

Inclusive Education in Latin American Universities: Proposal for A Care Model

Karina Delgado-Valdivieso¹, David Alfredo Vivas-Paspuel²

Universidad Tecnológica Indoamérica. 180103, Quito, Ecuador,
karinadelgado@uti.edu.ec

Universidad San Francisco de Quito. 170901, Quito, Ecuador, da_vivas@hotmail.com

Abstracts

In Latin America, policies on inclusive education in the university are implemented in an irrelevant way, despite the foundations that seek a university that guarantees in all students the learning, skills and competences they need. To try to provide solutions, the Social Model of Inclusive Education (MSEI) is proposed, which allows identifying management in inclusive education, by calculating the effectiveness index, using the cause-effect structure among three variables: i) policies in inclusive education, ii) conditions presented by students and iii) attitudes towards students. The variables are derived into indicator variables, developing items that allow the collection of information with all the members of a higher education institution; thus formalizing a mathematical model of structural equations. The MSEI was applied as a pilot plan in a higher education institution in Ecuador, showing that the management effectiveness index in inclusive education is 60.3%, related to a work of greater weight in indicator variables such as: support that provides the educational institution to the students, the socio-economic situation of the students and the differentiated assessment of learning.

Keywords: Inclusion, university, politics, condition, model, index.

Introduction

Currently, “inclusive education” is evident as an emblem of attention to students who have a disability (Blanco & Duk, 2011), however, taking as a characteristic that human beings are diverse, it is described as attention to diversity (López, 2018), according to the different conditions that they may present socially, interculturally and personally (Delgado, 2019). The different conditions have been part of what is mentioned as a work of coexistence in the face of diversity (Escrich and Lozano, 2017).

To lay the foundations for attention to diversity, educational systems, since their management, have raised national and international treaties, conventions and movements, among which the Convention on the elimination of all forms of discrimination against women (1979) stands out. , the International Convention on the Protection of the Rights of All Migrant Workers and Their Families (1990), the Salamanca Declaration (1994), developed through the World Conference on Special Educational Needs, the Inter-American Convention for the Elimination of all forms of discrimination against persons with disabilities (2001), the Convention on the Rights of

Persons with Disabilities (2007), the Universal Declaration on Cultural Diversity (2002), the United Nations Declaration on the Rights of Indigenous Peoples (2006), the International Conference on Education, in its forty-eighth edition held by UNESCO in Geneva (2008), among others. The facts are constituted by a political will endorsed in multiple meetings, conferences and congresses given at the highest level and to achieve a service for all (Echeita & Ainscow, 2011) , however, although these are recognized, it has not yet been possible to achieve a education for all (Fajardo, 2017).

The aforementioned descriptions are complemented by the policies established by the Education Laws, raised in order to provide answers to problems that currently remain alarming figures regarding enrollment rates in higher education in Latin American countries such as Nicaragua, with 14.9, Honduras with 20.8, Guatemala with 21.3 and Uruguay with 23.4, although other countries are not described, however their rates range up to 69.6 in Chile (Economic Commission for Latin America and the Caribbean, 2018). Other emerging figures of attention are related to the dropout rate, approaching 25 - 30% at the tertiary level and close to 50% at the university level (García de Fanelli & Jacinto, 2010) . In this regard, the study carried out by Fajardo, (2017) , describes that educational systems in higher education are precarious, unqualified and of low quality, they do not promote overcoming exclusion. Privatization and outsourcing and cuts in the public educational system in the region are factors that shadow the future of quality education, which must be analyzed.

Following this line of work for higher education, the objectives of this research seek to analyze the approaches in inclusive education developed from education laws, develop a model that allows the implementation of effective inclusive education, as well as present a case of applicability based on a proposed model, as an example of an initiative in the management of inclusive education.

Literature review

2.1. Foundation of inclusive education

Inclusive education, at the higher level, seeks to guarantee the virtuous circle of access – permanence – achievements (Henríquez, 2015), therefore, the main challenge is then to guarantee in all students those learning, skills and competencies that they need to perform as citizens in different areas (social, economic, productive, political, health, cultural, among others) (Gairín, 2015) . The above is ratified by Delgado (2019), when describing that educational centers assume responsibilities related to guaranteeing access, presence and academic success for each student.

Higher education institutions guarantee an offer that adapts to the diverse realities of students, achieve the required learning and complete their studies, regardless of any condition they present (Mitchell & Sutherland, 2020) . The main challenge is then to promote a university career understood, not only as a formal or administrative procedure, which is reflected in a numerical expansion, but as a process that guarantees those learning, skills and competencies that are needed (Gairín, 2015) . Inclusive practices will guarantee processes that adapt to the diverse needs that students present (Ainscow & Booth, 2015) .

The implications of inclusive education are defined as:

The systematic improvement process of the educational system and institutions to try to eliminate barriers of different types. That is, those processes that lead to increasing student participation and learning, and reducing their exclusion from the common curriculum, culture and community (Booth & Ainscow, 1998, p. 15) .

Therefore, inclusive education seeks to eliminate barriers of all kinds, related to the differences that students present, the standardization of the curriculum and the processes of learning evaluation (Ainscow & Booth, 2015) . The differences can be analyzed analogically from a geographical restructuring and rearrangement, spatial strategies and geopolitical elements, unequal geographical developments, or others (Harvey, 2014) , which leads to thinking about the different contexts in which the service is offered. educational as well as the presence of some access barriers, associated with the different conditions that students present when participating in higher education, which could be: social, intercultural and/or personal conditions (Delgado & Gairín, 2021) . The conditions of the students have been structured from a variety of foundations and the regulatory framework of the different countries in this study. Table 1 categorizes attention to student differences, and allows for better guidance on the terminology used for the target population as part of inclusive education. The categories may vary depending on their level of prevalence and the different contexts in which they occur.

