Cognitive Integration in University Education between Obstacles to Development and the Need for Epistemological Activation

Houria ZIDELKHEIR
University of Oran 2 Mohamed Ben Ahmed (Algeria)
ORCID iD : 0009-0007-0909-8429
zidelkheir.houria@univ-oran2.dz
/
Fayssal ZIAT
Echahid Cheikh Larbi Tebessi University – Tébessa (Algeria)
ORCID iD : 0009-0009-2577-6327
fayssal.ziat@univ-tebessa.dz

RASS. Pensées Genre. Penser Autrement. VOL 4, No 6 (Novembre 2024)

Abstract
This research paper aims to highlight the significance of "cognitive integration" in modern scientific research. Cognitive integration offers the potential to provide convincing answers to many questions that arise within single-discipline scientific fields. It emphasizes the need for an epistemological approach to enhance cognitive integration in university education. This approach involves reevaluating the foundations of how knowledge is organized and refining its methodologies. The goal is to promote openness and foster integration across different scientific disciplines.Additionally, the paper seeks to identify and explore the major obstacles that hinder the activation and application of such interdisciplinary studies. By addressing these challenges, the paper aims to advocate for a more cohesive and integrated approach to scientific research, which is essential in today's rapidly evolving academic landscape.

Keywords: knowledge integration, university scientific research, monodisciplinarity, development constraints, Algeria,

L'intégration cognitive dans l'enseignement universitaire entre obstacles au développement et besoin d'activation épistémologique

Résumé
Ce document de recherche vise à mettre en évidence l'importance de « l'intégration cognitive » dans la recherche scientifique moderne. L'intégration cognitive offre le potentiel d'apporter des réponses convaincantes à de nombreuses questions qui se posent dans les domaines scientifiques monodisciplinaires. Il souligne la nécessité d'une approche épistémologique pour améliorer l'intégration cognitive dans l'enseignement universitaire. Cette approche implique de réévaluer les fondements de l'organisation des connaissances et d'affiner ses méthodologies. L'objectif est de promouvoir l'ouverture et de favoriser l'intégration entre différentes disciplines scientifiques.
En outre, l'article cherche à identifier et à explorer les principaux obstacles qui entravent l'activation et l'application de telles études interdisciplinaires. En abordant ces défis, l'article vise à plaider en faveur d'une approche plus cohérente et intégrée de la recherche scientifique, ce qui est essentiel dans le paysage universitaire en évolution rapide d'aujourd'hui.

Mots-clés : intégration des connaissances, recherche scientifique universitaire, mon disciplinarité, contraintes de développement, Algérie

Introduction

University scientific research is a driving force for socioeconomic progress. It serves as a true indicator of a society's advancement or lack thereof. Research is a strategic pillar for economic growth and social development, especially in today's world, where competition is intense across all fields. Leading countries and developed societies have aimed to modernize their research systems and educational curricula. Their goal is to keep up with scientific advancements and to develop skilled human capital, as they view scientific research as a vital measure of progress and prosperity.

The rapid technological transformations, knowledge revolutions, and the subsequent social, economic, cultural, political, and environmental changes have compelled a rethinking of how knowledge is organized and distributed in specialized fields. These changes also affect how knowledge is shared and how research is conducted. Specialized studies and research in narrow fields have often failed to address the complex problems societies face, leading to recurring crises. Overemphasizing the separation between disciplines has negatively affected human thinking. It has limited the ability to address issues and solve problems comprehensively by drawing on diverse fields of knowledge. This limitation has also hindered research and studies, making them less capable of finding appropriate solutions or deeply examining phenomena and problems in all their aspects and dimensions (W.Thabit Al-Ani, 2015, p. 53).

Scientific research has always been closely associated with universities worldwide, driven by their scholars and thinkers. It plays several essential roles, the most notable being the advancement and development of various aspects of life. This is achieved through the expansion of human knowledge and the training of scientists and professionals who lead society in its diverse social, economic, and political institutions (A. Ahmad, 2010, pp. 21-22).

Higher education and universities hold significant importance in the social, economic, and political arenas. Universities have become key indicators of

societal progress and development. This is due to their role in connecting higher education with development plans, education, and scientific and technological research. Such efforts contribute to producing qualified human resources that support development goals within the fields of economic and social growth (Ahmad, 2010, pp. 21-22).

