The Resilience of Researchers from the Perspective of Sustainability in Times of a Pandemic

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The purpose of the article is to understand the importance of resilient attitudes in the course of drafting, developing, and completing research projects related to academic processes of graduate students. Considering, however, that all humanity and all systems were affected by the Covid-19 pandemic, the role of science deserves to be highlighted, once it was daily required to seek solutions to face the virus, as well as to point towards ways of minimizing its effects. Thus, research centers were heavily demanded and had to put resilience into practice in the daily routine of research. Therefore, in the context of the transdisciplinary dynamics, research data were generated through a semi-structured interview, through which 7 (seven) student researchers, linked to two higher education institutions in the Federal District - Brasília, were interviewed. Accordingly, the objective was, through content analysis, to identify the actions students relied upon to remain resilient in their training processes, as well as the initiatives that revealed a component of resilience in research projects that could provide greater sustainability. Then, the analytical perception, through the research results, allowed us to perceive that "research" is one of the ways to make students feel like protagonists and create favorable conditions to move forward in terms of knowledge. The search for answers to research problems, by researchers, goes beyond their competences in the cognitive dimension, also involving the intuitive, emotional, and spiritual dimensions. Thus, academic contexts are favorable spaces for the development and practice of resilience. Therefore, mediators should be careful so they can face the setbacks arising from the research process together. On the other hand, research students managed to successfully complete their research journey and move forward in their knowledge construction processes, because they practiced resilience. This is because resilient people remain productive, even in the midst of vulnerable and uncertain contexts. And they can stay focused, carry out the activities that must be done, and know how to take advantage of the time and circumstances in favor of their goals. In this sense, it is perceived that resilient people always find possibilities, hitherto unimagined, to transform the emerging problem into an opportunity because they linked their personal project to an academic-social dimension, thus demarcating its concern for sustainability. Healthy resilient attitudes are necessary in order to achieve this as research projects are drafted, developed, and completed, a fact that became more evident because the researchers had a transdisciplinary perception of life and academic projects. Finally, the engagement with

transdisciplinary projects whose references were existential plenitude and social sustainability strengthened resilience, put into practice as adaptation and growth, both internally (personally) and externally (socially).

Keywords: Resilience, training, research, sustainability.

1 Introduction

Humanity, in the context of this new millennium, is challenged to overcome a systemic crisis, considering that we are dealing with a multiple contexts of crises, that is, it is no longer a moral, economic, or political crisis but a set of trends that affect all social strata and all cultural manifestations. In this sense, in a global and longitudinal approach, this crisis affects everyone and everything.

Despite this more horizontal understanding, it is advisable to realize that crises are also manifested vertically, that is, they are specific expressions of a culture or peculiar samples of social order. Therefore, while the crisis assumes a planetary scope, affecting all civilizations, at the same time it is possible to infer that each culture or each social context reacts in a peculiar way.

However, beyond the more comprehensive or specific characteristics, it is clear that the civilizing process is at a crossroads, a fact that requires a deep discernment to effect a new horizon of human experience and environmental coexistence, focusing on the dynamics of existential improvement of social sustainability. Therefore, insofar as more significant dimensions are aimed, which overcome individual competition, material accumulation and ideological polarization, a more cooperative, participatory, and solidary humanitarian sense can be envisioned.

Based on the premise that almost all social segments and cultural manifestations are being affected by the crisis, education is also a victim of this procedure. Although educational entities were, for many centuries, protagonists of crises, in the sense of breaking established paradigms, they are now becoming hostage to the economic, social, and cultural crises. In other words, the educational area is being strongly affected by the diversity of crises and is at a crippling stage, because instead of being an educational leader, it has become, to a large extent, an instance commanded by the dominant systems of society.

It is in this social and educational context that the Covid-19 pandemic breaks out, strengthening, on the one hand, the structures, and dynamics of the systemic crisis and, on the other hand, presenting itself as an opportunity to rethink human relationships, social dynamics. and connections with the environment. In this sense, on the one hand, the civilizational crisis aggravates and, on the other hand, it reveals itself as an opportunity for the emergence of more sustainable humanity.

The scenario described above could be enriched with other arguments and other data, but to understand the underlying aspects of resilience, we must assume it is essentially linked to the reasons that foster the stage of civilizational crisis, mainly by questioning these principles and, at the same time, resisting the daily demands for their implementation. On the other hand, it is opportune to consider resilience as an opportunity to advance projects that are more sustainable, for the present and future of humanity.

Therefore, in order to exercise resilience, instead of reaction we propose a proactive action, in the sense of energizing the leading role of individuals, qualifying the processes of overcoming adversities, and indicating sustainable horizons, understood as transdisciplinary processes aimed at a project and a policy of well-being and living well. Assuming such an approach, we can agree with Lenoir [1], because their perception of resilience is mainly a process of resistance, adaptation, and growth, therefore passing through localized dynamics, resisting; mediating procedures in an adaptive way; and expanding horizons, growing aspects that demand the understanding of the human being, both in its uniqueness, coexistence, and sociability. In this perception, resilience is a transversal dimension that would be linked to the notion of sustainability, because according to Acselrad [2], "there is no sense in thinking separately about the technical relationships with the environment and the historical configuration of societies". Sustainable is the social forms of appropriation and use of the environment and not natural resources!". Therefore, resilience needs to be sustainable, as sustainability needs to be permeated by resilience, qualifying these concepts from a personal and social perspective. In the words of Pasquier and Nicolescu [3], "we have to focus simultaneously on scientific knowledge and humanities, and the key for this is 'consciousness'.

