



## **Motor Disability and Resilience in University Students: Age, Grade, and Stage in which It is Acquired**

**Marcelo Fabian Barcia Briones** <sup>a</sup>

**Hipatia Alexandra Meza Intriago** <sup>b</sup>

**Marlene Stephanie Lino Ruiz** <sup>c</sup>



---

### **Article history:**

**Received:** 20 July 2017

**Revised:** 22 January 2018

**Approved:** 2 February 2018

**Published:** 6 February 2018

---

### **Keywords:**

*Age;*

*Resilience;*

*Motor disability;*

*Grade of incapacity;*

*Resilience Dimension;*

---

### **Abstract**

Motor disability is a situation that induces disadvantage in people who suffer from it about healthy people. This situation can be accentuated in the case of university students who must fulfill diverse activities that demand different degrees of physical and mental effort, where the students with motor disability can feel the consequences derived from the disability, with direct influence in the resilience of the students, same. The work shows the results of a study carried out on a group of 35 young people with motor disabilities who study at the Technical University of Manabí. Wherein the result of resilience is reflected regarding age, the stage of acquired disability and the degree of it, highlighting the need for the development of psychology activities that favor the strengthening of resilience.

2395-7492© Copyright 2018. The Author.

This is an open-access article under the CC BY-SA license

(<https://creativecommons.org/licenses/by-sa/4.0/>)

All rights reserved.

---

### **Author correspondence:**

Marcelo Fabian Barcia Briones

MsC. Medical Specialty, Universidad Técnica de Manabí

Portoviejo, Manabí Ecuador.

Email address: [mbarcia@utm.edu.ec](mailto:mbarcia@utm.edu.ec)

---

### **1. Introduction**

Currently, most societies recognize that education is a fundamental driver of human development and social change, which is why they place it at the top of their agendas. Ecuador is a country in the transition towards a society of greater development, which has privileged the actions aimed at the universalization of access to education, achieving high coverage.

Educational inclusion is particularly relevant for those young people who come from low-income families, in whom attendance at school has been especially during early education, and who focus on their professional preparation as a way to diminish the initial disadvantages, improve their preparation for life and raise the expectations of quality of life. Already in the process of meeting the priority need for access to education, the issue of equity arises, which is linked to the quality that every adolescent deserves in the education he receives. In this context, the population with disabilities becomes relevant. A challenge that represents a high cost for the State due

---

<sup>a</sup> Ms.C. Medical Specialty, Universidad Técnica de Manabí, Portoviejo Manabí Ecuador

<sup>b</sup> Ph.D. In education, Universidad Técnica de Manabí, Portoviejo, Ecuador

<sup>c</sup> Graduated, Universidad Técnica de Manabí, Portoviejo, Ecuador

for example, to the fact that educational interventions and associated costs for a disabled adolescent can reach in some cases more than four times the value of what is estimated for a teenager with typical development [1].

The population with disabilities has increased over time, possibly due to several factors. The strongly inclusive tendency of modern societies, with the central idea that no one is left out. The greater knowledge and recognition of transitory or permanent conditions that potentially affect learning; the highest expectations and social demands for education and specialization for working and productive life and the greater complexity of the learning to acquire, among others [2].

In general terms, a student is considered to be disabled when for a wide variety of reasons. He shows greater difficulties compared to the rest of his classmates to access the corresponding learning according to his age or course and requires to compensate for said difficulties, extraordinary and specialized support, which if not provided, limits their opportunities for learning and development. Therefore, the disability covers a range of needs that include physical, sensory, mental and cognitive disabilities, as well as learning, emotional and social difficulties. This broad definition, for many authors, should also include adolescents whose difficulties stem from social conditions such as belonging to ethnic groups or minorities to the detriment, having a different mother tongue, disadvantaged socio-family conditions or teenage pregnancy [3].

The categories that are defined in the disability are rooted in the use of medical classifications of disorders or deficits, which are made in the diagnostic assessment of children with learning difficulties. As previously noted, these medical diagnoses, although they help to characterize in a general way, do not account for the human complexity that comes into play when learning and, therefore, are not always an accurate tool when designing a curriculum or specific educational strategies. Two young people in the same diagnostic category could have different functioning patterns and, therefore, different requirements. Similarly, in the face of different diagnoses, it is possible to achieve benefits with similar strategies [2].

At present, the definition of disability (before deficiency), integrates the medical model and the social model in a biopsychosocial vision that considers. On the one hand, a loss at the level of the body, determined by a physiological or structural alteration that affects a function; and on the other hand, a complex phenomenon at a social level. The factors interaction generates the disability. The individual's health and contextual factors of an external type (social attitudes, legal-social structures, architecture, climate, among others) and internal type (gender, age, social environment, education, experiences, personality and other factors that influence. How the individual and his experience with a disability). Therefore, disability implies dysfunction in one or more of three levels of human functioning [4]:

- a. Corporal. Functional or structural alterations that are determined a significant alteration or loss.
- b. Personal. Limitations or difficulties to execute activities.
- c. Staff in the social context. Restrictions derived from problems to get involved/participate in life situations.

