

Distance Education as a Supporting Mechanism for University Student Formation

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Abstract:

This study aims to analyze the role of distance education as a pedagogical mechanism supporting university student formation by assessing its contribution to the development of cognitive and social skills and determining its impact on enhancing academic training in light of the digital transformations occurring in higher education. The study is based on a central research problem: To what extent does distance education, within the framework of the interaction between structure and agency as proposed by Anthony Giddens, contribute to supporting university student formation?

The study adopted a descriptive-analytical approach as it is the most appropriate for understanding and analyzing the phenomenon and its dimensions. A questionnaire was used as the main data collection tool and was administered to a sample of 207 students selected through stratified random sampling from a population of 442 students in the Department of Sociology and Demography at Kasdi Merbah University Ouargla.

The results revealed that distance education is generally positively perceived by students, particularly regarding its role in enhancing cognitive skills and academic formation by facilitating access to knowledge and promoting self-directed learning. In contrast, its impact on social skills was found to be weaker and relatively neutral, reflecting limited direct social interaction within the digital learning environment.

The study also concluded that the effectiveness of distance education in university student formation is not solely dependent on technological infrastructure, but is also shaped by social and pedagogical factors related to students' abilities and learning conditions. From a sociological perspective, these findings were interpreted in light of Anthony Giddens' Structuration Theory, which emphasizes the dialectical interaction between digital structures and students' social agency in producing and reproducing the educational process.

Accordingly, the study confirms that distance education represents a modern educational system that contributes to reshaping university formation, while highlighting the need to develop academic support mechanisms and strengthen students' digital competencies to enhance its effectiveness in the future

Keywords: Distance education; university student formation; cognitive skills; social skills; digital learning; higher education; structuration theory; Anthony Giddens; digital transformation; e-learning.

Research Problem:

Contemporary higher education is undergoing profound transformations due to the rapid expansion in the use of digital technologies. Distance education has become one of the most prominent modern pedagogical mechanisms adopted by universities to ensure the continuity of learning and to improve the quality of university training. This transformation has produced a new educational reality that reshapes the relationship between the student, knowledge, and the university institution, while also

raising questions about the effectiveness of this mode in achieving comprehensive student formation, whether at the cognitive, skill-based, or social levels.

However, the growing spread of distance education does not necessarily imply uniformity in its outcomes or effectiveness. Field practices reveal variations in students' responses and levels of engagement with this mode of learning, which makes it necessary to investigate the nature of its impact on the process of university formation, as well as the limits of this impact in light of differing social and pedagogical conditions.

Based on this problem, the study seeks to approach the topic from a sociological perspective grounded in Anthony Giddens' Structuration Theory, which posits that social action is inseparable from social structure, but rather occurs within a dialectical relationship between actors and structures that simultaneously shape their practices. From this perspective, distance education is understood as a digital educational structure composed of rules and resources, while students are seen as social actors who contribute to activating or reproducing this structure according to their conditions and capabilities.

Accordingly, the main research question of the study is:

To what extent does distance education, as a pedagogical mechanism within the framework of the interaction between structure and agency as proposed by Giddens, contribute to supporting university student formation in terms of developing cognitive and social skills in light of the digital transformations in higher education?

This main question gives rise to the following sub-questions:

- What is the role of cognitive skills as a supporting mechanism for university student formation in distance education?
- What is the role of social skills as a supporting mechanism for university student formation in distance education?

Study Hypotheses :

- Cognitive skills are considered a supporting mechanism for university student formation in distance education.
- Social skills are considered a supporting mechanism for university student formation in distance education.

Reasons for Choosing the Topic:

- The rapid digital transformations in higher education have made it necessary to explore mechanisms for employing distance education.
- Distance education has become an increasingly strategic option in supporting the university learning process.
- There is a growing need to develop diverse student skills to ensure adaptation to the requirements of digital learning and the labor market.