Today's modern university focuses on three main objectives: teaching and disseminating knowledge, conducting scientific research, and serving the community. These objectives are not separate but are interdependent and reinforce each other. Thus, the university's role extends beyond teaching; it also involves conducting research and studies that address various sectors of society by offering essential solutions and proposals (A. Ahmad, 2010, p. 22).

A new philosophy has emerged, advocating for the unity and integration of knowledge. This perspective moves away from the isolation that has characterized certain fields over time. It emphasizes cognitive integration, interdisciplinary studies, and transdisciplinary sciences. These approaches highlight the need for a continuous connection between different disciplines, marking a pivotal shift in the roles of scientific and academic institutions, particularly universities (Al-Dhaba &Al-Hanfi, 2021, p. 16).

Despite many obstacles and challenges facing this new field of "cognitive integration," the Ministry of Higher Education and Scientific Research has recently focused on achieving quality and excellence across its programs and academic performance. This is especially true in university research. The ministry has recognized the necessity of cognitive integration and has actively promoted it as an epistemological necessity across various areas. This is evident in recent ministerial decisions, particularly [1]Decree 19/14, which establishes horizontal standards to strengthen third-phase training in educational institutions, including education, philosophy, the English language, and information and communication

[1] Decree No. 1419 dated December 24, 2022, establishing the horizontal criteria for strengthening third-cycle training in higher education institutions in Algeria.

technologies. Another example is [2]Decree 75/12, which underscores the importance of forming integrative interdisciplinary research teams to tackle problems and issues that cannot be fully addressed by a single discipline alone (Ahmad, 2010, p. 22).

Cognitive integration between disciplines relies on a philosophy grounded in a well-known Western saying: "No one of us is as strong as all of us," meaning that "There is no one among us who is stronger than all of us" (Amirat, 2006, p. 15). Thus, it appears that the future of any science depends on recognizing the importance of relationships between different fields.

Research Problem

While primary and secondary education programs in Algeria may achieve some level of integration in their subjects, university education has followed a Western intellectual model in its curricula, priorities, and disciplines, resulting in a lack of "cognitive integration" (Hussein, 2012, p. 146). The study focuses on exploring "the appropriateness of cognitive integration in university scientific research and education" by addressing the following questions:

1. What is the concept of cognitive integration, and why is it important?
2. Does cognitive integration mean linking and aligning sciences with curricula and programs, or does it imply separating them while considering the distinct disciplines?
3. What are the barriers to applying cognitive integration?
4. What is the current need for such an approach in Algerian universities?
5. What strategies are in place to promote this trend in university scientific research?.

[2] Decree 75/12, issued by the Algerian Ministry of Higher Education and Scientific Research, emphasizes the importance of creating integrative interdisciplinary research teams to address complex scientific and societal challenges. This approach recognizes that many issues, particularly in fields such as health, education, and environmental studies, require collaborative efforts that transcend traditional disciplinary boundaries. The decree aims to enhance research quality and relevance in Algeria's higher education institutions.

Objectives of the Study

- This study aims to assess the level of cognitive integration within Algerian university education, identify the obstacles preventing its implementation, and highlight its role in advancing university scientific research, including its impact on societal development.
- It addresses the critical role cognitive integration plays in solving problems that hinder societal progress.
- It offers proposals based on the study's findings to further strengthen cognitive integration across various sciences.

Importance of the Study

- University education is a key pillar for sustainable development and a vital indicator of a country’s progress.
- The significance of this study lies in its focus on researching and analyzing cognitive integration between sciences, which is a modern trend in scientific research and university education. This integration helps shape the future of both natural and social sciences to support societal development.
- Cognitive integration is important for keeping pace with modern global thought and contemporary changes. As previously mentioned, cognitive integration in university education has become a widely accepted global trend for enhancing the quality of scientific research.
- The study also highlights the role of university faculty members, who are central to the educational process. Their abilities to innovate and create can make the university a hub of distinctive intellectual activity that enriches the culture of society and contributes to its progress. Faculty members serve as catalysts for renewal and development, effectively nurturing generations that are open to change, able to confront it, and even lead it (Ibrahim, 2016, p. 581).

