Pedagogical Strategy Based on the Application of Design Thinking Techniques for the Teaching-Learning Process of Research Methodologies in Psychology Students of the Technical Corporation for Human, Social and Cultural Development of Colombia- CORPODESC, 2023

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SUMMARY: This master's thesis was born as a commitment to improve the training processes of university students around the teaching of research methodologies; thus creating a new way of bringing knowledge of the scientific method to students in a dynamic, creative, practical and innovative way. This exercise was carried out at the Technical Corporation for Human, Social and Cultural Development of Colombia (Corpodesc), specifically in its psychology program that is implemented through virtual education; The main objective of this work was to develop a pedagogical strategy based on the application of design thinking techniques for the teaching- learning process of research methodologies in psychology students at Corpodesc.

To carry out this process, different theoretical components were taken into account, such as the conceptualization of design thinking and the design thinking model for educators, as well as those related to the competency-based educational model for professional training. To operationalize this research project, it was framed under the interpretative paradigm with a qualitative approach; using the practical design type of participatory action research. The sample consisted of 18 seventh-semester psychology students in virtual mode who were taking the subject of 'research methods in psychology'; all of whom participated in the strategy designed. For data collection, the 'Scale to Measure Attitudes towards Research (EACIN)2 was selected in the diagnosis, and a structured interview was applied for the evaluation.

Among the main results of the study with respect to the diagnosis was that a significant percentage of the students had a level of favorability around research, although their main deficiencies were around procrastinating as much as possible the activities related to research or having little culture of reading research papers. Regarding the evaluation of the strategy, what can be highlighted is that the students stated that the teaching of research methodologies under the conception of design thinking made it much more practical, dynamic, innovative, interesting and much easier for them to integrate the theoretical with the pragmatic aspects of the research. It is concluded from this whole process that the design thinking methodology does have the capacity to be adapted to the teaching-learning processes of research methodologies at the undergraduate level, however, it is important to carry out more studies that allow a differentiation of effectiveness between this way of teaching and the traditional way.

KEYWORDS: design thinking, research, higher education, teaching methods, attitudes towards research.

INTRODUCTION

Research is a skill and quality that has been immersed in the repertoire of human resources; From an early age, he has a naturally curious and inquisitive mentality that leads him to enjoy discovering his context of interaction in an objective way and using his senses as a way to shape and know the phenomena and facts that usually occur in his daily life. However, sometimes the school system assists in the process of stripping its students of that spirit of inquiry and seeks to replace it with the quality of acquiring information that represents a style of training in which control, molding and evaluation are much more viable; however, this leads to encapsulating this natural process of analysis and search for solutions to human problems (Ospina et al., 2008).

Having outlined the above approaches, Serje et al. (2021) state that in order to correct these shortcomings found around the research spectrum, it is largely necessary to expand this research culture in the academic training of students; especially those who are at higher levels of training, i.e. those who are in the university environment. In fact, Osborne et al. (2003) are suggestive in specifying the need to generate, promote and enhance positive attitudes towards science and research, rather than just fulfilling the requirement of teaching about them; The first form is durable over time, while the second only becomes ephemeral knowledge. From the context of higher education, the spectrum of research is considered as systematized knowledge that is imparted through

pedagogical processes that integrate learning and teaching. From this pedagogical area, it is conceived that research is a space where praxis and reflection arecombined; where, through the analysis of the theory, it seeks to impact the transformation of thesurrounding reality.

Therefore, the learning process provided to university students, related to research, should ultimately lead them to the promotion of their capacity for abstract, reflective and criticalthinking that is constant and coherent towards their reality, towards life and towards their professional work (Ospina et al., 2008). Other authors highlight that the role of training in scientific methodology is to provide students with critical-scientific reasoning skills based on research evidence (Rodríguez et al., 2017; Sánchez et al., 2018). It is important to note that highereducation institutions see research as an institutional, academic and systematic process that seeksto promote a culture of science and technology from the field of research; that it contributes to the development of transversal competences in university students; in which, together with the institution's resources, new knowledge can be generated, the development of new technologies and innovation, the strengthening of cultural identity and, above all, the search for solutions to problems of institutional, regional, national and international impact (Rodríguez et al., 2017).

However, as Espinoza and Kovačević (2021) point out, despite the fact that university education institutions promote the teaching and internalization of research culture and scientific methodology; Even so, there are shortcomings linked to the training of students in the scientific method and its praxis, which can be explained by a number of variables, such as the limitation ofthe subjects to integrate this type of knowledge, the non-interdisciplinarity, the insufficiency in the mixture between theory and practice, the lack of preparation of the teaching staff in scientificmethodology, the inefficiency in the systematization of knowledge or in short, methodological gaps due to the lack of motivation or interest that blurs the research thinking of the students.