Table 1. Categorization to address the differences of students at the university.

Social conditions	Intercultural condition	Personal condition
Place or situation of origin	Culture	Gender identity
Risky situation	Diversity	sexual orientation
Religion and ideology	Identity	Learning problems
Political affiliation		Organic problems or disability
Past court		Behavioral disorders
Socio-economic situation		Higher endowment
Health emergencies		High level or performance athlete
		Addictions
		Harassment and gender violence

Source: (Delgado, 2021)

The categories described are a reference when providing inclusive education, since teachers, as well as teams of specialist professionals who guarantee student well-being, will be able to generate attention strategies, in order to achieve a service in the university. that all students can achieve learning. The authors (Florian , 2012); (Florian , and Rouse , 2010); (Holloway, 2001); and (Meijer, 2011) describe the pressing concern to achieve a more humanized and humanizing university, which manages to combine its academic and professional value, with the commitment to bring to training and organizational practice, teacher training, and the principles and values of inclusive education, (Tuzel and Hobbs, 2017) .

The arguments raised to make an inclusive education guide the approach of (Delgado, 2019) , describes inclusive education based on new work challenges according to the educational needs of each of the students, they will occur in an environment of warmth for teachers and students, seeks to achieve presence, participation and academic success in all students. Educational needs

are not labeled at any time by the teacher, but are addressed with different actions and curricular adjustments.

2.2. Inclusive education in Latin America

Speaking of Latin America implies a population of six hundred and fifty million inhabitants by 2021, whose predominant languages are Spanish and Portuguese. The countries that make up this study are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela. The purpose of this study seeks to demonstrate the descriptions in inclusive education cited from each of the regulations of the different countries. The dimensions for policy analysis are described: i) presence of students, related to entry or enrollment in the higher education institution, regular attendance at classes and interaction time with peers; The study modalities may be formal (in-person, blended, virtual and distance learning) or non-formal (training programs); ii) student participation, refers to the contribution and contributions they develop while in the educational institution or other spaces as part of the learning activities; and iii) student success, is related to the progressive advances and completion of studies, obtaining a certification, according to the learning achievements they can achieve, depending on their conditions, and the opportunities to participate in situations of equity (Dussan, 2010) . Table 2 summarizes the description of the laws and the number of articles that are related, according to the three dimensions described above.

Table 2. Regulations related to inclusive education in universities in Latin America.

Country	Law	Articles of the laws, related to:		
		Presence	Stake	Success
Argentina	Higher Education No. 24,521 (1995)	6	1	2
Bolivia	Education Avelino Siñani - Elizardo Pérez (2010)	1	5	3
Brazil	Guidelines and Bases of National Education 9,394 (1996).	1	3	1
Chile	No. 21,091 on Higher Education (2018).	5	3	2
Colombia	30 of Higher Education (1992).	4	2	0
Costa Rica	Fundamental Education No. 2160 (updated 2001).	1	4	2
Ecuador	Organic Higher Education (2010).	13	2	3
The Savior	Higher Education (2004).	1	1	1
Guatemala	Statute of the University of San Carlos of Guatemala (National and Autonomous) (2001).	3	1	0
Honduras	Higher Education (1989).	1	0	0
Mexico	For the coordination of Higher Education (1978).	3	0	0
Nicaragua	No. 89 on Autonomy of Higher Education Institutions (1990).	1	1	0
Panama	No. 16 (1963).	1	0	0
Paraguay	No. 4995 of Higher Education (2013).	4	1	1
Peru	No. 30220, University Law (2014).	2	1	4
Dominican Republic	N°139-01 of Higher Education, Science and Technology (2013).	5	1	1
Uruguay	No. 12,549 University of the Republic (1958).	8	4	2
Venezuela	Organic Education GO No. 5,929 (2009).	7	1	1
TOTALS		67	31	23

Source: Compilation of authors.

The countries' regulations have mainly been described specifically for the higher level, however, in their arguments they do not exclusively mention inclusive education. They describe inclusion as a care service for segments of populations or groups that are in some situation of vulnerability, mainly addressed to serve people with disabilities, ethnic diversity and/or socio-cultural condition.

The descriptions of the regulations allow inclusive education to be approached as a service that, as a priority, shows articles linked to the presence of students. What falls precisely on the investment of the countries in the educational service, to guarantee the educational offer, given in accessibility measures. The investment of the Gross Domestic Product in the region shows an average of 4.92%, which, distributed by levels, in higher education is 1.06%, (Economic Commission for Latin America and the Caribbean, 2018) , showing that Countries with greater investment, which exceed the average value, are Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Nicaragua, Paraguay, Uruguay and Venezuela; which reference does not necessarily confirm that they are countries that in their regulations have prioritized access to higher education, as shown by Argentina, Colombia, Ecuador, Mexico, Paraguay, Uruguay and Venezuela. Finally, the countries have weak legal protection regarding the dimensions of participation and academic success, which evidently falls on the completion of the studies, constituting a problem at the global level of the region, resulting in weak management regarding achievements in the necessary learning, skills and competencies (Gairín, 2015) .

It is worth analyzing the net enrollment rate, it oscillates at an average of 41.02 (Economic Commission for Latin America and the Caribbean, 2018) , since individual talent and merit precede the need to enter (access) and the Graduation (success) becomes a privilege for a few with the certification of graduation and display of title (Gazzola & Didriksson, 2008) . What lies in valuing other ways that make curricula more flexible and adapted according to the learning needs, considering the different conditions of the students.

Inclusive education at the university constitutes a process aimed at providing an appropriate response to the diversity of characteristics and educational-training needs of the students (Moraña , 2004). The internal processes in each higher education institution aim to achieve effectiveness with their own actions to address diversity, with relevance and quality strategic action (Ocampo, 2018) . The concepts describe diversity based on the differences of people, equality in democratic societies referred to the rights and opportunities of life, coexistence recorded in the agreements derived from social pacts agreed upon among citizens and in the interaction with other societies at the regional and international level (Gazzola & Didriksson, 2008) .

