Use and Knowledge of ICTs in Inclusive Education at Educational Levels

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Abstract—The inclusion of people with special abilities is not only a right but also a moral duty on the part of the state, this research aims to describe the level of inclusive knowledge in teachers of different educational levels in Peru in times of Covid-19. The research is descriptive, correlational, predictive and quantitative, achieving an online survey of 520 teachers at the initial, primary, secondary, university and postgraduate levels, the measurement instrument consists of 25 questions divided into five blocks on knowledge of ICT in visual, hearing, cognitive, motor and web accessibility disabilities, using a five-point Likert-type scale. The statistical data showed a very good Cronbach's Alpha, as well as significant results in different statistical tests. The results of this research revealed that ICT knowledge for visual impairment, cognitive impairment, motor impairment and web accessibility has a low level while for the level ICT knowledge for hearing impairment has a high level. Concluding that there is a significant gap between disabilities, teacher knowledge about inclusive education in educational levels in Covid-19 times has a low. The teacher has a high level of ICT proficiency at all educational levels and the motivation to use ICT is regular because many applications and software are of limited access.

Keywords—inclusion, inclusive education, disability, ICT, educational levels

1 Introduction

The Convention in the United Nations of 2006 made an international right to persons with disabilities (special abilities) and established it worldwide, the cause of this was the difference in school inclusion in many countries due to the conditions of the structure of the school system and the educational institution itself, despite being recognized as of primary need and primary attention worldwide [1], it is for this reason that thanks to globalization and digitization there is a more noticeable difference in cultures and traditions, Therefore, it is urgent to find new teaching and learning strategies that support multidimensional and ethnocultural diversity [2], affecting not only the lower levels of education, but also the university levels where there is a greater concentration

and diversity of cultures that lead to discrimination and/or rejection despite the existence of a study where neither of these two factors is found, concentrating on factors such as religion, sex, age and political ideology [3]. Fundamental and international rights have a political commitment in the education sector to maintain equity and quality inclusion [4], based on the declaration of the International Convention where special abilities were conceptualized and reaching results such as inclusion in a legal and mandatory way for education [5], as also achieved that many countries develop programs with intellectual and multiple abilities to have specialized care, share moments of inclusion with the society in which they live and achieving positive results in their learning [6].

Because of the presence of Covid-19, inevitable changes have been suffered in all humanity [7], so in countries like Europe, concepts and issues of inclusion are investigated with systematic approaches prevailing interactions in the classroom, political, social contexts and categories of social character where the results show us the dominance of special needs and disability, but with the presence of exclusion by gender, social class, religion and geography [8]. Despite the existence of reforms to promote inclusive education with changes in the system of support and funding for students [9], there were effects not only in European countries, but also in Latin American countries but with the presence of barriers to better education, these barriers hinder inclusion at the university level with so much cultural diversity as in Bolivia, which due to lack of coordination between law and resources allocated were lost to institutions responsible for diversity and inclusion [10]. With the presence of the pandemic the education sector was considered as a worrying sector due to the closure of educational institutions that affected more people with special inclusion, because it had to face educational policies, inaccessible technologies and leave aside the educational inclusion to make parents responsible [11] and even the administrative staff shows phobia to Covid-19 [12], for such reason inclusive education is considered as the protector of students with special abilities [13].

There are French theories that intellectual ability is not part of educational inclusion, this examines the variation of the type of ability of students in their way of communication, motor function, sensory function and even in their way of learning, which has to demonstrate social attitudes of educational inclusion [14], while in Arabic countries students with autism abilities have to attend regular schools as normal, because teachers teach these young people after achieving special trainings on the subject [15], in order to achieve a well-defined paradigm on educational inclusion in all types of educational institutions whether public, private, rural or urban, management will is needed [16] to share and/or collaborate among teachers the keys of how to implement educational inclusion within the classroom, the institution and the locality [17].

What is sought with educational inclusion is to implement principles in all countries knowing their different forms and contexts, as well as the Philippines deepens the environment (affirmative environment, enabling environment and attractive environment) for students with special abilities to have better learning [18]. Europe for example has a project where several countries participate, this project consists of the process of dialogue between teachers and students to adopt and develop equally inclusion in the class-

room, whose progress now is gradually and achieving positive changes in the educational community [19], although there is the psychological distress that affects burnout because of the presence of Covid-19 [20]. Educational inclusion has been occurring after the Salamanca Statement in 1994, despite the lack of progress in practical advances that have been given only theories to be enhanced as Sweden did using inclusion in the classroom at the school level [21]. Inclusion also affected mathematics with the OPEN-MATH project where inclusive learning is developed for mathematics with open learning theories and objectification theory with ideas of differentiating and participating in mathematical and integrated education, whose results are theoretically and methodologically significant within an interdisciplinary approach [22], the exclusion of children with special abilities in Africa is permanent due to the presence of barriers that do not allow the practice of human rights because of attitudes of stereotypes and discrimination for lack of encouraging educational inclusion, to achieve seek effectiveness and international intervention and encourage the practice of inclusion in educational institutions [23].

