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PSYCHOSOCIAL RISKS FROM THE PERCEPTION AND EDUCATION IN RISK MANAGEMENT BINATIONAL CASE

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Abstract

The research aimed to identify the perception based on previous training and the educational level on risk management through an intelligent adaptive test called RISK-TAI that has validated questions to measure these parameters. The study involved the participation of 140 students belonging to the careers of education from the Universidad Técnica del Norte, Ibarra - Ecuador and from the Universidad Pedagógica Experimental Libertador based in the city of Rubio in Venezuela who met the inclusion criteria. The RISK-TAI based on bayesian networks was used to identify the levels of general knowledge and perception on the subject; methodologically, a quantitative investigation was carried out and statistical analyses were used by applying the Wilcoxon method. As a significant result, it was evidenced that both study populations presented an inadequate perception of risk management despite having been trained in the area and undergone previous catastrophic experiences, which impacts on psychosocial risks at the institutional level due to their lack of information on how to act in the face of adverse events from their local realities.

Keywords: Disasters, education, perception, psychosocial risks, risk management

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1. Introduction

Based on the analysis of results corresponding to the comparative study carried out by Cadena Povea and Calderón (2020) in Ecuador and Venezuela, a population growth has been evidenced thus increasing the vulnerability of populations to adverse events. The Ecuadorian laws generalize and project a prevention process without clear rules for its appropriate and effective implementation, even though they promote spaces for education, training, and strengthening of the communities. On the other hand, Venezuela shows strength in its laws by promoting training spaces; however, the lack of actualization has not allowed carrying out an improvement plan that enhances its capacity to respond to adverse events. Based on this background, it is essential to identify the risk management bases of both communities and consider the incidence of the laws that each country presents. We will work from the process of understanding perception as the consequence of particular psychological conditions and socially accepted ideas that they conform as part of the collective thought based on the cultural developments.

To understand risk management, it is important to detail its components through the formula used in the area.

$$RISK = \frac{(THREATS * VULNERABILITY)}{CAPACITY}$$

According to the United Nations Development Program (2004) defines risk as: The probability of possibly damaging consequences, or eventual loss of life, injuries, destruction of property and livelihoods, disruptions of economic activity (or damage to the environment); as a result of the interaction between natural threats or those caused by human activities and conditions of vulnerability.

Consequently, it can be inferred that by not generating spaces for broadcasting and learning about risk management, the understanding of vulnerability is distorted based on the different conceptions of the respective inhabitants of a community in the face of a possible natural disaster where risks are generalized as improbable favoring the negligence of security norms and requirements for the construction of settlements.

In conformity to the United Nations (2009), threats are defined as: “Natural processes or phenomena of atmospheric, hydrological or oceanographic nature, which may cause a casualty, injury, property damage, social and economic disruption or environmental degradation” (p. 95). At the environmental level, threats can be seen as elements in which a possible conflict of interests becomes evident generating a certain disadvantage that can cause several damages.

However, according to the ISDR (2009) and Lavell (2003) as cited in Rodas (2018), it is important to mention that threats are situations that put people at risk; therefore, they are classified as:

a. Natural origin: they are associated with geological, geomorphological, atmospheric, hydrometeorological, oceanographic dynamics, among other origins.

b. Socionatural: generated as a result of the interrelation of social practices in a natural environment.

c. Anthropogenic / technological: direct and unilateral product of human activity. (p. 46)

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It must be specified that the threats respond to particular events related to the environment; nevertheless, whose origin is related to natural, socio-natural and anthropogenic and technological specifications. Thereupon, the environment can, by its own dynamics, be a risk to humans by not specifically contributing to keep human integrity, for example, when we are located in places where atmospheric, geological, and others phenomena can be present. Nonetheless, man can also condition the environment and damage it in an accelerated and recurring way causing a double problem: on one hand, the breakdown of the particular characteristics of the environment; and on the other, the formation of a risk for its own existence.

At last, capacity is considered as the empowerment of the population or assets to face adverse events. A greater capacity minimizes vulnerability, which is the common goal of any psychoeducational process focused on the generation of a preventive culture. In addition, capacity can be measured and enhanced through the regular educational process (received in classrooms) or the individual learning process (training experiences).

