Institutionalization of Distance Education: infrastructure, support and engagement as pillars of the process

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Abstract: The article aims to show that the institutionalization of Distance Education (EaD, as it is called in Brazil) is based on three pillars: infrastructure, engagement and support. Based on these pillars, it points out 16 indicators of institutionalization as a result of 4 years of research in the field, which help us to understand the stages of the process and the institutional needs to strengthen, culturalize and legitimize EaD in different possibilities and contexts.

Keywords: Distance Education; Institutionalization; Indicators.

Institucionalização da EaD: infraestrutura, amparo e engajamento como pilares do processo

Resumo: O artigo visa demonstrar que a institucionalização da Educação a Distância (EaD) está assentada em três pilares: infraestrutura, engajamento e amparo. Com base nesses pilares, aponta 16 indicadores de institucionalização como resultado de 4 anos em pesquisas na área que auxiliam na compreensão das etapas do processo e nas necessidades institucionais para fortalecimento, culturalização e legitimação da EaD em possibilidades e contextos diversos.

Institucionalización de la educación a distancia: infraestructura, apoyo y compromiso como pilares del proceso

Resumen: El artículo pretende demostrar que la institucionalización de la educación a distancia se basa en tres pilares: infraestructura, compromiso y apoyo. A partir de estos pilares, se señalan dieciséis indicadores de institucionalización como resultado de cuatro años de investigación en el área, que ayudan a comprender las etapas del proceso y las necesidades institucionales para fortalecer, culturalizar y legitimar la educación a distancia en diferentes posibilidades y contextos.
Palabras clave: Educación a Distancia; Institucionalización; Indicadores

1 INTRODUCTION

This article aims to demonstrate that the institutionalization of Distance Education is based on three pillars - infrastructure, engagement, and support - composed of 16 indicators that contribute to the investigation, in a clear and targeted way, of the phase in which this process is found in educational institutions. It is believed that these indicators can serve as a basis for federal, state, and municipal educational institutions, as they take into account the reality of institutionalization in the context of Brazilian public institutions.

The choice of indicators was inspired by the studies of Piña (2008), who identified thirty factors that influence institutionalization, validated in several American universities. In this research, distance education managers and professors showed a high level of agreement regarding the importance of these factors for the institutionalization process. The 16 proposed indicators were developed based on Cruz (2022), who made a selection of the work of Piña (2008) and analyses of documents such as laws, decrees, and regulations aimed at Brazilian distance education, combined with his theoretical framework on institutionalization based on Lima (2013) and Ferreira and Veloso (2023). In this sense, these 16 indicators are presented and discussed under the premise that the process of institutionalization of distance education in Brazilian public institutions has proven to be a complex and multifaceted challenge. The need for tools that allow a more precise and contextualized assessment of this process is growing, especially in a scenario where distance education is consolidating itself as an increasingly relevant educational modality.

It is worth noting that the institutionalization proposed in this study is based on three essential pillars that support institutionalized distance education, as described by Cruz (2022): infrastructure, engagement, and support, which will be addressed in this article. These pillars are equally important and interdependent, forming a solid and balanced foundation for the institutionalization of distance education. It is also worth noting that the model proposed in this article aims to fill the gap of the lack of clear and significant references regarding the institutionalization of Brazilian public distance education, offering a practical methodology to identify the phase in which the institutionalization process is found. It is worth noting that these gaps are due to the fact that, in many public institutions, the   implementation of distance education occurs in a

fragmented manner, without a common guideline that ensures the quality and efficiency of this educational model. This lack of reference makes it difficult to create guidelines that guarantee an adequate infrastructure, the commitment of all actors involved, and the necessary support for the sustainability and evolution of distance education practices. In an ideal scenario, the institutionalization of distance education should be based on a support tripod - infrastructure, engagement, and support - which, working in an integrated manner, would ensure a consistent process that is adaptable to regional needs and the specificities of each institution.

