



RESEARCH ARTICLE

## TIC'S As a Pedagogical Resource for The Development of Teachers' Learning Sessions

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**ABSTRACT**

The general objective of the research is to determine the relationship between the use of ICTs as a pedagogical resource and the development of the learning sessions of teachers of the Educational Institution No. 31506 "Sagrado Corazón de Jesús" - Huancayo, 2023, due to the problem identified about the lack of training on the part of teachers regarding the use of ICTs in the development of classes, which causes students to not obtain significant results in their learning since the process education does not respond to the current digital context. At a methodological level, scientific research has a quantitative approach of a non-experimental type, and a descriptive level with a correlational transactional design. The population is the total number of teachers of the Educational Institution No. 31506 "Sagrado Corazón de Jesús" who are teaching in the year 2023, and the sample is of a census type since it is made up of the total population, that is, 30 teachers of said Educational Institution. As results, it was obtained that there is a significant positive correlation between the use of ICTs as a pedagogical resource for the development of learning sessions carried out by teachers. The correlation is significant for each of the variables and indicators of the investigation. At the same time, it was identified that teachers use ICTs 100%, but the frequency of use is "rarely".

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## INTRODUCTION

The development of ICTs has accelerated due to the technological expansion without barriers since the rise of globalisation, which has had repercussions in various fields of human daily activities, with the educational field being one of the main areas affected by the development of these technologies.

From the educational approach, we can understand that Information and Communication Technologies (ICT), are "technologies that are related to computing, the use of information and communication that have the need to incorporate technological devices (...) within the Teaching-Learning Process (PEA), making use of the internet as a virtual space" (Espinosa & Rodríguez, 2017, pp.3)" (Espinosa & Rodríguez, 2017, pp.3)".

This need to incorporate ICTs into the educational process has increased since the recent pandemic of covid-19 in 2020, opening up space for the transformation of teaching and learning processes, since to safeguard the health security of approximately 1.52 billion students, more than 166 countries, according to UNESCO, took the decision to change the traditional education system to one

that prioritises the non-face-to-face digital environment (Espinosa-Rodríguez, 2021). Since then, many educational institutions have implemented a blended learning approach.

However, how prepared were teachers and students to continue with the teaching and learning sequence in a new, purely virtual scenario. According to Mayorga (2020), the processing time of this educational change has not been sufficient for the adaptability of teachers and students to the technological educational scenario, therefore, it is worth questioning the level of use and applicability of these technologies in the teaching and learning process today.

This question increases when we have a scenario in which teachers do not belong to the digital generation, therefore, they experience fear and rejection of using technologies to consider them as part of the processes that are developed during learning sessions, at the same time that prejudices are generated about ICT tools and they do not consider it necessary to update their knowledge to include them in the educational process. In this scenario, many teachers have even been forced to use a computer for the first time and learned to use them as they went along with the new educational technological change (García & Jaramillo, 2020).

Considering the above, it has been noted that primary school teachers in the province of Huancayo have difficulties in making use of technological resources due to the fact that most of them are over 40 years of age. In this regard, the Ministry of Education (MINEDU) has not implemented an effective training programme for teachers in the use of ICTs, and this is compounded by the decision of each teacher to implement and train themselves individually due to the economic costs involved and the fear of using technology.

As a result of this difficulty, there is low academic performance and inadequate use of virtual environments by students. For this reason, most of the schools have an innovation classroom implemented with overhead projectors and laptops and a project to implement the use of ICT resources for teachers has been considered.

Faced with this problem, the general objective of this research is to determine the relationship between the use of ICTs as a pedagogical resource and the development of the learning sessions of teachers at the Educational Institution N° 31506 "Sagrado Corazón de Jesús" - Huancayo, 2023. While the specific objectives are to determine the correlation between the teachers' knowledge and affinity for ICT and their technological skills, with the start, process and end of the learning sessions they carry out.

The research will contribute to the analysis of the percentage of teachers who make use of ICTs as an educational resource and identify their weaknesses. On a social level, the research is a contribution to the educational community; on a theoretical level, the research generates input and contrasts data with respect to other research on similar topics; and on a methodological level, it contributes to the quantitative analysis of the problem as an example for future research on the topic.