The perception of digital technology was accepted by both teachers and managers [24], so the use of ICT grew in full pandemic which has prompted the development of digital competencies in teachers to address the online teaching-learning to facilitate the work in a synchronous and asynchronous way. The teacher monitors students with feedback and highlights the virtual environment for educational inclusion that has managed to identify opportunities to implement software for different functions [25], ICT has generated dynamics of inequality and poverty in vulnerable populations and even more in inclusive population, because it has been affected with access to internet, laptops, social networks, telephone coverage and social network. ICT in educational institutions has come to negatively affect poverty lines globally and more so affected inclusion students [26], changing roles of teachers, administrative staff and students due to the critical and challenging period [27]. The models to follow with online technology are the use of virtual form laboratories adapted for students with special abilities whose results are positively and significantly getting on track and presenting improvements in social inclusion [28]. The great impact of inclusion in the educational field came to innovate this sector with digital resources especially for students with special abilities achieving parallel training to teachers in digital skills and educational inclusion for teaching and learning and achieve that students with special abilities have success in their learning [29].

What is sought with educational inclusion is to provide schooling alternatives for students with special abilities whose technological implementation should be at the international level [30], because inclusion policies are advancing little by little without a formal definition, so the key is to redefine conflicting and contradictory approaches [31] as Kazakhstan's civil society did with an inclusive transition and policy formulation and research of new perspectives; the participation of NGOs, government, civil society and parents managed to facilitate educational inclusion [32]. A meta-study was conducted with classroom teachers on attitudes and self-efficacy towards inclusion with random and significant effects [33], whose teacher training is the key to the success of educational inclusion and even more experience and self-knowledge [34], forming positive attitudes to enable the inclusion of students with special abilities in education and

managing to identify ideologies that hinder their respective implementation [35], as the countries of Japan and Saudi Arabia did with the implementation of historical, socio-economic and cultural factors on inclusion [36], obtaining new social attitudes in the students with special abilities themselves and building the socio-psychological environment for inclusive support [37]. Concern on the part of teachers in England came with a new scale that influenced inclusive education in private and public educational institutions [38], these inclusion concerns in both sectors have a coherent and adequate but hardly achievable difference, as teachers in the private sector handle inclusion better than teachers in the public sector [39].

Curriculum design with traditional games as an educational tool improve the skills of students with special abilities [40], whose competence model and implementation are requirements for new teachers in their empirical and digital training [41], so English parents always decide to enroll their children with special abilities in educational institutions that practice educational inclusion models [42], because they always faced the barriers that exist in society despite having the support of teachers, school management teams and family [43].

2 Justification and objectives of the study

The presence of special abilities in educational institutions is known as students with disabilities (physical, mental or intellectual) in many countries becoming discriminated against so it was given green light to developed and underdeveloped countries to take political and economic decisions against this situation of disability to cope and give them the right to education as any human being, so in meetings and world assemblies took the decision to demand that all countries decide equally and ensure the welfare of these people with special abilities.

This is the beginning of the search for the support and welfare of these people with special abilities in order to be included in education from the beginning of their education. In Peru there are Laws, Decrees, Supreme Decrees and organizations such as CONADIS who watch over the welfare of these people with special abilities and ensure that their rights to social inclusion and inclusive education are respected. The presence of Covid-19 wanted to prevent teaching-learning, but thanks to ICT, educational institutions in charge of education were able to adapt so that students with special abilities at different levels of education can access online education and continue with their goals and not be harmed in any way.

This research was conducted in the Peruvian context with teachers from different levels of education (initial, primary, secondary, university and postgraduate), in order to know and analyze the current situation of students with special abilities and how they are facing it, because before Covid-19 education for them was limited because teachers could not access training on issues of inclusion and now that ICT is made we want to know what is the level of knowledge of teachers about inclusion, because there is no longer any excuse to receive training that are scheduled nationally and internationally. Thus it was proposed that the sole purpose of the research is to know if teachers of

different educational levels know the five dimensions of inclusion to ensure the education of students with special abilities, as well as to analyze the impact of ICT on teachers and measure the level of digital competence achieved by teachers during the pandemic, because of the teaching-learning through the online version of education. In the Peruvian educational system, inclusive education is mandatory and of primary necessity; therefore, we also set the following specific objectives:

- To know if ICT motivate the teacher to guarantee quality education with students with special abilities.
- To know the limitations of the teacher on the incorporation of new technologies for teaching and learning with students with special abilities.
- To know the effects of the change from traditional teaching to digital teaching with students with special abilities.
- To know the importance of the incorporation of ICT in teaching and learning with students with special abilities.
- To evaluate the teacher's level of mastery of ICT for the attention to students with special abilities.

