Training of human development in the sustainability of a public university in central Mexico

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Abstract: The relationship between human development and sustainable development is a pending subject for Higher Education Institutions (IES). Therefore, the objective of this work was to establish and compare a model with the theory of human development and its extension to the theory of sustainable development. An exploratory, transversal and correlational work was carried out with a sample of 100 students assigned to public health institutions. The results show that the established factor structure measures 62% of the total variance, although the extension of the study is recommended in order to increase the percentage by measuring environmental social responsibility. The implications of the formation of intellectual capital in the classroom lie in the measurement of pedagogical sequences around the Sustainable Development Goals (SDG) and the immersive training system.

Keywords: Exploratory Factor Analysis, Intellectual Capital, Human Development, Sustainable Development Goals, Social Responsibility

Introduction

The Sustainable Development Goals (SDGs), also known as the Sustainable Development Goals, are a set of 17 interconnected and ambitious goals established by the United Nations in September 2015 as part of the 2030 Agenda for Sustainable Development (Yunus, Biggeri & Testi, 2021). These goals are designed to address the most pressing global challenges and promote equitable, sustainable and inclusive development for all people and the planet. The SDGs are based on three fundamental pillars: economic, social and environmental. Below are the 17 Sustainable Development Goals:

The Sustainable Development Goals (SDGs) and Human Development are closely related, as both seek to improve people's quality of life and promote equitable and sustainable development (Finatto et al., 2021). The SDGs are based on the premise that human development and sustainable development are interdependent. That is, full human development cannot be achieved if the environment in which they live is not taken care of and if an equitable distribution of resources and opportunities is not guaranteed.

Therefore, the SDGs seek to promote sustainable human development, which not only improves the present well-being of people, but also protects and conserves natural resources and opportunities for future generations (Gulseven et al., 2020). These goals emphasize the importance of equality, inclusion and sustainability in all dimensions of human development, addressing not only present needs but also future needs.

Human Development refers to the process through which people improve their quality of life and develop their potential in different aspects, both physical, emotional, social and intellectual (Joshi et al., 2021). This concept focuses on the search for a full and satisfying life for all individuals.

Human Development seeks to improve people's lives, promoting respect for human rights, equity and access to opportunities so that everyone can reach their full potential and lead a dignified

and satisfying life (Mukherjee, Babu & Ghosh, 2020). The study of human development is an interdisciplinary discipline that encompasses various research areas and theoretical approaches.

In Human Development Psychology, there is no single universal "scale" that encompasses all aspects of human development (Srivastava, Sharma & Suresh, 2020). Instead, various theories and models are used to study different dimensions of development across the lifespan. These theories and models provide conceptual frameworks to understand how individuals change and develop in aspects such as cognitive, emotional, social and moral development.

Jean Piaget's Theory of Cognitive Development: This theory describes how children develop their ability to think and reason as they grow (Ferrannini et al., 2021). It proposes different stages of cognitive development, from the sensorimotor stage in childhood to the formal operations stage in adolescence.

Human Development has been a topic widely studied and promoted by international organizations such as the United Nations Development Program (UNDP), which annually publishes the Human Development Index (HDI), a measure that combines indicators of health, education and income to classify countries according to their level of development (Singh, 2022).

Measuring human development is a complex process that seeks to evaluate and compare the progress of different countries or regions in terms of human well-being and quality of life (Khetrapal & Bhatia, 2020). One of the best-known and most used measures in this context is the Human Development Index (HDI), created by the United Nations Development Program (UNDP).

The HDI calculation process involves normalizing each of the indicators so that they have values between 0 and 1 and then calculating the arithmetic average of the three normalized indicators (Contipelli & Picciau, 2020). In this way, the HDI can vary between 0 (lowest human development) and 1 (highest human development).

In addition to the HDI, there are other measures and indices that are also used to evaluate human development and its dimensions, such as the Gender Inequality Index (GDI), the Multidimensional Poverty Index (MPI) and the Gender Development Index (GDI).).

Gender Inequality Index (GDI): It is a measure that evaluates gender disparities in access to education, political participation, and economic participation (Deka, 2021). Measures gender inequality in relation to the HDI.

Multidimensional Poverty Index (MPI): It is a measure that evaluates poverty from a multidimensional perspective, taking into account not only income but also other deprivations, such as education, health and access to basic services (Thoradeniya & Jayasinghe, 2021).

Gender Development Index (GDI): It is a measure that evaluates the differences between men and women in terms of human development (Abul-Fadl & Sarhan, 2020). It combines HDI and GDI indicators to show how gender differences affect human development.

Social Development Index (SDI): It is a measure that evaluates human development from a broader perspective, considering factors such as housing quality, social security, community participation, among others (Özsoy & Gürler, 2022).

Happiness Development Index (IDF): Although it does not directly measure human development, the Happiness Index is a measure that evaluates subjective well-being and satisfaction with life in different countries (Odey et al., 2021). It can provide complementary information about people's quality of life.

