International Journal of Religion
2024
Volume: 5| Number 11 | pp. 6001 – 6009
ISSN: 2633-352X (Print) | ISSN: 2633-3538 (Online)
ijor.co.uk

DOI: https://doi.org/10.61707/z194bv34

Digital Divide and Academic Performance of Students in Educational Institutions in Ilave- Peru

Edwin-Jhonn Hurtado-Arhuata[1], Lupe-Marilu Huanca-Rojas[2], Emilio Flores-Mamani[3], René Paz Paredes[4], Soledad-Consuelo Yarahuaman-Gonzales[5], Edwin-Abdón Quispe-Cansaya[6], Tapia-Espinoza Pedro- Basilio[7], Julian Apaza-Chino[8]

Abstract

During the pandemic, governments implemented virtual education to prevent student dropout and the loss of the academic year due to the digital divide in the educational field. The objective of this study was to determine the relationship between digital divides and academic performance under the "Aprendo en Casa" strategy. The research design was non-experimental, cross-sectional and correlational; The representative sample was made up of 476 students to whom a survey was applied. Among the most relevant findings, it was highlighted that most students lack adequate housing for better academic performance, as well as technological equipment with sufficient memory and inefficient connectivity due to low broadband capacity. Therefore, it is concluded that there is a significant association (p value < 0.005) between the digital divide and students' academic performance, reflected in socioeconomic aspects such as inappropriate housing, equipment with capacity limitations and inefficient connectivity, which has a negative impact on academic performance.

Keywords: *Online Learning, Digital Divide, Virtual Education, Academic Performance*

INTRODUCTION

Education represents a fundamental right for both the individual and society (Arenas Valdés & Hernández Beltrán, 2021), and it is the responsibility of states to provide a quality educational service that fosters the integral development of individuals (Borie Mecklenburg et al., 2022). However, this mission was severely affected by the health emergency caused by the COVID-19 pandemic (Cardozo et al., 2022), during which government measures implemented globally generated profound inequalities and exclusions in access to education (López Daza and Gómez García, 2020).

The global presence of the SARS-CoV-2 virus led to significant effects, such as the suspension of face-to-face education at all levels, which meant considerable efforts towards the implementation of virtual education as a response, as indicated by the World Health Organization (WHO, 2020). These measures had negative impacts, such as an increase in school dropout rates and greater disparity, especially in developing countries. In this way, the solutions adopted constituted emergency measures to avoid the collapse of the formal education system worldwide.

The violation of the right to education was strongly associated with the socioeconomic level of the students' families of origin (Cerezo et al., 2020). This panorama highlighted the critical need to acquire equipment, access devices, and guarantee connectivity for the virtual teaching-learning process. However, many educational

[1] Universidad Nacional del Altiplano, Perú; Email: edwin.hurtadoa@minedu.edu.pe

[2] Universidad Nacional Intercultural de la Selva Central Juan Santos Atahualpa Perú; Email: lhuanca@uniscjsa.edu.pe

[3] Universidad Nacional del Altiplano, Perú.

[4] Universidad Nacional del Altiplano, Perú; Email: rpparedes@unap.edu.pe

[5] Universidad Nacional del Altiplano, Perú; Email: syarahuaman@unap.edu.pe

[6] Universidad Nacional del Altiplano, Perú; Email: equispec@unap.edu.pe

[7] Universidad Nacional del Altiplano, Perú; Email: pedrotapia@unap.edu.pe

[8] Universidad Nacional del Altiplano, Perú; Email: julian7208@gmail.com

institutions, in both rural and urban areas, faced significant socioeconomic inequalities. Some households lacked basic resources such as smartphones or computers, and faced additional challenges such as lack of internet access and power supply problems. These difficulties forced many students to travel long distances or to high places, such as the upper parts of the hills, in order to participate in virtual classes. In addition, many students lacked the necessary competence in the use of virtual platforms and tools to actively participate in their learning, thus exacerbating the gaps in the teaching-learning process during the pandemic.