## 2. Research Methods

The inductive method was applied that allowed to logically reason the concepts associated with resilience in students who suffer motor disability about age, the degree of it and the stage in which it was acquired. The investigative techniques associated with the performance of the SV-RES test prepared by the researchers [5] were applied, which allowed the study of the 12 dimensions and the level of resilience of students with a motor disability. The study is of a quantitative-descriptive nature, of primary data sources, transactional in the collection of information, micro-sociological in its sample coverage. The fields of study are psychology and society. The sample is intentional, looking for the attributes necessary for the study. Composed of 35 young people with motor disabilities who are between 19 and 46 years old.

## 3. Results and Analysis

### 3.1 Motor disability

Motor disability is defined as the difficulty that some people have to participate in activities typical of daily life, which arises as a result of the interaction between a specific difficulty to manipulate objects, access to different spaces, places, and activities that all people with the barriers present in the context in which the person develops. Thus, beyond their limitations or effective physical difficulties, the barriers of an environment made by and for people without disabilities, will condition in the young, an altered perception of their real possibilities and an absolute dependence on other people. It is rather a condition that emerges as a result of the interaction of this personal difficulty with an unfavorable environmental context.

A large and heterogeneous group of neurological conditions affect motor function. In general, they can be divided into those that compromise the central nervous system affecting the upper motor neuron and those that compromise the lower motor neuron system (motor neuron of the anterior horn, peripheral nerve, neuromuscular junction, and muscle). Conditions as diverse as cerebral palsy, spina bifida, spinal muscular atrophies, neuropathies, congenital myopathies, muscular dystrophies, posttrauma sequelae injuries, vascular accidents or anoxia. Cause varying degrees of compromise, from mild in people who achieve gait, but require certain supports that facilitate their functions, even severe in people who require technical assistance to achieve an independent displacement. Many of the disorders that produce motor disability, are also accompanied by speech difficulties, jointly affecting communication skills. Table 1 shows the classification of severity of functional commitment in young people with multiple disabilities.

Table 1  
Classification of severity of functional commitment in young people with multiple disabilities

Level	Percentage of functional commitment (%)	Severity of functional commitment
Mild	30	Manages to walk alone, achieves independence in activities of daily living (ADL), normal language. Normal intelligence coefficient (IQ) or cognitive deficit in the different grades. Integrates with normal life without major treatments
Moderate	Between a 30 - 50	Need certain technical aids to achieve independence in progress and ADL. There are certain communication problems, and an IQ of normal to mild cognitive deficit has moderated. Requires different
Severe	Between a 50 - 70	treatments to integrate into normal life
Serious	Between a 70 - 100	His motor, intellectual and sensorial impediments prevent him from achieving total independence in self-care. Their social integration is partial.

Source: [6]

The condition that most frequently causes motor disability is cerebral palsy, which is defined as a predominantly motor disorder, not progressive and secondary to a brain injury in early stages of development. It is frequently accompanied by sensory alterations, perception, cognition, communication, behavior, epilepsy and secondary musculoskeletal problems. Thus, many young people with cerebral palsy are eligible to be considered people with multiple disabilities. In Table 2 shows the distribution of students with motor disability according to the severity of the functional commissions, table 3 shows the distribution of disabled students by age group and the table 4 shows the stage in which each student acquired a motor disability.

Table 2  
Students with motor disabilities depending on the severity of the functional commitment

Level	Percentage of functional commitment (%)	Quantity
Mild	Until 30	1
Moderate	Between 30 and 50	18
Severe	Between 50 and 70	9
Serious	Between 70 and 100	7

Table 3  
Distribution of disabled students by age group

Age group (Years)	Quantity	Percentage (%)
Up to 20	14	40
Between 21 -25	11	31
Between 26 - 30	4	11
Between 31 - 35	3	9
Between 36 - 40	2	6
More than 40	1	3
Total	35	100

Table 4  
Acquired motor disability

Stage in which the motor disability was acquired (Years)	Quantity	Percentage (%)
From birth	16	46
Acquired between 1 and 12	14	40
Acquired between 13 and 20	4	11
Acquired after 20	1	3
Total	35	100

Figure 1 shows the behavior of the resilience in the 12 dimensions once the SV-RES test was applied by the researchers [5].