So as to build a sustainable educational process based on personal and social procedures, the Oikos (house) can be placed as a symbol of understanding, which integrates, among other manifestations, ecology, economy, and eco-path. Such a perspective could be anchored to the proposal of Mokiy and Lukyanova [4], when they indicate the transdisciplinary approach of systems, a methodology that enables a change that is configured, primarily, through the imperatives of sustainable development, involving the economy, ecology, and social dynamics.

These dimensions indicate that education can no longer be guided solely by disciplinarity, but should incorporate the paradigm of complexity, a configuration which, according to Morin [5, 6, 7, 8], would be the result of great and profound transformations seen in many different areas, particularly in the epistemological, technological, and philosophical fields.

In order to understand this new worldview, we must understand that "the complex concept of the human genre is composed of the individual/society/species triad" and that such terms "are not only inseparable, but they are also co-producers of each other. Each term is both the means and the end of the other terms" Morin [5]. This understanding thus enables a holistic, systemic, transversal reading, or, according to the author, a "self-eco-organizational" approach, which combines subjectivity and sociability in the context of sustainability.

Under this argument, Síveres [9, 10, 11] proposes a transversal dynamic that integrates the natural (ecology), social (economy), and personal (ecopathy) houses, establishing a relationship of principles rather than objectives; of purposes rather than functionalities; of policies rather than plans. Thus, the objective of this approach is not to point out a list of suggestions to make the educational process viable, but to indicate a new system of values to provide an ethical option and a political decision that can contribute to sustainable education, for the present and the future of humanity.

The concept of sustainability follows, therefore, a trajectory that culminates in a vision that encompasses the human person as a whole, society in a systemic way and the planet in an ecological way. Education for sustainability, based on this three-dimensional relationship, has as a reference the environmental context, the social process and personal conscience. Capra[12], Pasquier and Nicolescu [3].

Pointing to this texture, the present study seeks to understand, in the academic processes of graduate students, the importance of resilient attitudes in the design, development and conclusion of research projects and the respective training of researchers, given that the training process of researchers in academic contexts is permeated by numerous adverse phenomena that must be understood in the context of the current crisis. Therefore, cognitive, emotional, and social dynamics need, in unfavorable situations, to be transformed into opportunities for personal and professional development, for a sustainable way of life, especially in academic contexts of human and social education.

2 Methodology

The comprehension of resilience as a resistance, adaptation, and growth processes, and sustainability as procedures of ecology, economy, and ecopathy; aspects that are interconnected by the social and personal dimension; allowed the attainment of this study, thus, the exploratory research by the qualitative approach was chosen. The corpus of this research is made up of graduate students in master's and doctoral programs, at the end of 2021 and the beginning of the semester of 2022. Seven students were interviewed, five of which from public institutions and two from private- community institutions and they are identified by the letter "R", standing for the researcher.

Four of the students that participated in the research were one of the author's advisees. And the others were guests. All of them were from, one public and one private institution. Both follow ethical criteria in the research field. All the students are from the educational field and were at the final stage of their research.

The instrument used in this research was an online interview (electronic survey) with five closed questions related to profile characterization and six open questions for students/researchers to reflect and elaborate on. This instrument was created using Google Forms by the authors themselves. And the

structure in form of tables has the following sections: Sociodemographic data related to the profile of interviewees; Routine of the research process in the pandemic; Difficulties designing and producing research; Social dynamics of researchers: emotional, intellectual, and social aspects most affected; and Resilient attitude.

Data diagnosis was based on content analysis, as proposed by Bardin [13], and below are the tables with the data produced, the analyzes and interpretations, the results, and discussions, as well as some conclusions, although provisional, on the resilience of researchers in times of pandemic from the perspective of sustainability

3 Results and Discussions

The analyzed data collected through interviews indicate that, given the contemporary social context, marked by multiple crises, has affected different spaces of social life, leading humanity to a process of constant challenges in the face of uncertain moments and unprecedented contexts. At the same time, from within the tangle of crisis our world is facing elements emerged, often minimized, such as resilience, which concerns the ability of human beings to reorganize themselves in adverse situations, through adaptation, for new growth.

Resilience is, therefore, a phenomenon that allows the subjects of an experience to expand their perception and vision of reality and everyday life, considering multiple possibilities of reading the world and adverse processes in times of crisis. In this context, the setbacks experienced by students/researchers during the production of their research, in a pandemic situation caused by Covid-19, are the object of this study.