It is important to highlight the proposal of (Chawla and Johnson, 2004, as cited in Tanner et al., 2008) that children have been able to develop important skills for risk management based not only on physical but also on psychosocial and cultural aspects.

Peek (2008) suggests the following main arguments to consider regarding children and youth in the field of disasters:

- Children and young people form a highly vulnerable group, in physical and emotional terms;
- If children are not considered, you run the risk of ignoring their most important needs.
- Disasters affect their growing and personal development.
- May participate in prevention activities at home, school, and community to reduce disaster risks;
- Can learn disaster risk reduction;
- May communicate risk factors with their peers and family members.
- Have practical and creative ideas to help their families and communities in disaster recovery. (p. 121)

Balance allows us to think about the importance of generating psycho- education and strengthening spaces in our young people. However, it must be acknowledged that the idealization of what Peek raised has a better effectiveness in countries in the East, even though there has been a growth in the responsibility for environmental awareness in our Latin American regions.

As an example of processes focused on generating safety, culture is the approach of López & Montoya (2013). The formative process of university professionals in the current circumstances must be considered as the link where the cultural contents are indispensable to practice the acquired profession, as well as the human qualities of each one must be shaped. This parameter is the fundamental axis of the career of Disaster Management and Risk Management at Universidad Estatal de Bolívar.

Risk management has usually been the base for a society revolution since its beginnings to date, those communities were able to find efficient ways of adapting to the environment through

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long periods of time. Currently, a related approach is required involving a rescue of past experiences, a reform of proven methods, and a revaluation of the existing new challenges of post-modernity (Lavell, 2003, p. 13).

Based on the conceptualization about risk management, it is important to publicize the position from which the perception of risk is addressed, for that we share with the thinking of Caballero (2007):

> Perception is an issue that can be tested from an individual point of view, as part of human psychology. This vision involves the personal characteristics that have to do with his personal history, but, above all, with the conceptual elaborations of a social nature that condition the worldview of an individual.
>
> We can be people with well-defined thinking and scientific conception of the world, but under certain conditions or circumstances we respond to external situations that impact us with all the concepts developed by the social environment. Disaster response is one such situation. The individual response is important, and it will be education that ultimately influences your change. (p. 2)

According to (Pidgeon, 1992, as cited in Cardona, 2001), one of the central themes of risk perception has been the concept of "psychological probability" or subjectiveness, which differs from two other types of probability referred as classical and relative frequency, which mathematicians refer to as "objective probability".

Working from psychosocial risks implies defining this variable as all those conditions in the work environment that can cause discomfort and influence the health and safety of the members of the academic units.

To determine the incidence of psychosocial risks at the educational level from the perception and previous training, the following factors were considered: inadequate training on the subject and lack of information on how to act in the face of adverse events.

2. Problem Statement

Based on what has been explained above, the research presented aims to define the perception of risk management from knowledge based on previous training and to define the strengthening of the response capacity in university education students from the Universidad Técnica del Norte in Ibarra - Ecuador and the Universidad Pedagógica Experimental Libertador in Rubio – Venezuela as an indicator of the management of psychosocial risks at the educational level.

3. Research Questions

The research questions address in the study are:

1. Is there any significant relationship between the perception of risk management from knowledge based on previous training?

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2. Is there any significant difference between the perception about risk management education in the Ecuadorians and Venezuelans college students?

4. Purpose of the Study

The research aimed to identify the perception based on previous training and the educational level on risk management through an intelligent adaptive test called RISK-TAI that has validated questions to measure these parameters. This study also examines whether a significant difference exists in the college students' risk management education between Ibarra-Ecuador and Rubio-Venezuela. The findings of the study may enhance the existing research, particularly in risk management education and disaster risk reduction (DRR); additionally, it may provide some insights to promote the preventive culture.

5. Research Methods

The investigation seeks to compare the influence of training experiences on the perception of risk management knowledge of university education students in Ibarra - Ecuador and Rubio – Venezuela, through analysis of the data collected in the research. The results obtained were tabulated and analyzed, and subsequently, the results were interpreted by means of statistical tables.