2 DEVELOPMENT

The process of institutionalizing Distance Education (EaD) in Brazilian public institutions presents a complex and multifaceted challenge, characterized by the absence of a specific budget for the modality and by the persistent lack of credibility. However, it is understood that this institutionalization is directly related to the quality of the offer, which is a fundamental aspect of the institutions (Lima; Alonso, 2021). In this sense, the need for tools that allow a more precise and contextualized evaluation is highlighted, especially given the growth of EaD as a widely used educational modality, although often linked to external funding calls. Therefore, this study proposes an evaluation model composed of 16 indicators that try to fill this gap by offering a practical methodology capable of identifying the stage of the institutionalization process and contributing to its development with quality, considering a socially referenced perspective.

The research developed these 16 indicators based on the methodology of Cruz (2022) and on an adaptation of the research of Piña (2008). This work was complemented by the analysis of normative documents, such as laws, decrees, and regulations that aim to regulate and structure distance education in Brazil. The indicators were also aligned with a theoretical framework on institutionalization, based on the work of Lima (2013) and Ferreira and Veloso (2023), which provides a solid basis for discussing aspects such as infrastructure, engagement, and support needed to strengthen distance education.

In this sense, we will first present the indicators for evaluating the institutionalization of

distance education in Brazilian public institutions, and then demonstrate its subdivision into three pillars that support the institutionalization of distance education, which can be visualized as the three sides of a pyramid, supporting the institutionalization process in an integrated and balanced manner, as shown in the following figure.

Figure 1 – Pillars of the pyramid of EaD institutionalization
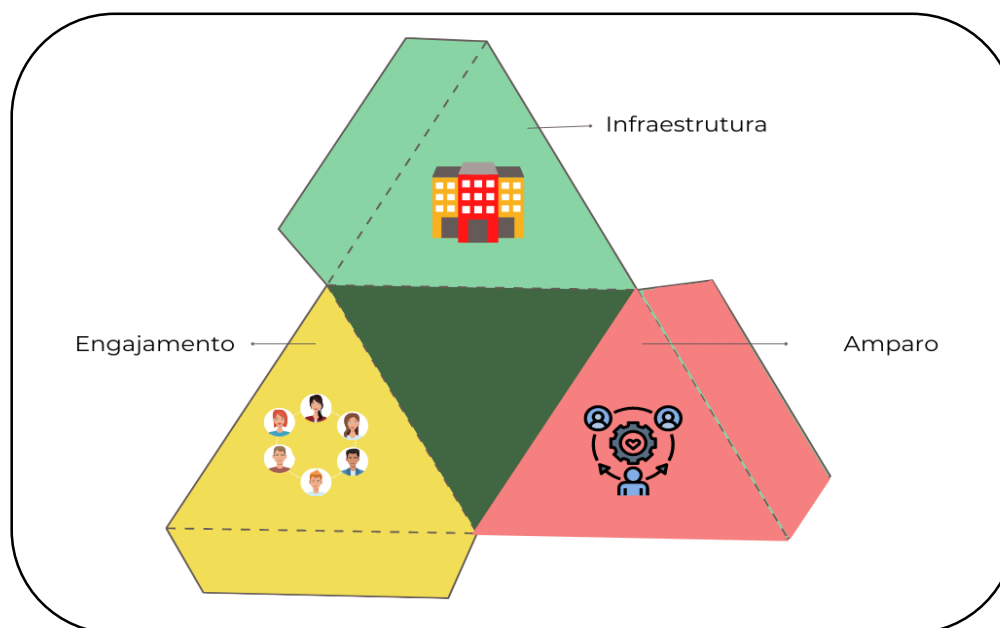
2.1 Indicators for Evaluating the Institutionalization of Distance Education in Brazilian Public Institutions

Distance Education (EaD) is becoming increasingly important in the Brazilian educational scenario, especially in public institutions. Its expansion brings with it the need for a robust institutional structure that guarantees its effectiveness and sustainability, as pointed out by Medeiros (2019). However, the process of institutionalizing EaD involves complex challenges that require a systematic approach to ensure its consolidation and integration into institutional routines, as suggested by Nascimento (2014).