## **THEORETICAL REVIEW OR FRAME OF REFERENCE**

### **ICTs in globalisation**

Sotelino, Mella and Valera (2020) indicate that ICTs are a very important teaching tool in this globalised world, where relationships and communications have taken a transcendental leap forward, having been transformed and expanded by the explosive advance, in this sense education cannot remain indifferent to these tools that technology provides us with, nor can school classrooms remain oblivious to this new work scenario. We must bear in mind that ICT is not the solution, nor is it the only alternative for classroom work. As teachers, we cannot refuse to use these resources without leaving aside existing theories and approaches that propose the development of collaborative and cooperative activities in a direct way using specific materials and resources,

## **Active School**

Mogollón (2011) in his book *Escuela Activa* promotes a complete and comprehensive pedagogical approach in which student learning is more personalised, creating links between the school and the community, which will enable citizens to develop competencies that will serve them throughout their lives. In this sense, the Active School proposes a new way of teaching and learning, redefining what is considered meaningful and relevant learning. As teachers we know that it is our role to guide students to generate new learning and this approach will help teachers to use ICT resources as instruments for students to use them in an assertive way, providing solutions to their real problems.

## **Teaching Strategy**

The teacher must plan and organise the teaching-learning sequence, so the planning of pedagogical activities must also be framed by the method, strategies and resources to be used in the development of learning activities so that learning is meaningful for the students.

Amos (2000) tells us that "the term didactics comes from the Greek *didacticos*, which means the one who teaches and concerns instruction, therefore didactic strategies are a set of tools that teachers will use as a support resource during the learning process that will help them to develop in a better way each of the pedagogical processes and thus achieve student learning.

## **METHODOLOGY**

The research is quantitative in approach as the production of knowledge was based on the collection of numerical data. This approach prioritises numerical calculation and statistical measurement of data with the aim of contrasting hypotheses and thereby testing, affirming, contradicting and reaffirming previous theories (Hernández, Fernández & Baptista, 2014). As well as establishing new statements. The quantitative approach is based on the calculation of qualities of societal events which can be derived from concepts relevant to the relationship or problem being analysed. It is also non-experimental, and we define it as research that is conducted without deliberately manipulating variables (Hernández, Fernández & Baptista, 2014, pp. 152), as the purpose of this type of research is the observation and description of the events being studied. For this, no alteration of the forms in which the events are presented at the time of their observation is required. Similarly, we say that this research is descriptive because it showed the qualities or characteristics of the event it investigated at the time they happened (Carrasco, 2006). Its purpose was merely descriptive, it did not modify reality or experiment with the visible factors and facts, and it has a non-experimental design, the purpose of which is to establish the relationship between two or more research variables. This design may seek to establish the relationship in terms of the cause-effect of the variables, or only the correlation (Hernández, Fernández & Baptista, 2014).

So, we say that the research was correlational because its purpose was to calculate the degree of relationship between the variables in order to see if they are related or not, and then the correlation was analysed in order to find out the behaviour of one variable as a consequence of the behaviour of the other variable.

Furthermore, in this research, a causal relationship was not established, but only a correlation between the two variables, because it sought to correlate the implementation of ICT in the development of the classes to define what association the variables have. In this case, the researcher compared the two variables to find out what association these variables have in the situation or context in which the situation was developed (Cardona, 2002).

Likewise, this research was cross-sectional. In this regard, Andia (2017) states that this form of cross-sectional research is based on obtaining data or results of what happens in a single moment, i.e. the application of the data collection instrument is only in one moment and at the same time.

The research population consisted of 30 primary school teachers from the educational institution 31506 "Sagrado Corazón de Jesús" in the city of Huancayo who are teaching in the year 2023. Of these teachers, 23 have been teaching for more than 20 years as appointed teachers and 7 teachers have been teaching for less than 10 years; these teachers are employed. Likewise, 75% of teachers were female and 25% male.

The sample was census-based as it consisted of the total population, i.e. the 30 teachers of the Educational Institution N°31506 "Sagrado Corazón de Jesús" in the city of Huancayo who are teaching in the year 2023.

Data collection techniques and instruments were used as the survey, and the instrument was the questionnaire. Two questionnaires were used to calculate the two research variables. That is to say, a total of 2 questionnaires were applied corresponding to the 2 variables and in each one the description of the items of the indicators of each dimension. This questionnaire measured the items on a Likert scale where 3 equals "always", 2 equals "rarely", and 1 equal "never".

The questionnaires were given to the teachers to be filled in at a single point in time.

Data processing was carried out in SPSS V.27.0 where the normality test was performed with the Shapiro Wilk statistic to define whether or not the data came from a normal distribution.

Based on the results, it was established that the statisticians for calculating the correlation of the variables are Spearman's Rho for the non-parametric dimensions, and Pearson's R for the parametric dimensions.