Objectives of the Study :

- To identify the role of distance education as a supporting mechanism for university student formation.
- To examine the contribution of distance education to the development of cognitive skills.
- To clarify its role in developing students' technical competencies.
- To highlight its role in enhancing social and communication skills.
- To evaluate the effectiveness of digital platforms in supporting university formation.

Significance of the Study:

The importance of this study lies in highlighting the role of distance education as a supporting mechanism for university formation by demonstrating its contribution to the development of various student skills, in alignment with the requirements of digital transformation in higher education.

Conceptual Definitions:

Distance Education:

UNESCO defines distance education as:

“a set of teaching and learning strategies aimed at overcoming the spatial and temporal separation between teacher and learner, using technology to deliver educational content and facilitate communication” (UNESCO, 2020).

Holmberg defines it as a type of education that encompasses various forms of study at all educational levels, in which the teaching process is not subject to continuous and direct supervision by instructors in classrooms. In other words, there is a separation between teacher and learner, and technological media play a central role in enabling communication without face-to-face interaction (Moqaddem Safia & Maouch Celia, p. 96).

According to Mishra (2021, p. 120):

“Distance education is institutionally based formal education where the learning group is separated and where interactive telecommunications systems are used to connect learners, resources, and instructors.”

It is also defined as a learner-centered educational system based on the learner’s needs, which does not require direct face-to-face interaction between teacher and learner. In this system, the educational institution plays a strong role in planning and delivering educational services through appropriate technological means (Lallouch Samira, p. 130).

Operational

Definition:

Distance education is an educational mode that relies on the use of modern technological media to transmit knowledge between teacher and learner without the need for physical presence in the same location, while depending on digital platforms and various communication tools.

University Training:

University training is a means of equipping students with knowledge and skills that enable them to perform their tasks efficiently and in the shortest possible time. It is generally divided into two components: theoretical and practical.

The concept of university training is closely linked to higher education, both being associated with scientific research. Scholars’ definitions of university training largely converge around the idea that it ensures pedagogical support across various academic specializations available in universities. Training programs are tied to specific disciplines and modules, unlike general education that precedes higher education (Mehdi Aqqad & Ahmed Yahyaoui, p. 241).

UNESCO defines higher education as:

“Higher education includes all types of studies, training or training for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher education by the competent state authorities” (UNESCO, 1998).

Operational Definition:

University training refers to the overall outcome of the knowledge and cognitive, technical, and social skills acquired by the student through distance education, as measured by respondents' answers to the dimensions of the questionnaire adopted in this study.

Sociological Approach:

This study is based on Anthony Giddens' Structuration Theory as an analytical framework that allows understanding distance education as a dynamic social process in which the digital educational structure interacts with the individual actions of the student. Distance education is not merely a technical system, but a field for reproducing educational practices through continuous interaction between agency and structure.

A large body of theories and research explains the processes through which social action is produced; however, these works often overlook the influence of historically inherited collective conditions on behavior and rarely address the formation of social groups. While social sciences have long been concerned with understanding group dynamics, many approaches emphasize structural constraints without sufficiently addressing the practices through which social life is produced (Cohen, 1989, p. 9).

According to Structuration Theory, distance education can be understood as a digital social structure formed through ongoing interaction between the university system and students. The structure—represented by digital platforms and e-learning rules—does not function independently; rather, it is activated and reproduced through students' daily practices in virtual environments.

Thus, university training in the context of distance education is the result of a “**duality of structure**”, where the university influences the student, and the student simultaneously contributes to shaping the effectiveness of the educational system through patterns of use and interaction.

Giddens addresses the apparent gap between structure and agency by emphasizing that action plays a role in shaping social structure, while structure simultaneously influences practices and behaviors. His approach highlights that human beings continuously produce and reproduce social structures through their actions (Yahya Khair Allah Ouda, p. 4).