2.3. Intervention models in inclusive education

In order to understand inclusive practices, it is worth referring to some experiences given regarding inclusive education at the higher level, therefore, the following descriptions are proposed:

2.3.1. Pyramid inclusion model

The Pyramid Inclusion Model (Pyramid Inclusion Model), created by the Access4all Project , promotes access in higher education institutes, proposes strategies, policies and processes for inclusion. It develops an operational framework that allows the access and permanence of less common students in Europe, seeking to increase the participation of underrepresented groups in higher education . Measures to develop inclusion face a significant number of challenges, developed from a top-down perspective, according to a set of tools such as: model for the evaluation of good inclusion practices; bank of good practices; A4A tool for institutional self-assessment ; pyramidal model for inclusion and training proposal.

The Pyramid Inclusion Model is linked to the answer to three key questions related to: i) medium: what do we have regarding: context, policies, practices, stakeholders and resources?; ii) aspirations: what do we want regarding what are the aspirations as a Higher Education Institution?; and iii) evaluation: how will activities and practices be evaluated? The questions are respectively related to the three sides of a pyramid such as: context, processes and stakeholders. Furthermore, the model develops an A4A self-assessment tool for those higher education institutions that wish to explore and improve their innovative and inclusive policies. The main objective of this tool is to do a self-assessment and help identify your current situation and explore viable areas of development. The results present general and standardized suggestions that should be read with the necessary caution. The results could be used, among others, to open discussions within HEIs; or analyze how perceptions about innovation and inclusion change over time.

2.3.2. Inclusive education indicator model

The Model, developed by Booth and Ainscow on the inclusion index, contributes to the construction of educational communities that support the promotion of high levels of learning achievements in all students (Ainscow, and Miles, 2000). The Guide for Evaluation and Improvement of Inclusive Education (Booth and Ainscow, 2002), describes the indicators of inclusive education as:

“[...] the set of materials designed to support educational centers in the process of moving towards inclusive schools, taking into account the points of view of the teaching team, members of the school council, students, families and other members of the community. It is the educational community that will demonstrate their management regarding the work they carry out to create inclusive education [...]”. (Booth and Ainscow, 2002, p. 39).

According to this definition, inclusive education indicators are material that the educational community uses to make an inclusive school that seeks to achieve learning for all students.

Methodologically, the index for this study constitutes a reference, it has been developed based on three dimensions without any order priority: creating inclusive culture, establishing inclusive policies and developing inclusive practices. The dimensions allow educational institutions to develop an intervention with the entire educational community. The dimensions develop two sections with their corresponding indicators. The indicators raise a series of questions that allow us to understand in depth the work carried out by the institution (Booth and Ainscow, 2002).

The creating inclusive cultures dimension, as well as its sections, indicators and items, are developed to make a safe, welcoming, collaborative and stimulating educational community. In this dimension, each of the students is valued with the sole purpose of achieving their learning. Inclusive culture seeks to develop inclusive values, shared throughout the educational community, so that they are transmitted to society. The principles derived from the school culture are those that guide the decisions that are reflected in the school policies of each institution and in daily activities. In this way, learning finds support in the continuous process of educational innovation (Booth and Ainscow, 2002).

The dimension of establishing inclusive policies, as well as its sections, indicators and items, develops the application of the national regulatory frameworks defined to generate inclusive work from each of the actors. For work in the classrooms, teachers have support that guides with specific strategies in cases that require more detailed work processes, but under no circumstances will the student be academically excluded. An ideal system aims to ensure that inclusion is at the heart of the innovation process, defining all policies, so that the learning and participation of all students is improved. In this context, “support” is considered to be all those activities that increase the capacity of an educational center to serve the diversity of students. All forms of support are brought together within a single framework and are viewed from the perspective of student development, rather than from the perspective of the school or administrative structures (Booth and Ainscow, 2002).

Finally, the dimension develop inclusive practices, as well as its sections, indicators and items, aim to ensure that the practices of educational institutions reflect inclusive culture and policies. Inclusive practices seek the participation of all students, in the activities carried out in the classroom and outside it. Teaching and support are integrated to define methodologies to achieve learning, participation and academic success (Booth and Ainscow, 2002). As cited by the authors, the development of an inclusive culture and policies guides the classroom work of teachers, their support teams and the community, who will do work with all students and always achieve their comprehensive development. The dimensions, sections and indicators described constitute a reference to understand what actions an educational institution has undertaken.

2.3.3. Proposal of the social model of inclusive education

The Social Model of Inclusive Education (MSEI), proposed by the authors, comprehensively guides the development of attention to the diversity of university students. The MSEI establishes a sustained link and dialogue with the societies themselves, which are under university responsibility, (United Nations Organization for Education, Science and Culture, 2018), in a comprehensive manner it will be able to carry out a diagnosis regarding education. inclusive, to know to what extent the authorities, teachers and students apply the policies established regarding inclusive education, according to the different conditions that the students present, addressed according to the attitude assumed by the authorities and teachers. As described, the MSEI has been designed based on three variables, graphically displayed in Figure 1.



Figure 1. List of variables that describe inclusive education.

Source: (Delgado, 2019) .

The MSEI, for its application, demands from all actors in the educational service, whose organization involves considering integrated wholes over additive wholes; that is, considering realities where the elements are not interchangeable with each other, but rather maintain a reciprocal dependence and acquire meaning based on a whole (Gairín , 2015). The operational description of the variables that are part of the model:

Policies in inclusive education (PEI) can be analyzed according to the different levels of organization. For this study, they are assessed at the micro organizational level, given in the different contexts of higher education institutions. The knowledge and application of the PEI considers details regarding care work as stated in the entire regulatory framework regarding inclusive education, the provisions of the internal regulations of each educational institution, the understanding of the new approach to inclusive education, as well as such as accessibility measures in terms of infrastructure, furniture and equipment.