1. Methodology

Based on the study's problem, nature, and objectives, a descriptive approach is adopted. This involves collecting, analyzing, and critically examining information from an epistemological perspective, then drawing conclusions that help understand the current situation and work toward improving it. Additionally, a comparative approach is applied when necessary to compare Western and Arab experiences.

2. Results

The section seeks to bring forth the findings of the study on the incorporation of cognitive knowledge in higher education and research. It puts scientific research at the forefront as an important tool for the determination of realities and increased insight into various academic worlds. It proves that cognitive integration plays a significant role in filling the knowledge gaps between disciplines toward a holistic approach to problem-solving, thus enabling universities to find realistic solutions to social concerns. The findings indicate establishing specialized research centers in universities through which interdisciplinarity shall be fostered, and also equip the faculty with various resources to participate in integrated research. The findings also point out that integrating knowledge would involve overcoming many of the challenges: discipline divides, lack of funding for interdisciplinary research, and reconsideration of faculty development and institutional structures. The study proposes that integration of cognitive approaches within academia is increasingly called to play a critical role in fostering knowledge and innovation in response to modern challenges.

2.1. Definition of University Scientific Research

In linguistic terms, "research" refers to the act of seeking and examining. It involves the thorough investigation of a subject and its related matters, including scientific inquiry (Madani, 2015, pp. 15-16). In academic terms, university scientific research means the effort made by a researcher to explore, investigate,

analyze, criticize, and compare a topic to discover or uncover the truth. This effort is not aimed at proving or supporting a particular opinion or viewpoint. Thus, research reconciles personal abilities with creative self-activity and acquired knowledge in a clear, simple, and precise manner, avoiding ambiguity, redundancy, digression, and bias. It strengthens the connection between ideas through logical analysis, mental reasoning, and scientific coherence, thereby capturing and maintaining the reader's interest from beginning to end (Fadlallah, 1993, pp. 12-13).

In general, scientific research refers to a study or project conducted using a scientific method to draw conclusions and discuss them. The purpose is to explore a topic in depth and clarify its core idea through the chosen research framework. University-level scientific research involves gathering and analyzing data to address a specific research problem (Engels, 1993, p. 70).

Academic scientific research relies on systematically applying specific methods and procedures to obtain information or uncover relationships between variables in society. It aims to discover new information or validate existing knowledge, thus enhancing or verifying what is known. Scientific research, therefore, focuses on testing hypotheses to understand or analyze a phenomenon within society (Maged, 2016, p. 14).

In summary, scientific research is:

> an organized scientific activity, a way of thinking, and a method of examining facts. It seeks to uncover truths by using objective approaches to identify connections between facts and then derive general principles or explanatory laws. Consequently, scientific research raises awareness and highlights problems that might not be recognized in any other way (Rashwan, 1982, pp. 25-26).

The term "scientific research" generally includes the following key points:

- Research involves the manipulation of objects, concepts, and symbols.
- It is a means of systematic and precise inquiry.
- Researchers conduct research to discover new information or relationships.

- The goal of research is to develop, correct, or investigate existing theories or information.
- To achieve this, researchers follow the steps of the scientific method, especially regarding the selection of appropriate methods and tools with integrity and reliability (Bouhoush &Al-Dhanibat, 2007, p. 15).

According to Moody, scientific research is essentially about discovering the truth and is rooted in analytical critical thinking. This approach involves identifying and formulating scientific problems, proposing hypotheses, suggesting solutions, collecting and organizing information, and finally drawing conclusions to test their alignment with the initial hypotheses (Bouhoush &Al-Dhanibat, 2007, p. 16).However, the focus here is on university scientific research, which can be divided into three main areas:

(a) **Research for University Development**: This type of research focuses on improving the university itself, whether by enhancing teaching competencies, advancing technology to access information, or producing qualified human resources that can adapt to societal changes.

(b) **Research for Social Development**: This research aims at the broader social context to address problems that hinder development and progress, thereby increasing the chances of social stability.

(c) **Research for Economic Institution Development**: This research focuses on developing productive economic institutions, helping them adapt to changes, and improving product quality, speed, and efficiency.