In order to test the validity of the instruments, expert judgement was used. In this research, a total of 3 experts evaluated the instruments and gave their approval for their application. This evaluation was carried out using the expert judgement formats of the Universidad César Vallejo in the year 2023.

Validation through expert judgement is a conventional way of validating instruments. For this, experts must possess the knowledge and approval of the academic community to which they belong (Hernández, Fernández & Baptista, 2014).

## RESULTS

### Level of relationship of the variables "use of ICT as a pedagogical resource" and "development of learning sessions".

At a general level, the results indicate that there is a significant relationship between the use of ICTs by teachers as a pedagogical resource and the development of the learning sessions they prepare for the classes they give to their students at the Educational Institution N°31506 "Sagrado Corazón de Jesús" in the city of Huancayo in the year 2023 (See Table 1).

**Table 1: Correlation between the use of ICTs as a pedagogical resource and the development of learning sessions by teachers.**

Correlation of Variable 1 and Variable 2			
		Use of ICTs as a pedagogical resource	Development of learning sessions
Use of ICTs as a pedagogical resource	Pearson correlation	1	,902**
	Sig. (bilateral)		0.000
	N	30	30

Development of learning sessions	Pearson correlation	,902**	1
	Sig. (bilateral)	0.000	
	N	30	30
**. Correlation is significant at the 0.01 level (bilateral).			

Note: Own elaboration

As can be seen in table 1 and according to the Pearson's R correlation coefficient explanation criterion, where the results have a higher correlation the closer the coefficient is to 1, it can be affirmed that the relationship between the two research variables is very high, since the Pearson's R coefficient is 0.902, a value close to 1. Likewise, the significance value is 0.000 ( $p < 0.05$ ), therefore, the relationship is very significant.

Furthermore, the relationship between the use of ICT and the development of learning sessions is a positive one, i.e. the more teachers use ICT as a pedagogical resource and the more affinity they have with ICT, the higher the level of ICT use for the development of learning sessions.

An example of this is that of the 30 teachers who made up the sample, more than 50% of them are over 40 years of age and make less use of ICT in their daily lives and in the development of their teaching profession, which has an impact on the low level of use of ICT for the development of learning sessions. The opposite is true for the 7 teachers aged between 28 and 35, who make more frequent use of ICT in their daily lives and in the development of their professional life as teachers, therefore, they develop the learning sessions with ICT as the main tool for development.

In this sense, it can be noted that the age of the teachers is a determining factor for the higher and lower level of use of ICTs as a pedagogical resource. It is worth noting that the 30 teachers in total do use ICTs on a daily basis, and have tools such as mobile phones, laptops and computers; however, access to this equipment does not guarantee that the software used is necessarily a pedagogical resource in all cases.

In this regard, Valdéz, A. & et al. (2011), in their research on the need for teacher training in the use of ICTs as a pedagogical resource, found that the age factor is a socio-demographic variable that has an impact on the use of ICTs by teachers. Thus, teachers between 20 and 39 years of age, considered as part of the population born at the height of the digital era, have a marked difference with respect to the greater use of ICTs compared to teachers in the intermediate or late age group, as the latter had a greater need for training.

### **Level of relationship of the dimensions "knowledge and affinity for ICT use" and "time of starting".**

Dimension 1 of variable 1, "knowledge and affinity for the use of ICT" by teachers, has a significant positive correlation with dimension 1 of variable 2, "starting point" in the development of the learning sessions. This means that the greater the teacher's affinity with the use of ICTs, i.e. the more they use them frequently, without difficulties, and understand their use and usefulness, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions at the start of the sessions they teach their students (see Table 2).

**Table 2: Correlation between teachers' knowledge and affinity for ICT use and the development of the beginning of the learning sessions.**

<b>Correlation of variable dimensions</b>
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			Knowledge of and affinity for ICT use	Starting time
Spearman's Rho	Knowledge of and affinity for ICT use	Correlation coefficient	1.000	,809**
		Sig. (bilateral)		0.000
		N	30	30
	Starting time	Correlation coefficient	,809**	1.000
		Sig. (bilateral)	0.000	
		N	30	30
**. Correlation is significant at the 0.01 level (bilateral).				

Note: Own elaboration.