It is important to emphasize that the institutionalization of distance education is not limited to the provision of EaD courses or the simple existence of an entity (or department, coordination, or management) within the institution to manage it but involves the creation of an organizational culture

that values and sustains distance education as an integral part of the educational mission of the institution, as pointed out by Lima (2013). For this purpose, it is necessary to assess the presence and strengthening of distance learning in different aspects of the institution, from management and infrastructure to the engagement of professionals and support for students. These indicators are presented below, according to the model created by Cruz (2022), accompanied by a discussion of their relevance and applicability in distance education.

Chart 1 – Indicators for assessing the institutionalization of EaD

INDICATOR	DESCRIPTION
1	Management team's commitment to EaD
2	EaD on the institution's agenda
3	Routine procedures related to EaD
4	Minimum EaD management structure
5	EaD activities continued after the change in management
6	Specific resources for EaD in the budget matrix
7	EaD forecast in the institution's legal documents
8	Culture of encouraging EaD among the academic community
9	Physical structure
10	Human resources
11	Technological tools to support learning and management
12	Institutional virtual learning environment
13	Offering of EaD courses, without dependence on funding
14	Offering EaD in presential courses
15	Ongoing training and qualification of EaD professionals
16	Student support

Source: Based on Cruz (2022, p. 180-185).

According to the results presented by Cruz (2022), the first indicator, "Management team's commitment to EaD", assesses the degree of involvement and

commitment of the institution's management team to distance education. The analysis focuses on determining whether the management is engaged in effective actions to strengthen the modality and whether it creates favorable conditions for its institutional development. Committed management is essential to ensure that distance education is recognized as an integral part of the institutional mission and to guarantee the allocation of resources necessary for its growth. The second indicator, "EaD on the institution's agenda", examines the presence of distance education on the institutional agenda, assessing its inclusion in discussions, debates, events, and other activities that make up the institution's routine. The regular inclusion of Distance Education on the institutional agenda is essential to ensure that the modality is continuously valued and integrated into daily practice, promoting its visibility and importance within the institution. Indicator 3, "Routine procedures related to EaD", refers to the existence and implementation of standardized processes, structures, and procedures for distance education, both financial and pedagogical. Standardized procedures are indicators of institutional maturity and ensure that EaD operations are carried out consistently and effectively. This indicator also assesses whether the procedures are legitimized by the institution and whether they are consistent with other institutional practices. Indicator 4, "Minimum EaD management structure", assesses whether the institution provides a minimum management structure for distance education, including bonus functions and specific management positions. The existence of a distance education management unit, whether independent or linked to other administrative areas, is essential for the efficient coordination of activities and the implementation of policies aimed at strengthening the modality.

Another relevant aspect is the continuing of EaD activities after a change in management, referred to as indicator 5. This item verifies the continuity of EaD activities after changes in the management of the institution. Distance education should be treated as a stable and continuous institutional policy that does not depend exclusively on the interests of specific actors. Continuity of action is an indication that distance education is rooted in the institutional culture and that its implementation is supported by robust and durable policies. Dedicated resources for distance education in the budget matrix form indicator 6, which aims to assess the allocation of specific financial resources for EaD in the institution's budget matrix. The provision of dedicated resources for EaD is crucial to ensure that the modality can develop independently and that the resources are used to improve infrastructure, train professionals and effectively promote distance education.

The inclusion of EaD in the institution's legal documents is also a key factor in the

institutionalization of the modality and is therefore included in Indicator 7. This item analyzes the inclusion of distance education in the institution's official documents, such as the Institutional Development Plan (PDI), regulations, statutes, and ordinances. The formalization of EaD in these instruments is an important step toward its legitimacy and ensures that the modality is taken into account in the strategic decisions of the institution. Indicator 8 addresses the culture of support for EaD within the academic community, which includes initiatives to overcome barriers and resistance, in addition to promoting EaD as an educational modality that is as valid as in-person teaching. An institutional culture that values EaD is essential to ensure its success and full integration into the institution. In addition, there is the need for a minimum physical structure, as indicated in Indicator 9. This includes the adequacy and availability of physical space dedicated to EaD, such as buildings, rooms, studios, laboratories, and equipment. Adequate physical infrastructure is essential to support EaD activities and to ensure that students and professionals have access to the resources necessary for a successful teaching-learning process.