This pandemic context gave rise to a focus on planetary consciousness and collective life, as individualism would need to give way to collective existentialism. That is, despite the emerging problems, it was possible to conceive new learnings, confront uncertainties Morin [5, 6], and brave uncharted and hostile waves. A new unknown world emerged, prompting humanity to learn to relearn from the new, the emergent and the unexpected, diverting intentions, without a defined or familiar course, being completely at the mercy of what was to come. In the perspective of complexity, humanity is experiencing, according to the author, an "ecology of action". Any action may trigger other uncertain actions, it escapes the intentions of the person who initiated it, going ways that may be even contrary to the initial intention, with unpredictable consequences.

Therefore, when pointing in this direction and in order to know how research students resisted the pandemic crisis, in the beginning of the second decade of the 21st century, from a sustainability perspective, with resilient attitudes, we initially present the sociodemographic data related to the students/researchers participating in the research and, subsequently, the data produced from the routine established by them, especially regarding the difficulties encountered in the development and completion of their research, describing the aspects (emotional, intellectual, social) affected, as well as the initiatives to overcome the adverse situations through resilient attitudes.

3.1 Sociodemographic Data

Sociodemographic data reveals that all participants are research students from private community institutions (57.14% - 04) and public institutions (42.85% - 03). Among the participants, 57.1% are female (04) and 42.8% are male (03). They are in the age group between 31 and 40 years (28.5% - 02), 41 to 50 years (28.5% - 02) and 51+ years (42.8% - 03). As for ethnicity, 05 (71.4%) declared to be brown and 02 (28.5%), white. All 7 (seven) students/researchers interviewed, even in times of pandemic crisis, managed to complete their master's or doctoral degree, as shown in Table 1.

Table 1 shows that the demand for education at the master's and doctoral level is among experienced people who are at a certain level of maturity in relation to life and knowledge. In this sense, it is possible to infer that they are people who have already gone through different experiences, both in their personal

Table 1 *– Identification*

Students/Researchers		
Gender	Male - 03	42.8%
	Female - 04	57.1%
Age	31 to 40 years - 02	28.5%
	41 to 50 years– 02	28.5%
	51+ – 03	42.8%
Ethnicity	White – 02	28.5%
	Brown - 05	71.4%
Academic Degree	Master's Degree – 03	42.8%
	PhD - 04	57.1%
Institution	Private - 04	57.14%
	Public – 03	42.85%

Table 2 *– Daily routine in the face of the pandemic reality*

Researchers	**Answers**
R1	I think the pandemic helped a lot, because I was able to dedicate more time to my studies.
R2	In addition to **reading several articles, dissertations, theses, and books** for my theoretical framework and bibliographic references, I'd often contact my training professors by phone for a more effective and methodological understanding of the project.
R3	Every day was a new expectation as the greater good of "life" was threatened, but the search for achieving a goal kept **me focused on work, a lot of reading, and production flowed well** in spite of the vulnerability imposed by the pandemic on everyone.
R4	In addition to remote classes, **some reading and daily studies**, with reduced time due to the complexity of the routine of working from home.
R5	I was **involved in research** all day.
R6	I **continued my studies** after changing the objectives and focus of my research.
R7	I established a daily routine that included at least **5 hours a day for the development of my doctoral research.**

and professional lives, with regard to training processes and who, possibly, seek educational institutions to remain in a constant process of knowledge acquisition and learning by means of research.

3.2 Context of the Daily Routine of Students/Researchers

Regarding the daily routine of students/researchers in the face of a pandemic context, Table 2 shows that resilient people remain productive, even in the midst of vulnerable, uncertain, and crisis environmental contexts. They are able to stay focused, carry out the activities that must be done, with commitment, and produce effectively. In addition, they know how to make good use of time and circumstances to meet their goals.

Resilient people, as shown in Table 2, take advantage of conflicting situations and transform apparently unfavorable circumstances into favorable contexts. They know how to take advantage of a crisis, transforming it in an opportune time; in this case, their time was adjusted to reconcile research with other activities of daily life. However, with the pandemic and being forced to stay at home to maintain the required social distance, these students/researchers were able to organize it better to accommodate the planned academic activities and produce, dedicating more time to their studies (R1, R4 , R6), establishing a routine (R7), getting involved with research all day (R5), and reading (R2, R3, R4).

It is worth emphasizing that in the research production process knowledge construction involves the participation of the advisor and the protagonism of the advisee (research student), each exercising their role without dissociating one from the other, even if through restricted autonomy. Araújo [14, 15]. However, despite the unfavorable circumstances caused by the Covid-19 crisis, which prevented students from meeting their supervisors in person, they were still able to take advantage of the available time, dedicating themselves to the studies that should be carried out (R1, R5, R6, R7), as well as reading (R2, R3 and R4), for knowledge acquisition and successful completion of their master's and doctoral degree.

