

DIADEMMA: A tool to promote peer-mentoring in Colombian higher education

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Abstract

Mentoring programs in higher education have gained importance in recent years for their contribution to the development of professional and personal skills, as well as improving student retention and completion. Considering this, the program Generation E, –created by the Colombian Ministry of Education to provide socioeconomic support to underprivileged youth for their access to higher education–, started to include mentoring strategies in 2019 as a key element to foster completion. In 2020, a development model was designed to assess the situation of these programs in higher education institutions across the country. This article describes an analytic tool –called DIADEMMA (Diagnosis of Mentoring Moments Development)– which articulates five development moments with six factors key to any mentoring program, drawing on a structure proposed by an existing model for the assessment of higher education programs for student retention in Colombia. The first implementation of DIADEMMA allowed to identify the status of peer-mentoring initiatives in an initial group of institutions, providing input to define actions to support their consolidation, considering the nature and possibilities of each one of them.

Keywords: *Mentoring; higher education; development Model; DIADEMMA.*

1. Introduction

Student attrition in Latin America is a worrying phenomenon for international, regional and local governments and agencies. The Observatory of Higher Education of Medellín, Colombia –ODES– (2017), reports that Latin America attrition rates range from 40% to 75%, while the Colombian Association of Universities –ASCUN–, cited in Suárez-Castrillón et al (2020), notes that 45% of young people who start post-secondary studies in Colombia don't finish them.

In 2018, the Colombian government, by means of the Ministry of Education (MoE), launched the *Generation E* Program, with the aim of promoting access to higher education as well as completion by youth in condition of economic vulnerability. By the end of 2020, there were 113 Higher Education Institutions (HEI) participating in the program (out of a total of 300 registered HEI), benefiting around 160,000 students. *Generation E* contributes with: a grant that covers tuition and partial support; the development of welfare strategies; and the generation of networks that connect students with local entrepreneurship ecosystems. However, previous experiences with similar programs suggested that providing support for student integration to higher education is as important as supporting access (Andrade-Fernandez et al, 2017; Alvarez-Rivadulla, 2019; Diaz-Velasquez, 2019). Thus, in 2019 the MoE convened EAFIT University and the Cooperative University of Colombia to collaborate in the design of a Mentoring Program which was first deployed in the second half of 2020.

Given that student retention¹ represents a shared concern between MoE and HEI, in recent years several alternatives have been explored to seek the development of the personal and academic skills needed for students to succeed, such as *peer support* (which in many cases involves *peer learning*). This strategy is characterized by the participation of students of advanced semesters in activities or programs where they support their peers outside the classroom, either for their integration into higher education, support in understanding curriculum subjects, or adaptation to city life –in the cases where they arrive from other regions or countries. Broadly, *peer support* involves an interaction between peers that encourages the exchange of knowledge or experiences. In Colombian HEI there is a high heterogeneity in the objectives, scopes and characteristics of these type of strategies, which is reflected in the great diversity of denominations found in the sector –tutoring, monitoring, mentoring, among others–. It should be noted that, for the specific case of mentoring

¹Recently, the word *retention* has started to be replaced in local discourse by the word *permanence* (Spanish *permanencia*, meaning to stay, to remain), as a way to put emphasis in the outcome expected from the student (to remain in the education system), instead of the action carried on by the HEI. However, *retention* will be used in this text, given its pervasive use in English-based higher education.

initiatives, not all of those called this way correspond to what is described in the literature, while others fulfill their characteristics even if they are called otherwise.

Considering this situation, the first step for the implementation of the *Generation E* Mentoring Program was an assessment of the type of strategies developed by HEI, their degree of development and the feasibility of articulating the proposed Mentoring Program to existing initiatives.

2. A development model for mentoring programs in higher education

A maturity model shows how an initiative evolves, "allowing to identify on which step it is, so it can make the required improvements to advance to the next step" (De Freitas, 2018, p. 7); according to this author it is not that common to find such models in higher education institutions. Maturity models indicate the levels of qualitative developments, the parameters that describe them and the conditions for advancement or maturation from an initial condition to a condition reached (p. 11). Maturity models can be built according to the needs and objectives of each organization, and, thanks to them, it is possible to have a benchmark reference to identify at what stage a process, program or strategy is located, and what actions are needed to foster its development.