As can be seen in table 2 and according to the criterion for interpreting Spearman's Rho correlation coefficient (for non-parametric data), where the results have a higher correlation the closer the coefficient is to 1, it can be affirmed with 95% reliability that the relationship between the two dimensions indicated is very high, since Spearman's Rho coefficient is 0.809, a value close to 1. Likewise, the significance value is 0.000 ( $p < 0.05$ ), therefore, the relationship is very significant.

According to the research instrument for variable 1 "questionnaire to evaluate the use of ICT as a pedagogical resource for teachers", dimension 1 "knowledge and affinity on the use of ICT" includes items that indicate that teachers use technological devices that allow them to use and access ICT on a personal and daily level, as well as on a professional level in the exercise of teaching, therefore, they make use of computers, laptops, printers, mobile phones, scanners, multimedia equipment, video cameras, and others at the hardware level, multimedia equipment, video cameras, and others at hardware level, and that implement the use of ICT in their teaching activities at software level, such as the use of social networks, digital messaging, use of conventional educational software to develop their teaching activities (Microsoft, Windows, apple and others) and other specialised uses for teaching such as moodle, google scholar, exe learning, and others, as well as the use of software designed by the educational institution itself.

This is all part of the teachers' affinity and knowledge regarding the use of ICT in their profession. According to instrument 2 "questionnaire to evaluate the development of learning sessions by teachers", indicator 1 "starting point for the development of the learning session" includes items that indicate that the teacher welcomes the session and introduces the topic to be covered, uses audio-visual material such as videos to motivate the class, uses audio and songs, web pages with previous information, and tools such as questionnaires to reinforce the students' prior knowledge before starting to develop the topic of the session.

In this sense, based on item 7 of dimension 1 of instrument 1, it was found that of the 30 teachers, 80% of them use computers, laptops or other equipment to carry out their work as teachers at a frequency level of "rarely" and only 16% of them use such technological equipment at a frequency

level of "always". There was not a single teacher who does not make use of such equipment. Likewise, according to item 3 of dimension 1 of instrument 2, it was found that out of the 30 teachers, 74% of them use web pages with updated information on the subject to be dealt with in the session at the beginning of the session, at a frequency of "rarely", while only 22% make use of this resource at a frequency of "always".

Therefore, the level of positive correlation is corroborated, since the frequency of use of technological devices and their use at the start of the learning session is "rarely" in both cases, in the first case in 25 teachers, and in the second case in 23 teachers. The same happens with the frequency "always" for both dimensions, as in the first case it occurs in 5 teachers, in the second case in 7, with no significant difference in these quantities.

### **Level of relationship of the dimensions "knowledge and affinity on the use of ICTs" and "process moment".**

Dimension 1 of variable 1, "knowledge and affinity for the use of ICT" by teachers, has a significant positive correlation with dimension 2 of variable 2, "moment of process" in the development of the learning sessions. This means that the greater the teacher's affinity with the use of ICTs, i.e. the more they use them frequently, without difficulties, understanding their use and usefulness, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions in the process moment they teach their students (see Table 3).

**Table 3: Correlation of knowledge and affinity of ICT use and the development of the process moment of the learning sessions by teachers.**

<b>Correlations</b>			
		Knowledge and affinity on the use of ICTs	Time of process
Knowledge and affinity on the use of ICTs	Pearson correlation	1	,785**
	Sig. (bilateral)		0.000
	N	30	30
Time of process	Pearson correlation	,785**	1
	Sig. (bilateral)	0.000	
	N	30	30
**. Correlation is significant at the 0.01 level (bilateral).			

Note: Own elaboration.

According to table 3, as  $p=0.785$ , it can be affirmed with 95% reliability that there is a high relationship between the knowledge and affinity on the use of ICTs and the moment of process of the development of the learning sessions of the teachers of the I.E. N°31506 "Sagrado Corazón de Jesús"

- Huancayo. Furthermore, it is affirmed that the significance level is high and there is a significant relationship between both indicators, since the bilateral sig. value is 0.000 less than 0.05.

This correlation indicates that teachers use technological devices that allow them to use and access ICTs as in the previous correlation, according to research instrument 1, and that they implement them in the development of the process moment of the learning session, which, according to research instrument 2, includes items that indicate that at this moment teachers use virtual classrooms such as google meet, cisco webex and zoom, comprises items that indicate that at this moment teachers use virtual classrooms such as google meet, cisco webex and zoom, they also make use of whatsapp and mails or other resources to communicate with students, and they use online tools such as Slideshare or digital boards among others, in the case of the development of virtual sessions.