However, human development indices exclude the SDGs as prospective axes (Fleetwood, 2020). In this sense, the relationship between the SDGs and human development transcends the present and reaches its value in the future as preventive axes of the barriers that prevent sustainable human development.

Therefore, the objective of this study was to establish the axes and themes of the prospective agenda around the SDGs and human development.

Are there significant differences between the SDG agenda and the human development agenda?

Hypothesis 1. Anti-pandemic policies led to the link between the SDGs and human development through a common agenda to confront the health crisis (Ruíz, Guillén & Lirios, 2023). In this sense, the differences are not significant between the SDG agenda and the human development agenda.

Hypothesis 2. The anti-pandemic agendas coming from the SDGs and human development involve the establishment of issues related to risk prevention, although they are distinguished by their priority focus on preserving the environment for future generations, or for current ones (Carreón-Guillén, Bustos-Aguayo & García-Lirios, 2023). In this way, significant differences are expected between the two agendas.

Hypothesis 3. The distinctions between the SDG and human development agendas imply asymmetries in reviews of the state of the art (García-Lirios et al., 2023). In this way, the differences are significant, since the SDG agenda is more circumstantial than the human development agenda.

Materials and methods

Design. A cross-sectional exploratory correlational study was carried out.

Sample. 100 students were selected (M = 23.3 SD = 24.3 age and M = 9'987.00 SD = 298.00 monthly income) considering their affiliation to a public university in central Mexico, as well as their registration in the professional internship and social service system. of the university in alliance with public health institutions.

Instrument. The Sustainable Human Development Scale was used, which includes the economic dimensions ("My university trains with a financial perspective"), social ("My university trains with a solidarity perspective"), environmental ("My university complies with environmental certification"), educational ("My university trains with values"), health ("My university trains with risk prevention"), well-being ("My university trains with social support"), physical ("My university trains sportingly"), emotional ("My university intervenes in mental health") and cognitive ("My university trains with a conventional perspective"). All items include seven response options ranging from 0 = "not at all agree" to 7 = "quite agree."

Procedure. Students were contacted through their institutional email. The participants were informed about the objective and those responsible for the project. The confidentiality and anonymity of the responses was guaranteed in writing, as well as no remuneration for their participation. A focus group of 10 people was held in order to homogenize the concepts of the study. Delphi evaluation groups were organized to compare scores in three rounds. The instrument was applied via email.

Analysis. The data were processed in Excel and JASP version 14. The reliability, adequacy, sphericity, validity, fit and residual coefficients were estimated in order to test the null hypothesis of significant differences between the sustainable human development agenda and the students' evaluations. . Values close to unity were considered as evidence of non-rejection of the hypothesis related to the significant differences between the empirical model and the theory of sustainable human development.

Results

The reliability (alpha of 0.769 and omega of 0.775), the KMO adequacy = 0.752), the sphericity [$x2 = 2013.275$ (133 df) p = 0.001] suggest the factor analysis which was established between three factors: Physical Development which includes items 4, 11, 13, 16 and 17, Emotional Development includes variables 6, 10, 14 and 18, Cognitive Development includes items 9, 12, 15, 18 and 20. The factor structure explained 62%. of the total variance. The first factor explained 25%, the second factor explained 22%, and the third factor explained 14%. The eigenvalues indicate that the factor structure must include the factors and indicators mentioned (see Fig. 1).
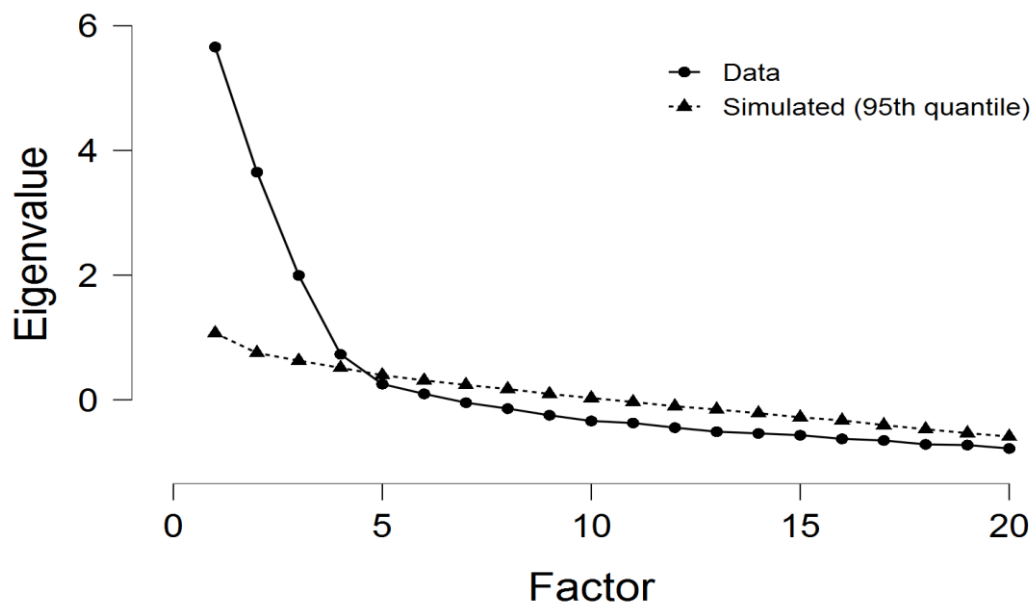
Fig. 1 . Own values