3.3 Sociable Actions

In relation to sociable actions to maintain a minimally sociable life, the responses show, on the one hand, a setback in the constructive process of knowledge through relationships with physical presence, where exchanges of knowledge occur in the relationship with each other through face-to-face dialogue. On the other hand, technologies were the support instruments that helped to maintain the bond, albeit virtually, and subjective exchanges of knowledge took place through telephone, WhatsApp, and Google Meet. Thus, through the support of these technological instruments, sociable processes were gradually resumed through telephone conversations and technological tools. In this sense, technology was the bridge that allowed the continuity of dialogues, virtually, for the continuous exchange of knowledge between students/researchers and their families, friends, work colleagues and academic supervisors (R2, R3, R4, R5, R6 and R7). And there were also those who (R 1), in compliance with the social distancing protocols during the critical periods of the pandemic, chose not to maintain any type of relationship, even by technological means. In other words, they completely isolated themselves from social life, as we can see in Table 3.

Social interaction is proper to human beings. Even in situations of non-sociability, the human species finds other technical and cultural ways to establish contact with the other, to communicate, relate, and coexist minimally, even without the physical presence of the other, using the cultural and technological advances of the time.

3.4 Personal Awareness - Difficulties Faced in Completing the Research

As for the situations that hindered the construction of knowledge and the activities that the researchers performed to complete their research, Table 4 shows that lack of cooperation (R1), lack of face-to-face contact (R2, R3), increased volume of work (R4), anxiety and insecurity (R5), lack of professors with training in the student's field of interest (R6), and interpretation of texts in philosophy and the area of research (R7) were described as elements that hindered the constructive process of the research. That is, the process of knowledge acquisition and knowledge production occurs by building relationships with each other. Culture is only possible if there is contact and dialogue, and if the other is willing to interact;

Table 3 *– Actions undertaken to maintain a minimally sociable life.*

Researchers	**Social dynamics**
R1	***I did not maintain social relationships*** *during the critical periods of the pandemic, as recommended by the WHO.*
R2	***I used some technological tools and, of course, some phone conversations.***
R3	*My haven was God,* ***being with my family*** *and, even in insecurity,* ***being supportive*** *of those who suffered from the loss of their loved ones. The* ***commitment*** *to the development of my dissertation took up my entire time* ***and this kept me from having exaggerated fears****.*
R4	***Online contact with family and friends****. After some time and with a lot of care, I started meeting with a friend family in our homes or on a farm, to socialize and leave the house. Attention to food, consuming foods from agroecology, as well as attention to physical and mental health.*
R5	***Physical activity and online conversation*** *with friends and family.*
R6	***I kept in touch via WhatsApp messages, phone calls and video calls via WhatsApp and Google Meet****.*
R7	*My social dynamic was characterized by restricted social contact. My wife and I decided that our contact would be restricted to our children and a few people outside the family circle, in terms of physical contact. On the other hand,* ***I took advantage of technology to keep in touch with friends, co-workers, and other family members.***

learning takes place in the relationship with one another, through intersubjective exchanges. Thus, there is knowledge only if there are exchanges, relationships, and interlocutions, because learning is a deeply human activity, according to Vigotski [16, 17]. This finding is related to the evolution of the species, as it is an essentially social and cultural process, promoting the most different forms of development by the interdependence between the individual who learns and the surrounding reality.

3.5 Emotional, Intellectual and Social Aspects Affected

The emotional, intellectual, and social aspects of resilient people who are in conflict situations, because they know themselves, are able to find the best solutions without allowing themselves to be strongly affected. Resilient people seek to maintain emotional balance, even when facing tragic situations — such as the loss of family members or friends –, personal conflicts and despair, or difficulty in concentrating or organizing and harmonizing their time to study and research. Because they know themselves, they can come up with ways to focus inwards and find balance, by seeking support from family, friends (R2), using trust and self-awareness techniques, and adopting strategies to maintain emotional control (R3, R7), believing in better days and taking care of their physical, mental and social health (R4, R5, R6), and entertaining themselves with series, movies and reading material not related to research (R5). Table 5 shows some of the paths found by students/researchers to overcome the pandemic crisis during the research process.

Table 4 - Situations that hindered knowledge construction and performance of activities to complete the research

Researchers	**Difficulties**
R1	The greatest difficulty is the fact that **private higher education institutions are uncooperative** and refuse to participate as the object of studies, also denying access to relevant data for educational research.
R2	Surely the **impossibility of face-to-face meetings**.
R3	The greatest difficulty was carrying out field research, **the time was not conducive to physical contact**. Those who were willing to be interviewed were insecure because of the tragedies seen on the news every morning. Fear was our constant companion, but with perseverance we managed to have in-person or virtual meetings. Throughout this stage, listening was a key factor. The professors interviewed were overcome with anxiety, so they wanted to take their time, to vent out before addressing the proposed subject.
R4	**Increased volume of work** because of the remote work dynamics; mental health affected by the pandemic context; and need for family time because of the challenges of the pandemic.
R5	**Anxiety and insecurity** for knowing that we were all at risk and I was working on a research project.
R6	**UCB does not have a line of research or professors with a degree in my area of interest.** To corroborate my study, I sought help from researchers in the area and participated in events and online courses.
R7	Difficulties**: interpretation of texts in philosophy and the field of research**. Another difficulty was related to access to publications that could provide counterarguments to those in the field of education. To mitigate these difficulties, I sought help from work colleagues and watched several videos on the internet. For the development of my research, I read several scientific publications (articles, dissertations, and theses).