In fact, Osborne et al. (2003) state that one of the factors that influence the lack of a research culture in some university settings is that students have not developed an attitude towardsresearch processes. Another difficulty that lies in the university context in relation to the teachingof the scientific method is openly stated by Sanabria et al. (2017), in which they state that many university centers focus more "on the evaluation of programs, projects and scientific publications,but do not try to form a research culture in the university that allows the continuity of the researchprocess" (p.14).

On the other hand, in addition to what has already been stated, there are other variablesthat intervene in the students' lack of adherence to the research context. Pulido et al. (2017) reportthat 1 in 4 students have done some type of research, and the most important factor for this not tobe the case is the perception that students have of the lack of support and incentive from universities to promote research hotbeds. This idea is also supported by López et al. (2018), whostate that the few stimuli provided by universities to promote and support the research field is a reason why students are not very interested in the world of research. On the other hand, they alsopoint out that students avoid doing research degree work so as not to face the demands and the investment of time, effort and money that is required. And this is without counting the students' perception of the pedagogical practices used by teachers to teach the scientific method.

In another instance, Vega (2019), relates that the existence of a possible climate of demotivation for the study of research methodology; It contributes enormously that students feelan apathy towards the spectrum of research. Likewise, students perceive that the research subjectsare very theoretical and that they are sometimes taught in a traditional, non-dynamic way. From the students' point of view, research is often seen as relevant for those who seek to work in the academic field, but it is not very practical in the professional reality. This reality in the teaching processes of the research method in university education does not escape the context of the Technical Corporation for Human, Social and Cultural Development of Colombia (Corpodesc), specifically in its psychology program that is implemented through virtual education in agreementwith the University Foundation of the Andean Area. This program, as mentioned, has the particularity of being taught through a virtual learning environment (VLE). Under this methodology, Corpodesc psychology students have their contact with the research world in the subject of 'Research Methods in Psychology' in the seventh semester.

Based on the above, Martínez (2019) states that one of the difficulties with this type ofcourses with respect to the teaching of research methods has been a certain methodological gap for the teaching and learning of students in the virtual modality. Likewise, students do not represent the ideal attitudes to face the processes of training in research. From the perspective ofthe students, the research seminar is a space that seeks to bring them closer to the world of research, but they mention that one of the difficulties that arises is that the pedagogical practicesthat are tried to be implemented in this modality are an adaptation of those used in the face-to- face modality and do not tend to build one that is more attached to the virtual scenario.

To address this problem, Castaño et al. (2018) state that it is essential to establish strategies for a dynamic and pedagogical way of constructing scientific knowledge, which leads to innovation, the social appropriation of scientific knowledge and the contribution of solving problems in real social scenarios. In this sense, the present study has seen the design thinking methodology as a new pedagogical alternative to innovate the teaching and learning process of research methodologies in students. That said, design thinking, as stated by Vázquez et al. (2018),has enormous potential to contribute to generating creative and innovative ideas in the context inwhich they are sought to be implemented, attributing to its user pragmatic tools for the real solution of problems,

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promoting cooperation and expanding the way to learn in a much more dynamic way. This methodology, according to González and Zúñiga (2017), is a tool with great potential to be applied in higher education processes today; It allows the design of pedagogical strategies that allow students to interact with a real problem and the possibilities of solving it froma critical and reflective point of view.

Having stated all this, the proposal is relevant or convenient because it seeks to know initially what perceptions students have about their experience with the learning of the research methodology, its pros, cons, attitudes, its attributions and ultimately what they perceive around this subject. Second, it seeks to apply a pedagogical strategy different from the one traditionally used by the teaching staff of the subjects of research methodologies in their virtual training process (individual readings, workshops, making proposals, among others), for others that are much more practical, creative and innovative with the intention of providing the same information, but with a much more enjoyable and interesting pedagogy for the students.

It also regains a character of relevance; since this methodology, according to Martínez (2020), has the ability to address complex issues from another point of view, where students mustopen their thoughts towards criticality, creativity, reflection and innovation, have disruptive ideas,debate and get involved in the problems to have a different angle of action. In essence, this methodology has the potential to impact many areas of higher education because it forces studentsto move away from the model of capturing and memorizing information towards the dynamics ofsolving problems in real contexts of the profession. Finally, it also regains a character oftheoretical value, taking into account that there are no publications alluding to the use of design thinking methodology and its techniques for research training processes. This endows thisresearch with a novel and innovative aura, which seeks to explore the impact of this methodologyon the teaching-learning process of the scientific method.