On the other hand, technology exerts a dominant influence on all aspects of contemporary social development (Cabrera et al., 2007). However, the inappropriate use of these resources can have negative consequences, particularly in the educational field (Foglia, 2022; Ishaq et al., 2021). During the COVID-19 pandemic, many students failed to achieve the expected learning levels due to the lack of technological resources needed to participate in virtual classes taught by teachers from home.

Digital divides represent a significant form of inequality in access to technology, affected by factors such as the socioeconomic level of the household, the availability of equipment necessary for access to virtual classes, and the quality of internet connectivity. These disparities played a crucial role in academic performance during the COVID-19 pandemic, exacerbated by the limited speed and availability of the internet in various regions.

Recent studies have documented significant adverse effects on education, such as the restriction in teacher-student interaction for the resolution of exercises due to digital divides (Quispe, 2021), as well as a large digital divide in virtual education among students due to limitations in internet connectivity and the use of information and communication technologies (Aguirre and Sánchez, 2022; Bermeo-Chalco et al., 2021). From the teachers' perspective, a significant proportion of students failed to achieve the minimum learning objectives during the confinement period, evidencing the social and educational impacts of the digital divide (Montenegro et al., 2020).

In Peru, during the pandemic, the Ministry of Education implemented the "Aprendo en Casa" strategy, which provided basic technology equipment for virtual education throughout the country. This study focused on beneficiary educational institutions in the province of Collao, such as the "Nuestra Señora del Carmen de Ilave" national school, the Don Bosco Regional Polytechnic and the José Carlos Mariátegui school, institutions where this strategy was applied.

A study on the digital divide in education provides crucial information to develop effective policies and programs that promote a more inclusive, equitable and adapted education to the needs of all students in the digital age. The results of this study can offer empirical data to support the formulation of public policies aimed at closing these digital divides. Based on the findings of this study, accessible educational programs can be designed to guide the training of educators in the effective use of technology in the classroom and in adapting pedagogical strategies to include students with different levels of digital access.

In this context, the objective of the study was to determine the association between digital divides and academic performance under the "Aprendo en Casa" strategy in the aforementioned educational institutions, considering the following dimensions of the digital divide variable: type of housing, available electricity service, parents' income, types of available technological equipment, internet connectivity and bandwidth capacity.

METHOD

The study was carried out in 2022 in three secondary educational institutions located in the city of Ilave, capital of the province of Collao: Colegio Nuestra Señora del Carmen de Ilave, Don Bosco Regional Polytechnic and José Carlos Mariátegui. These institutions are located 50 km south of the city of Puno, Peru, at an altitude of 3850 m.a.s.l., on the Collao plateau. The total student population was 3413 students, distributed in different sections from the first to the fifth year. A representative sample of 476 students was selected in a random and stratified manner, respecting the corresponding proportionality, with a margin of error of 5%.

The research approach was quantitative, using numerical counts and mathematical methods to verify the hypotheses raised, organized sequentially (Hernández-Sampieri & Mendoza, 2018). The study design was non-

experimental and correlational, aimed at determining the degree of association between the variables of digital gaps and academic performance in a specific context (Hernández et al., 2014).

The study variables were digital gaps and academic performance. The dimensions of the digital divides included the type of housing, available electric service, parents' income, types of technological equipment available, internet connectivity and bandwidth capacity. Data collection was carried out through surveys using a nominal questionnaire, administered online.

To evaluate academic performance, a vigesimal assessment scale was used, defined as follows: grades from 0 to 10 corresponded to "at the beginning"; from 11 a.m. to 2 p.m. to "in process"; from 15 to 17 to "expected achievement"; and from 18 to 20 to "outstanding achievement" (Pedagogical Folder, S.F.). The statistical test used was the chi-square, used to determine the significant association between the variables studied.

This methodology allowed for a systematic and rigorous analysis of the association between digital divides and academic performance under the "Aprendo en Casa" strategy in the aforementioned educational institutions, providing relevant empirical data to understand and address these educational challenges in the context of the digital age.

RESULTS

Table 1 shows that 37.2% of the respondents indicated that they have unfinished houses made of noble material, of which only 0.4% reached the level of academic performance of "achievement achieved". On the other hand, 33% reported having houses made of noble material, but unfinished, and of these, 16.5% are in the process of reaching the level of academic performance. In addition, 17% of those surveyed live in unfinished houses made of rustic material, of which 7.1% are also in the process of reaching the level of academic performance. These data suggest that the type of housing, regardless of its state, does not show a significant difference in the academic performance of students, since most are at the "in process" level of performance.