Throughout the research process in academic contexts, researchers go through several adverse situations such as, according to Table 6: changing the object of research initially planned (R1), physical absence of the advisor (R1, R2), loss of friends and family members (R3), difficulties in finding research participants (R4), conflicts with the advisor (R5), and receiving unexpected news regarding health of family members (R6 and R7). However, despite these unfavorable circumstances, life goes on and resilient people survive and remain focused on their goals, even in the face of various conflicting situations. They know how to deal with the avalanche of problems, without being overwhelmed, giving up or being affected emotionally, intellectually, and socially. It is in life, in the complexity of life, that everyday uncertainties are faced, through resilient attitudes.

Table 5 - Emotional, intellectual and social aspects affected and initiatives to overcome them

Researchers	**Emotional, intellectual and social aspects**
R1	Once the object of my research was defined, **I had no difficulty conducting my study.**
R2	I've lost family members and friends to heart attack, stroke and COVID-19. At times **I felt like giving up, but I managed to overcome it with the help of family, mutual friends and colleagues who gave me encouragement and advice on how to develop my project, so that I could persist**. That is what helped me be resilient and finish my dissertation.
R3	My sensitivity has stirred some **personal conflicts**, at times feelings of **despair**, but I tried to use **trust and self-awareness techniques** to find **emotional self-control**, as an incentive for a perspective of better days.
R4	**Difficulty concentrating, organizing and harmonizing time for study and research. Consistent exchanges limited** to known researchers. Initiatives focused on **personal, family and community organization to improve integral health**.
R5	**Physical distancing from my peers, uncertainty**. **I exercised daily, watched series and movies**, and read texts not related to my research.
R6	Although I adhered to total self-isolation, I didn't feel bad about not seeing people. I kept my **regular routine of healthy eating, exercising and studying**. I was more concerned with controlling pre-existing diseases to avoid having to leave the house and run the risk of being contaminated.
R7	Regarding the emotional aspects, because of the uncertainty we met at the beginning of the pandemic, **I feared I would not be able to finish my research. I was afraid of losing family and friends and at times I couldn't gather the discipline and focus required to do scientific research**. Therefore, one of the **decisions I made was to no longer access news about the number of people infected with Covid-19**. Regarding the social aspects, **I made plenty of use of technology, trying, minimally, to maintain emotional balance.**

3.6 Resilience and Resilient Attitudes by Students/Researchers

Regarding the concept of resilience, research students were asked if they considered themselves resilient, and in what situations, in the process of developing and completing the research, they demonstrated resilient attitudes. Of the 7 respondents, only 1 of them (R7) said to have difficulties overcoming adverse life experiences. He was emphatic in saying that he does not consider himself resilient enough to help someone who needs to be resilient, as we can see in Table 7.

Table 6 - Adverse situation in the process of development and conclusion of research and overcoming attitude

Researchers	**Adverse situation**
R1	At the beginning of my research, which coincided with the beginning of the pandemic, I **had to change my research object**, because the initial object required access to face-to-face courses for assessment. As all courses migrated to distance learning, it was not possible. But once I defined a new object, everything went well.
R2	Many. One of them was the **physical absence of my advisor**, but we managed to have a quality advising session by videoconference. It helped a lot that we had a set time only to start, not to finish. So all my questions were solved!
R3	Yes, **losing friends and relatives**. I experienced grief and tried to focus on my objectives to finish my research, as well as give support to the professionals who contributed to my work and were facing the same challenges of survival by listening.
R4	A certain **difficulty in having student participation** (high school students from private denominational schools) in questionnaires. We decided to reduce the number of students and work with the answers we already had, without further requests for responses
R5	Yes! **Conflict with my advisor**. I sought support from colleagues.
R6	**My father's stroke.** I took 50 days off to take care of him and then resumed my research as usual, because he moved in with someone else.
R7	I remember two specific moments. One was learning that **my brother was in hospital in a serious condition** and that he had been with my mother before he knew he was infected. The other is when I heard of the **death of someone** I knew.

Resilient people find innovative circumstances to do something differently, to go through adversity, overcome it and move on. They are not afraid of new situations, even when they get into states of intense tiredness and depression. Faced with the unknown, the unusual and the unexpected, resilient attitudes are activated to help them solve the problem and get out of that conflicting and embarrassing situation, victorious for having achieved their objective. Proof of this can be seen in the account of Researcher 2, where even when her body showed signs of extreme tiredness and depression, she says:

> *Then I thought: Now it's time to pick myself up and start over to meet the deadline. So, I improved my self-esteem, focused on my work, and managed to deliver it in time, even if unsure of the result... I believed and it worked!* (Table 7 – R2).