METHODOLOGY
Methodological approach
The present research project was designed under the epistemology of the interpretativeparadigm that has as one of its qualities that knowledge is not an entity that is in the context waiting to be analyzed, studied or found; rather, knowledge is a construction, where phenomena that are susceptible to study can be delved into in a more detailed and profound way. In this sense,it is the social actors themselves who help to construct this knowledge, taking into account that they are the ones who interact directly or indirectly with the phenomenon studied (Martínez, 2013). This paradigm is materialized through the qualitative approach, which in the words of Hernández and Mendoza (2018), the qualitative research methodology, the researcher begins by analyzing the context of the phenomenon under study and simultaneously reviews the pre-existingacademic literature on the entity to be analyzed; in order to generate or find a theory that has thecapacity to make a reading of what is happening with that particular phenomenon.

Type of study
Linking with the previous section, the choice of the type of participatory action researchstudy is established for the research process; which, in a basic way, seeks to generate change andthat develops it along with the research process; In essence, while you are investigating, you are intervening. That is why, in short, it could be said that this is a type of study where priority is given to understanding and resolving specific problematic situations that occur within a given community (Hernández & Mendoza, 2018). Being more specific with the type of study, it could be mentioned that we sought to continue with the technical-scientific vision of this method; In other words, it sought to implementa set of spiral actions that require actions in repeated cycles in order to conceptualize, understand,comprehend and redefine the problem studied. This means that the process is constantly updatedover time. For this, 4 main actions are required, such as identification, analysis, implementation and evaluation (Lewín, 1946, as cited in Hernández and Mendoza, 2018).

This method also has the ability to present two designs for execution, one is related to aparticipatory approach and the other to the practical. For this research project, practical design was adopted; where, by means of which, it seeks as a first measure to make an approach towardsthe identification of the practices exercised by a group in a given context and related to a phenomenon susceptible to specific study.

As mentioned by Hernández and Mendoza (2018), under this method, regardless of its design, four main steps are followed: 1) detect the research problem, in this section it is necessary to clarify and diagnose the phenomenon under study, regardless of whether it arises from a special

problem, a need for change, an improvement, etc. a process of innovation, among others; Therefore, it is necessary to make an initial immersion in the focused context, collect initial data, pose a problem and this will lead to a generation of topics and categories that are susceptible to investigation. 2) The formulation of a program of action, which must be focused on improving the conditions found, must be focused on solving the needs found, and requires thedesign of strategies, programming of times, resources, objectives and even other data collection if necessary.

In step 3, it is already evoked towards the implementation of the plan, here many thingscan happen, such as adjusting the

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schedule, making decisions according to the progress of the implementation, reviewing effects, communicating the actions that will be taken or have been taken, among others. Finally, it culminates with feedback, in which a new assessment is made that will allow the generation of new reflections about the phenomenon object of study and intervention and this will lead to adjusting new things in the future. In this section, and dependingon other factors outside the context of the research, and even more so if the expected results werenot given, the cycle must be repeated, either to specify the new needs, to continue solving the previous needs or even to continue updating and strengthening what has been done. This whole process is shown in Figure 3.1.

Description of the context and participants of the study

According to the regulations of the Ministry of National Education of Colombia, the country's Higher Education Institutions related to a type of virtual education must also promote scenarios that allow the promotion of research, innovation and the development of science and new technologies; that leads students who adopt this type of study to opt for a critical, reflective and responsible attitude within their professional training. Through its undergraduate training programs, CORPODESC has subscribed to this national call to train its students in a culture of research, innovation and development.

For this reason, taking Decree 1295 (2010) as a reference, CORPODESC integrates intoits curriculum three ways of promoting a culture of research in its student population, the first related to research training that is integrated into each study plan of the careers offered at the university, in which students relate to the logic of the world of research. In the second instance, there is formative research in which students are urged to produce and generate new knowledge through the application of this field in the underlying problems of the lines of research and disciplines that make up these training scenarios. Finally, there is what research is in a strict sense,whether for degree work or research projects; in which the faculty must participate to ensure thequality of the products delivered.

The psychology program offered by CORPODESC also provides its students with the possibility of engaging in these forms of interaction with research; In fact, the subject of ResearchMethods is offered at the height of the seventh semester; Also at the end of the degree, in the ninthand tenth semesters, students are given the opportunity to choose as a degree option to carry out some type of research project; as well as that, despite the fact that they are virtual students, they can access the different research hotbeds offered by the institution.

It has been shown in internal CORPODESC reports that psychology students in the virtual modality present greater deficiencies in the field of learning research methodology compared to psychology students who have a face-to-face study modality. Methodological and pedagogical gaps have been identified in the teaching and learning of this subject; In essence, dueto the non-adoption of an ideal pedagogical practice for this type of study modality, but rather anattempt has been made to adapt what is done face-to-face in the virtual modality. In short, one ofthe main difficulties presented by the teaching and learning of research methodology in the virtualmodality is the lack of design of a study plan that is in accordance with the needs of the studentsand a more dynamic and functional research process for them.