The conditions of the students (CE), raised according to the differences they may present. The conditions of the students can be social, intercultural and/or personal, they are addressed as described in the categorization of Table 2. The different conditions are assumed by the team responsible for managing the educational service and according to the conditions presented by the students. (Collado, Tárraga, Pérez, and Cervra , 2020) to provide inclusive education.

Attitudes towards students (AHE) , according to the different ways of addressing the conditions they may present. Attitudes are analyzed based on the classic conception of Allport (1935) “An attitude is a mental and neurophysiological state of availability, organized by experience, which exerts a direct influence on the individual's reactions towards all objects or all situations. that relate to it”, which means that the mental and neurophysiological state of an individual can exert

with respect to given objects or situations within the framework of attention to the differences that students may present. Kerlinnger and Lee, (2002) mention that “attitude is an organized predisposition to think, feel, perceive and behave towards a referent or cognitive object” (p. 648), that is, the attitude is related to acting in an organized way. , feeling, is thinking about the attention that will be given to students according to their differences. Universities articulate their management between equity and quality, they seek to respond to the demands of society, in this sense the right to education means not only access to it, but also requires quality and grants each person the right to learn and develop. their abilities and talents. Likewise, it requires a higher education system, capable of generating, disseminating and applying knowledge (Sallán et al., 2014) .

Methodology

3.1. Model approach

Through the review of the Social Model of Inclusive Education (MSEI), it is proposed to test it empirically in a higher education institution in the Ecuadorian territory. The MSEI developed three variables: i) Independent variable: inclusive education policies (PEI). ii) Independent variable: student conditions (CE). iii) Dependent variable: attitudes towards students (AHE).

As derived hypotheses, according to the three MSEI variables, it is proposed:

H1: The variables PEI, CE and AHE have a direct and positive influence on the formulation of the model.

H2: The MSEI allows us to know its effectiveness by calculating an index.

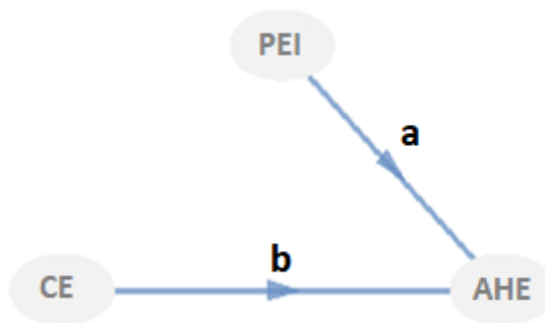


Figure 2. Structural diagram of the MSEI.

Source: Authors.

3.2. Material and methods

3.2.1. Population and sample

The MSEI, as a pilot plan, was applied in a state university in Ecuador, the population was stratified for the faculty of education, made up of: 3 managers, 30 teachers, 800 students and 6 members of the University Welfare Unit, with careers in basic education, initial education, mathematics pedagogy, bilingual intercultural education and educational computing. From the population, a random sample was obtained by delegation from each of the strata, made up of 190 people: 172 students, 14 teachers and 4 representatives of the University Welfare department. Each stratum was brought together in order to receive instructions regarding the questionnaires and they proceeded to respond virtually.

3.2.2. Instrument design

The variables used in the MSEI, described as latent variables develop dimensions and indicator or measurable variables, allowed the development of items from the interview script and questionnaire (Annexes 1-4) applied to different levels. The questionnaire used a Likert scale with a range from 1 to 7, with 1 being completely disagree and 7 being completely agree. Table 3 specifies the operationalization of the different variables.

Table 3. Description of indicator or measurable variables

Latent Variables (LV)	Dimensions	Indicator or Measurable Variables
LV1: Policies in inclusive education (PEI)	Regulatory framework	Participation – PEI1 Equal opportunities - PEI2 University support – PEI3 Principles – PEI4 Capacities – PEI5 Student welfare – PEI6 Comprehensiveness – PEI7
	Internal regulations (if any)	Development – PEI8
	Description of the concept of inclusive education	New approach – PEI9
	Accessibility measures (infrastructure, furniture and equipment)	Infrastructure – PEI10 Furniture – PEI11 Equipment – PEI12
	Social	Place or situation of origin – CE1 Risk situation – CE2 Religion and ideology – CE3 Political affiliation – CE4 Judicial past – CE5 Socio-economic situation – CE6
LV2: Student Conditions (CE)	Intercultural	Culture – CE7 Diversity – CE8 Identity – CE9
	Personal	Gender identity – CE10 Sexual orientation – CE11 Learning problems – CE12 Organic problems or disability – CE13 Behavioral disorders – CE14 Higher endowment – CE15 High level or performance athletes – CE16 Addictions – CE17
	Inclusive culture (curriculum pedagogical management)	Curriculum – AHE1 Learning evaluation – AHE2 Teacher training – AHE3
LV3: Attitudes towards students (AHE)		

Instrument that measures attitudes towards diversity	Social status – AHE4 Intercultural condition – AHE5 Personal condition – AHE6
--	---

Source: Authors.

3.2.3. Statistical technique

The MSEI considers as exogenous variables: “Policies in Inclusive Education” (PEI) and “Student Conditions” (CE) and as endogenous variable: “Attitudes towards students ” (AHE). The MSEI for its application uses the Mathematical Model of Structural Equations (MEE) or causal. The MEE allows establishing dependency relationships between the variables, based on the calculation of the management effectiveness index in inclusive education.