Resilient people, even in the face of tense and stressful situations, are able to think and choose not to give up and persist, pursuing the proposed objectives, in the certainty of achieving the purpose. Thus, people considered resilient do not back down when faced with a new and emerging problem. On the contrary, they face it, resist, persist, do not get afraid, and manage to find solutions amidst the tangle of uncertainties and different bifurcation points, and muster the strength to overcome them.

Table 7 – Academic resilience and resilient attitudes

	Resilience and resilient attitudes
R1	**Yes,** as stated in the previous answer, **the need to change my object of research because of the pandemic** could have been a definitive breaking point and prevented me from completing my degree, but I quickly **sought alternatives and defined solutions to solve the problem and carry on with the project.**
R2	**Yes**. With the loss of loved ones and friends, **I fell into depression and my performance dropped as the deadline neared** due to the overwhelming fatigue I felt**.** Then I thought: Now it's time to pick myself up and start over to meet the deadline. So, I improved my **self-esteem**, focused on my work, and managed to deliver it in time, even if unsure of the result... **I believed and it worked!**
R3	**Yes, even in adversity I managed to face the challenges of field research, act on the advice I was offered, and meet my research objectives.**
R4	**Yes,** by understanding that **hope** remained a daily companion, **even in such an intense, delicate, and dismal time**. **Hope that my study could contribute to human existence, starting with my own, with an educational practice that could contribute to the transformation of people and collaborate with new social constructions**
R5	**Yes!** I spent two years ignoring that I was a **victim of harassment** and managed to write a dissertation.
R6	**Yes**, because I had to change my research object due to travel restrictions, **I had family problems because of my father's health, and I have several chronic illnesses. Even so, I finished my four-year doctorate on time, submitted 39 articles to scientific journals, attended events, wrote book chapters, and also organized 4 books that were published**.
R7	I have trouble overcoming adverse experiences. **I don't see myself as resilient enough** to help someone who needs to be resilient.

It is a characteristic of resilient people to find, in the midst of the fabric of problems, innovative solutions to problems that arise. They are creative and, based on their experiences and knowledge, they transform the unusual, the problem into an opportunity to transcend, moving from an apparently hopeless situation to another, even if it is not the best answer, or even the most efficient solution, as researcher 2 says: "I managed to deliver my work in time, even if unsure of the result". Therefore, giving up is not part of a resilient person's repertoire.

In addition to resilient people, Lenoir [1] suggests resilient processes based on a three- dimensional logic, consisting of resistance, adaptation, and growth. To configure this procedure, the author suggests evoking memories of a love experience, and the willingness to acquire resilience. And in the dynamics of acquiring resilience, one should learn to adapt to the permanent and unpredictable movement of life, cultivate pleasure and positive emotions, strengthen bonds and relationships, and develop the ability to give meaning to life.

4 Discussion

The analyzed data, under different perceptions, can be discussed under many approaches, but considering the study subject, connected to the resilience concept, both had this focus. This is because "resilience" is a term borrowed from engineering and physics and refers to the ability of a physical body to withstand pressure and return to its original state unaltered. Although, in contexts of social life, the concept of resilience is translated as the ability of an individual to deal with adverse situations, overcoming pressures, obstacles, and problems, reacting positively without feeling discouraged or overpowered by the psychological or emotional conflict. Sabbag [18, 19].

According to Polletti [20], the term is used and defined as the ability to "resist shocks". However, studies indicate that the concept of resilience goes beyond this ability to overcome problems. It is composed of two dimensions: the ability to protect one's integrity under heavy pressure and one's ability to live with dignity, resolve problems and conflicting situations, despite adverse circumstances.

In the humanities area, according to Sampaio [21] this concept was reinterpreted to mean:

> the ability that an individual has, when going through a certain painful situation, either in a group or individually, to manage to come out well. In this case, they would not return to their previous state but improve. Resilient people can overcome these difficulties without despairing or losing their minds. They can think even under enormous pressure and find solutions to their difficulties.

This is shown in Table 7 above, when our researchers/students report several obstacles they had to face, such as the need to change the research object due to the beginning of the pandemic (R1, R6), loss of loved ones and friends, states of depression, tiredness (R2), finding hope in times of intense human suffering (R4), harassment (R5), family problems and chronic diseases (R6). In other words, resilient people, as described by Sampaio [21], manage to overcome heavy situations, though they may leave marks in their lives, such as the death of loved ones, friends, psychological pressures, and political or professional persecution. These people, despite the pressures, go on with their lives, and their projects, independently and often in a positive way. Such disposition is manifested by creativity, intelligence, perseverance, and compassion, as they can anticipate and deal with the emergence of these elements, in the tangle of the process of knowledge construction in chaotic contexts, also present in academic life.

This manifested energy is the result of a resilient attitude that can be translated as self-awareness, based on the knowledge that their life project under construction and development can contribute to the good of humanity. This is overtly expressed by R4 (Table 7) in an account that is imbued with a hope that her research could contribute to human existence, starting with hers, fostering, above all, new social constructions.