On the other hand, the classes taught in the undergraduate psychology program on research methods are designed to be a theoretical instructional process, whose pedagogical practice is related to the limitation of traditional teaching of the sole transmission of knowledge,which does not provide the propitious scenarios for students to strengthen their skills and competencies towards research methodology through the development of research methodology classes. innovation, processing and obtaining information, project analysis and research, among others. Being a virtual study modality, this type of class should invite the implementation of a theoretical-practical pedagogy and where ICT competencies and research competencies are switched to create a different and innovative training space.

Description of data collection for diagnosis

For the collection of diagnostic data, the Scale to Measure Attitudes towards Research (EACIN) was selected, which is validated in Colombia, as shown in Annex A. (Aldana et al., 2016). This instrument was applied to the entire sample [18 students]; It is made up of 34 items. The construct that it evaluates is attitudes towards scientific research, which refers to a perennial organization and persistence in areas such as beliefs, dispositions towards research andfeelings that a person may represent in relation to the study of research methodologies or the action of research.

As mentioned by Aldana et al. (2016), the instrument is subdivided into three dimensions: 1) affective, which seeks to measure what people feel about the research, 2)cognitive, which tries to measure what people believe or know about the research, and 3) behavioral, which seeks to measure what the person does or would be willing to do in relation tothe field of research.

Description of the creative process that went into developing the design

The pedagogical strategy based on the application of Design Thinking techniques for the teaching-learning process of research methodologies in psychology students of CORPODESC, was proposed to a large extent taking into account the different phases that this methodology represents (empathize, define, ideate, experiment and evolve), and thus integrate the most outstanding processes

of the research methodology. As research methodology is a very broad field, for this strategy the theoretical-practical process was focused with the quantitative methodology of a non-experimental type and from this dynamic to break down how a research is constructed.

However, the creative and innovative point that this proposal represented lay in the possibility of teaching the research method involving the theoretical, the practical, the pragmaticand all that combined with the different techniques of design thinking in each of its phases; In which, the students learned what each section of the research process meant, how to build it and carried out practical exercises that allowed them to refine their research ideas more and more. Thecentral exercise with this strategy was not to build a rigorous research paper; Rather, it is to learnfrom the research process, to know how to apply it and to do all this under more pleasant dynamicswith the students. In this strategy, its programmatic content was framed in the ten phases of quantitative research proposed by Hernández and Mendoza (2018), which begins from the recognition of the research idea, to its tenth phase, which is the preparation of the final report where the results and conclusions of a study are presented.

RESULTS
Diagnosis: students' attitudes towards research processes
Figure*Students' Attitudes Toward Research Processes*
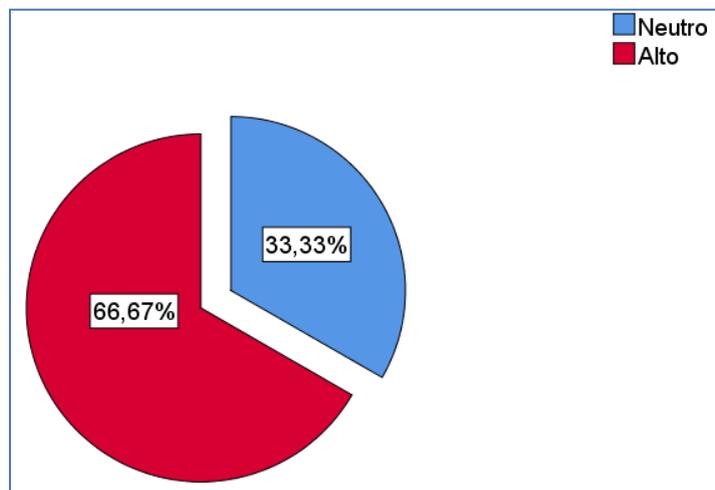
From what can be shown in Figure 4.1, it can be seen that 66.6% (n=12) of the studentsstated a high appreciation of the research; which could represent a persistent and lasting organization evoked towards beliefs, attitudes and dispositions related to research on the part of the evaluated. Therefore, before the training process, these students presented attitudinal notionsthat emanated a spectrum of favorability towards the learning of research methodologies and theirdifferent applications that this can give rise to within the university context. However, it should be noted that 33.3% (n=6) of the students represented a neutral attitude towards the research processes; that is to say, their attitude of favorability to these processes can be found between theline of relevance and unfavorability; whose attitude can be determined by a variety of factors linked to the teaching-learning process in which students are immersed.