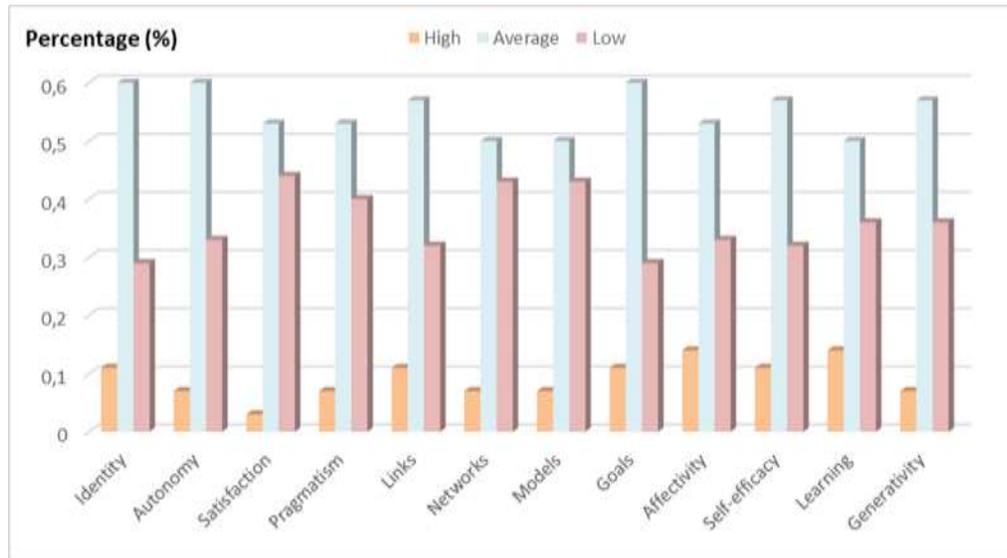


Figure 1. Resilience behavior in the 12 dimensions

Source: SV-RES test [5]

### 3.2 To eliminate barriers

To encourage the participation and learning of young people with motor disabilities, it is necessary [6]:

1. Prepare the academic context, identifying and reducing barriers that obstruct participation and learning. Work must be done on aspects related to the environment, including the training of teachers, the establishment of a positive and natural relationship among all members, the promotion of autonomy and independence behaviors and work in cooperation with the integration team.
2. Prepare the physical environment in such a way that the architectural barriers are eliminated (build ramps, pave land, widen doors, adapt bathrooms, among others). Rooms on the first floor should be considered if the establishment does not have a ramp or lift and all the necessary adaptations for the proper use of furniture and materials in the classroom. It is also necessary to make adaptations in the toilets, sinks, mirrors to be used and handled with the greatest ease.

Educational Inclusion implies a view of education from a participatory approach and quality education for all. Inclusion seeks to overcome the barriers of various kinds that some sectors of society have and that are related to exclusion and inequality. This approach not only focuses on disability but also on the needs of all members of the educational community, without discrimination [7].

At present, it is necessary to change the way in which a student with different characteristics is integrated into regular courses. For the achievement of inclusive educational processes, the university must respond to the diverse needs of its students in a different way. As proposed by [7], the trend ranges from academic integration (the student should adapt to the characteristics of the course) towards Educational Inclusion (the university is adapted to respond to the diverse educational needs of students). For the transformation of an integrating university to an inclusive one, it is necessary to identify several elements, among which the following can be pointed out [8]: Democratic leadership. It refers to a collaborative style of management, for which it is important that innovation, collaboration, and leadership capacities are developed and strengthened in the different educational actors of the university.

Curriculum and resources planning. It is necessary to have pedagogical and organizational autonomy (adaptations of curriculum, differentiated evaluations) and resource management (human, material) that allow planning according to the particular needs of the university and according to the needs of students, teachers and the social and cultural context in which they operate. The collaboration with the community. It is important the commitment of all the actors of the university both internally (among professors and between students, community participation) and externally (with other educational organizations, especially health care teams dealing with young people with disabilities, among others).

Training of teachers. It is important to establish working groups among professors within the university, to learn about inclusive education and to reflect on how to carry out these apprenticeships. Collaborative work. Support

groups have been proposed among professors, collaborative learning among students and highlight the importance of working together with networks outside the university (a collaboration between teachers from different universities) [9]. Support teams. It is important to appoint a coordinator of the support area who is responsible for leading inclusive work in the school [10].