The MEE can be expressed through structural diagrams in which the arrows indicate the direction of the influence of one variable on the other, taking into account the variables considered in the study model, the structural diagram corresponds to Figure 2 whose variables latent variables considered are presented in Table 3. It consists of two fundamental components: the measurement model and the structural model; The first establishes the relationships between the latent variables and their indicators, while the second establishes the relationships between the latent variables.

The structural model is expressed by:

$$\eta = B\eta + \Gamma\xi + \epsilon$$

Where: η and ξ are vectors composed of the endogenous and exogenous latent variables respectively, while B and Γ are matrices of unknown parameters and ϵ corresponds to the vector of random errors.

On the other hand, the measurement model for the endogenous latent variables is expressed by:

$$Y = \Lambda_Y\eta + \delta_Y$$

This equation shows the linear relationship between the observable variables Y and the endogenous latent variables η , where: Λ_Y is the matrix that contains the coefficients of the linear structure and the term δ_Y is the error vector of the measurement model.

The equations of the measurement model that corresponds to the relationship between the exogenous latent variables and their respective indicators are expressed by:

$$X = \Lambda_X\xi + \delta_X$$

Where: X is the vector that contains the observable variables that are linearly associated with the exogenous variables, the matrix Λ_X contains the coefficients of the linear structure between ξ their corresponding indicator variables X and the vector δ_X is the error associated with the measurement model.

The structural and measurement models, explained above, are developed below, obtaining the following equations for each of them:

to. Generalized structural model:

$$LV_j = \beta_0 + \sum_{i=j} \beta_{ji} LV_i + e_j$$

From here the structural equation for the endogenous variable of the present study is derived:

$$LV_3 = \beta_{30} + \beta_{31} LV_1 + \beta_{32} LV_2$$

Where: β_{31} y β_{32} they are called structural coefficients and β_{30} they are called intercept.

b. Generalized measurement model:

$$X_{jk} = \lambda_{0jk} + \lambda_{jk} LV_j + e_{jk}$$

Where: λ_{jk} correspond to the loadings of the measurement model, λ_{0j} are the intercepts and X_{jk} correspond to the manifest variables; Likewise, the equations for the measurement model applied in this study are:

For LV_1 (PEI)

$$X_{1,1} = \lambda_{011} + \lambda_{11} LV_1 + e_{11}$$

$$X_{1,2} = \lambda_{012} + \lambda_{12} LV_1 + e_{12}$$

.
.

.

$$X_{1,12} = \lambda_{0112} + \lambda_{112} LV_{12} + e_{112}$$

For LV_2 (EC)

$$X_{2,1} = \lambda_{021} + \lambda_{21} LV_2 + e_{21}$$

$$X_{2,2} = \lambda_{022} + \lambda_{22} LV_2 + e_{22}$$

.
.

.

$$X_{2,17} = \lambda_{0217} + \lambda_{217} LV_2 + e_{217}$$

For LV_3 (AHE)

$$X_{31} = \lambda_{031} + \lambda_{31} LV_3 + e_{31}$$

$$X_{32} = \lambda_{032} + \lambda_{32} LV_3 + e_{32}$$

The MSEI has a single endogenous variable, therefore, it has a single structural equation described as: the value of the AHE variable is an additive function of the values of the PEI and CE variables, whose formula is:

$$AHE = a * PEI + b * CE.$$

The structural equation of this model allows us to calculate the values **a** that **b** are called weights or coefficients of the exogenous variables. These values are indicators of the influence on the AHE variable. The management effectiveness index in inclusive education for higher education institutions is calculated equivalent to the calculation of the satisfaction index in the ECSI (European Customer Satisfaction Index) models (Sánchez, 2013).

Analysis and results

4.1. Descriptive analysis of the MSEI

Firstly, the MSEI applied as a pilot plan carries out an in-depth review of the contributions of all respondents, according to the latent and indicator variables and their corresponding items, with those having the greatest weight: i) For PEI, the indicator variable with the greatest weight constitutes PEI3, being the university's support for students, with a percentage of 9.4, the related items correspond: the university establishes full or partial scholarship programs for at least 10% of the number of students; and the university generates financial support for academic merits (scholarships, credits or others) that guarantee equal opportunities. ii) For CE, the indicator variable with the greatest weight constitutes CE6, being the socioeconomic situation of the students, with a value of 10.34%, corresponding to it as items: the university adopts aid measures to facilitate entry for students who, by their socioeconomic condition they cannot access; support for working students; and the existence of desertions due to economic problems. iii) For AHE, the indicator variable with the greatest weight is AHE2, being the evaluation of learning, with a value of 23.50%, derived from items such as: teachers carry out generalized evaluations for students, as well as the development of specific assessments for students with special educational needs. Table 4 shows the average obtained by the latent variables and the standard deviation, which have been selected for the study.

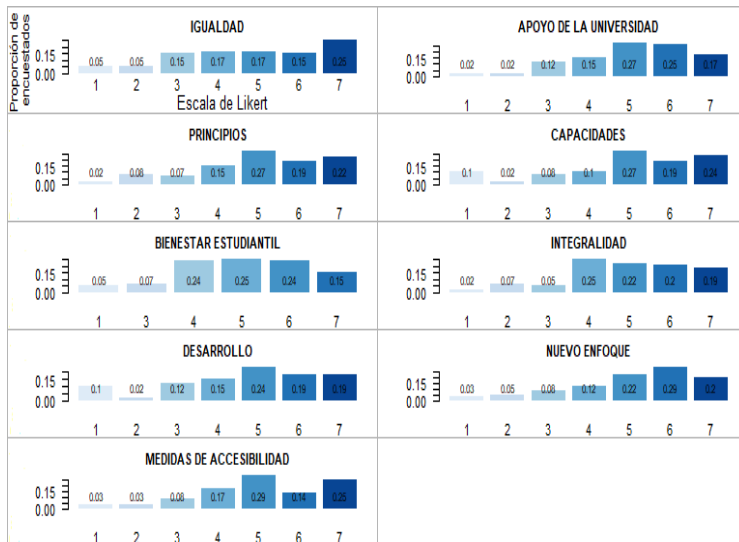
Table 4. Description of indicator or measurable variables