With these results in mind, López et al. (2018) establish that within the process of training and teaching and learning of research methodologies, there will be divergent positions among students regarding their attitudes towards research; All this is due to the fact that getting involved in the world of research in a certain way requires having personal tastes or interests. Onthe other hand, for those people whose interests are not represented in the world of research, theyabide by this teaching process out of obligation rather than pleasure. However, other authors havestated that sometimes these processes of teaching research methodology reach students in a differential way when this knowledge is not transmitted or presented in a dynamic and enjoyableway to the students, which represents a possible deficiency in the pedagogical practices used by the teaching staff for their teaching (Pulido et., 2017; Guarnizo, 2017).

As shown in Table 4.1, the three dimensions that were evaluated by the instrument hada high level of acceptability by the students; all of which exceeded 60% favorability. A slightly lower level was noted in relation to the other dimensions evaluated was in the behavioraltype; where 61.1% of the students referred to a high level in this dimension, which is evoked towards the dispositions that the person has to do various activities that revolve around the contextof the research. While 38.9% of the students maintained a neutral position towards this dimension. Of the negative behaviors that stood out the most in the sample about research is that44.4% tend to postpone activities that have to do with research, in that same percentage, they arenot used to writing or inquiring about topics of interest.

61.1% of the students stated that they did not frequently consult information related to scientific articles and 50% stated that they did not present an innovative vision of research in relation to everyday problems. What can be highlighted from these results is that 77.8% of students have an impact on their research activities that are not carried out in a disorderly manner,55.5% prefer to keep abreast of current issues, although these are not necessarily linked to the academic field, and with the same percentage, students stated that consulting academic andresearch information is not a waste of time.

The cognitive and affective dimensions evoked towards the research also had a significant favorability in the students, exceeding 70%. At the cognitive level, which is adimension that, in a nutshell, seeks to know what people believe or know about the research, it represented a high level of favorability of 72.2% in the evaluated sample and a neutral position of 27.8%. However, at the level of beliefs, some aspects were found that are important to highlight, such as, for example, despite there being a certain favorability with the learning of research methodologies, 61.1% of the students agreed that the university should not teach research, only 16.7% disagreed with this statement and 22.2% maintained a neutral position. Thisis in line with the perception of 66.7% of students who disagree with the statement that all professionals should learn to investigate.

Despite these considerations, students also express favorable beliefs in the field of research, such as, for example, 66.7% of them state that research helps to correct common senseerrors; 66.6% stated that research has the capacity to solve social problems and 77.8% agreed thatwithout research science would not advance. In essence, the students highlight the importance ofresearch not only in the academic field, but also at a social and everyday level.

With respect to the dimension of affectivity, it basically seeks to inquire about the emotions that research produces for people. That said, the favorability taking into account the very high and high level, was 77.8% in the students and with a neutral position of 22.2%. From this dimension, it can be highlighted that 66.6% of the students like conversations with scientifictopics, 61.1% consider that they have the patience to carry out research processes, 66.7% considerthat they would have the motivation and pleasure to acquire new research skills.

4 Assessment of the pedagogical strategy from the students' perspective

Categories and subcategories

Through the process of analysis of the interviews conducted in the Atlas.ti program, and through an inductive analysis, some categories and subcategories emerged that are related to theevaluations made by the students about the process of implementation of the pedagogical strategy designed; which are presented in the table

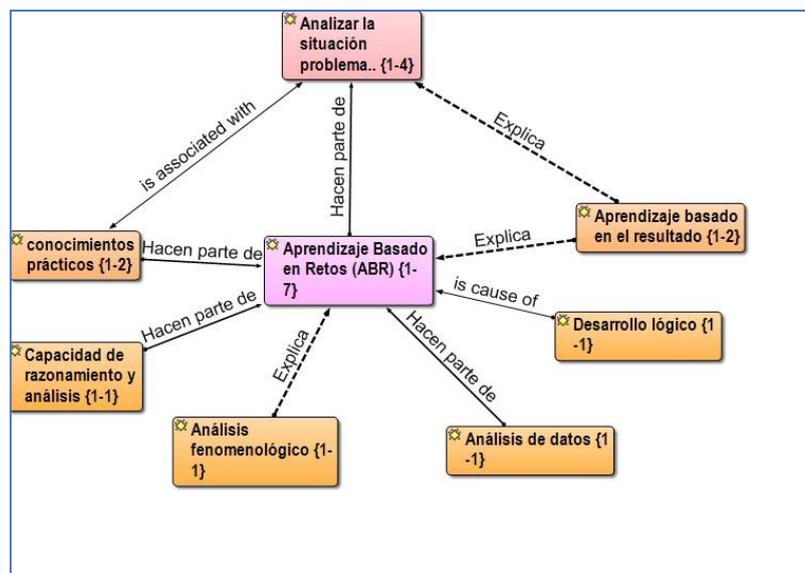*Students' perceptions of the pedagogical strategy implemented*