Inferential statistical analysis reveals that the type of housing influences the level of academic performance. The value of Chi2c:26.103 is higher than Chi2t:16.9190 with a significance level of 0.05, and the value of p is 0.002, which is less than 0.05. This indicates that a better type of housing is associated with a higher level of academic performance.

Table 1. Type of housing and academic performance.

Type of housing		Level of academic performance				Total
		At the beginning	In process	Expected achievement	Outstanding achievement	
Noble material finish	N	38	77	30	12	157
	%	8,0%	16,2%	6,3%	2,5%	33,0%
Unfinished noble material	N	42	80	53	2	177
	%	8,8%	16,8%	11,1%	0,4%	37,2%
Rustic finished material	N	21	26	14	0	61
	%	4,4%	5,5%	2,9%	0,0%	12,8%
Unfinished rustic material	N	30	34	16	1	81
	%	6,3%	7,1%	3,4%	0,2%	17,0%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 26.103 > Chi2t: 16.9190; Pvalue: 0.002 < 0.05
Source: Student survey – 2022.

Table 2 shows that 88.4% of the students indicated that they had electricity, of which 42.4% are at the level of academic performance "in process" and 3.2% at "outstanding achievement". On the other hand, 5% have solar panels, of which 1.3% are in the process of reaching the level of academic performance. The data in the table suggest that electric service can positively influence students' academic performance levels.

In addition, a significant association is observed between the electrical service and the level of academic performance of the students. The value of Chi2c: 26.605 is greater than Chi2t: 12.5916, with a significance of 0.05 and a value of $p = 0.000 < 0.05$. This indicates that the availability of electric service is significantly associated with a better level of academic performance.

Table 2. Electric Service and Academic Performance.

Electric service		Level of academic performance				Total
		At the beginning	In process	Expected achievement	Outstanding achievement	
Yes	N	100	202	104	15	421
	%	21,0%	42,4%	21,8%	3,2%	88,4%
Yes, Solar	N	16	6	2	0	24
Panels	%	3,4%	1,3%	0,4%	0,0%	5,0%
No	N	15	9	7	0	31
	%	3,2%	1,9%	1,5%	0,0%	6,5%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 26.605 > Chi2t: 12.5916 Pvalue: 0.000 < 0.05
Source: Student survey - 2022.

The results related to the parents' income and its relationship with the level of academic performance are presented in Table 3. 81.7% of the students indicated that their parents' income ranges between 500 and 1500 soles, among which 39.3% is at the level of academic performance "in process". Of the remaining 8.4%, whose parents have an income of more than 2500 soles, 2.1% have achieved "outstanding achievement" in their academic performance. These data suggest that a higher income of parents may be associated with better academic performance of students.

The inferential analysis reveals a significant association between the economic income of the parents and the level of academic performance of the students. With a value of Chi2c: 88.621, which exceeds Chi2t: 12.5916 with a significance of 0.05 and a value of $p = 0.000 < 0.05$, it is concluded that a higher economic income of the parents is positively associated with better academic performance. This implies that better economic conditions can facilitate the acquisition of computer infrastructure that favors academic performance.

Table 3. Parents' income and academic performance.

Parents' income		Level of academic performance				Total
		At the beginning	In process	Expected achievement	Outstanding achievement	
From 500 to 1500 soles	N	119	187	79	4	389
	%	25,0%	39,3%	16,6%	0,8%	81,7%
From 1500 to 2500 soles	N	7	20	19	1	47
	%	1,5%	4,2%	4,0%	0,2%	9,9%
More than 2500 soles	N	5	10	15	10	40
	%	1,1%	2,1%	3,2%	2,1%	8,4%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 88.621 > Chi2t: 12.5916; Pvalue: 0.000 < 0.05
Source: Student survey - 2022

Table 4 shows the relationship between the use of equipment in classes and academic performance. Of the total number of students who use computers, 76.3% do so through cell phones, among which 36.6% show a level of academic performance "in process", and only 1.3% have reached the "outstanding achievement". On the other hand, 13.2% use tablets, of which 0.8% are at the "outstanding achievement" level. The use of other types of equipment is lower in comparison. In all cases, most students are placed at the "in process" level of academic performance, regardless of the type of equipment used.