In the case of educational contexts and specifically with regard to the training of researchers, through the development of research projects under an advisor, for the production of master's and doctoral dissertations on specific topics, it is important to consider resilient attitudes throughout the process of designing, developing, and delivering research projects. It is through actions and reactions that resilient individuals will emerge, resist and adapt to circumstances, in accordance with the zeitgeist (spirit of the time). This adaptation is what Freire [22, 23, 24] describes as one's ability to withstand adversity, without losing emotional, intellectual, and social balance, constantly adapting and rebalancing

The training process of researchers in academic contexts is permeated by numerous adverse phenomena which must be understood so that, in the face of crisis contexts, as experienced by these researchers interviewed here, they do not give up, but persist, pursuing their goals, so that the cognitive, emotional, and social dynamics in unfavorable situations can be transformed into opportunities for the development, both personal and professional, of students/researchers.

Some important elements were also considered in the resilience process of the responding students/researchers (Table 7), which, in a way, favored their evolutionary continuity processes, both cognitively and socially. Among them we can mention finding solutions (R1), self-esteem and faith (R2), facing challenges (R3), overcoming (R4), hope (R5 and R6), and self-awareness (R7).

In this sense, the University, as a space for research and knowledge production, must be a sustainable place where students feel comfortable creating, producing, be themselves, under the attentive and careful eye of an advisor. As students get involved in the research process and feel secure in the academic supervising process when they are faced with difficult, uncertain, and conflicting situations, they will be able to count on the support and find, even in chaotic situations, the necessary conditions to overcome the "important problem" Morin [25], Mariotti [26], that is, the unexpected elements that may emerge in their research path, without giving up or feeling insecure, thus managing to overcome them with autonomy and confidence, as they feel supported in their constructive processes of knowledge through research, exercising resilient attitudes and living the training process as proposed of Aguilar [27] in a more sustainable academic perspective and self-transformation of the researcher subject.

Research is one of the ways for students to feel protagonists and to create favorable conditions for advancement in terms of knowledge, in addition to favoring growth, both personally and professionally. However, despite always being a path full of surprises and unexpected processes that fork all the time, it must be permeated by pleasure and love, constituted by an energy and life field.

In the construction of this vibrational environment of education and training of researchers, from a sustainable perspective where they can exercise academic resilience, the development of a sensitive look on the part of advisors is extremely important. So that, by placing themselves in a position of attentiveness, they can perceive the difficulties of students during the process of production and development of research. This sensitive and attentive posture allows the advisor to organize actions (strategies) that can show students/researchers ways not to interrupt their knowledge construction processes, helping them, above all, to build their own knowledge in a meaningful way, encouraging them to move forward and meet their research objectives to successfully complete their training journey, in a healthy and sustainable way.

Finally, the training of researchers, from a sustainability perspective, is a process that implies the creation of learning circumstances that enable meaningful experiences so that learning can happen, based on the effective actions of learners, who must be seen as the central agent of the entire process, focusing on reconstructive learning, with possibilities to exercise resilient attitudes in the course of design, development, and conclusion of research projects. Learning, in the sense of acquiring and making the content taught on one's own, is the process by which behavior is originated or modified, by which the knowable object is assimilated and given meaning, whether provisionally or not, according to Mallart [28]. That is, learning that takes place through the relationship between subject and object, through constant interactions, under the mediation of advisors who sometimes distance themselves, sometimes approach, with awareness of their role and the role of their advisees, would be a possibility to experience resilience in the educational environment

In this process of knowledge construction, through research, which involves the triad advisor – knowable object (research project) – advisee, the advisor acts as a mediator of processes, the one capable of approximating students to their object of desire, for the development of an intellectual, emotional, and spiritual formation of the learner, in dialogue with the advisees' life experiences. This evolutionary process can help students/researchers to reach other levels of knowledge in their journey, and, above all, gain the transcendental experience of knowledge beyond reason, as suggested by D'ambrosio [29], Nicolescu [30, 31], and Moraes [32].

Thus, since the research process reintroduces the knowing subject (student/researcher), through their leading role, to their own process of knowledge construction, the lost link between the subject and life itself is established, bringing them closer together and reintegrating them through a "complex thought" Morin [25], where the subject assumes themselves as author and builder of their own story, as well as collective stories, through learning and through a commitment that involves all human wholeness, enacted by the inner strength that inhabits each being, through their own forms of knowledge about knowledge itself.

In other words, the set of resources or forces inside a person is what Steve and Sybil Wolin apud Polletti, R, & Dobbs [20] describe as resilience. They argue that resilient people have the necessary skills to cope with the most tragic and difficult situations. They leave scars without any doubt; however, these marks will always remind them of their struggles and victories, because of an important element in the whole process of resilience: self-knowledge. Knowledge of oneself.

According to Leal [33],

> It is believed that the search for self-knowledge and the strengthening of human values, as a basis for the development of inner strength, can enable man to overcome the difficulties that life presents. This strength, resilience, brings in its essence, among other things, harmony between reason and emotion, and introspection.