In the case of face-to-face sessions, during the process, teachers make use of ICTs through cmap tools, xmind or other programmes to organise or systematise the subject, they use Microsoft and Google tools to carry out the class session, and other forms of hardware and software for the face-to-face development of the classes. At this point, the teacher can still include the ICT tools that were used prior to the development, i.e. at the start, such as the audiovisual materials mentioned above.

In this sense, based on item 13 of dimension 1 of instrument 1, it was found that of the 30 teachers, 64.5% "rarely" use conventional educational software to carry out their teaching activities, including Microsoft, Windows, Apple and other conventional software, while 22% "always" use them and 9.7% "never" use them. Likewise, according to item 5 of dimension 2 of instrument 2, it was found that of the 30 teachers, 67.7% of them "rarely" use Microsoft and Google tools to develop their learning sessions, while 19.4% use them "always", and 9.7% "never" use them at the time of the development of the session.

Therefore, the level of positive correlation is corroborated, since the frequency of the use of conventional educational software is proportional to its use at the time of the session. In this sense, there are 20 teachers who use them rarely and 21 teachers who use them at the time of development in the same frequency, and as it was shown, the same happens in the case of the frequencies "never" and "always" without a big difference in the number of teachers in both dimensions, therefore, it is said that the correlation is positive when the trend of a dimension is in the same frequency.

one direction, and the dimension that correlates with it goes in the same direction. As one goes up, so does the other, and vice versa.

#### **Level of relationship of the dimensions "knowledge and affinity on ICT use" and "moment of closure".**

Dimension 1 of variable 1, "knowledge and affinity for the use of ICT" by teachers, has a significant positive correlation with dimension 3 of variable 2, "moment of closure" in the development of the learning sessions. This means that the greater the teacher's affinity with the use of ICTs, i.e. the more they use them frequently, without difficulties, understanding their use and usefulness, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions at the closing time they give to their students (see Table 4).

**Table 4: Correlation of knowledge and affinity of ICT use and the development of the closing moment of the learning sessions by teachers**

Correlations		
	Knowledge of and affinity for the use of ICTs	Closing time



Knowledge of and affinity for the use of ICTs	Pearson correlation	1	,593**
	Sig. (bilateral)		0.001
	N	30	30
Closing time	Pearson correlation	,593**	1
	Sig. (bilateral)	0.001	
	N	30	30
**. Correlation is significant at the 0.01 level (bilateral).			

Note: Own elaboration.

As can be seen in Table 4,  $r=0.593$ , it can be affirmed with 95% reliability that there is a moderate relationship between the knowledge and affinity on the use of ICTs, and the moment of closure of the development of the learning sessions of the teachers of the I.E. N°31506 "Sagrado Corazón de Jesús" - Huancayo. Furthermore, it is affirmed that the level of significance is high and there is a significant relationship between both indicators, since the bilateral sig. value is 0.001 less than 0.05.

This third specific correlation indicates that teachers use technological devices that allow them to use and access ICTs as in the previous correlations, and that they implement them in the development of the closing moment of the learning session, a moment in which, according to the results of the research instrument 2, The results of the session and the fact that teachers leave work and activities to be uploaded on virtual platforms, request further information on the topics covered in class via the Internet, apply final online assessments, and subsequently maintain communication with the student at the end of the class via virtual channels to resolve doubts and queries on the topics covered in the session are of prime importance.

In this sense, based on item 14 of dimension 1 of instrument 1, it was found that, of the 30 teachers, 48.4% "never" make use of specialised educational software for teaching, such as Moodle, Google Scholar, Exe Learning, and others, while 38.7% use them "rarely" and 9.7% "always" use them. Likewise, according to item 1 of dimension 3 of instrument 2, it was found that, of the 30 teachers, 41.9% of them "never" leave work and activities to be uploaded on specialised virtual platforms at a pedagogical level, such as qualification websites, educational forums and others, at the end of the learning session, while 48.4% do so "rarely", and 6.5% do so "always".

Therefore, the level of positive correlation is still corroborated, as the frequency of the use of specialised educational software is proportional to its use at the time of closing the session. In this case, it can be noted that half of the teachers (15 teachers) do not use specialised software and therefore do not make use of these channels at the closing time (13 teachers). In the case of the frequency "rarely", the same is true, as 12 teachers know and use specialised channels and 15 of them leave presentation activities online at the closing time. The variance is minimal in the frequency "always" as only 3 teachers know the specialised software and only 2 of them use it at the closing of the learning session.