Figure *Students' Attributions of the Pedagogical Strategy*

Taking into account the analysis carried out on the related question about the students' perceptions of teaching in research methodologies under design thinking techniques, as shown inFigure 4.2, it can be intuited that for the students the experience represented for them a learning based on challenges. This indicates that the students felt better in a certain way under a learning scenario that tends towards the participation of open experiences for the acquisition of knowledge. This conception is largely derived from the acquisition of knowledge through practical exercises that have the ability to interconnect the processes of analysis and

reasoning, data analysis, logical development and that all this is associated with learning towards the analysis of problem situations. This interpretation can be supported by the following students' impressions:

"We were able to learn from the research from the quantitative approach in an enjoyable way where we could learn the theoretical and at the same time translate it into a real and practical plane" (Quote 1:1).

"Through the strategies implemented, it allowed us to take the knowledge of the quantitative approach to research to another level, where we were able to mix between the theoretical and the practical, under a dynamic and creative pedagogical procedure" (Quote 2:1).

"The application of design thinking techniques gave a different dynamic to the way of learning research" (Quote 5:1).

"I consider that the dynamic was innovative and even creative, because the exercises applied had never been applied in my professional training path" (Quote 6:1).
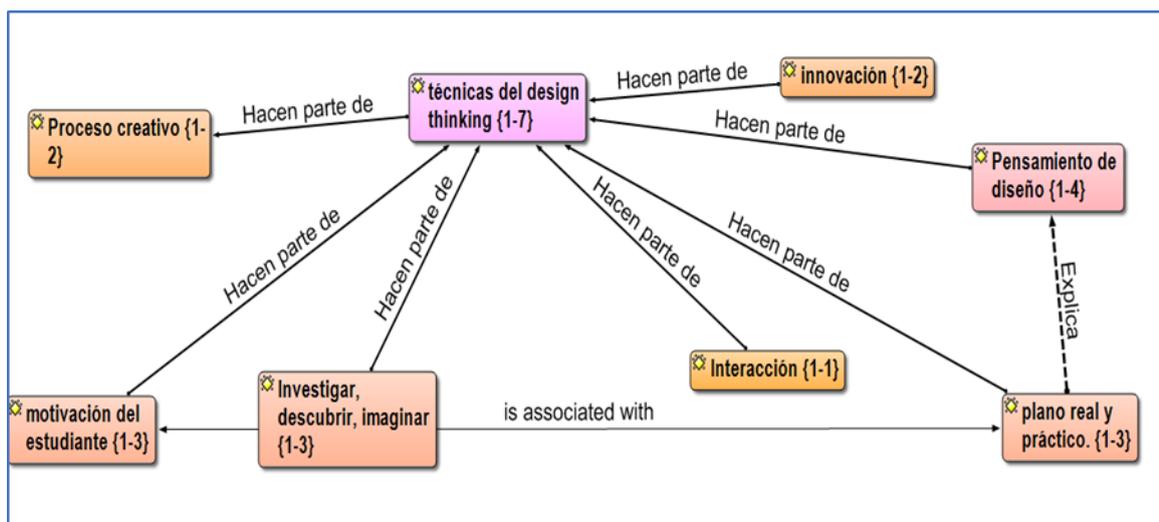
Figure *Teaching Research Methodology under Design Thinking vs Traditional Training*

As can be depicted in Figure 4.3, the students were clear in their speeches about their perspective of teaching the methodology of quantitative research through design thinking techniques or teaching with the traditional pedagogical method. To a large extent, the students saw it as a success to be able to train students in the methodology of research under the concepts and techniques of design thinking; in which, through their narratives, they highlighted that this form tends to innovation in the way of teaching, allows interaction, highlights the creative process and at the same time creates scenarios where students can investigate, imagine and discover, taking that to a real and practical level. All of the above is associated with the student's motivation with the training process received.

In this regard, the students presented the following perspectives:

"The pros that I find is that with this way of teaching the research methodology, it becomes much more enjoyable for students; not only do we have to learn and be attentive to what we are told, but we can also interact with that knowledge through immediate practice" (Quote 2:2).

"The pro that I can highlight is that with this methodology we are more invited to analyze the problem situation, it seeks to make the learning process more practical and that we can be more innovative with the chosen research topics" (Quote 3:2).

"Well, I think there are many, the teaching process is more dynamic, easier to understand, easier to assimilate knowledge, and more pragmatic" (Citation 4:2).

"I believe that this way of teaching research methodology has everything to gain in relation to traditional training; just by integrating the theoretical with the practical, the dynamic and the creative, I think there is already a point of no return with respect to traditional training" (Quote 6:2).