Likewise, there is evidence of an association between the type of equipment used and the level of academic performance of the students. The value of Chi2c: 34.764 is higher than Chi2t: 21.0261, with a significance of 0.05 and a p value of $0.001 < 0.05$. This indicates that the use of adequate technological equipment is significantly associated with a better level of academic performance.

Table 4. Types of equipment used for classes and academic performance.

Types of equipment they use for classes		Level of academic performance				Total
		At the beginning	In process	Expected achievement	Outstanding achievement	
Laptop	N	8	10	9	5	32
	%	1,7%	2,1%	1,9%	1,1%	6,7%

Computer	N	3	7	4	0	14
	%	0,6%	1,5%	0,8%	0,0%	2,9%
Cellular	N	100	174	83	6	363
	%	21,0%	36,6%	17,4%	1,3%	76,3%
Tablet	N	16	26	17	4	63
	%	3,4%	5,5%	3,6%	0,8%	13,2%
Radio	N	4	0	0	0	4
	%	0,8%	0,0%	0,0%	0,0%	0,8%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 34.764 > Chi2t: 21.0261; Pvalue: 0.001 < 0.05
Source: 2022 student survey.

Table 5 shows the relationship between the RAM used in the computers and the level of academic performance of the students. 51.5% used 2GB of RAM, which allowed 1.3% to achieve the "outstanding achievement" performance level, while 22.1% are at the "in process" level. In addition, 5% used 8 GB of RAM, of which 1.1% of students achieved the "outstanding achievement" level. From this it can be deduced that greater technological capacity makes it easier to achieve the best levels of academic performance.

Likewise, an association is observed between the RAM memory of the computers and the level of academic performance of the students. The value of Chi2c: 31.699 is higher than Chi2t: 12.5916, with a significance of 0.05 and a p value of 0.000 < 0.05. This indicates that as RAM increases, a better level of academic performance is observed.

Table 5. Computer RAM Capacity and Academic Performance

RAM – Equipment		**Level of academic performance**				**Total**
		At the beginning	**In process**	**Expected achievement**	**Outstanding achievement**	
2 Gb	N	78	105	56	6	245
	%	16,4%	22,1%	11,8%	1,3%	51,5%
4 Gb	N	51	101	51	4	207
	%	10,7%	21,2%	10,7%	0,8%	43,5%
8 Gb	N	2	11	6	5	24
	%	0,4%	2,3%	1,3%	1,1%	5,0%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 31.699 > Chi2t: 12.5916; Pvalue: 0.000 < 0.05

Source: Student survey – 2022

Table 6 shows that 70% of the students use cell phone recharging to connect, 1.5% reached the "outstanding achievement" performance level and 30.9% at the "in process" level. Additionally, 9.2% have access to wired internet, of which 0.8% have achieved the "outstanding achievement" level. These data highlight the crucial importance of connectivity to achieve the best levels of academic performance.

Likewise, there is a significant association between the type of connectivity and the level of academic performance of the students. The value of Chi2c: 28.027 is greater than the Chi2t: 16.9190, with a significance of 0.05 and a p value of 0.001 < 0.05. This indicates that better connectivity is positively associated with a better level of academic performance.

Table 6. Types of connectivity and academic performance

Types of Connectivity		**Level of academic performance**				**Total**
		At the beginning	**In process**	**Expected achievement**	**Outstanding achievement**	
Fiber Optics	N	1	6	5	3	15
	%	0,2%	1,3%	1,1%	0,6%	3,2%
Wired Internet	N	8	24	8	4	44
	%	1,7%	5,0%	1,7%	0,8%	9,2%
Monthly postpaid cell	N	21	40	22	1	84
phone	%	4,4%	8,4%	4,6%	0,2%	17,6%
Cell Recharge	N	101	147	78	7	333
	%	21,2%	30,9%	16,4%	1,5%	70,0%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 28.027 > Chi2t: 16.9190; Pvalue: 0.0001 < 0.05

Source: Student survey – 2022.