3 Methodology

3.1 Research design

In this work, descriptive type research was developed in a correlational and predictive way, the research is quantitative [44].

3.2 Sample

A total of 520 teachers were surveyed out of the 1415 teachers contacted at the preschool, primary, secondary, university and postgraduate levels throughout Peru. Of the total number of teachers in the sample, there is a large difference in the participation of women in the survey, which represents 66% and 34% are male teachers who have a lower participation in the survey, this is due to the little support shown by male teachers when they are informed about the research and are asked to answer the survey in which the level of knowledge about ICT and about the topic of inclusion will be measured, which causes fear and they refuse to participate, The survey was conducted online, randomly and voluntarily, the google form was used to conduct the online survey during the months of September-December, where the support of friends, colleagues and family was requested to contact teachers from different levels of education and explain briefly what the survey was about, the sampling was intentional because the online survey was conducted with teachers who had access and ease of contact. The ages of the teachers in the range of [20 to 30] years represent 21.9%; of [31 to 40] years represent 29.2%, of [41 to 50] years represent 31.3% and 17.5% with ages over 51 years, all

of them work in the different levels of Peruvian education, where 20% of the participating teachers are from the initial level, 35% from the primary level, 29.6% from the secondary level, 13.8% from the university level and 1.5% from the postgraduate level.

3.3 Instrument

For this research we used the measurement instrument [45], with which we achieved a Cronbach's Alpha 0. 974 in the Peruvian context with teachers from different levels of education, the value of Cronbach's Alpha guarantees the measurement instrument and the respective use for future research, this measurement instrument is composed of 25 questions, which seek to answer our objective of measuring the level of teacher knowledge about inclusive education at different educational levels in times of Covid-19, the 25 questions are divided into five blocks, block one contains questions concerning Knowledge of ICT of visual impairment (DVi1: I recognize different computer programs produced specifically for students with visual impairment; DVi2: I can identify topics for which Perkins machines can be useful; DVi3: I know how to create a written document in a word processor and eliminate aspects that may hinder its use by students with visual impairment; DVi4: I am generally aware of the possibilities offered by ICT for students with visual impairment and DVi5: I am able to make curricular adaptations with ICT support for students with visual impairment), block two with questions referring to ICT Knowledge of hearing impairment (DAu1: I am able to make curricular adaptations with ICT support for students with hearing impairment; DAu2: I know how sign language works; DAu3: I am generally familiar with the possibilities offered by ICT for students with hearing impairment; DAu4: I am able to apply ICT-supported teaching strategies to facilitate the integration of students with hearing impairment and DAu5: I can point out different websites where a teacher can find educational resources for students with hearing impairment); block three with questions referring to Knowledge about ICT in cognitive impairment (DCo1: I can apply ICT-supported teaching strategies to facilitate the inclusion of students with cognitive disabilities; DCo2: In general, I am aware of the possibilities offered by ICT for students with cognitive disabilities; DCo3: I can cite some educational programs that are used for cognitive rehabilitation; DCo4: I am able to perform ICT-supported curricular adaptations for students with cognitive disabilities and DCo5: I am able to describe the main limitations that multimedia materials may contain for use with students with cognitive disabilities); block four with questions referring to ICT Knowledge of motor disability (DMo1: I am familiar with different types of keyboards for students with different types of mobility limitations; DMo2: In general, I am aware of the possibilities offered by ICT for students with motor disabilities; DMo3: I am familiar with specific software for students with motor disabilities; DMo4: I can apply ICT-supported teaching strategies to facilitate the inclusion of students with motor disabilities and DMo5: I am able to make ICT-supported curricular adaptations for students with motor disabilities) and block five with questions referring to Knowledge about ICT in web accessibility (AWeb1: I know what accessibility testing for websites is; AWeb2: I am able to create web pages with high accessibility parameters; AWeb3: I can point out different national

and international institutions that are involved in the study and research of website accessibility; AWeb4: I am able to explain the principles that the Design Center recommends to follow to achieve websites and AWeb5: I can cite different accessibility tests), in this measurement instrument was elaborated with a five-point Likert-type scale, where 1 is the lowest rating point and 5 is the highest rating point. While the level of knowledge of ICT use we divided it into four parts, i.e.:

The interval of [1 - 2> points will have the level of ICT usage knowledge very low.

The interval of [2 - 3> points will have the level of knowledge of ICT use low.

The interval of [3 - 4> points will have the level of knowledge of ICT use high and [3 - 4> points will have the level of knowledge of ICT use low.

The interval of [4 - 5] points will have the level of knowledge of very high ICT use.