To respond to the proposed objectives, the intelligent adaptative test called “RISK-TAI” was used as a scientific instrument, which will be directed at the identified sample, following the guidelines proposed in the research objectives.

In this case, the instrument aimed at measuring the study variables (perception and training actions about risk management), is based on a questionnaire RISK-TAI, which was structured by a base of 100 questions of which 20 were presented randomly and by levels under the multiple choice format.

The questions were clustered into 5 difficulty levels that enabled us to confirm that the greater the knowledge, the better the influence of its cognitive components on the perception of risk management. The intelligent probabilistic program, carried out from a computer, increases the difficulty of the questionnaire to be selected according to the previous responses provided by the examinee.

Quoting León and Viña (2017) these reagents are highly informative in estimating the skill level of each individual. This allowed us to identify their levels of knowledge and to assess the empowerment degree of the capacity to mitigate the effects of the risks associated with each of the sectors studied based on the influence of their cognitive components on the perception of risk management.

As inclusion criteria, it was considered: That they are students of the education careers of the two institutions, who are currently enrolled and are in teaching or pre-professional practices to ensure that they have studied the subject of risk management.

6. Findings

Under the hypothesis that the higher the level of risk management knowledge, the better the perception of risk management. Statistical assessments are presented using the Wilcoxon method due to the presence of ordinal variables, reinforced with the use of descriptive statistics. As can be seen in table 1.

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Table 1. Wilcoxon Rank Summation by countries (Ecuador and Venezuela)

Country	Rank Sum	N	U Stat	Mean Rank
1	3876	55	2336	70,5
2	3999	70	1514	57,1
TOTAL	7875	125		
Normal approximation, Z			2,23	
Normal approx., two tailed P			0,026	

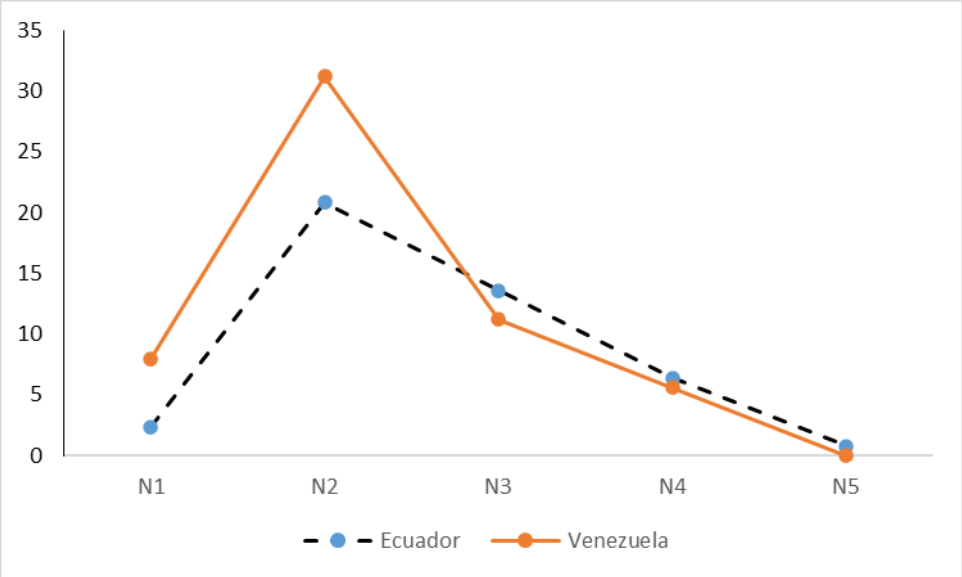

Figure 2. Overall results on risk management perception

For the level of perception about risk management among students in education careers in Ecuador and Venezuela, significant statistical differences were found (P-value= 0.026 < α=0.05.) Country 1 (Ecuador) presented a higher level of knowledge regarding risk management as can be seen in (Figure 1)

Table 2. Wilcoxon by gender in Ecuador

Gender	Rank Sum	N	U Stat	Mean Rank
Female	1215,5	47	87,5	25,9
Male	324,5	8	288,5	40,6
TOTAL	1540	55		
Normal approximation, Z			2,57	
Normal approx., two-tailed P			0,0101	