**Level of relationship of the dimensions "technological skills" and "time of start".**

Dimension 2 of variable 1, "technological skills" on the part of the teachers has a significant positive correlation with dimension 1 of variable 2, "starting point" of the development of the learning sessions. This means that the greater the teacher's skills in the use of ICTs, making correct use of the software and hardware, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions at the start of the sessions that he/she teaches to his/her students (see table 5).

**Table 5: Correlation of technology skills and teachers' development of the initiation moment of learning sessions**

Correlations			
		Technological skills	Starting time
Technological skills	Pearson correlation	1	,769**
	Sig. (bilateral)		0.000
	N	30	30
Starting time	Pearson correlation	,769**	1
	Sig. (bilateral)	0.000	
	N	30	30
**. Correlation is significant at the 0.01 level (bilateral).			

Note: Own elaboration.

As  $p=0.769$ , then it can be affirmed with 95% reliability that there is a high relationship between the technological skills and the moment of beginning of the development of the learning sessions of the teachers of the I.E. N°31506 "Sagrado Corazón de Jesús" - Huancayo. In addition, it is affirmed that the level of significance is high and there is a significant relationship between both indicators, since the bilateral sig. value is 0.000 less than 0.05.

This correlation varies in content with respect to the previous three correlations, as the dimension now refers to the technological skills that the teacher possesses to deliver the sessions.

In the research instrument "questionnaire to evaluate the use of ICT as a pedagogical resource", these skills include the teacher-teacher relationship and the student-teacher relationship. In the first case, technological skills refer to teachers using ICTs to coordinate with other teachers and colleagues at the educational institution, using collaborative sources such as Google docs, Google forms, virtual teacher forums and others to record information to be filled in by teachers. Likewise, they should promote and participate in the development of academic research in academic journals and virtual repositories, and use ICTs to participate in talks and training for teachers, among others.

While the teacher-student relationship includes skills in the use and management of ICTs for the development of collaborative work with students through ICTs such as google drive; conduct virtual sessions and maintain communication with students for personalised teaching through ICTs such as zoom, meet, meet to and others; create teacher-student communication channels and networks such

as educational forums, surveys in google forms, institutional e-mails and others; make use of educational games through ICTs such as riddles, quizzes, Russian roulette and other online games; make use of educational software such as Microsoft Office (Word, PPT, Excel, Access, SAS, Linux, SPSS, etc.) to present activities; and allow students to make use of ICTs to present activities and all types of communication with the teacher; among other forms of teacher-student relationships.

Likewise, the starting point comprises the same actions described above according to the research instrument 2 "questionnaire to evaluate the development of learning sessions by teachers", items that were described in the previous sections.

According to the above, based on item 11 of dimension 2 of instrument 1, 45.2% of the 30 teachers "rarely" use tools to promote curiosity through collaborative work using ICT based on their ICT skills, while 41.9% do not use them, and 9.7% use them "always". Likewise, according to item 5 of dimension 1 of instrument 2, it was found that of the 30 teachers, 54.8% of them "rarely" use ICTs to generate prior knowledge questionnaires for students such as google forms, information identification games, joint editing documents, randomly created groups with online virtual tools, and others used at the beginning of the development of virtual sessions, 25.8% never use them, and 16.1% "always" use them at the beginning of the session.

Therefore, the high level of positive correlation is corroborated, since there is a correlation between the number of teachers who have technological skills for the use of virtual tools that are used at the beginning of the learning session, and that these numbers are proportional in frequency.

#### **Level of relationship of the dimensions "technological skills" and "process moment".**

Dimension 2 of variable 1, "technological skills" on the part of the teachers has a significant positive correlation with dimension 2 of variable 2, "process moment" of the development of the learning sessions. This means that the greater the teacher's skills in the use of ICTs, making correct use of the software and hardware, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions in the process moment that he/she teaches his/her students (see table 6).

**Table 6: Correlation of technology skills and teachers' development of the process moment of learning sessions**

<b>Correlations</b>			
		Technological skills	Time of process
Technological skills	Pearson correlation	1	,779**
	Sig. (bilateral)		0.000
	N	30	30
Time of process	Pearson correlation	,779**	1
	Sig. (bilateral)	0.000	
	N	30	30

\*\* . Correlation is significant at the 0.01 level (bilateral).

Note: Own elaboration.

As  $p=0.779$ , then it can be affirmed with 95% reliability that there is a high relationship between the technological skills and the moment of the process of the development of the learning sessions of the teachers of the I.E. N°31506 "Sagrado Corazón de Jesús" - Huancayo. In addition, it is affirmed that the level of significance is high and there is a significant relationship between both indicators, since the bilateral sig. value is 0.000 less than 0.05.