Variable	Promedio	D. Standard
PEI2	4.75	1.38
PEI3	4.91	1.66
PEI4	4.92	1.84
PEI5	4.68	1.48
PEI6	4.67	1.50
PEI7	4.60	1.80
PEI8	4.89	1.63
PEI9	4.86	1.63
PEI10	4.47	1.68

Variable	Promedio	D. Standard
CE1	4.42	1.56
CE2	4.61	1.59
CE3	4.94	1.76
CE4	4.77	1.63
CE5	4.37	1.78
CE6	4.81	1.77
CE7	4.56	1.82
CE8	4.69	1.90
AHE1	3.43	1.46
AHE2	4.73	1.51
AHE3	4.69	1.54
AHE4	4.43	1.05

On the other hand, Figure 3 is shown, which groups a series of descriptive graphs, showing the Likert scale on the horizontal axis and the percentage of people surveyed on the vertical axis. The latent variable PEI used as indicator variables, which as examples are specified i) the indicator variable PEI2, being equality of opportunities, results from items that inquired about: the quality and equity of the service, guarantees regarding access, permanence and discharge of the students, according to the differences they present (sexual orientation, ethnic difference and economic emergency); ii) the indicator variable PEI5, being capabilities, results from items such as: guarantees of access and support measures for people with disabilities. The participation variables, and the accessibility measures related to furniture and equipment, were grouped in order to unify agendas, in equality and accessibility respectively.

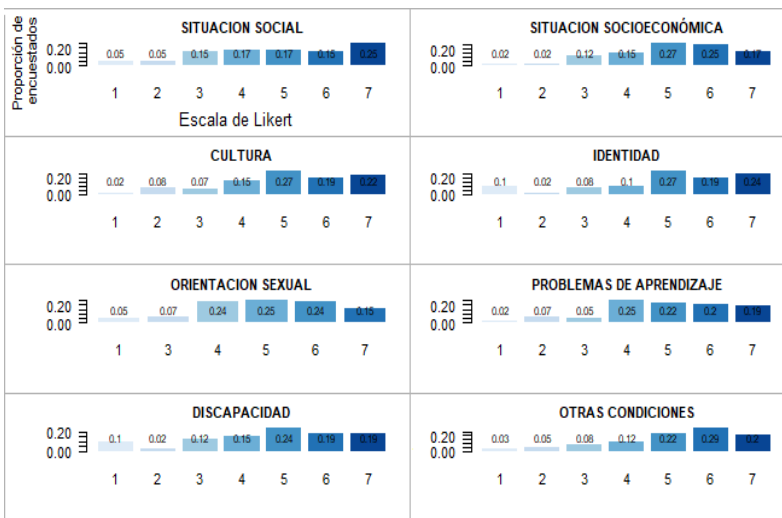
Figure 3. PEI latent variable and its indicator variables.



Source: Authors.

Figure 4 groups descriptive graphs related to the indicator variables that are part of the latent variable CE. As an example, the following are specified: i) the indicator variable social situation, unifies the variables place or situation of origin, risk situation, religion and ideology, political affiliation and judicial past; The items investigated are: measures of help for students who are in some migration condition, identification of cases of students who have reflected some risk situation such as: persecution, threats, mistreatment or other, and identify forms of discrimination based on creed, political affiliation or judicial past of the students; and ii) the indicator variable other conditions groups the indicator variables such as behavioral disorders, superior gifting, high-level athletes or performance, and addictions. The variables mentioned are related to the items : develop a plan to serve students who reflect inappropriate behavior, addictions or high performance in any sports discipline, make adaptations for those students who reflect high abilities.

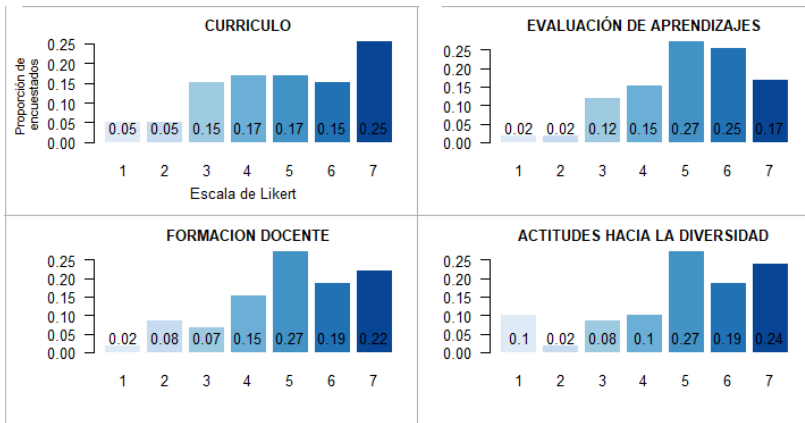
Figure 4. CE latent variable and its indicator variables.



Source: Authors.

Figure 5 groups descriptive graphs related to the latent variable AHE. The graphs correspond to the indicator variables in Table 3. As an example, the graph of attitudes towards diversity is shown, which groups the indicator variables of social, intercultural and personal conditions, analyzed from a questionnaire that measured the attitude of authorities, teachers and University Welfare Department regarding the diversity of people. The attitude in this study reflects that 30% of the respondents have scored less than or equal to 4 on the Likert scale, reflected in the social condition related to the place or situation of origin, the intercultural condition related to culture and identity and the personal condition related to sexual orientation, which involves maintaining classrooms that generalize a structure that favors egalitarian relationships (Saldaña, 2018).

Figure 5. Latent variable AHE and its indicator variables.



Source: Authors.