Structuration Theory is particularly relevant for analyzing distance education, as it conceptualizes the relationship between structure and agency as dialectical. Distance education can therefore be seen as a digital educational structure embodied in platforms, pedagogical rules, and assessment systems that guide student behavior. However, students are not passive recipients; they are active agents who interact with, use, and reshape this structure through daily learning practices. Consequently, the effectiveness of distance education as a mechanism supporting university training emerges from this continuous interaction between system characteristics and student engagement.

Structures can be considered properties of social systems. Giddens defines systems as “reproduced relations between actors or groups as organized social practices.” In other words, systems manifest as observable networks of relationships. The concept of duality of structure reflects a recursive process whereby actions are transformed into systems through structuration over time (Leydesdorff, 2010).

Giddens' concept of the duality of structure implies that structure is both the medium and the outcome of social action. Structures mediate human agency through memory and are simultaneously reproduced by that agency, forming an ongoing cycle of structuration. This perspective moves beyond the traditional dualism between structure and agency, proposing instead a reciprocal relationship between them (Hossam El-Din Mahmoud Fayad, p. 42).

Methodology:

The study adopts the **descriptive method**, as it is the most appropriate for analyzing the reality of distance education as a supporting mechanism for university student formation. It allows for examining its various roles in developing cognitive and skill-based dimensions and contributes to obtaining accurate and objective scientific results.

Population and Sample:

The study population consists of students from the Department of Sociology and Demography at Kasdi Merbah University Ouargla for the academic year 2024/2025, with a total of 442 students, distributed as follows:

Level and Specialization	Male	Female	Total
2nd Year Bachelor – Social Sciences (Sociology) (LMD)	18	69	87
3rd Year Bachelor – Sociology	31	82	113
1st Year Master – Sociology of Organization and Work	10	26	36
1st Year Master – Sociology of Communication	6	27	33
2nd Year Master – Sociology of Organization and Work	10	20	30
2nd Year Master – Sociology of Education	2	12	14
2nd Year Master – Sociology of Communication	7	25	32
2nd Year Master – Urban Anthropology	1	5	6
2nd Year Bachelor – Social Sciences (Demography) (LMD)	7	23	30
3rd Year Bachelor – Demography	10	21	31
1st Year Master – Demographic Planning and Development	5	16	21
2nd Year Master – Demographic Planning and Development	2	7	9
Total	109	333	442

The sample size was calculated using Stephen Thompson’s formula at a 95% confidence level, where:

- Population size: N = 442
- Confidence level: 95%
- Sample size: n = 207

Due to the nature of the topic and the characteristics of the study population, a stratified random sampling method was adopted using the following formula:

$$\text{Sample size of the stratum} = \frac{\text{Size of the stratum}}{\text{Total population size}} \times \text{Total sample size}$$

Data Collection Tools:

A data collection tool is the means or technique used by the researcher to obtain information from its sources, with the aim of answering research questions or testing hypotheses. The tool is used to measure the variables under study and varies according to the nature and methodology of the research. It includes, for example, questionnaires, interviews, observation, document analysis, and others.

In this study, the **questionnaire** was used as the main data collection tool due to its suitability for the research topic. It was divided into four sections:

- **Section One: General Information**
- **Section Two: Data related to cognitive skills in distance education**

- **Section Three: Data related to social skills in distance education**
- **Section Four: Data related to university student formation**

Presentation and Analysis of Study Data:

1- Gender Variable:

Gender	Frequency	Percentage
Male	53	.40%
Female	148	73.60%
Total	201	100%

Table No. (2): Distribution of the Study Sample According to Gender

It is evident from the table and the graphical representation that the dominant category in the study sample is **females**, with a percentage of **73.60%**, followed by **males** with a percentage of **26.40%**.