Indicator 10 deals with human resources and highlights the importance of the availability of professionals to work in distance education, including permanent staff and scholarship holders. The presence of a dedicated and qualified team is crucial to ensure the quality of the modality and the efficiency of distance education operations. Indicator 11, "Technological tools to support learning and management", analyzes the availability and effectiveness of technological tools used in EaD, such as systems, software, and applications that facilitate management and the teaching-learning process. Technology is an important element in EaD and its effective implementation can determine the success of the modality. In line with this point, Cruz (2022) presents indicator 12, "institutional virtual learning environment", as a preeminent factor of institutionalization, since the existence of a virtual learning environment (AVA) owned by the institution, which provides an organized space with a standardized visual identity for carrying out distance education activities, is essential for the success of the modality, as it provides an interactive and accessible environment for students and teachers.

The provision of proper distance education courses without the need for funding is also a notable factor and is covered by Indicator 13, which assesses the institution's ability to offer proper distance education courses on a regular and sustainable basis, without relying exclusively on external resources. Self-sufficiency in course delivery indicates that distance education is well integrated into the institution and has a solid foundation for growth. Indicator 14, "Offering EaD in presential courses ", is also important and assesses the integration of distance education in presential courses by offering

part of the distance education hours as required by law and described in the pedagogical projects of the courses. This practice demonstrates the flexibility and adaptability of the institution in integrating distance education as a complement to presential teaching. Indicator 15, "Ongoing training and qualification of EaD professionals", refers to the provision of specific and continuing training for distance education professionals, and finally, Indicator 16, "Student Support", refers to the support and assistance provided to students, following the same rules as for presential courses, without distinction of modality.

After the detailed presentation of the 16 proposed indicators, we highlight their importance as a tool for public educational institutions to monitor their process of institutionalizing distance education. These indicators should be used flexibly, respecting the specificities of each institution. The application of this set of indicators allows those involved to reflect on the stage of the institution, taking into account aspects such as planning, organization, and infrastructure.

2.2 Pillars of the Institutionalization of EaD

After developing the 16 indicators presented, Cruz (2022) grouped them into three pillars that can be thought of as the three sides of the same pyramid that supports institutionalized distance education: infrastructure, engagement, and support.

Infrastructure is one of the central pillars for institutionalizing distance education and can be analyzed in two complementary dimensions: physical and technological. In the physical dimension, infrastructure includes all the spaces designated for the operation of EaD, such as buildings, classrooms, recording studios, computer labs, libraries, and student service centers. These spaces must be adequately equipped and maintained to provide a safe and conducive learning environment. In addition, it is essential that the physical infrastructure be accessible and inclusive to meet the needs of all students, including those with disabilities. The technological dimension refers to the digital systems and tools that support EaD. This includes the implementation of virtual learning platforms (AVA), academic management systems, videoconferencing software, and other technological resources that facilitate communication, collaboration, and management of educational activities. Technological infrastructure also includes the availability of appropriate equipment, such as computers, cameras, microphones, and servers, which are essential for the creation and delivery of educational content. In addition, it is necessary to ensure data security and privacy, as well as ongoing

maintenance and technical support, so that the technologies operate effectively and without interruption. Thus, the physical and technological infrastructure provides the tangible foundation upon which distance education is built, allowing educational activities to be conducted efficiently and affordably.

The engagement of the people involved in distance education is another essential pillar for its institutionalization. This engagement includes the commitment of managers, faculty, administrators, students, and other members of the academic community to the distance education process. The greater the engagement of these people, the greater the chance that distance education will become an integral part of the institutional culture. Leaders play a fundamental role in promoting policies and practices that value distance education, including its integration into the institution's strategic plans. They are also responsible for creating an environment that encourages innovation and collaboration across departments and academic units. Faculty, on the other hand, are primarily responsible for adapting and delivering pedagogical content in a format suitable for distance education. Their involvement is critical to ensuring that the materials and methods used meet the needs of students and that they feel engaged and motivated to learn.