4.2. Quantitative analysis of the MSEI

Finally, the results obtained at the university object of this study, result from the use of the plspm statistical software package, it is evident that the validation of the model, measured through its performance (GoF) is equal to 73.2%, being a percentage of acceptability regarding the quality of the MSEI. The latent variables PEI and CE affect the AHE variable by 44% and 47% respectively, these values correspond to: **a** and **b** of the structural equation. The R2 index of the AHE variable indicates the amount of variance in the endogenous latent variable AHE, explained by its independent latent variables PEI and CE, corresponding to 77%. And the management effectiveness index in inclusive education is equal to 60.3%, interpreted as the level of management in inclusive education, related to a work of greater weight in indicators such as: support provided by the educational institution (scholarship modalities complete or partial, or credits in order to guarantee equality), socio-economic situation (support to facilitate entry, employment situation and student dropouts) and evaluation of learning (differentiated according to the educational needs of the students). Which reflects that they are the indicators with the greatest acceptance of compliance in relation to management in inclusive education.

Discussion and conclusions

We proceed to point out the most relevant aspects of inclusive education at the university, the proposal of an application model and its piloting. Before addressing, the limitations found in the development of the work are mentioned. In relation to the foundations that support the work of inclusive education for higher education, education laws are analyzed and could be expanded with other regulations. This work introduces inclusive education as a service for students according to their social, intercultural and/or personal conditions. Inclusive education materializes in formats that have been politically described in the Latin American region as attention to people with disabilities, ethnic diversity and/or socio-cultural condition; It seeks to group the students' differences, but they have not been specified as such. A certain relationship has been established between its foundations and the development of regulations. Regarding the development of a model that allows for the implementation of effective inclusive education,

academic management is analyzed and could be extended to administrative management. The MSEI is based on the management of other applied models and proposes three highly important variables PEI, CE and AHE, as well as a metric based on an effectiveness index. The proposed model goes beyond traditional models that evaluate inclusion in an isolated way. Although the need is extensive in higher education institutions in general, this type of model offers the opportunity to investigate the management of inclusive education in a more holistic and multidimensional way. The MSEI uses the MEE adjusted with partial least squares, being a methodology to estimate the level of effectiveness of management in inclusive education, as well as the performance of the model. It is necessary to take into account that a model may have a good fit with a sample, this does not mean that there may be other models that also fit the sample data very well, in that sense it will always be interesting to be able to contrast other models that are also supported. with the theory proposed in this study or by other alternative theories. Finally, the application of the MSEI, initially piloted in the faculty of education of a university in Ecuador, could be expanded to other faculties and universities. The MSEI reflected a relationship between latent variables. It shows that the effectiveness index of management in inclusive education is 60.3%. In the same way, the MSEI allows us to know the indicator variables of lesser weight in order to make decisions related to support and intervention measures. The MSEI also demonstrated its performance at a percentage of 73.2, showing that it is a model with acceptability in its application.

Supports

This article has been carried out in a study carried out by the Research Center for Human Sciences and Education of the Indo-America Technological University. It projects an application in nine universities belonging to the Ecuadorian territory, selected according to the stratum of territorial zones, as well as an international projection.

WORKS CITED

- Allport, G. (1935). Attitudes, in Murchison (ed.), *Handbook of social psychology*, Worcester, Clark University Press.
- Legislative Assembly of the Republic of El Salvador (2004). *Higher Education Law*. San Salvador, El Salvador: Author.
- National Assembly. (2010). *Organic Law of Higher Education*. Quito, Ecuador: Author.
- B arba, RA; González, G. and Marínez, S. (2018). The role of a teacher in the inclusion of a deafblind student in the educational community. *Educate*, 54(1), 83-99. <https://doi.org/10.5565/rev/educar.915>
- Ainscow, M., & Booth, T. (2015). *Guide to Inclusive Education Developing learning and participation* (Grafilia (ed.); 1st ed.).
- Blanco, R., & Duk, C. (2011). *Inclusive education in Latin America and the Caribbean*. 37-55.
- Booth, Tony. & Ainscow, M. (Eds). (1998). *From them to us: An international study of inclusion in education*. London: Routledge. 1-21.
- Otero, X., Santos-Estevéz, M., Yousif, E., & Abadía, M. F. (2023). Images on stone in sharjah emirate and reverse engineering technologies. *Rock Art Research: The Journal of the Australian Rock Art Research Association (AURA)*, 40(1), 45-56.
- Nguyen Thanh Hai, & Nguyen Thuy Duong. (2024). An Improved Environmental Management Model for Assuring Energy and Economic Prosperity. *Acta Innovations*, 52, 9-18. <https://doi.org/10.62441/ActaInnovations.52.2>
- Girish N. Desai, Jagadish H. Patil, Umesh B. Deshannavar, & Prasad G. Hegde. (2024). Production of Fuel Oil from Waste Low Density Polyethylene and its Blends on Engine Performance Characteristics . *Metallurgical and Materials Engineering*, 30(2), 57-70. <https://doi.org/10.56801/MME1067>
- Shakhobiddin M. Turdimetov, Mokhinur M. Musurmanova, Maftuna D. Urazatieva, Zarina A. Khudayberdieva, Nasiba Y. Esanbayeva, & Dildora E Xo'jabekova. (2024). MORPHOLOGICAL FEATURES OF MIRZACHOL OASIS SOILS AND THEIR CHANGES. *ACTA INNOVATIONS*, 52, 1-8. <https://doi.org/10.62441/ActaInnovations.52.1>
- Yuliya Lakew, & Ulrika Olausson. (2023). When We Don't Want to Know More: Information Sufficiency and the Case of Swedish Flood Risks. *Journal of International Crisis and Risk Communication Research* , 6(1), 65-90. Retrieved from <https://jicrcr.com/index.php/jicrcr/article/view/73>