2- Educational Level Variable:

Educational Level	Frequency	Percentage
2nd Year Bachelor	53	26.40%
3rd Year Bachelor	76	37.80%
1st Year Master	40	19.90%
2nd Year Master	32	15.90%
Total	201	100%

Table No. (03): Distribution of the Study Sample According to Educational Level

It is evident from the table and the graphical representation that the dominant category is the **third-year bachelor level**, with a percentage of **37.80%**, followed by the **second-year bachelor level** with **26.40%**. Then comes the **first-year master level** with **19.90%**, while the **second-year master level** represents the lowest proportion at **15.90%**.

Analysis of the Cognitive Skills Dimension:

Item Rank	Sample Direction	Percentage	Std. Deviation	Weighted Mean	Disagree	Neutral	Agree	Frequencies	Item No.
05	Agree	84.67	0.77	2.54	34	25	142	ni	1
					16.9	12.4	70.6	Fi%	
07	Agree	81	0.72	2.43	27	61	113	ni	2
					13.4	30.3	56.2	Fi%	
10	Neutral	75.67	0.82	2.27	47	53	101	ni	3
					23.4	26.4	50.2	Fi%	

03	Agree	89.67	0.64	2.69	19	25	157	ni	4
					9.5	12.4	78.1	Fi%	
09	Agree	78.67	0.76	2.36	35	59	107	ni	5
					17.4	29.4	53.2	Fi%	
02	Agree	90	0.62	2.70	17	26	158	ni	6
					8.5	12.9	78.6	Fi%	
06	Agree	82.67	0.69	2.48	23	59	119	ni	7
					11.4	29.4	59.2	Fi%	
08	Agree	79.33	0.78	2.38	37	50	114	ni	8
					18.4	24.9	56.7	Fi%	
01	Agree	90.67	0.59	2.72	14	29	158	ni	9
					07	14.4	78.6	Fi%	
14	Neutral	68	0.83	2.04	65	63	73	ni	10
					32.3	31.3	36.3	Fi%	
11	Neutral	74.33	0.80	2.23	46	62	93	ni	11
					22.9	30.8	46.3	Fi%	
12	Neutral	74	0.82	2.22	49	58	94	ni	12
					24.4	28.9	46.8	Fi%	
15	Neutral	64	0.84	1.92	79	59	63	ni	13
					39.3	29.4	31.3	Fi%	
04	Agree	86.67	0.70	2.60	25	31	145	ni	14
					12.4	15.4	72.1	Fi%	
13	Neutral	72.33	0.80	2.17	49	68	84	ni	15
					24.4	33.8	41.8	Fi%	
/	Agree	79.33	0.36	2.38	The axis as a whole				

Analysis of the Social Skills Dimension

The overall results of this dimension related to **social skills** show a weighted mean of **(2.38)** with a percentage of **(79.33%)** and a general trend toward “**agreement.**” This indicates that students perceive distance education as a relatively supportive mechanism in the development of their social

and communicative skills within the university context. However, this level of acceptance does not necessarily reflect a fully developed social integration, but rather points to a complex and uneven pattern of interaction within the digital learning environment.

From a sociological perspective, these findings can be interpreted through the dialectical relationship between **structure** (the digital educational system with its communication platforms, virtual classrooms, and interaction tools) and **agency** (students' practices in communication, collaboration, and interaction). The general positive orientation reflects the ability of distance education to create new forms of mediated social interaction, where communication is no longer confined to physical presence but is reconfigured through digital spaces.

Nevertheless, the existence of neutral responses in some items reveals limitations in the social impact of distance learning. These limitations may be explained by unequal levels of interaction among students, reduced opportunities for spontaneous face-to-face communication, and differences in digital communication competencies. Such factors contribute to varying degrees of social engagement, which may weaken the development of certain relational and collaborative skills.

Furthermore, these results suggest that distance education does not only function as a tool for knowledge transmission, but also as a social space where new forms of interaction are constructed. Within this space, students are required to engage in virtual collaboration, group discussions, and online communication, which gradually reshapes their social behavior and interaction patterns. However, this transformation remains partial and uneven, as it depends on students' individual motivation, digital literacy, and the quality of interaction provided by the platform.