In this way, the underlying factor structure demonstrated the relationship between the established factors and the selected indicators (see Fig. 2). The reflection of human development in the three dimensions, the factors and indicators cited was appreciated. In this way, positive and significant relationships (thick green lines) prevail over negative and significant relationships (thick red lines).
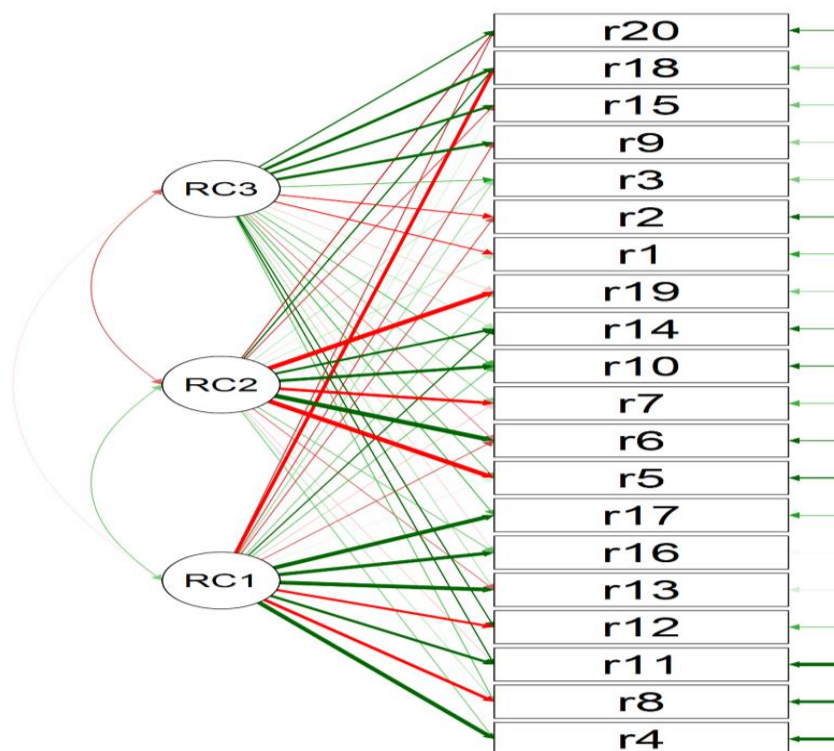

Fig. 2 . Path diagram

The adjustment and residual parameters [$x2 = 672.957$ (133 df) $p = 0.001$; TLI = 0.566; RMSEA = 0.215] suggested the non-rejection of the hypothesis regarding the significant differences between the empirical model with respect to the theory of human development and the SDGs.

Discussion

The contribution of this work to the state of the art lay in the establishment and comparison of an empirical model with respect to the theory of human development. The results showed that physical development explains the highest percentage of variance, followed by emotional and cognitive development. Such results converge with the assumptions of human development, although the theory suggests a link with sustainable development (Lirios et al 2023). In this sense, the findings of this work had a cognitive link with environmental responsibility. In this way, human development would have a cognitive relationship with sustainable development (Valdés et al., 2023). If it is considered that both developments, human and sustainable, require the formation of intellectual capital oriented by cognitive development, then the link lies in the teaching and learning of a development structure that is the responsibility of the teacher and the student (Soto et al, 2023). In other words, the human development that is preached in the classroom can be associated with the sustainable development established in the Sustainable Development Goals (SDG). Consequently, the area of opportunity of this work lies in the capabilities of the formation of intellectual capital in its human and sustainable dimensions such as social responsibility. Furthermore, the sample size limits the results to a larger population (García Lirios, Bermudez Ruiz & Sanchez Sanchez, 2023). Such imponderables reduce the explanation of the total variance (Lirios et al., 023). The way to extend the percentage would be by including a dimension alluding to sustainable development such as social responsibility in one of the SDGs visible in the university of study. Precisely, the extension of the study towards the measurement of the responsive dimension is recommended in order to be able to carry out a pre-post test on the impact of pedagogical sequences alluding to behavior for sustainability in the classroom.

Conclusion

The objective of this work lies in the establishment and comparison of an exploratory factor model with respect to the theory of human development. The results demonstrate the prevalence of the human factor, although the theory suggests extending the study towards the sustainable dimension which increases the percentage of total variance explained in the factor structure. In this sense, it is recommended to extend the study towards the measurement of social responsibility as a factor indicative of the impact of the SDGs on the training system at the university under study.

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