Administrative staff also play a vital role in providing logistical and operational support for distance education, ensuring that administrative processes run smoothly. Students, as the direct beneficiaries of EaD, should be encouraged to take an active part in their learning experiences, which can be fostered through open channels of communication, continuous feedback, and opportunities for meaningful interaction with teachers and classmates. Thus, the collective engagement of all people is essential for distance education to be perceived and experienced as a legitimate and sustainable institutional practice.

Support for those involved in distance education is the third crucial pillar for its institutionalization. This support can be understood as the material, emotional, and institutional support that teachers, administrators, and students receive throughout the distance education process. For teachers, support takes the form of continuous training that allows them to develop and improve the skills necessary for distance education. This includes training in new educational technologies, teaching methods specific to distance education, and student engagement strategies. In addition, administrative and technical support is essential so that faculty can focus on the content and quality of teaching without having to worry about operational or logistical issues. Administrators also need institutional support, which can range from access to adequate technological resources to training in

new management and communication tools. This support ensures that they can carry out their duties effectively and contributes to the operational efficiency of distance learning.

For students, support is essential to ensure a positive and productive learning experience. This may include access to tutors and academic advisors, technical support to troubleshoot issues related to learning platforms, and psychosocial support services to cope with the challenges of distance education. In addition, the institution must ensure that all students, regardless of socioeconomic status, have access to educational and technological resources. In this way, institutional support is essential to creating an inclusive and equitable learning environment in which all distance learners can thrive.

In this direction, all 16 indicators are supported by the three pillars of institutionalization proposed by Cruz (2022):

Figure 2 - Subdivision of the pyramid indicators in pillars
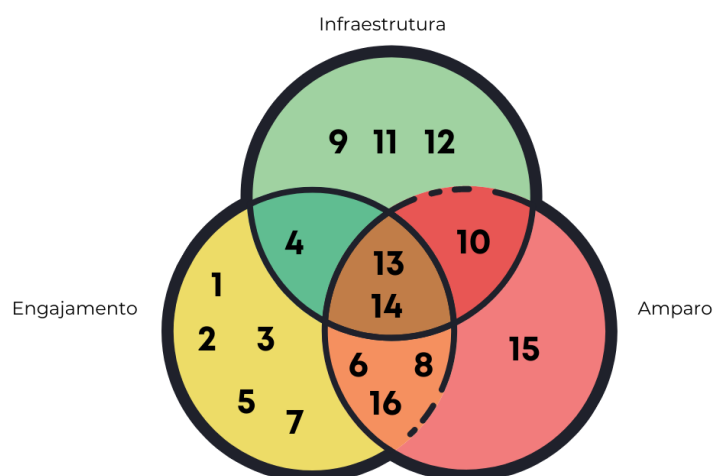
Caption:
Indicator 1 – Management team's commitment to EaD
Indicator 2 - EaD on the institution's agenda
Indicator 3 - Routine procedures related to EaD
Indicator 4 - Minimum EaD management structure
Indicator 5 - EaD actions continued after change in management
Indicator 6 - Specific resources for EaD in the budget matrix
Indicator 7 - EaD forecast in the institution's legal documents
Indicator 8 - Culture of encouraging EaD among the academic community
Indicator 9 - Physical structure
Indicator 10 - Human resources
Indicator 11 - Technological tools to support learning and management
Indicator 12 - Institutional virtual learning environment
Indicator 13 - Offering of proper EaD courses, without dependence on funding for their maintenance
Indicator 14 - EaD course offerings in presential courses
Indicator 15 - Ongoing training and qualification of EaD professionals
Indicator 16 - Student support

Source: Cruz (2022, p. 192).