#### **4. Conclusion**

The study verified that there is a close relationship between the level of functional commitment suffered by young people with motor disability and the level of resilience according to the results of the SV-RES test prepared by the researchers [5]. It was possible to verify that the age and the stage in which the disability is acquired, have a direct influence with the behavior of the level of resilience verified according to the SV-RES test prepared by the researchers [5]. It was verified that the level of resilience of young people with motor disabilities could be improved through the application of psychological activities focused on strengthening resilience

**References**

1. Barrett, B., Mosweu, I., Jones, C. R., Charman, T., Baird, G., Simonoff, E., ... & Byford, S. (2015). Comparing service use and costs among adolescents with autism spectrum disorders, special needs and typical development. *Autism*, 19(5), 562-569.
2. López, S. I. M., & Valenzuela, B. G. E. (2015). Niños y adolescentes con necesidades educativas especiales. *Revista Médica Clínica Las Condes*, 26(1), 42-51.
3. Schneider, S. L. (2013). The international standard classification of education 2011. In *Class and stratification analysis* (pp. 365-379). Emerald Group Publishing Limited.
4. Ross, S. M., Case, L., & Leung, W. (2016). Aligning physical activity measures with the international classification of functioning, disability and health framework for childhood disability. *Quest*, 68(4), 521-535.
5. Saavedra Guajardo, E., & Villalta Paucar, M. (2008). Medición de las características resilientes: un estudio comparativo en personas entre 15 y 65 años. *Liberabit*, 14(14), 32-40.
6. López, S. I. M., & Valenzuela, B. G. E. (2015). Niños y adolescentes con necesidades educativas especiales. *Revista Médica Clínica Las Condes*, 26(1), 42-51.
7. Booth, T., & Ainscow, M. (Eds.). (1998). *From them to us: An international study of inclusion in education*. Psychology Press.
8. Díez, A. M. (2008). ¿Cómo hacer que un centro educativo sea inclusivo?: Análisis del diseño, desarrollo y resultados de un programa formativo. *Revista de Investigación educativa*, 26(2), 521-538.
9. Ainscow, M. (2003). Desarrollo de sistemas educativos inclusivos. Ponencia presentada en el Congreso “Las respuestas a las necesidades educativas especiales en una escuela vasca inclusiva”. Donostia-San Sebastián. *Donostia-San Sebastián: Gobierno Vasco*.
10. Stainback, S., & Stainback, W. (1999). *Aulas inclusivas: un nuevo modo de enfocar y vivir el currículo* (Vol. 79). Narcea Ediciones.
11. Jurado, W. C. C., Pérez, A. V. P., Quiroz, A. M. V., & Gámez, M. R. (2017). Environmental Impact On Electrical Networks Near The Manabita Litoral. *International Journal of Life Sciences (IJLS)*, 1(2), 18-27.
12. Parihar, K. S., Dahiya, R., Billaiya, R., & Jain, P. (2017). Effect of Nuclear Family in Participation of Activities. *International Journal of Health Sciences (IJHS)*, 1(1), 28-35.
13. Arauz, W. M. S., Cedeño, G. I., Chávez, S. S., Pérez, A. V., & Gámez, M. R. (2017). Microgrid With a 3.4 kWp Photovoltaic System in the Universidad Técnica de Manabí. *International Journal of Physical Sciences and Engineering (IJPSE)*, 1(2), 11-20.
14. Omer, A. M. (2017). Sustainable Development and Environmentally Friendly Energy Systems. *International Journal of Physical Sciences and Engineering (IJPSE)*, 1(1), 1-39.
15. Delgado, G. R. E., Meza, A. K. T., Chávez, S. A. R., & Murillo, G. S. A. (2018). Demands of People with Disabilities and Empowerment of Resilient Strategies. *International Research Journal of Management, IT and Social Sciences (IRJMIS)*, 5(1), 45-54.
16. Rosado, I. S. M., Ortega, J. M. P., Medranda, E. A., & Basurto, E. X. C. (2018). Teaching Resilience to People with Visual Disabilities. *International Research Journal of Management, IT and Social Sciences (IRJMIS)*, 5(1), 36-44.
17. Meza, A. K. T., Freyre, J. R. A., Cevallos, M. G. O., & Pico, M. J. M. (2018). Autonomy, Good Humor and Support Networks, Potential of Community Resilience Intervention in People Victims of the Earthquake in the Calderón Parish. *International Research Journal of Management, IT and Social Sciences (IRJMIS)*, 5(1), 1-8.
18. Meza, A. K. T., Aguayo, M. D. Z., Cevallos, M. G. O., & Zambrano, P. F. R. (2018). Estimation of Resilience in University Students. *International Research Journal of Management, IT and Social Sciences (IRJMIS)*, 5(1), 16-24.

**Biography of Authors**

	<p>Marcelo Fabian, MsC. Medical Specialty, Bachelor of Psychology and Vocational Guidance has participated in different conferences, full-time teacher. Universidad Tecnica de Manabi</p>
	<p>Hipatia Alexandra, Phd. In education, MsC. In parvularia education, teacher and academic coordinator, Bachelor in chemistry and biology. Faculty of Philosophy, Literature and Education Sciences. Universidad Técnica de Manabí.</p>
	<p>Marlene Stephanie, Graduated from the Faculty of Philosophy, Literature and Education Sciences. Universidad Técnica de Manabí</p>