However, the students interviewed also presented some possible cons with respect to this way of teaching through the concepts and techniques of design thinking and traditional training; basically linked to whether it is possible to extend this dynamic to other disciplines and higher academic levels; as well as that it depends to a large extent on the dispositions that students have to adhere to this new way of teaching. That said, the students presented the following reasons:

"The downside I would see is that I don't know to what extent it can be applicable in other training settings compared to traditional research teaching" (Quote 2:2).

"The downside I see is that if students don't stick to the strategy in a real way, then they'll see in it just more work rather than a different way of learning than the traditional way" (Quote 3:2).

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"A con would be that it depends a lot on the motivation of the student, because if not, I don't really think it works, or at least I don't know if it fulfills the purpose for which it was created"(Quote 5:2).
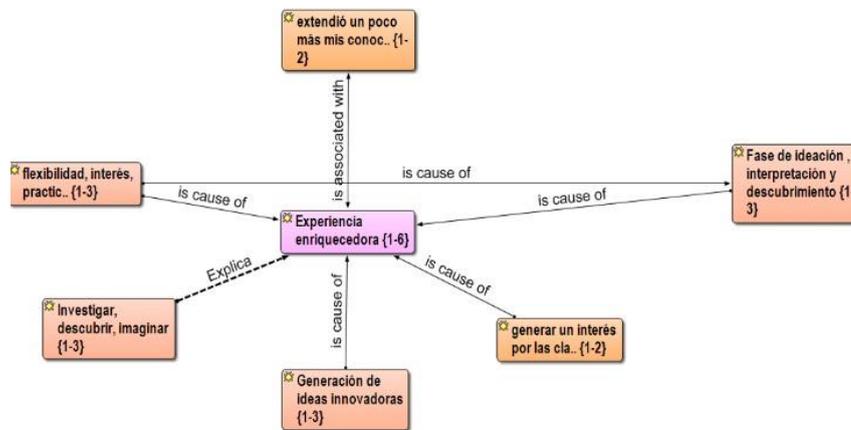
Figure *Final Students' Feelings about the Applied Pedagogical Strategy*

An analysis of the students' discourses about the sensations left by the implemented pedagogical strategy was carried out; As evidenced by Figure 4.4, the category that emerged from the process was related to 'enriching experience', alluding to the fact that from the students' narratives they argued that the experience had an impact to strengthen their knowledge related to the research methodology, especially with that focused by the strategy, which was the quantitative approach.

It is also important to highlight, as shown in Figure 4.4, that for the students the experience was enriching due to different variants, such as, for example, that from their perspective they considered it to be a flexible, interesting and practical strategy; leading them to investigate, imagine and discover a little more about what is related to the research method. Likewise, the experience was enriching considering that for the students this way of teaching allows the generation of innovative research ideas; And if this is not the case, at least there are a number of techniques available to make it so. However, other sensations that the proposal leaves for the students is that it was associated with the generation of a climate of interest in the classes and the most important thing of all was that it allowed to expand, strengthen and level the knowledge that the students had about the research method from the quantitative approach.

To support the above, some impressions or feelings of the students about the training process are cited:

"Mainly it would be motivation, I'm not going to deny that the research topic is not that one sees as intriguing or interesting; but with this method it was at least easier to understand its practical usefulness, which goes beyond research" (Citation 1:3).

"The sensations that this training process generated in me were mainly flexibility, interest, practicality, dynamism and good ease of learning" (Quote 2:3).

"I would think that the main sensation aroused by this way of teaching the research method in psychology would be interest; because sometimes these topics tend to be somewhat flat, that is, there is no dynamic or other strategy that allows us students to be trapped in what is being taught..." (Quote 3:3).

"The sensations that the classes gave me were basically of novelty..." (Quote 4:3).

Now the students also expressed some opinions about what the strategy left them, which are shared below:

"Well, from my personal point of view, I would think that my knowledge of quantitative research was expanded a little more; However, I am self-critical in pointing out that it is a process that requires practice..." (Quote 2:4).

"I don't really know if they were expanded, but one thing I'm sure of is that they were polished, strengthened, and combined perfectly with what we've been doing with the method stuff"(Citation 3:4).

"In this regard, what I can say is that my knowledge of quantitative research has expanded; because in the matter of research methods these topics were touched, but they were more theoretical things" (Citation 4:4).

"I felt that my knowledge of the quantitative approach improved in an important way, especially with the tips that were given for each phase of the research on how to organize each section..." (Quote 5:4).

"Definitely, this process did help to refine several sections of the quantitative approach to the research..." (Quote 6:4).