This measurement instrument was validated and submitted to a total of 520 teachers of the five levels of education (initial, primary, secondary, university and postgraduate) in the Peruvian context, achieving a high value for its reliability.

The data analysis was done with the exploratory factor of varimax rotation resulting with a mean of 2.906 and variance of 1.333, other tests were also used to make the respective comparisons such as: the Tukey test for non-additivity between elements whose sum of squares is 369. 529, gl =24, mean squared 15.397, F=649.942 and Sig 0.000 and non-additivity whose sum of squares is 4.334, gl =1, mean squared 4.334, F=8.071 and Sig 0.005. Hotelling's t-squared test (421.186), F=16.700 and Sig. 0.000. The KMO and Bartlett's test where the Kaiser-Meyer-Olkin measure for sampling adequacy is 0.962, Bartlett's sphericity with its Chi-square approximation (13223.417) with gl=300 and Sig. 0.000; and the goodness-of-fit test with Chi-square approximation (1305.763) with gl=206 and Sig. 0.000 achieving optimal results for the coherence of the measurement instrument.

3.4 Procedure and data analysis

This research began in the month of June to conduct a study on digital inclusion in students of the five levels of education in Peru, managing to survey 520 teachers out of 1415 contacted from the different levels of education (initial, primary, secondary, university and postgraduate), this survey was conducted intentionally for access and ease of contact, where they were informed of the purpose of the research and after accepting to answer the survey the respective authorization was requested to process the results and be published once the research was completed. The survey was conducted online, voluntarily and anonymously, always respecting the considerations of good research practice and ethics of the Declaration of Helsinki.

This research is "new" and very important in the Peruvian environment on the study of Digital Inclusion in students with special abilities, managing to have the positive and significant acceptance because it surprised many teachers their research and inclusion in the field of education and also surprised the lack of knowledge on this topic and even more on the existence of ICT for their respective application in education with students with special abilities. One of the limitations in the research was the rejection of a large number of teachers for fear of being evaluated and having repercussions in their institution despite explaining that the research is anonymous, another group of teachers did

not want to respond to the survey making excuses such as I have no data, I do not have time, I am tired of answering surveys among others.

Once the online, voluntary and anonymous surveys were completed, we proceeded to download all the information and pass the corresponding filter for the elimination of some data if it existed, then we proceeded to analyze the results obtained, interpreting each test performed with the factorial analysis and conclude with the most relevant results to respond to the objectives set out in this research and for the scientific community to be satisfied with the results.

The data analysis was carried out with the SPSS version 25 program, in which normality, linearity, residual analysis, independence, non-collinearity and homoscedasticity were checked.

4 Result

Figure 1 shows the results of the level of ICT Knowledge in visual impairment during the classes taught during the Covid-19 period in the different levels of education in the Peruvian environment, managing to obtain a low level in ICT knowledge for visual impairment with only 2.806 points on average (2.71; 2.59; 2.79; 2.99 and 2.95), which means that it is 0.194 points away from achieving the goal that every educational institution seeks to be at a high level and be able to support students with special abilities.
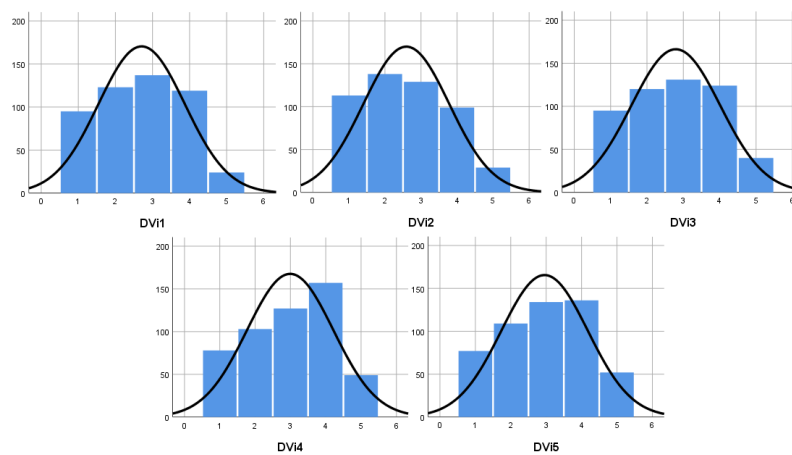