As in the previous correlation, in this one the actions that teachers develop based on the technological skills described according to research instrument 1, and apply them in the process of developing the learning sessions, according to the items of research instrument 2, diverge.

According to the above, based on item 12 of dimension 2 of instrument 1, it was found that of the 30 teachers, 67.7% of them use virtual sessions at a frequency level of "rarely" and only 9.7% of them "always" use them and 19.4% "never" use virtual sessions. Likewise, according to item 1 of dimension 2 of instrument 2, it was found that of the 30 teachers, 64.5% of them use virtual classrooms such as google meet, cisco webex and zoom when developing virtual classes during the session process, at a frequency of "rarely", while 6.5% use them at a frequency of "always" and 25.8% at a frequency of "never".

Therefore, the high level of positive correlation is corroborated, since the use of tools for virtual classes is used in similar quantities in each frequency of virtual sessions in the development of the session. The same is repeated when the sessions are conducted face-to-face.

#### **Level of relationship of the dimensions "technological skills" and "moment of closure".**

Dimension 2 of variable 1, "technological skills" on the part of the teachers has a significant positive correlation with dimension 3 of variable 2, "process moment" of the development of the learning sessions. This means that the greater the teacher's skills in the use of ICTs, making correct use of software and hardware, the greater the implementation of ICTs as a pedagogical resource for the development of the learning sessions at the closing time that he/she gives to his/her students (see table 7).

**Table 7: Correlation of technology skills and teachers' development of the closing moment of the learning sessions**

<b>Correlations</b>			
		Technological skills	Closing time
Technological skills	Pearson correlation	1	,633**
	Sig. (bilateral)		0.000
	N	30	30
Closing time	Pearson correlation	,633**	1
	Sig. (bilateral)	0.000	

	N	30	30
**. Correlation is significant at the 0.01 level (bilateral).			

Note: Own elaboration.

According to table 7,  $p=0.633$ , then it can be affirmed with 95% reliability that there is a high relationship between the technological skills and the moment of closure of the development of the learning sessions of the teachers of the I.E. N°31506 "Sagrado Corazón de Jesús" - Huancayo. In addition, it is affirmed that the level of significance is high and there is a significant relationship between both indicators, since the bilateral sig. value is 0.000 less than 0.05.

As in the previous correlation, in this one the actions that teachers develop based on the technological skills described according to research instrument 1, and apply them in the process of developing the learning sessions, according to the items of research instrument 2, diverge.

In this sense, based on item 17 of dimension 2 of instrument 1, it was found that of the 30 teachers, 77.4% "rarely" allow students to make use of ICT for the presentation of activities and to maintain contact with the teacher based on the teacher's ICT skills, while only 9.7% of them allow communication via ICT on an "always" basis, and the other 9.7% do not allow it at all. Likewise, according to item 4 of dimension 3 of instrument 2, it was found that of the 30 teachers, 58.1% of them do indeed "rarely" communicate with the student at the end of the class through virtual channels to clear up doubts and queries at the end of the learning session, while 25.8% "never" do so, and 12.9% "always" do so.

Therefore, the level of positive correlation is corroborated, since the frequency of use of virtual channels to maintain communication between teacher and student and the flexibility for students to use these channels and present their activities through these media is similar between both dimensions and they do not have a marked difference in numbers. In the first frequency "never" the quantities in dimension 2 of variable 2 and dimension 3 of variable 2 is 3 for the former and 8 for the latter, while in the frequency "rarely" it is 24 for the former and 18 for the latter, and in the frequency "always" it is 3 for the former and 4 for the latter. This indicates that the relationship of technological skills with the development of the moment of closing the session is significant.

## DISCUSSION

As has been observed with regard to the use of ICT as a pedagogical resource by teachers, this has a significant correlation with the development of the learning sessions in which the teacher makes use of them. When teachers are familiar with ICTs and have the skills to use them, they use them as a resource for the development of the sessions, whether at the beginning, during the process or at the end of the session, and when knowledge and skills are scarce, they are not used as a pedagogical resource in the learning sessions.

In other words, the more teachers are trained in the use and management of ICTs in education, the more efficient their use will be in the educational setting. However, as was evident, most teachers rarely use ICTs as a resource due to a lack of ICT training.