Based on this, university scientific research can be divided into two types:

- **Theoretical Research**: Generally, this type of research does not address immediate problems. Its main goal is to expand the body of basic knowledge in various scientific and human fields. This type is also known as basic or pure research (Obaidat, 1992, p. 6).
- **Applied Research**: This research aims to solve existing problems in social and economic institutions. Researchers identify the issues these

institutions face and ensure the validity or accuracy of their causes (Obaidat, 1992, p. 6).

It is important to note that it is difficult to separate these two types of research (applied and theoretical) because they are closely interrelated.

The role of international universities is similar to that of Algerian universities regarding their responsibilities in scientific research and training worldwide. Algeria is integral to this crucial role, as universities are seen as the producers of the nation's political and economic leaders. Universities today produce human resources that contribute to societal and economic development and create a "knowledge economy" by finding solutions to economic, political, and social challenges (Ahmed, 2010, p. 22).

2.2. The Concept of Cognitive Integration in University Education

To understand the concept of cognitive integration more clearly, it is helpful to begin with the term "university." The term "university" represents a cross-disciplinary concept that encompasses multiple fields of science and knowledge.

It reflects a comprehensive formation in various domains of knowledge, both at the individual and group levels. Intellectual excellence can be achieved by combining multiple sciences. Accordingly, universities can graduate students in a range of disciplines, following their academic plans.

When we consider the definition of "university" in the European context, it is described as an "institutional system that organizes the cognitive system." This definition highlights the systematic function of a university in the production of knowledge. The term is similarly used in Arabic, where "university" refers to "collecting or bringing together things, organizing and structuring them." This linguistic meaning in the Arab-Islamic context implies coordination, continuity, and complementarity. The latter, "cognitive integration," is the concept we aim to activate within university education (Hussein, 2012, pp. 163-164).

The terms related to cognitive integration are numerous, with varying concepts and explanations. In this research, we define cognitive integration as

intercognitive thought or interdisciplinary studies. It involves the integration between two or more fields of knowledge to achieve a deeper understanding of an integrated body of knowledge. Essentially, it is a philosophy that connects different fields of science. An "interface" is defined as "a process of interaction and exchange of knowledge between different disciplines." This exchange may result in the integration of overlapping disciplines into a new field. The interface can be seen as a complex interaction that occurs between two or more elements, each belonging to a distinct science or discipline (Ramadan, 2015, p. 16).

This complexity and intermingling often occur in the research process to serve the subject under study. Nisani, a scholar who has significantly contributed to the understanding of interdisciplinary research, emphasizes the importance of integrating various scientific disciplines to address complex issues that cannot be fully resolved within the confines of a single field. He illustrates how various sciences can be compounded within a single study. Researchers William Noel and Julie Klein also describe the interface as "a study that involves two or more fields of knowledge. It addresses questions and problems that are difficult for a single discipline to solve" (Ramadan, 2015, p. 16).

In this context, the French epistemologist Robert Blanché states:

> The mixing of sciences with each other has today become almost the norm. These sciences have begun to grow and blend among themselves, making their boundaries fluid and unstable. The most distant and different knowledge has unified within them, such as cybernetics, which relies on the cooperation between the logic of two values, the theory of electrical circuits, and the physiology of nerves. The unity of sciences emerges from the numerous relationships that exist within the fabric of the different parts of knowledge" (Blanché, 2014, p. 141).

This understanding is not very different from its meaning in both language and terminology.

2.2.1. Cognitive Integration in Language: The term "integration

> is derived from the abstract triliteral verb "complete." Ibn Manzur explains, "Complete perfection: completeness, and the completeness of which its parts are fragmented... And I completed the thing, that is, the most beautiful thing, and I completed it... Complete it: Complete it and complete it... And I have completed for you: your sufficiency and I have given you more than you need (Ibn Manzur, 1434, p. 3930).

In Arabic, integration requires multiple elements that represent different parts. These parts, when seen in isolation, can appear deficient. To remedy this deficiency, they need to connect with other parts. This connection protects them from flaws and ensures sufficiency. Such communication requires effort, strength, continuity, and succession. Each part responds to the call of the others, accepts them, and supplies what is needed. As time passes, each part fulfills its function and purpose, achieving both its own completeness and the overall integration (Kasimi, 2018, pp. 146-147).