Fig. 1. Distribution of the level of ICT knowledge in visual impairment

Figure 2 shows the results of the level of knowledge of ICT for hearing impairment during the classes taught during the period of Covid-19 in the different levels of education in the Peruvian environment, achieving a high level in the knowledge of ICT for hearing impairment with 3.09 points on average (3.18; 2.87; 3.04; 3.22; and 3.14), which means that teachers are trained and have interest in hearing impairment and manage to maintain inclusion among the educational and social community.
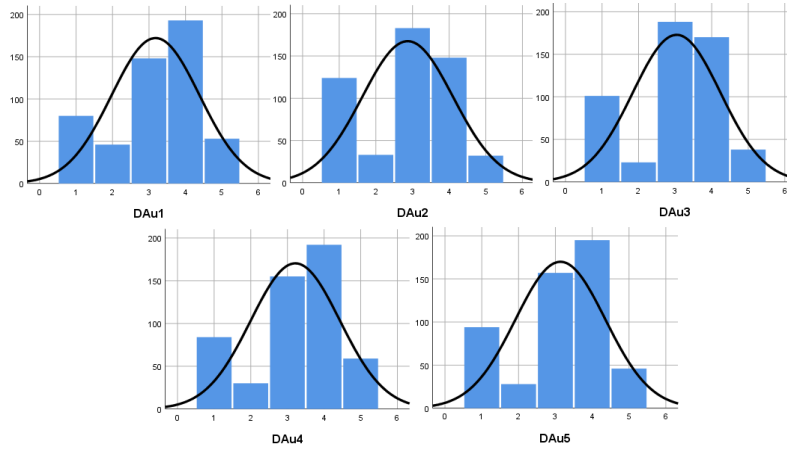
Fig. 2. Distribution of the level of ICT knowledge in hearing impairment

Figure 3 shows the results of the level of ICT Knowledge in cognitive disability during the classes taught during the Covid-19 period in the different levels of education in the Peruvian environment, managing to obtain a low level in ICT knowledge for cognitive disability with 2.966 points on average (2.95; 3.07; 2.87; 2.98 and 2.96), which means that it is 0.034 points away from achieving the goal that every educational institution seeks to be at a high level and be able to support students with special abilities.

Fig. 3. Distribution of the level of ICT Knowledge in cognitive disability

Figure 4 shows the results of the level of ICT Knowledge in motor disability during the classes taught during the Covid-19 period in the different levels of education in the Peruvian environment, managing to obtain a low level in ICT knowledge for motor disability with 2.792 points on average (2.69; 2.87; 2.67; 2.86 and 2.87), which means

that it is 0.208 points away from achieving the goal that every educational institution seeks to be at a high level and be able to support students with special abilities.
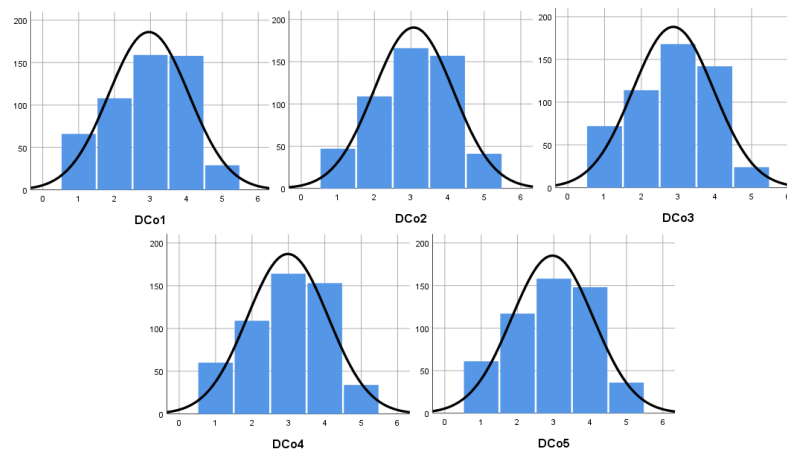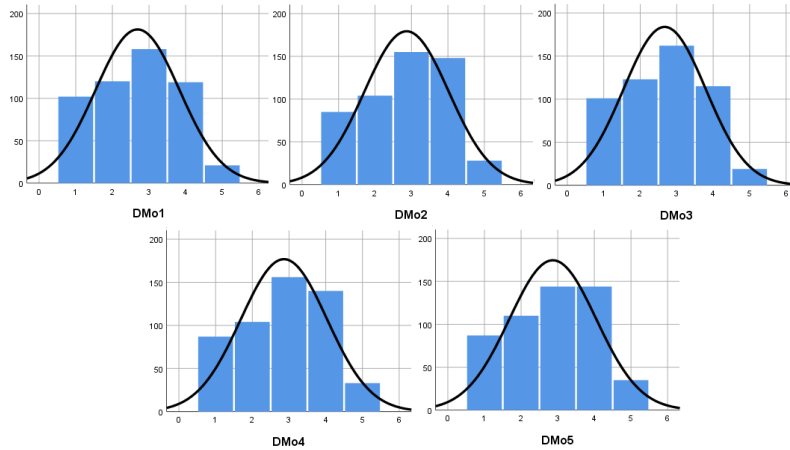