Table 7 shows that 37.8% of students have access to 10 Mbps, of which 17.4% are at the "in process" academic performance level. On the other hand, 23.5% use a 100 Mbps connection, with 9% reaching the level of academic performance "in process". These data suggest that higher broadband capacity can contribute to achieving an outstanding level of academic performance, while speeds below 50 Mbps mostly allow only a "in process" level of performance to be achieved.

Likewise, a significant association is observed between broadband capacity and students' academic performance. The value of Chi2c: 28.379 is higher than Chi2t: 24.9958, with a significance of 0.05 and a p value of 0.019 < 0.05. This indicates that as broadband capacity, i.e., connection speed, increases, the level of academic performance of students also tends to improve.

Table 7. Broadband capacity and academic performance.

Broadband Capacity		Level of academic performance				Total
		At the beginning	In process	Expected achievement	Outstanding achievement	
10 Mbps	N	58	83	37	2	180
	%	12,2%	17,4%	7,8%	0,4%	37,8%
20 Mbps	N	34	43	28	7	112
	%	7,1%	9,0%	5,9%	1,5%	23,5%
30 Mbps	N	21	44	19	0	84
	%	4,4%	9,2%	4,0%	0,0%	17,6%
40 Mbps	N	9	23	18	1	51
	%	1,9%	4,8%	3,8%	0,2%	10,7%
50 Mbps	N	6	17	8	4	35
	%	1,3%	3,6%	1,7%	0,8%	7,4%
100 Mbps	N	3	7	3	1	14
	%	0,6%	1,5%	0,6%	0,2%	2,9%
Total	N	131	217	113	15	476
	%	27,5%	45,6%	23,7%	3,2%	100,0%

Note: Chi2c: 28.379 > Chi2t: 24.9958; Pvalue: 0.019 < 0.05

Source: Student survey – 2022

DISCUSSION

Housing plays a crucial role in the socioeconomic status of students' households and their academic performance. Only a small percentage (2.5%) of students with favorable housing managed to achieve the "outstanding achievement" level of academic performance. This result coincides with previous studies (Salazar & Heredia, 2018), which suggest that good grades are influenced by social, family, economic, and psychological factors, in addition to academic efforts and individual characteristics. This indicates that the outstanding achievement does not only depend on the quality of the housing, but also on other aspects such as the family and economic environment.

During the pandemic, another significant digital divide in education was the lack of electrical infrastructure in some areas, especially in rural areas. This negatively affected access to virtual education and, therefore, the academic performance of students. This finding aligns with recent research (Weiwei, 2022), which confirms the existence of a digital divide in students in rural areas in the transition to virtual education. However, it is crucial to leverage virtual education to benefit all students, as suggested by successful government initiatives such as those implemented in India, where national digital policies were coordinated to improve access to educational technology (Ministry of Electronics and Information Technology, 2021).

Economic income also plays a determining role, since low income limits access to information and communication technology (ICT). In this study, 81.7% of the students come from households with incomes of less than 1500 soles, and most of them have a level of academic performance in process. This finding reflects the economic gap that prevents equitable access to ICTs, corroborated by previous studies (García et al., 2021), which identify exclusion factors such as economic capacity and poor infrastructure as significant barriers during the pandemic. Although virtual education may not have been implemented uniformly across regions and less

developed countries, it is essential to develop effective public policies to close these digital divides (Zhao et al., 2022).

The quality of technological equipment also influences virtual education and academic performance. In this study, it was observed that the cell phone was the most used device, but most students only reached levels of academic performance in process or at the beginning. This is related to previous studies (Riggins & Dewan, 2005), which identify the digital divide as an inequality in access to ICTs, affecting academic performance due to limitations in access to appropriate technologies.

Likewise, internet connectivity plays a crucial role in the development of academic and non-academic activities. Although recharging cell phones was the most common method of connection among students, those with weak connections had greater difficulty achieving higher levels of academic performance. This finding coincides with studies that highlight the lack of internet connection infrastructure as a significant barrier to students' digital development (Ministry of Electronics and Information Technology, 2021). Improving connectivity and ensuring that all students have access to quality internet is critical to closing the digital divide in education.