Accordingly, it can be concluded that distance education contributes to the development of students' social skills, but in a differentiated and context-dependent manner. Its effectiveness remains conditioned by structural and social factors that influence the quality of interaction within digital learning environments. Thus, distance education appears as a sociologically complex phenomenon that not only facilitates communication but also reconstructs the nature of social relations within the university setting, producing new forms of digital sociability alongside persistent limitations in direct human interaction.

Item Rank	Sample Direction	Percentage	Std. Deviation	Weighted Mean	Disagree	Neutral	Agree	Frequencies	Item No.
08	Neutral	77.67	0.83	2.33	47	40	114	ni	1
					23.4	19.9	56.7	Fi%	
11	Neutral	75.67	0.82	2.27	47	52	102	ni	2
					23.4	25.9	50.7	Fi%	
07	Neutral	77.67	0.81	2.33	43	148	110	ni	3
					21.4	23.9	54.7	Fi%	
12	Neutral	70.33	0.89	2.11	69	40	92	ni	4

					34.3	19.9	45.8	Fi%	
05	Agree	79	0.80	2.37	40	47	114	ni	5
					19.9	23.4	56.7	Fi%	
01	Agree	84.33	0.66	2.53	19	57	125	ni	6
					9.5	28.4	62.2	Fi%	
13	Neutral	67.33	0.85	2.02	70	56	75	ni	7
					34.8	27.9	37.3	Fi%	
03	Agree	80.67	0.79	2.42	38	41	122	ni	8
					18.9	20.4	60.7	Fi%	
09	Neutral	76.67	0.83	2.30	48	44	109	ni	9
					23.9	21.9	54.2	Fi%	
02	Agree	81.67	0.77	2.45	35	41	125	ni	10
					17.4	20.4	62.2	Fi%	
04	Agree	79	0.76	2.37	34	59	108	ni	11
					16.9	29.4	53.7	Fi%	
06	Agree	78.33	0.79	2.35	40	51	110	ni	12
					19.9	25.4	54.7	Fi%	
10	Neutral	76.67	0.83	2.30	48	44	109	ni	13
					23.9	21.9	54.2	Fi%	
/	Neutral	77.33	0.48	2.32	Total Axis				

Analysis of the University Student Formation Variable

The overall results of this dimension related to **university student formation** show a weighted mean of **(2.32)**, a standard deviation of **(0.48)**, and a percentage of **(77.33%)**, with a general trend classified as **“neutral.”** This indicates that students’ evaluation of the contribution of distance education to their overall academic formation is characterized by hesitation and lack of a clear position. Rather than expressing a strong positive or negative judgment, respondents tend to adopt a moderate stance, reflecting heterogeneous experiences in their academic and training trajectories within the digital learning environment.

From a sociological perspective, these findings can be interpreted through Anthony Giddens’ Structuration Theory, which emphasizes the continuous interaction between **structure** and **agency** in the production and reproduction of social practices. In this context, distance education represents a digital educational structure that provides rules, platforms, and resources intended to support student

formation. However, its effectiveness is not determined solely by its structural properties, but also by how students, as social agents, engage with, interpret, and utilize this structure in their learning practices.

The predominance of a neutral orientation suggests that the impact of distance education on university formation is neither fully consolidated nor uniformly experienced. This may be attributed to disparities in students' digital competencies, differences in learning autonomy, and unequal access to technological resources. Such factors lead to varied levels of engagement with the digital learning system, which in turn produces differentiated outcomes in academic formation.

Furthermore, some indicators reflecting a positive orientation ("agree") suggest that distance education has contributed, in certain cases, to the development of academic competencies, including cognitive skills, technical abilities, and self-directed learning capacities. This reflects a partial activation of students' agency in using digital tools to enhance their educational experience.