Fig. 4. Distribution of ICT Knowledge level with motor disability

Figure 5 shows the results of the level of ICT Knowledge in Web Accessibility during the classes taught during the Covid-19 period in the different levels of education in the Peruvian environment, achieving a low level in ICT knowledge for web accessibility with an average of 2.826 points (2.94; 2.73; 2.84; 2.81; and 2.81), which means that it is 0.174 points away from achieving the goal that every educational institution seeks to be at a high level and be able to support students with their special abilities..
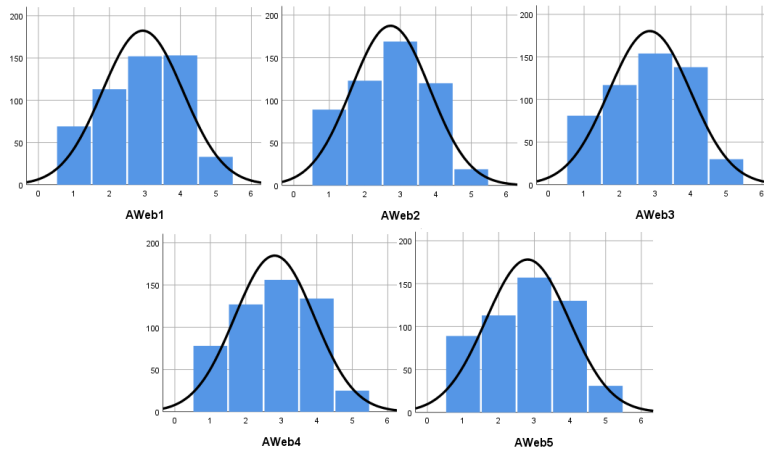

Fig. 5. Distribution of the level of ICT knowledge in web accessibility

Table 1 shows the relationship values between the visual, hearing, cognitive and motor disability variables, finding a significant relationship between the variables.

Table 1. Relationship between visual, hearing, cognitive and motor disability variables

	DVi1	DVi2	DVi3	DVi4	DVi5	DAu1	DAu2	DAu3	DAu4	DAu5	DCo1	DCo2	DCo3	DCo4	DCo5	DMo1	DMo2	DMo3	DMo4	DMo5
DVi1																				
DVi2	,792																			
DVi3	,759	,751																		
DVi4	,695	,671	,740																	
DVi5	,677	,686	,737	,752																
DAu1	,549	,566	,548	,525	,587															
DAu2	,447	,511	,450	,433	,447	,474														
DAu3	,554	,613	,585	,555	,568	,668	,693													
DAu4	,491	,573	,551	,523	,589	,676	,609	,730												
DAu5	,507	,551	,538	,503	,493	,640	,607	,766	,737											
DCo1	,493	,509	,496	,500	,528	,495	,412	,503	,544	,525										
DCo2	,530	,544	,497	,567	,542	,531	,404	,513	,540	,506	,790									
DCo3	,572	,605	,585	,572	,590	,567	,498	,582	,632	,613	,748	,797								
DCo4	,520	,567	,535	,532	,601	,518	,419	,521	,610	,524	,746	,782	,804							
DCo5	,507	,600	,576	,517	,623	,497	,441	,548	,583	,548	,731	,749	,798	,845						
DMo1	,583	,613	,577	,507	,596	,599	,516	,611	,565	,585	,571	,597	,662	,605	,652					
DMo2	,576	,627	,572	,615	,636	,598	,498	,587	,609	,584	,628	,707	,745	,692	,670	,811				
DMo3	,568	,626	,588	,502	,596	,562	,540	,619	,575	,609	,556	,588	,686	,602	,644	,843	,786			
DMo4	,542	,564	,555	,568	,634	,582	,480	,590	,628	,567	,618	,668	,719	,670	,657	,788	,871	,793		
DMo5	,514	,597	,545	,522	,613	,560	,489	,571	,635	,557	,592	,638	,699	,704	,667	,788	,837	,786	,889	

Table 2 shows the values of the Pearson Correlation between the visual, hearing, cognitive and motor disability variables, finding a strong significant Pearson Correlation between the variables.

Table 2. Pearson's correlation between visual, hearing, cognitive and motor disability variables

	DVi1	DVi2	DVi3	DVi4	DVi5	DAu1	DAu2	DAu3	DAu4	DAu5	DCo1	DCo2	DCo3	DCo4	DCo5	DMo1	DMo2	DMo3	DMo4	DMo5
DVi1																				
DVi2	,791																			
DVi3	,743	,744																		
DVi4	,680	,666	,737																	
DVi5	,659	,687	,730	,755																
DAu1	,489	,490	,482	,489	,525															
DAu2	,403	,440	,394	,374	,400	,401														
DAu3	,526	,585	,544	,504	,540	,561	,585													
DAu4	,465	,549	,519	,501	,577	,584	,515	,653												
DAu5	,472	,513	,516	,479	,488	,537	,513	,675	,684											
DCo1	,472	,491	,477	,488	,538	,432	,372	,476	,547	,513										
DCo2	,492	,517	,485	,561	,553	,473	,341	,469	,516	,496	,763									