Another determining factor is the speed of broadband, which directly influences the transfer of information on the Internet. The results show that higher broadband speeds (50 and 100 Mbps) were less used by most students, who mostly relied on connections with lower capacity. This translated into predominant levels of academic performance in process. This inequality in access and computer competence has been identified in previous research (Riggins & Dewan, 2005; L'opez-Meneses et al., 2020), underlining the importance of closing these gaps to improve students' digital skills and competencies.

The implications of this study underscore the urgent need for governments to implement effective public policies to reduce digital divides and ensure equitable access to quality education for all. This includes investing in technological infrastructure, improving the quality of equipment and internet connectivity, as well as developing training programs for students to acquire effective digital skills.

The limitations of the results obtained from the study with a smaller scope may not be extrapolated to other geographical areas or cultural contexts. It also limits the ability to make general claims about digital divides at the national or global level. It can be difficult to compare and contrast digital divides with other populations or similar contexts. It can also make it difficult to identify broader structural causes that contribute to digital divides, such as national policies, regional infrastructure, or broader economic disparities.

CONCLUSIONS

The conclusions on the digital divide in the academic performance of students under the "Aprendo en Casa" strategy reveal several significant points:

The type of housing of the students shows a significant association with the level of academic performance. Those who reside in better quality housing are more likely to achieve outstanding levels of academic performance. In contrast, students who live in housing in regular conditions tend to show an academic performance in process.

The choice of communication technology used during classes is also significantly associated with the level of academic performance. The use of devices such as laptops, cell phones, computers and tablets with adequate RAM is associated with better levels of academic performance. However, most students use equipment with lower RAM capacity, which could contribute to the predominance of academic performance levels in process.

Internet connectivity plays a crucial role in students' academic performance, as the speed of information transfer directly influences the dynamics of academic work and interaction with educational materials. Despite this, most students have academic performance levels in process, regardless of the type of connectivity and the lowest speed in Mbps.

These findings suggest the need for further research on other factors that could influence students' academic performance, such as family support. This type of support could play a crucial role in mitigating the identified

digital divides, facilitating better conditions for students' learning and academic development under virtual education conditions.

Conflict of interest

The authors declare that they have no conflict of interest.

REFERENCES

Aguirre, L., y Sánchez, A. (2022). *Brecha digital y educación virtual en el contexto de la pandemia de la COVID-19 en estudiantes del Distrito de Chinchao. [Tesis de grado]*. Universidad Nacional Hermilio Valdizán, Huánuco. https://repositorio.unheval.edu.pe/bitstream/handle/20.500.13080/7355/TSOC00131A32.pdf?sequence=1&isAllowed=y

Bermeo-Chalco D. G., García-Herrera D. G. y Mena-Clerque S. E. (2021). Brecha digital en tiempos de pandemia: Perspectivas de padres de familia. *Revista Electrónica de Ciencias de la Educación, Humanidades, Artes y Bellas Artes* 4(8). http://dx.doi.org/10.35381/e.k.v4i8.1359.

Borie Mecklenburg, N., Guerra Cortés, V. y Salinas Figueroa, P. (2022). responsabilidad civil del estado por vulneración del derecho a la educación por la implementación deficiente de servicios de internet para la realización de clases telemáticas en pandemia. *Revista de Ciencias Sociales*, *81*, 237–280. https://doi.org/10.22370/rcs.2022.81.3568

Cabrera, N. J., Shannon, J. D., y Tamis-LeMonda, C. (2007). Fathers' Influence on Their Children's Cognitive and Emotional Development: From Toddlers to Pre-K. *Applied Developmental Science*, *11*(4), 208–213. https://doi.org/10.1080/10888690701762100

Cardozo, M., Aimetta, C., y Marder, S. (2022). Inequidad educativa durante el aislamiento por covid-19 en Buenos Aires. *Íconos - Revista de Ciencias Sociales*, *XXVII*(75), 125–142. https://doi.org/10.17141/iconos.75.2023.5291