In contrast, the persistence of neutral responses highlights the structural limitations of distance education, particularly its reduced capacity to fully replicate the integrative and interactive aspects of traditional face-to-face learning. This limitation is further reinforced by the individualized nature of online learning environments, which may weaken collective academic engagement and reduce opportunities for experiential learning.

Accordingly, it can be concluded that university student formation within the context of distance education is a **non-linear and context-dependent process**, shaped by the interaction between digital educational structures and students' practices. Its outcomes remain uneven and variable, reflecting the ongoing reproduction of differentiated academic experiences within the digital university space, rather than a uniform model of formation.

Item Rank	Sample Direction	Percentage	Std. Deviation	Weighted Mean	Disagree	Neutral	Agree	Frequencies	Item No.
01	Agree	93	0.51	2.79	09	24	168	Ni	1
					4.5	11.9	83.6	Fi%	
15	Agree	80.67	0.77	2.42	34	48	119	Ni	2
					16.9	23.9	59.2	Fi%	
13	Agree	82	0.71	2.46	26	56	119	Ni	3
					12.9	27.9	59.2	Fi%	
10	Agree	85.33	0.69	2.56	23	43	135	Ni	4
					11.4	21.4	67.2	Fi%	
14	Agree	78.67	0.76	2.36	35	59	107	Ni	5
					17.4	29.4	53.2	Fi%	
11	Agree	85.33	0.71	2.56	25	39	137	Ni	6
					12.4	19.4	68.2	Fi%	
05	Agree	87	0.65	2.61	18	43	140	Ni	7
					09	21.4	69.7	Fi%	
08	Agree	86	0.67	2.58	21	43	137	Ni	8

					10.4	21.4	68.2	Fi%	
12	Agree	84.67	0.70	2.54	24	44	133	Ni	9
					11.9	21.9	66.2	Fi%	
07	Agree	87	0.68	2.61	22	34	145	Ni	10
					10.9	16.9	72.1	Fi%	
06	Agree	87	0.66	2.61	20	39	142	Ni	11
					10	19.4	70.6	Fi%	
09	Agree	85.67	0.68	2.57	21	45	135	Ni	12
					10.4	22.4	67.2	Fi%	
04	Agree	89.33	0.63	2.68	18	29	154	Ni	13
					09	14.4	76.6	Fi%	
03	Agree	91	0.58	2.73	14	26	161	Ni	14
					07	12.9	80.1	Fi%	
02	Agree	91.33	0.57	2.74	13	27	161	Ni	15
					6.5	13.4	80.1	Fi%	
/	Agree	86.33	0.40	2.59	Total Axis				

Overall Results of the University Student Formation Dimension

The overall results of the dimension related to **university student formation** show a weighted mean of **(2.59)**, a standard deviation of **(0.40)**, and a relatively high percentage of **(86.33%)**, with a general trend of **“agreement.”** This indicates that students hold a clearly positive attitude toward the contribution of e-learning in their university formation, reflecting a strong perception of its role in supporting various academic, cognitive, and skill-based dimensions. This relative consistency in responses, compared to the previous dimensions, suggests that the impact of distance education appears more evident and stable when it comes to the construction of general academic competencies. From a sociological perspective grounded in **Anthony Giddens’ Structuration Theory**, this formation can be understood as the result of a dynamic interaction between the **digital educational structure** and the **social agency of students**. Distance education represents an organized structure that includes learning rules and diverse digital resources, while students act as social agents who activate this structure through their daily learning practices, thereby contributing to the reproduction of knowledge and the development of competencies.

The high percentages recorded in most items (particularly those exceeding 85% to 93%) indicate that distance education performs a clear **empowering function** in the university formation process. It contributes to improving academic achievement, expanding access to knowledge, and enhancing learning autonomy. This reflects the effectiveness of the digital structure in providing educational resources that students can actively use to build their academic pathways.