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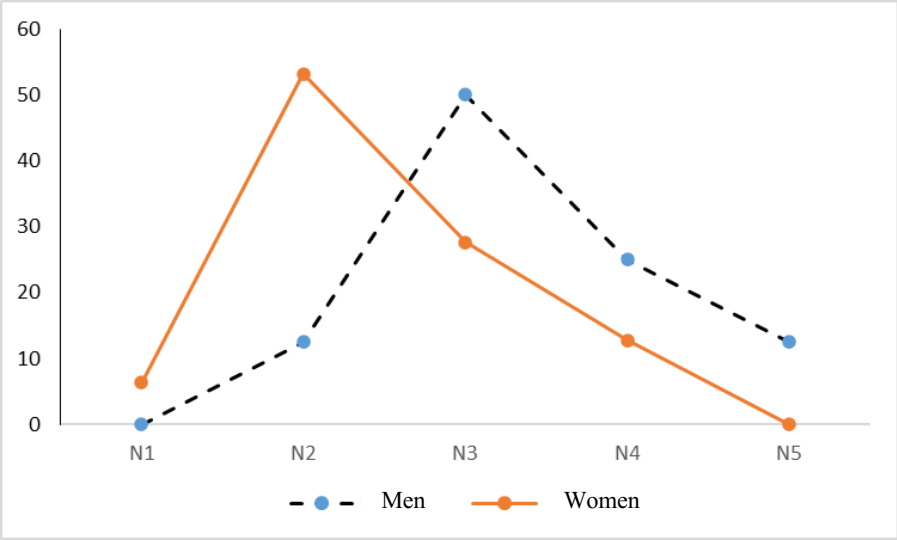

Figure 2. General results from gender variable on perception of risk management in education career students in Ecuador

For the level of perception about risk management among the students of the education career of the Universidad Técnica del Norte - Ecuador, significant statistical differences were found (P-value= 0.0101 < α=0.05.) As can be seen in (Table 2). Group 2 (men) presented a higher level of knowledge in relation to risk management as can be seen in (Figure 2)

Table 3. Wilcoxon by gender in Venezuela

Gender	Rank Sum	N	U Stat	Mean Rank
Female	1754	53	323	33,1
Male	731	17	578	43
TOTAL	2485	70		
Normal approximation, Z			1,93	
Normal approx., two-tailed P			0,0541	

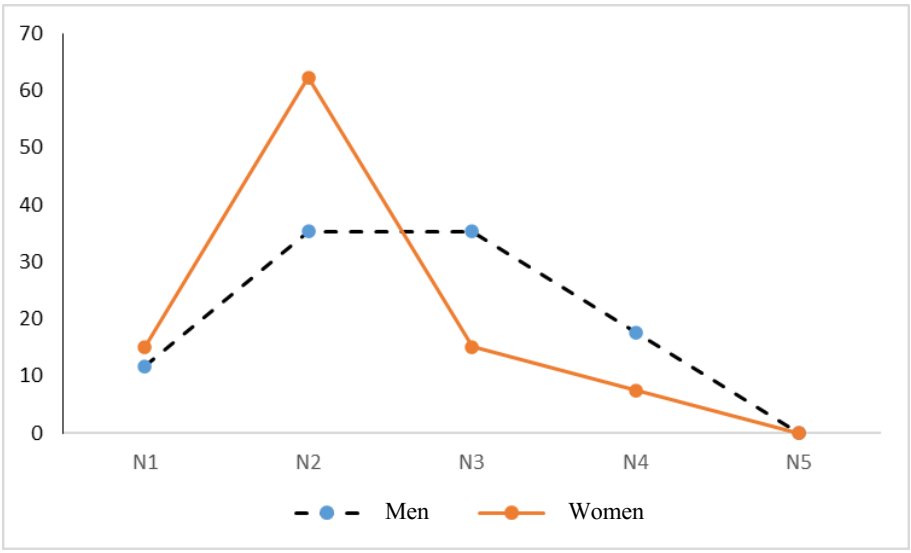

Figure 3. General results from gender variable on perception of risk management in education career students in Ecuador

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For the level of perception about risk management among the students of the education career of the Universidad Pedagógica Experimental Libertador campus Rubio city in Venezuela, significant statistical differences were found (P-value= 0,0541 < α=0,05.) as can be seen in (Table 3). Group 2 (men) presented a higher level of knowledge in relation to risk management as can be seen in (Figure 3).