Cerezo, L., Mayer, L., y Vommaro, P. (2020). Desigualdades y juventudes en américa latina. In *Las desigualdades en clave generacional hoy.* pp. 19–44. Consejo Latinoamericano de Ciencias Sociales. CLACSO. https://doi.org/10.2307/j.ctv1gm01ch.4

Carpeta Pedagogica.Com (S.F.). Plataforma educativa de recursos digitales. https://carpetapedagogica.com/

Foglia, E. (2022). Brechas digitales: proyecto Xarxa Oberta de Barris. *Revista de estudios de ciencias de la Información y de la Comunicación,* (119), 1696-3296. https://doi.org/10.7238/c.n119.2221

García-Leal M., Medrano-Rodrígueza H., Vázquez-Acevedoa J.A., Romero-Rojasa J.C., Berrún-Castañón L.N. (2021). Brecha digital de género en docentes de educación básica durante pandemia por COVID-19. *Revista Andina de Educación* 5(1) (2022) 000514. https://doi.org/10.32719/26312816.2021.5.1.4

Hernández - Sampieri, R., y Mendoza, C. P. (2018). *Metodologia de Investigacion, las rutas cuantitativas, cualitativas y mixta.* Mexico: McGRAWHILL Education.

Hernández R., Fernández C. y Baptista P. (2014). *Metodología de la Investigación*. Sexta edición. México: Mc Graw Hill. Educatión.

Ishaq, H., Scholar, M. P., Muqaddar, L., y Tufail, M. (2021). Effect of Information Communication Technology (Ict) on Students ' Motivation and Their Academic Achievement At University. *International Journal of Management (IJM)*, *12*(1), 1413–1421. https://doi.org/10.34218/IJM.12.1.2021.124

López Daza, G. A., y Gómez García, C. F. (2020). Estado de excepción y restricción al derecho a la educación en Colombia por la COVID-19. *Opinión Jurídica*, *19*(40), 163–186. https://doi.org/10.22395/ojum.v19n40a8

L´opez-Meneses, E., Sirignano, F, M., V´azquez-Cano, E, y Ramírez-Hurtado, J, M. (2020). University students' digital competence in three areas of the DigCom 2.1 model: A comparative study at three European universities. *Australasian Journal of Educational Technology, 36*(3), 69–88.

Ministry of Electronics and Information Technology. (2021). Digital India infrastructure. New Delhi, India: Bharat Broadband Network. Government of India Telecom Regulatory Authority of India. *Highlights of telecom subscription data as of 31st of January 2021*. https://www.meity.gov.in/

Montenegro S., Raya E. y Navaridas F. (2020). Percepciones Docentes sobre los Efectos de la Brecha Digital en la Educación Básica durante el Covid -19. Revista Internacional de Educación parala Justicia Social, 9(3e), 317-333. https://doi.org/10.15366/riejs2020.9.3.017

Organización Mundial de Salud – OMS. (2020). *Enfermedad por Coronavirus*

(COVID - 19). Organizacion Mundial de la Salud. Disponible en: https://www.who.int/es

Quispe, S. (2021). Praxis de enseñanza matemática en educación virtual

"Aprendo en Casa". Revista Cientifica Investigacion Andina, 20 (2). https://www.revistas.uancv.edu.pe/index.php/RCIA/article/view/883/757

Riggins, F., y Dewan, S. (2005). The digital divide: Current and future research directions. *Journal of the Association for Information Systems, 6*(12), 298–337. https:// doi.org/10.17705/1jais.00074

Salazar I. y Heredia Y. (2018). Estrategias de aprendizaje y desempeño académico en estudiantes de Medicina. *Educ Med.* 20(4):256---262. https://doi.org/10.1016/j.edumed.2018.12.005

Weiwei Zhao, Jingshu Zhang, Xia Liu, Zhou Jiang (2022). Application of ISO 26000 in digital education during COVID-19. *Ain Shams Engineering Journal,* 13, 101630 https://doi.org/10.1016/j.asej.2021.10.025

Zhao L., Cao C., Li Y., Li Y. (2022). Determinants of the digital outcome divide in E-learning between rural and urban students: Empirical evidence from the COVID-19 pandemic based on capital theory. *Computers in Human Behavior* 130,107177. https://doi.org/10.1016/j.chb.2021.107177