DCo3	,558	,589	,571	,553	,585	,493	,459	,548	,588	,594	,744	,771						
DCo4	,499	,545	,514	,516	,610	,458	,359	,490	,580	,518	,760	,770	,801					
DCo5	,498	,564	,548	,500	,620	,434	,396	,508	,553	,532	,742	,731	,803	,848				
DMo1	,576	,608	,565	,497	,591	,527	,476	,578	,545	,569	,572	,589	,677	,602	,649			
DMo2	,541	,603	,549	,600	,633	,527	,438	,542	,588	,556	,636	,693	,734	,688	,659	,802		
DMo3	,547	,613	,583	,501	,596	,477	,490	,580	,538	,580	,555	,580	,687	,595	,635	,843	,783	
DMo4	,522	,556	,536	,557	,635	,508	,422	,557	,595	,535	,632	,650	,716	,676	,654	,786	,874	,792
DMo5	,486	,574	,518	,517	,614	,488	,427	,524	,603	,536	,606	,628	,695	,705	,665	,778	,843	,787	,891

Figure 6 shows (a) the use of ICT in the classroom with a mean of 3.5, standard deviation 8.14, which means that teachers at different levels of education use ICT to conduct their classes and (b) this motivates teachers and students themselves to use ICT, resulting in a mean of 6.52, standard deviation of 2.031, which means that teachers have a regular motivation (poor [1, 4>; regular [4, 7> and good of [7, 10]) among teachers and students.
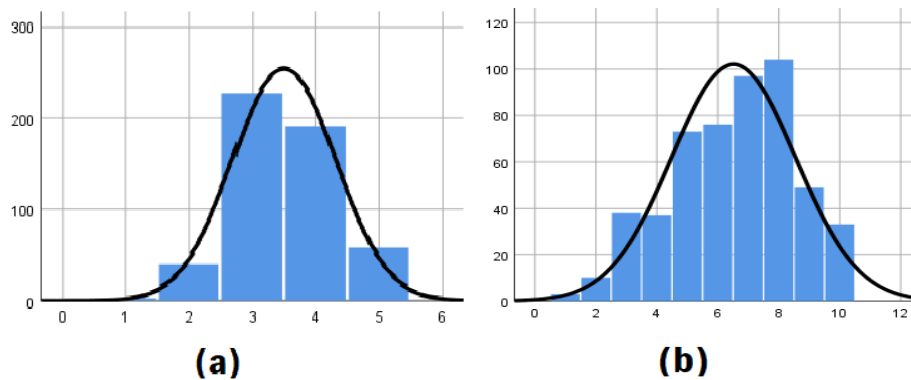

Fig. 6. Distribution of ICT Use and Motivation for students with special abilities (Note: (a) ICT use in the classroom and (b) motivation for ICT use)

5 Discussion

One of the many limitations is the Peruvian educational system, is the little academic and social interest in the inclusion of students with special abilities since it is in implementation from the government and some public organizations responsible as is the CONADIS (National Council for the Integration of Persons with Disabilities), which seek the welfare of each of the students in each of the levels of education, doing little or nothing for digital inclusion, due to the curricular structure and the same Peruvian educational system.

Another Peruvian limitation as in many international countries is the exclusion of students with special abilities from the classroom due to lack of implementation and trained professionals, leaving them to oblivion or forcing them to take them to specialized educational institutions far from their hometown [8], suffering changes in self-

perception and changes in their learning process due to the different teaching models practiced by the same teachers trying to cope with the education of students with special abilities [29].

One of the effects of inclusive education is the resounding change in the search for the implementation of ICT at different levels of education to make the adaptation to the virtual world of students with special abilities and leave aside the traditional education and give beginning of a future for the internationalization of educational inclusion with political repercussions [1] and achieving the participation, learning and active accompaniment of the community in general [18].

The motivation of teachers to access ICT will be to request new models of virtual laboratories whose academic experience will have to overcome and improve existing models for students with special abilities (visual, hearing and musculoskeletal disabilities) [28], in many developed countries there is the loss of the notion of social inclusion in society, but thanks to the prospects of the development of social inclusion can be empowered in society itself, because this could be involved and be part of this boom in inclusion and not only social, but also digital inclusion [14].