DISCUSSIONS

Of the dimensions evaluated, the behavioral dimension was the one that obtained the lowest level of high favorability compared to

the other two dimensions (cognitive and affective); Basically due in large part to procrastination behaviors represented by students when carrying out research-related activities, as well as not having a culture of reading scientific material and not having a mindset towards research. It is important to note that some students, atthe cognitive level, of beliefs, refer in a significant portion that undergraduate universities shouldnot teach research and that it is not necessary for all professionals to learn about research, which clearly biases or makes it more difficult in an academic environment to establish a research culturewith a prevalence of these beliefs. Now, with respect to the implementation of the strategy as such, it was executed with the seventh-semester psychology course of virtual modality in the subject of 'Research Methods in Psychology', which consisted of 18 students. This implementation space took place between 07/06/2023 and 12/07/2023 through the meet platform, in classes with schedules from 05:00 P.M.,until 07:00 P.M. The activities had a 100% implementation level, since all the planned activitieswere executed and with 100% coverage because it reached all the targeted students.

The last part of Specific Objective 3 was the evaluation of the strategy; For this reason,it can be concluded that the students to a large extent felt comfortable with the strategyimplemented, indicating in a certain way that they feel better under a learning scenario that tendstowards the participation of open experiences for the acquisition of knowledge. In comparison between the teaching of research methodology from professional training and through the designthinking methodology, students massively referred to feeling more comfortable in their learning process with the way it was carried out in the pedagogical strategy; highlighting qualities such as creativity, innovation, inclusion of practice and pragmatism of knowledge. On the other hand, they stressed that the strategy was flexible, interesting and practical; leading them to investigate,imagine and discover a little more about what is related to the research method; leaving them to expand their knowledge in research, polish what they already knew and know how to put into practice what they have been taught.

CONCLUSIONS

The main purpose of this research work was to develop a pedagogical strategy based onthe application of design thinking techniques for the teaching-learning process of research methodologies in psychology students of the Technical Corporation for Human, Social and Cultural Development of Colombia-Corpodesc, in the year 2023. To this end, it used three specific objectives to route or operationalize the investigative process. The first specific objectiveof the proposal was to identify alternative pedagogical strategies based on the design thinking methodology applicable to the teaching-learning process of research methodologies in psychology students at Corpodesc. Forthis process, what was done was a process of documentaryreview about design thinking, conceptualization, phases and techniques applicable by phases toobtain the results that are expected by each sector of the cycle of this methodology.

That said, it was possible to conclude that, within the design thinking methodology, there is a variety of techniques and activities that have the capacity to be compatible and adaptablefor the teaching of research methodology in the training processes of undergraduate students; Providing students with a dynamic, creative, innovative learning space that can generatestrategies for research teachers that allow them to enrich their pedagogical practices in the classroom, which tend as an ultimate goal not only to convey the knowledge that they want to transmit, the skills that they are urged to establish, but also to provide them with the skills that they want to transmit. but that in this process the students are interested and motivated by the fieldof research. In this sense, it is also important to highlight that the design thinking methodology can frame the different phases of research under its stages, and thus at each stage propose differenttechniques for consolidating the knowledge acquired; In this way, what is taught is not only in a stage of memorization, but there is also an association between what is taught and how it can be materialized in reality.

Now then; The second objective of the research was to design an alternative pedagogicalstrategy to innovate the teaching-learning process of the subject of research methods in psychology of Corpodesc through the application of design thinking techniques. which was scheduled to be carried out in 8 sessions with an hourly intensity of theoretical-practical of 16.2 hours per session; in which students would have to invest 70 hours of independent work, dividedinto 10 hours of work at home for each session performed. Within these sessions, what was designed was to carry out a process of strengthening and reinforcing the quantitative approach toresearch; in which we were working based on the phases of quantitative research and it was soughtthat, once the theoretical instruction process was finished, complement it with some design thinking technique to give a greater adherence to the knowledge provided to the students.

This strategy design was carried out based on the phases of design thinking (Empathize,Define, Ideate, Experiment and Evaluate), therefore, in the empathize phase, a general approach was basically made to the research methodology of the quantitative approach. and approach to phase 1 of quantitative research. In the define stage, phases 2 and 3 of the research were included;The ideating phase included phases 4, 5, 6, 7 and 8; phases 9 and 10 were involved inexperimenting and evaluating. At the end, a final session was designed, which had the objective of evaluating the strategy to be implemented. Finally, the third specific objective was to carry outthe alternative pedagogical strategy based on the design thinking methodology in the Corpodesc psychology research methods subject. The initial phase of this was to carry out a diagnostic process about the students' attitudes towards research. From this exercise it can be concluded thatin general terms the students represent a high level of attitude related to research, thus showing

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alevel of favorability that showed a persistent and lasting organization evoked towards beliefs, attitudes and dispositions related to research by the students. evaluated.

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