From the analysis it is evident that in accordance with the items in the RISK-TAI instrument, there is a tendency for participants to rely on the adequacy of their knowledge and that of the experts in relation to the threat (Terpstra as cited in Muñoz-Duque & Arroyave, 2017). This confirms that the greater the level of knowledge, the greater the capacity to respond, and therefore the mitigation of the negative effects of disasters is expected.

It should be emphasized that, in both participating countries, male students present better results by achieving higher levels in relation to the RISK-TAI results, thus showing that the social perception of risk is presented as one of the relevant factors in the field of natural risks and incorporating these subjectivities to find more realistic solutions to disasters.

The study about the perception of risk management involved the constant and deep reflection of people, based on their emotions and behavior with respect to the threats, supported by the knowledge they have about the subject. Therefore, from a quantitative approach, the methodology used in RISK-TAI allows for the identification of patterns related to perception.

With the studies carried out by Sjöberg (1995), it is stated that to a certain extent, the perception of risk is clearly a reflection on true risk, especially when the risks are well known. In this sense, an individual's frame of reference, including his assumptions and subjectivities, decisively influences his way of reacting and acting. One aspect of this interaction with the environment is the degree to which it perceives a connection between its actions and their consequences (Sjöberg & Biel, 1983).

According to the results, it can be inferred that both the Ecuadorian and Venezuelan populations have a clear knowledge of the risks to which they are exposed. However, when contrasted with the level of knowledge, no connection is perceived between their training actions and the means to mitigate the effects of disasters.

Other reviews conducted by authors such as Deery (1999) and Brown and Groeger (1988) conclude that younger subjects tend to underestimate risks more than other groups in society, and it can serve as a study variable to improve the research carried out. Nonetheless, contrasting the variables sex and age would make it possible to identify the level of incidence of these variables in the perception of risk management in both countries.

In a study by Cid Ortiz et al. (2012), it can be inferred, through the results obtained, that "preconceptions" about risk vary according to context, socioeconomic stratum and educational level; in general, there is an aversion to risk that can be translated into an underestimation or denial of individuals when they are involved in a risk situation. This aspect is directly related to the research carried out, since both institutions are public institutions with the same level of education. However, the socio-economic issue was not considered, but in general the results are similar since there is evidence of a certain underestimation of the probability of experiencing a disaster.

A study carried out in Colombia by Ruiz and Hernández (2014) determines that: Colombian populations studied, with different geographies and cultural characteristics, have a distinct perception of

risk. This could play an important role as a predictor of high levels of hazard perception. It should be noted that the city of Rubio, (state of Táchira in Venezuela), and Ibarra (Imbabura province in Ecuador), have very similar geographical characteristics but different culture, which made it possible to determine, through a historical risk map, the experiences lived in the face of disasters. Consequently, when contrasted with the age range of the population studied, it does not evidence any significant sign as a predictor for risk perception.

7. Conclusion

It is evident that students underestimate risk, as opposed to overestimate it, which favors the appearance of "burnout" in the face of risk management training, causing a setback in the development of a preventive culture and an increase in relation to psychosocial risks at the educational level on each of the campuses.

In the face of certain natural or anthropic phenomena, when they are influenced by prior experience, the perception of risk causes individuals to diminish their real perception of vulnerability to it, thus failing to foresee adequate preparation. Adding the lack of information about their institutional reality, based on capacities, resources and threats; it causes an increase in the levels of vulnerability to institutional psychosocial risks.

In accordance with the results of the RISK-TAI, it is evident that the greater the perception and knowledge of possible threats, the greater the quality and efficiency of risk management as well as the mitigation of the effects of disasters. Therefore, it is necessary to rethink the mechanisms for teaching risk management in educational institutions.

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