The importance of incorporating ICT in education to not cause more poverty [26] had consequences as the difference of ICT Knowledge in hearing impairment with other special skills is the incorporation of specialists in sign language at the level of the Peruvian state channel as the teaching of sign language is encouraged from different media and social networks, this already forms of communication in society and this has to learn the way to communicate with them and maintain fluid communication. These differences between all the skills occurred because they are not able to make curricular adaptations with the support of ICT from the Peruvian state because the same Peruvian state has a curriculum in a general way that is not allowed to make changes to meet the students in their different educational levels (initial, primary and secondary), while at the university and postgraduate level is trying to incorporate mechanisms and regulations for their respective attention.

The sign language that tries to impose itself in the media with a specialist who acts as a translator in the state channel and other individuals to encourage other media to incorporate it, as well as the dissemination in social networks with images of sign language, so many teachers are motivated and encourage their use of sign language inside and outside their classrooms; teachers know about ICT (Apps and Software) that help students to make use of these applications and be able to "hear" the classes and other applications are part of their training in their inclusive education, so it is easy to teach students with hearing problems and all this thanks to the implementation of ICT in social networks are already easily accessible, free and friendly, all this thanks to interdisciplinary research that seek high standards of learning in students with special abilities [22].

The level of knowledge of ICT in reference to visual, cognitive and motor disabilities teachers are unaware (mostly) of the subject because there is no dissemination of it and there are few applications (free access) for its use so teachers request its massive dissemination to experiment, learn and motivate the use in students with special abilities. The study of inclusion theories as a methodological approach is accurate, despite seeking only a critical analysis of special abilities [21]. What remains to be done for each

level of education is to motivate teachers to find improvement trainings to replicate them with students with special abilities and to work jointly and collaboratively with parents and the community in general.

A limitation to the research was the acceptance of the survey by teachers for fear of being judged for lack of knowledge in educational inclusion and repercussions in the institution as calls for attention or reprimands by the directors, on the other hand, the lack of support for not having empathy with the research. It was recommended to find out and practice educational inclusion in classrooms with their own students to make the multiplier effect at home [11].

6 Conclusion

It can be concluded that the level of teachers' knowledge about inclusive education at the educational levels in Covid-19 times is below the expected, that is, at a low level; despite having all the ICT available, they are not able to train on specific topics about inclusion and they are not able to obtain all the necessary tools to reach students with special abilities at all levels of Peruvian education because there is no expenditure or investment item for students with special abilities in educational institutions.

The teacher presents a high level (very low, low, regular, high and very high level) on the mastery of ICT at all levels, due to his experience and permanent work for two years and his continuous training on ICT issues; it was expected to obtain a very high level on the mastery of ICT, but some teachers cling to traditional education despite the fact that educational institutions applied the inclusion of technology. The motivation to use ICT is regular on a scale of 1 to 10 because many applications, software are paid and demotivate teachers because for their acquisition and use they have to make a payment and do not have enough tools to teach students with special skills, leaving no opportunity to teach how it is normally done in the classroom, this is happening due to lack of equity and inclusive policies to enhance the level of motivation level to teachers and these transfer them to students with special skills.

The knowledge about digital inclusion at different levels of education is low, despite having institutions responsible for ensuring its dissemination and implementation in educational institutions at different levels; this low level of knowledge about digital inclusion will have to be overcome if we continue with online classes so as not to harm more students with special abilities at different levels of education and that digital inclusion is not only signed in documents or offers but becomes a reality so that education begins to have a good level of education and for the sake of students with special abilities.

The measurement instrument which was used for the Peruvian environment is adequate for its high value to continue with future research on knowledge of digital inclusion at different levels of Peruvian education and to be taken as a model not only for this research but also for many other models to have a better visualization of our educational system in inclusive education environments.

In the relationship values between the variables of visual, hearing, cognitive and motor disability, a significant relationship was found between the variables, which

means that the variables are related to each other without being excluded; the Pearson Correlation value means the existence of a strong and very significant correlation between the study variables.

This research will generate theoretical and practical knowledge; at the theoretical level and will contribute to the literature in the scientific community on the level of ICT knowledge in students with special abilities and at the theoretical level it will also enhance the studies of digital inclusion at national and international level. On the practical level it will be of reference for further studies of other research for different educational levels and at different times. Finally, the results obtained from this research will be able to guide many institutions responsible for the welfare of students with special abilities with the sole purpose of enhancing Peruvian education, especially inclusive education, and it will also serve to present proposals that benefit students with educational inclusion in many educational institutions and achieve educational equity.

From this research, teachers will have to be trained in inclusion issues and look for more technological tools that can help students with special abilities and that their learning level is improved year after year for the good of the student and Peruvian education.

The media will be motivated to incorporate a professional in sign language for all programs and be seen by students with this special ability, we are also looking for other digital media to be able to communicate with all students with special abilities.

In each educational institution of the different educational levels there is a lack of institutional strategies to address inclusive education, as well as the lack of specialized training to cope with the attention of students with special abilities despite having a minimum number of students per classroom.

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