Figure 2 shows that of the three pillars, engagement has the largest number of indicators: 1 - Management team's commitment to EaD; 2 - Presence of EaD on the institution's agenda; 3 - Establishment of a routine of procedures related to EaD; 5 - Continuity of EaD actions after management changes; and 7 - Inclusion of EaD in the institution's legal documents. Indicator 4 - Minimum management structure for EaD is a point of convergence between the pillars of engagement and infrastructure.

Indicators 6 - Allocation of specific resources for EaD in the budget matrix; 8 - Promotion of a culture of EaD within the academic community; and 16 - Student support, also appears in the pillars

of Engagement and Support, and both need to be strengthened for their effective development. Indicator 10 - Human Resources, is at the intersection of support and infrastructure.

The infrastructure pillar includes indicators 9 - Physical structure, 11 - Technological tools to support learning and management, and 12 - Virtual institutional learning environment. Also noteworthy are indicators 13 - Offering proper EaD courses without relying on external funding; and 14 - Offering EaD hours in presential courses, which, given their complexity, require the integration of the three pillars of institutionalization of distance education.

For courses that are already institutionalized, the continuous provision of distance education indicates that several of the indicators in the list have already been met. Concerning the provision of distance education hours in presential courses, the existence of these indicators reveals a significant institutional change, where distance education is now incorporated as an integral part of the institution's regular offer, and is no longer considered a secondary element.

It is crucial to emphasize that the three pillars of institutionalization are interdependent; therefore, the fact that one pillar contains more indicators does not make it more relevant than the others. In practice, the ongoing training and qualification of distance education professionals in the Support pillar is just as important as the engagement of the management team in the Engagement pillar. It is also worth noting that efforts to institutionalize distance education should not be approached in isolation, as actions must be taken simultaneously and in an integrated manner. The more indicators an institution can implement, the closer it will be to fully institutionalizing distance education.

3 CONSIDERATIONS

This article seeks to fill the gap in the absence of clear and significant references regarding the institutionalization of public distance education in Brazil. It is clear that the institutionalization of distance education in Brazilian public institutions requires an integrated approach based on solid pillars that support the modality in an effective and sustainable manner. Infrastructure, engagement, and support are essential elements of this process, and their balanced presence ensures that distance education can consolidate itself as an integral part of the educational mission of these institutions. By thinking of these pillars as the sides of a pyramid, we reinforce the idea that they are all equally important and interdependent.

In addition to the pillars, the 16 indicators proposed in this article offer a comprehensive and

practical tool for evaluating the process of institutionalizing distance education in Brazilian public institutions. Through the application of these indicators, it is possible to identify areas for strengthening and opportunities for improvement, contributing to the consolidation of Distance Education as a comprehensive, sustainable, and socially relevant educational modality, where joint actions are essential for the successful institutionalization of Distance Education. With regard to courses that are already institutionalized, it is understood that their offering is only possible after observing several important indicators. In the case of offering distance education hours in presential courses, the presence of these indicators signals a significant institutional change in relation to distance education, which is integrated as part of the regular offer of the institute, instead of being considered as something separate.

It is important to emphasize that the three pillars of institutionalization are interrelated and that those with the highest number of indicators should not be considered the most important. In practical terms, this means that the ongoing training and qualification of professionals involved in distance education, which represents the Support pillar, is as essential as the commitment of the management team to distance education, which is linked to the Engagement pillar. It also became clear that efforts to institutionalize distance education cannot be planned in isolation, as actions need to be taken simultaneously and, in some cases, need more space to be implemented. In practice, the more indicators an institution has, the closer it is to achieving institutionalization of distance education.

In order to advance the theme of institutionalization of distance education in Brazilian public institutions, some possibilities for future research are suggested, such as conducting empirical studies to validate the 16 proposed indicators, as well as exploring the creation of new indicators that may arise from different institutional and regional contexts, in addition to studying the experiences of institutionalization of distance education in other countries that have public education structures similar to Brazil, in order to identify good practices and adaptations that may enrich the Brazilian model. These research directions can significantly contribute to a broader and more practical understanding of the institutionalization of Distance Education, generating knowledge that allows for the improvement of policies, processes and practices in this educational modality.

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