However, the presence of some variation between items, despite the dominance of agreement, indicates that the formation process is not uniform. Rather, it is influenced by varying levels of interaction with the digital structure. This aligns with Giddens’ concept of the **duality of structure**, where educational structures are not merely external frameworks but systems that are continuously reproduced through users’ practices. Accordingly, the more students engage with distance education tools, the greater its contribution to their formation, and vice versa.

Therefore, distance education in this context is not simply a teaching tool, but rather a **socio-educational system** that actively contributes to reshaping the university student cognitively and skill-wise through a continuous interactive relationship between the opportunities provided by the digital structure and the ability of actors to exploit them. This reflects a gradual shift toward new forms of university formation based on digital interaction and self-directed learning.

General Conclusion of the Study

The overall findings of the study indicate that **distance education as a supporting mechanism for university student formation** receives a relatively positive evaluation from students, with most dimensions leaning toward agreement at varying degrees. However, differences were observed in the level of impact across the studied dimensions.

The results show that distance education contributes more clearly to the development of **cognitive skills and general academic formation**, by facilitating access to knowledge, expanding learning resources, and enhancing learning autonomy. This reflects its role as an effective tool in supporting the student's cognitive construction within the university context.

In contrast, the findings reveal that the impact of distance education on **social skills** is less clear and more variable, with a neutral trend observed in several indicators. This suggests limitations in this educational mode in fostering direct social interaction, as well as the persistence of the digital divide and differences in students' communication competencies.

The results also highlight variability in the extent to which students benefit from distance education, both in terms of overall formation and skill development. This indicates that its effectiveness is not solely determined by technical infrastructure, but is also shaped by social, cognitive, and cultural factors related to the learners themselves.

From a sociological perspective, these findings can be explained through the **dialectical interaction between structure and agency**, where distance education represents a digital educational structure that provides multiple learning opportunities, while students act as social agents who reproduce this structure in different ways depending on their abilities and social contexts.

Accordingly, distance education should not be understood merely as a technical tool, but as a **socio-educational system** that contributes to reshaping learning patterns within the university, while its effectiveness remains conditional upon the availability of appropriate pedagogical and social conditions.

Conclusion

In light of the findings obtained across the different dimensions of the study, it can be concluded that **distance education as a supporting mechanism for university student formation** receives an overall positive evaluation from students, although the degree of its impact varies according to the dimensions examined.

The results clearly show that this educational mode contributes significantly to the enhancement of **cognitive skills and academic formation**, by enabling students to access diverse knowledge sources, develop self-directed learning abilities, and strengthen their autonomy in knowledge acquisition. This reflects its role as an effective mechanism in supporting the cognitive dimension within the university learning process.

In contrast, the findings reveal a relative limitation in the impact of distance education on the development of **social skills**, as a neutral trend was observed in several indicators. This suggests that this learning mode does not fully compensate for direct social interaction within the university

environment and remains influenced by disparities in students' digital experiences and communication abilities. The results also indicate variability in the level of benefit derived from distance education, confirming that its effectiveness is not uniform among all students but is shaped by social, cognitive, and pedagogical factors.

From a sociological perspective, these findings can be interpreted within the framework of the **dialectical interaction between structure and agency**, where distance education represents a digital educational structure that provides multiple learning tools and opportunities, while students act as social agents who reproduce and appropriate this structure in different ways according to their individual and social conditions. Thus, distance education cannot be reduced to a mere technological tool for knowledge transmission, but rather constitutes a **social system** that contributes to reshaping learning patterns and the relationship between students and knowledge within the university.

Accordingly, the study confirms that the effectiveness of distance education in university student formation remains **context-dependent**, conditioned by the social and pedagogical environment in which it is implemented. This calls for the development of academic support mechanisms and the strengthening of students' digital competencies in order to improve its efficiency and maximize its formative impact within higher education institutions.

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