identified between the former and the latter. The correlation coefficient, denoted by r, was found to be 0.286*, which is considered statistically significant, given a p-value of 0.015, which is less than 0.05.05; thus, it can be concluded that there is a direct and low relationship between the Use of Technological Resources and the School Aspect of School Dropout in the children of the Educational Institution, so the greater the use of technological resources, the greater the incidence of the school aspect in the school dropout of the children. Conversely, the findings revealed an absence of a relationship between the utilization of technological resources and the family and social dimensions of school dropout ($p > 0.05$).

Table 5. Relationship between Use of Technological Resources and Dimensions of School Dropout

Dimension of School Dropout	**Use of Technological Resources**	
	Correlation Coefficient	**Sig. (p)**
Family Aspect	0,095	0,472
School Aspect	0,286	0,015*
Social Aspect	0,238	0,168

Note. Results obtained from the application of the instrument, * $p < 0.05$

The primary objective of the present study was to ascertain the existence of a relationship between the utilization of technological resources and the phenomenon of school dropout in the Educational Institution No. 64122 Maldonadillo, Atalaya, Ucayali, during the year 2023. The findings revealed that no significant relationship was identified between the utilization of technological resources and the phenomenon of school dropout ($p = 0.079 > 0.05$). Furthermore, the investigation revealed no significant association between the utilization of technological resources and the family aspect of school dropout ($p = 0.472 > 0.05$) or the social aspect of school dropout ($p = 0.168 > 0.05$). Conversely, a low yet statistically significant relationship was identified between the utilization of technological resources and the school aspect of school dropout ($p = 0.015 < 0.05$), as indicated by a Spearman's Rho correlation coefficient of 0.286.

The findings indicate that a substantial proportion of the children in this institution exhibit a deficiency in technological resource utilization, particularly in the domain of audiovisual media management, where a significant proportion of the sample, amounting to 96%, reports encountering challenges. Additionally, at least 80% encounter challenges in utilizing software and web-based tools. With respect to school dropout rates, approximately 40% of the children exhibit a medium level of proficiency, with the school aspect being the most impacted, at 56% medium, while the social aspect exhibits a lower incidence, at 74% at a low level. While no statistically significant relationship was identified between the utilization of technological resources and school dropout in general, a low, direct, and significant relationship was observed with the school aspect of dropout.

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This finding aligns with the proposition by Quispe (2021), who argued that the utilization of technological resources, particularly digital resources, does not play a pivotal role in school dropout rates. Consequently, the utilization of ICT-related technologies does not demonstrate a substantial impact on the phenomenon of school dropout, as previously indicated by Alejo and Garofalo (2014) and Lamus (2022). However, these findings contradict the assertions made by Amador (2021). Within the context of the family environment, the constrained economy hinders numerous children from acquiring the requisite technology to facilitate their educational pursuits (Chahua & Rupari, 2017), consequently placing them in a disadvantageous position (Formichela, 2020). This, in turn, may influence a diminished utilization of technological resources, which could potentially impact the incidence of school dropout. However, this hypothesis remains unconfirmed in the present study. Nevertheless, it is crucial to acknowledge the significance of the family economy in the analysis of school dropout, as emphasized by García (2017), Vásconez (2023), Pachay and Rodríguez (2021), Lamus (2022), Calderón and Naranjo (2021), Amador (2021), Cuestas (2019), Zambrano and Bargaza (2023), and Villegas and Mayo (2019).

The research suggested that the limited use of technological resources could be associated with an increase in school dropouts; however, this hypothesis was not confirmed, suggesting that technology is not a determining factor in this phenomenon. Nevertheless, the findings underscore the necessity to comprehend school dropout from diverse vantage points, considering its multifaceted character (Ramón, 2021; Villegas & Mayo, 2019; Huerta et al., 2017). The study also demonstrated that increased technology use exerts a certain influence on the school environment, potentially enhancing children's motivation and improving their interaction with teachers, thereby positively impacting their academic performance. These findings thus establish a foundation for further research to explore the potential of technology to enhance educational outcomes (Chasco & Pumarada, 2017; Jaúregui, 2016).

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