In this sense, the formulation of a development model for mentoring programs became the initial step to identify the status of such initiatives in Colombian HEI, using as reference the literature review on the definition of mentoring, its history, contexts, types, modes of delivery and, in particular, its role in Ibero-American higher education. The work of Casado-Muñoz, Lezcano-Barbero and Colomer-Felui (2015) in their article "Ten key steps to developing a programme of university mentoring for newly enrolled students" was especially relevant, describing both structural components related to the institutional commitment to the program –such as availability of resources, assessment & evaluation– and substantial elements related to its nature –such as assessment of needs, recruitment and training of mentors. Additional recommendations about the creation of successful mentoring programs in other areas (Chronus, 2017; National Mentoring Partnership, 2019; Mentors4U, 2021) were included in the literature review.

In the design of the national-level *Generation E* Mentoring Program, seven elements for action were defined to be addressed in iterative stages, according to the conditions of each HEI:

- **Attracting**, focused on the processes of stakeholder communication and recruitment of mentors and mentees.
- **Knowing**, aimed to identify the entry conditions and the needs for guidance and learning of the different actors of the process.

- **Connecting**, dedicated to pairing mentors and mentees according to criteria defined in the characterization, in order to foster the creation of connections between them.
- **Guidance**, focused on the development or mentoring skills in mentors as well as skills for life and career plan in mentees.
- **Evaluating**, which includes the processes of monitoring, assessment and evaluation of the actions, outcomes, results and impact of the program, according to its theory of change.
- **Articulating**, which refers to the coordination between MoE and HEI on the subject of mentoring, to give consistency to the program and weave networks that promote the sustainability of the strategy.
- **Technological platform**, which supports the structural dimension –data management systems, information and analytics– as well as the substantial dimension of the program – training, guidance and interaction of the participants.

On the other hand, the development model identifies a set of key factors for a formal mentoring program at the HEI level, which can be articulated with the elements for action mentioned above:

- **Positioning**, which refers to the articulation of mentoring programs with existing programs, processes and policies of well-being or student retention.
- **Monitoring**, related to the identification of results and impact of the program, as input to its continuous improvement.
- **Management**, referring to the involvement of mentors and mentees in the program in order to achieve its objectives.
- **Training**, which includes the activities established for the onboarding, guidance and development of competencies of participants in the program.
- **ICT**, which refers to the promotion and use of digital technologies for learning, interaction and management of information during the development, monitoring and evaluation of mentoring.
- **Sustainability**, which involves resource and knowledge management, so the program can consolidate and evolve over time.

These factors are articulated with five stages or moments of development:

- **Initiation**, stage where the components for the creation of a program are still disjointed, with informal mentoring activities that do not yet have institutional visibility.
- **Installation**, stage where the components are starting to be articulated. Pilot experiences may have been undertaken or initial implementation of a mentoring program in the HEI is expected.

- **Formalization**, stage where the articulation of the components is consistent, so it is possible to find reviews of lessons learned, as well as clear relationships with well-being or retention processes or programs. Also, guidelines for monitoring, evaluation and ICT use in the development of the program have been established.
- **Appropriation**, stage that refers to a mentoring program in full operation.
- **Consolidation**, stage where the program has financial, human, institutional and interinstitutional supports, as well as a system of continuous improvement in operation.

The combination of factors and moments of development produced an analytical tool called DIADEMMA (Diagnosis of Mentoring Moments Development), which helps to assess the status of a mentoring initiative in a HEI, as well as to determine actions needed to move to the next stage, according to its own situation. From a national perspective, this tool allows to compare the situation of different institutions, helping to determine the focus of the technical assistance actions carried out by MoE.

3. DIADEMMA: Diagnosis of Mentoring Moments Development²

The conceptual elements of DIADEMMA are based on the development model mentioned, while its structure was inspired by the *Guide to the implementation of the model of student management and permanence in HE institutions* (2015), a tool developed by MoE to assess student retention and graduation in Colombian HEI. In DIADEMMA, each factor groups together key aspects that in turn articulate specific variables, as shown in Table 1.

²The development of the initial factors of DIADEMMA involved the participation of a team from Cooperative University of Colombia, Medellín headquarters: Reina Cecilia Duque (Head of University Welfare and Alumni), Javier Mauricio Zuluaga (Head of Planning) and Juan David Quiceno.

Table 1. DIADEMMA contents.