In this sense, we point out that there is a marked difference between teachers' knowledge and notions about ICT, with respect to their applicability and integration within the educational environment. There is a lack of ICT integration in the teaching and learning process, as the use of ICT as a teaching strategy and resource should be permanent, efficiently promoting student learning.

Therefore, changing the teaching methodology from the traditional to the current methodologies such as the active ones mentioned below is very necessary, as these active methodologies make

students participate and build their own learning, making this process much easier with the use of ICT in classroom experiences (Sánchez et. Al, 2019). This would contribute to the full integration of ICT in education.

However, this integration of ICTs in education is not limited to their use by teachers and students, but involves making them part of a curriculum that is based on educational approaches, where the functionality of ICTs reoriented to the educational purpose predominates (Sánchez, J. 2017).

According to the International Society for Technology in Education (ISTE), the curricular integration of ICTs refers to their use as a tool that contributes to the learning process in ways previously unimagined and that enable students to have the ability to use technology as a source of current information to be treated in a professional manner, therefore, ICTs should be an integral part of the learning session and at the same time this use should be dynamic and accessible as if they were different tools already used and known ([www.iste.org](http://www.iste.org)).

However, it is not enough to use platforms to use them as intermediaries for presenting activities or recording information, but it is also necessary to ensure that ICTs are a primary source of information for teaching and learning at all times during the development of the sessions. In this sense, it can be affirmed that there is much to be done and much training to be given to teachers and those responsible for the Educational Institution studied in order to include the use of ICTs in the school curriculum.

However, there is a recent development in the integration of ICTs into the teaching and learning process, known as Learning and Knowledge Technologies (LKT). These redirect ICTs "towards a more formative and pedagogical use. In this way, ICTs go beyond learning to use ICTs and allow us to explore these technological tools at the service of learning and knowledge acquisition" (Velasco, 2022, pp. 771).

Therefore, we consider it important to investigate this approach for a correct integration of ICTs in the learning process, and that in this scenario, both teachers and students participate actively for their self-training in the management of ICTs in the educational environment. Although it is true that students were born and raised in the technological era, the lack of guidance regarding its use means that they use technology not as an educational resource but as a means of entertainment that leads them to be interested in other ranges of experiences provided by these resources.

In view of this, Mogollón (2011) in his book "Active School" promotes a complete and comprehensive pedagogical approach in which student learning is provided in a more personalised way that creates links between the school and the community, so that the citizen develops competencies that are useful for their personal and professional training. Therefore, we consider it important, together with the TAC approach, to consider the Active School approach in education at different levels.

And the integration of these approaches in the educational curriculum, merits the inclusion of the didactic management of the educational environment, where the teacher plans and organises the teaching-learning sequence. In this regard, Amos (2000) states that didactics includes teaching and concerns instruction, therefore, didactic strategies are a set of tools that teachers should use as a support resource during the learning process that will help them to develop in a better way each of the pedagogical processes and thus achieve significant learning in students.

Therefore, it has been identified that teachers still have weaknesses in the use of ICT as a pedagogical resource due to the lack of an educational approach to ICT and their non-implementation in educational curricula. It should be appreciated that ICTs intervene strongly in the methods as they are resources with many more advantages than disadvantages in the educational field (Rodríguez et. al., 2020).

Finally, we consider it important to emphasise that this non-experimental research design, with a small sample of 30 teachers, does not allow for the generalisation of the results, as these belong to a specific reality and a specific community and are not representative of the entire teaching community in the city of Huancayo, and even less so in the Junín region.

## CONCLUSIONS OR FINAL REFLECTIONS

- With respect to the general objective, it is concluded that there is a significant positive correlation between the use of ICTs as a pedagogical resource and the development of learning sessions by teachers at the Educational Institution N°31506 "Sagrado Corazón de Jesús" in the city of Huancayo in the year 2023.
- It is concluded with respect to the research variable "use of ICTs as a pedagogical resource", that there is a significant relationship between the knowledge and affinity on the use of ICTs and the technological skills of the teachers with the development of the learning sessions by the teachers of the Educational Institution N° 31506 "Sagrado Corazón de Jesús" - Huancayo, 2023.
- It is concluded with respect to the research variable "development of learning sessions", that there is a significant relationship between the moments of beginning, process and closing of the development of learning sessions, with the use of ICTs as a pedagogical resource by the teachers of the Educational Institution N° 31506 "Sacred Heart of Jesus", and the use of ICTs as a pedagogical resource by the teachers of the Educational Institution N° 31506 "Sacred Heart of Jesus", with the use of ICTs as a pedagogical resource.

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