- Szykulski, J., Miazga, B., & Wanot, J. (2024). Rock Painting Within Southern Peru in The Context of Physicochemical Analysis of Pigments. *Rock Art Research: The Journal of the Australian Rock Art Research Association (AURA)*, 41(1), 5-27.
- Masha'el Nasser Ayed Al-Dosari, & Mohamed Sayed Abdellatif. (2024). The Environmental Awareness Level Among Saudi Women And Its Relationship To Sustainable Thinking. *Acta Innovations*, 52, 28-42. <https://doi.org/10.62441/ActaInnovations.52.4>
- Kehinde, S. I., Moses, C., Borishade, T., Busola, S. I., Adubor, N., Obembe, N., & Asemota, F. (2023). Evolution and innovation of hedge fund strategies: a systematic review of literature and framework for future research. *Acta Innovations*, 50,3, pp.29-40. <https://doi.org/10.62441/ActaInnovations.52.4>
- Andreas Schwarz, Deanna D. Sellnow, Timothy D. Sellnow, & Lakelyn E. Taylor. (2024). Instructional Risk and Crisis Communication at Higher Education Institutions during COVID-19: Insights from Practitioners in the Global South and North. *Journal of International Crisis and Risk Communication Research*, 7(1), 1-47. <https://doi.org/10.56801/jicrcr.V7.i1.1>
- Sosa-Alonso, P. J. (2023). Image analysis and treatment for the detection of petroglyphs and their superimpositions: Rediscovering rock art in the Balos Ravine, Gran Canaria Island. *Rock Art Research: The Journal of the Australian Rock Art Research Association (AURA)*, 40(2), 121-130.
- Tyler G. Page, & David E. Clementson. (2023). The Power of Style: Sincerity's influence on Reputation. *Journal of International Crisis and Risk Communication Research*, 6(2), 4-29. Retrieved from <https://jicrcr.com/index.php/jicrcr/article/view/98>
- Economic Commission for Latin America and the Caribbean (ECLAC). (2018). *LA CEPAL 2018.pdf*.
- Delgado-Valdivieso, K., & Gairín-Sallán, J. (2021). Inclusive Education at the Higher Level Public policies and good practices in Latin America .
- Delgado, K. (2019). The challenge of inclusive education. Pilot plan in Ecuador. 1, 266. <http://repositorio.uti.edu.ec/handle/123456789/1350>
- Delgado, Karina. (2019). Inclusive education in Latin America: A question of attitude. <https://amzn.to/2MT700Y>
- Dussan, C. P. (2010). "Inclusive education: A model of education for all." 73-84.
- Echeita, G., & Ainscow, M. (2011). Inclusive education as a right. Framework of references and guidelines for action for the development of a pending revolution. *Tejuelo. Teaching of language and literature. Education*, 26-46.
- Fajardo, M.S. (2017). Inclusive Higher Education in Some Latin American Countries: Progress, Obstacles and Challenges. *Latin American Journal of Inclusive Education*, 11 (1), 171-197. <https://doi.org/10.4067/s0718-73782017000100011>
- Gairín, J. (2015). Access systems, permanence regulations and student tutoring and retention strategies in higher education (SA Wolters Kluwer Spain (ed.)).
- García de Fanelli, A., & Jacinto, C. (2010). Equity and higher education in Latin America: the role of tertiary and university careers. *Ibero-American Journal of Higher Education*, i, 58-75. <https://doi.org/10.22201/issue.20072872e.2010.1.16>
- Gazzola, A and Didriksson, A. (2016). (2008). Trends in Higher Education in Latin America and the Caribbean. In *II of the U. for ES in LA and the Caribbean (Ed.)*, *Journal of Chemical Information and Modeling (Vol. 53, Issue 9)*. <https://doi.org/10.1017/CBO9781107415324.004>
- Harvey, D. (2014). *Seventeen Contradictions and the End of Capitalism*.
- López, R. (2018). A study on the situation of inclusive education in educational centers from the perception of the educational community. *Inclusive Education in Management*, 1 (1), 81-124. http://e-spacio.uned.es/fez/eserv/tesisuned:ED-Pg-Educac-Rlopez/LOPEZ_AZUAGA_Rafael_Tesis.pdf
- Mitchell, D., & Sutherland, D. (2020). What Really Works in Special and Inclusive Education. In *What Really Works in Special and Inclusive Education*. <https://doi.org/10.4324/9780429401923>
- Ocampo, A. (2018). Inclusion of students with disabilities in higher education. *Challenges and opportunities*. 6, 227-239. *United Nations Educational, Scientific and Cultural Organization, Higher Education (2018)*. http://www.siteal.iipe.unesco.org/sites/default/assets/pdf/eje/siteal_educacion_superior_201808.pdf
- Sallán, J., Castro, D., & Rodríguez, D. (2014). University and Vulnerable Groups . <http://ddd.uab.cat/record/126093>
- Tuzel, S., & Hobbs, R. (2017). The use of social networks and popular culture for better intercultural understanding. *Communicate*, 25 (51), 63-72. <https://doi.org/10.3916/C51-2017-06>
- UNESCO (Ed.) (1994). *Salamanca Declaration and Framework for Action on Special Educational Needs*. World Conference on Special Educational Needs: Access and quality. Salamanca, Spain: Author.
- UNESCO (2002). *Universal Declaration on Cultural Diversity*. UNESCO. <https://n9.cl/o30nx>
- UNESCO (Ed.) (2008). *International Education Conference. Forty-eighth meeting*. UNESCO. <https://n9.cl/3nye>
- UNESCO (Ed.) (2018). *Higher education. Educational Trends Information System in Latin America*. UNESCO. <https://n9.cl/wtp0>
- UNICEF (1979). *Convention on the elimination of all forms of discrimination against women*. UNICEF. <https://n9.cl/zz3s>