Factor	Key aspects	Variables
Positioning	Articulation with well-being or permanence Responsible authority Broadcasting	Degree of articulation Documentation Place of coordination Consistency and outreach Baseline assessments
	Diagnosis and characterization	Mentor profiles Characterization of students Early warnings
Tracking	Monitoring	Analytics and reports Cost-benefit analysis Impact analysis
	Impact evaluation	Training and guidance Training processes
Training	Coordinators	Articulation with other support services
	Guidance to students receiving mentoring	Training and guidance Feedback
Management	Mentoring	Mentor selection process Matchmaking criteria Incentive management
	Selection Pairing Incentives	ICT for training ICT for interaction
ICT	Using ICT	Data collection Data processing
	Digital systems for monitoring	Internal resources External resources
Sustainability	Resource management	Articulation with secondary education Interinstitutional work
	Knowledge management	

Each variable becomes a question with five possible answers, presented in progressive order. The respondent chooses the one that better describes the program situation at the time the assessment is made. Table 2 presents an example referring to the variable "Mentor selection process", articulated to the key aspect "Selection" that is part of the Management factor.

Table 2. DIADEMMA presentation mode.

	Initiation	Installation	Formalization	Appropriation	Consolidation
How are mentors chosen?	No requirements are established for the entry of mentors.	General requirements have been established for the entry of mentors.	Beyond general requirements, the Institution has established a formal, staged process for mentor selection.	The mentor selection process is carried out periodically, according to the requirements of the mentoring program.	In addition to implementing it periodically, the mentor selection process is evaluated and adjusted as necessary.

Each response corresponds to development moment, valued from 1 –initiation stage– to 5 – consolidation stage–. The average of each factor indicates the stage of that factor; with total average indicating the overall stage of program development, according to the ranges shown in Table 3.

Table 3. DIADEMMA valuation averages.

Initiation	Installation	Formalization	Appropriation	Consolidation
1.0 to 1.8	1.9 to 2.6	2.7 to 3.4	3.5 to 4.2	4.3 to 5.0

DIADEMMA was implemented in 41 Colombian HEI in the second half of 2020 and was enriched with further conversations, in order to clarify the conditions and characteristics of existing initiatives and to identify opportunities for improvement. According to the results of these HEI, 16% have programs in the *Initiation* stage, 33% in the *Installation* stage, 28% in *Formalization* –including some in the pilot phase or in the process of reviewing lessons learned and articulating with other institutional areas–, 16% in the *Appropriation* stage and 7% in the *Consolidation* stage. This shows an interest among participating HEI in such programs, as well as an opportunity to put the experience of the leading institutions at the service of those in earlier stages. As for the factors, the prevalence of development was found in the *Positioning* factor in contrast to a low level in *Sustainability*, which indicates the importance of creating networks that can build solutions in this line.

DIADEMMA proposes not only a way to assess the current situation but also actions for the improvement of mentoring programs, given that each possible answer to the question-variables refers to an action. By identifying which factors and variables require attention, the institution can be guided to take relevant actions to improve its initiative. In this way, each institution can design its own paths of action for the development of its mentoring programs after applying the tool. This takes into account the possibilities of each HEI and a gradual and sustainable process that guarantees the advancement and duration over time of such strategies.

During 2020, the implementation of DIADEMMA was followed by the deployment of support mechanisms between HEI, as well as support in the implementation of programs at the institutional level, all part of the *Generation E Mentoring Program*. In total, 89 HEI participated, involving more than 2600 volunteer mentors and more than 6500 mentees in the first stage. A new implementation of DIADEMMA is expected at the end of 2021, to account for the development achieved by HEI in their initiatives.

Even though DIADEMMA was developed in the context of Colombian higher education, it could be used by any higher education institution to support the process of assessment and definition of strategies related to institutional-level mentoring initiatives. EAFIT University

keeps working in the refinement of the tool, as well as fostering exchanges between institutions.

4. Conclusion

By facilitating both diagnostic assessment and the identification of development paths, DIADEMMA contributes to the construction of a culture of formative assessment in a higher education institution. In addition, it opens the discussion and planning around the processes of welcoming and supporting students in their integration to higher education. These processes are particularly relevant today, not only because of changes in the skills and needs of new generations –which require improved support mechanisms–, but also because of the circumstances that the COVID-19 pandemic has created in the last year. The massive use of digital technologies to support learning processes brings opportunities as well as challenges for retention with equity.

The development of mentoring initiatives can contribute in the solution of these problems, developing key personal and professional skills and helping in the cohesion of university communities, building bonds and a sense of solidarity. This makes relevant the availability of analytical tools to help HEI to understand their particular situation and development paths. DIADEMMA will have to improve over time, as mentoring programs evolve and the earlier stages become less relevant. At the time, it is a useful tool to foster new discussions and understandings for student retention.

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