Thus, the search for answers to research problems, by researchers, goes beyond their competencies in the cognitive dimension; it includes other dimensions such as intuitive, emotional, and spiritual, which require, above all, other dimensions in relation to knowledge. When the student/researcher sees himself in the face of the problem to be investigated and at the same time being affected by it, he will be able to find, in the order applied, the favorable conditions that will help him out of a situation, getting him to ascend to other levels of perception and knowledge of reality. In this sense, as argued by Sampaio [21], "resilient people seek in self-knowledge the necessary balance to transform negative emotions into positive ones".

Finally, all of us humans, at some point in our lives, have felt pressured by problems to be solved and unveiled, as well as motivated by the possibility of overcoming, making us transcend, reinvigorating our being and driving us to a new place in terms of perception and understanding of reality. And, according to Boff [34], the feeling of self-esteem and the ability to overcome difficulties, almost insurmountable, are inherent to the human condition. We can consider this type of behavior as a constant exercise of resilience

5 Closing Remarks

Considering the process discussed, it is possible to conclude that the training process of researchers in academic contexts is permeated by numerous adverse phenomena that must be understood in the context of the current crisis. And the cognitive, emotional, and social dynamics need, in unfavorable situations, to be transformed into opportunities for personal and professional development. In this sense, academic contexts are favorable spaces for the development and exercise of resilience. Therefore, it requires support, care, and mediating processes so that research subjects can face the adversities arising from the research process and, thus, overcome emerging and unexpected crises, advancing in their constructive processes of knowledge. Considering that the research process is a journey full of "surprises" and, in the words of Morin [25], full of "important problems", uncertainties, the researcher must make decisions to overcome them.

And what researcher, faced with so many paths, has not felt pressured, and even, in the face of so much information, has not felt undecided about the best path to be taken at the moment when the problem, in the research process, is established and with very few resources and time to think, decide and make choices? However, resilient people, or rather resilient students/researchers, in the midst of academic pressures, are able to think and make decisions without losing control of the conflicting situation. And, above all, they manage to find answers to emerging problems while maintaining their own integrity.

In the context of the complexity of reality, it is relevant to emphasize that we are all resilient because in some aspects of life we all use resilient attitudes. However, not all of us exercise the attitude of resilience on a daily basis, because being resilient requires wisdom to transform any problem of daily life into a solution, being able to turn the complex and emerging problem into an opportunity to transcend, going beyond.

Thus, in academic spaces, a place for research and also for the exercise of resilience, it is essential that this driving force be awakened in students, which is characteristic of every human being, as well as academic resilience, pertinent to the academic social context, seeking to understand the emerging and circumstantial problems in that context, so that, when faced with problems that arise in the academic context and that will certainly arise, students do not paralyze, but face and overcome them. Since being resilient is to pursue, insist, and not give up when encountering the many forks on our roads, resilient people always find ways, often unsuspected, to move forward, transforming the emerging problem into an opportunity for personal and professional advancement. Resilient people, therefore, are very intuitive and trust their intuition. That is why they do not give up because they believe that for every problem there is always a solution, even if it is not apparent and immediate.

Resilient people rely on other forms of knowledge, in addition to reason, because they are also driven by emotional and spiritual forces that strengthen them. Therefore, they are always ready to solve unexpected, unusual, and emerging problems, not giving up, but resisting.

The objective of this research, therefore, was to identify the actions taken by students to carry on with their training processes that revealed a component of resilience, as well as sustainability indicators that the research projects could provide to humanity. Our studies allow us to draw the following conclusions.

All students/researchers, even when faced with unsuspected difficulties, managed to successfully complete their research path and advance in their knowledge construction processes, completing and obtaining the much-desired masters and doctoral degrees.

Resilient people remain productive, even in the midst of vulnerable and uncertain contexts. They are able to stay focused, carry out the activities that must be done, with commitment, and produce fluently, forgetting about the outside world and its inherent problems. They know how to take advantage of time and circumstances to meet their goals, even in vulnerable times and uncertain contexts.

Resilient people do not allow themselves to be overwhelmed by external stressors, especially in the context of the pandemic, and find ways out of emerging problems.

Students part of a research project that dedicates themselves to the respective orientation tends to develop processes of resilience lined in life projects that contribute to sustainability, on the personal or social dimensions.

Students excited with their research projects, making use of resilience, can finish their academic path in a healthier and balanced way.

The training of researchers through scientific rigor, openness and dialogue, the constitutive triad of the transdisciplinary methodology, can contribute to the strengthening of more resilient and sustainable attitudes.

Therefore, the space of institutional research potentiates the processes of knowledge building. It's the place to be welcome and to meet people. Place favorable for researchers, in dialog with their advisors, put in practice the academic resilience, with sustainability, aspiring to grow the knowledge of the local community through access and spread of the social-historical culture of humanity.

So, is it possible to say that every researcher is a resilient being? This question remains as a suggestion for further research.

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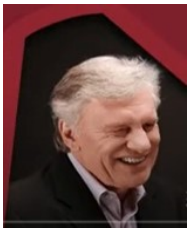

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