2.2.2 Cognitive Integration in Terminology

Cognitive integration also involves the combination of different disciplines. For example, some combine the sciences of Sharia and medicine, or engineering and astronomy. Historical figures such as Ibn Rushd combined three fields: medicine, jurisprudence, and philosophy. Similarly, Al-Kindi, an encyclopedic scholar, produced diverse works in logic, arithmetic, medicine, engineering, astronomy, music, geography, debate, psychology, politics, and ethics (Hussein, 2012, p. 159).

2.3. The Epistemological Necessity for Activating Cognitive Integration in University Education and Scientific Research

In Algeria, scientific research is experiencing a qualitative leap, particularly in terms of funding. The Algerian state has allocated a substantial budget, reflecting its new perspective on university scientific research. However, this interest must

be accompanied by changes in the laws and regulations governing university research. A new strategy must be developed to align with the current stage's needs. Accordingly, this study aims to promote the strategy of cognitive integration in university education, given its significance and the objectives it can achieve.

2.3.1. The Importance of Cognitive Integration in University Education

Cognitive integration studies have emerged as a valuable field for researchers today due to their significance in examining various social phenomena, issues, and complex problems. These studies cross the boundaries and restrictions between different sciences. After decades of increased specialization, there is now a growing trend towards funding research projects and programs that promote integrative, interdisciplinary research. This approach encourages scientific and technological progress and maximizes the benefits of research for human development and the quality of life. Thus, cognitive integration research, which relies on knowledge interaction, is not an end in itself. Instead, it serves as a tool to support research efforts in addressing societal challenges and fostering a competitive environment for acquiring knowledge. This is achieved through the integration of knowledge or the creation of new research areas that merge insights from various fields (Al-Abad, 2022, pp. 179-180).

Interest in cognitive integration studies has grown, and the need to implement it has been recognized as a new strategy in university education and scientific research. This strategy is based on several justifications related to the value of this field of knowledge. Initially, it is activated at the level of higher education and scientific research, and then it extends to other areas that benefit from research outcomes for their development. The need for such an approach has become increasingly important for the following reasons:

- Cognitive integration is becoming the true future of academic studies at universities and research institutions. Universities increasingly establish research centers with an integrative interdisciplinary nature that bring

together various theoretical fields of knowledge. Some universities have even established graduate schools that combine multiple disciplines. This integrative approach is essential to address many of the challenges and needs of contemporary life (Ibrahim, 2016, p. 583).

- The concept of cognitive integration has led to the decline of arguments favoring a hierarchy of sciences. Instead, it promotes integrating knowledge by connecting intellectual schools and scientific disciplines, breaking down barriers between them, and achieving a comprehensive vision (Nadia, 2021, pp. 250-251).
- Cognitive integration studies in universities provide a dialogue-based environment that fosters a new scientific spirit, supported by innovative integrative mechanisms. These mechanisms challenge current scientific research standards. Cognitive integration studies also play a vital role in preparing research students with interdisciplinary skills, such as critical analysis, discussion, and collaboration. These skills enable students to connect and relate to different scientific fields (Nadia, 2021, p. 251).

The role and importance of cognitive integration studies can be divided into three levels:

- **First level**: The scientific level. There is growing awareness that cognitive integration is not a luxury but a necessity for research, particularly in addressing complex topics that require multiple perspectives (Al-Abad, 2022, p. 271).
- **Second level**: The economic and social level. This involves applied sciences and research projects that transition science from theoretical to practical applications. Knowledge becomes a tool for solving real-world problems at national, regional, or global levels.
- **Third level**: The level of reflection on scientific research itself. This includes evaluating methods, concepts, tools, and results. Cognitive integration studies are both the result of reflecting on modern scientific

knowledge and its outcomes and a framework for renewing questions and identifying new problems (Al-Abad, 2022, p. 271).

Cognitive integration studies represent a new revolution and a significant challenge in university education. They are crucial for the future of higher education worldwide and a fundamental requirement for many professions in today's labor market. As a result, academic institutions compete to develop policies that apply integrative study programs and encourage practical research of this nature. Educational studies show an increasing demand for integrative studies across various fields. Integrating concepts from different scientific areas has become urgent when seeking solutions to the most complex problems, which cannot be resolved within a single scientific discipline (Al-Abad, 2022, p. 271).

2.3.2. Objectives of Cognitive Integration in University Education

Cognitive Integration Studies can play a crucial role in four key areas:

1. **Integrating Knowledge**: This involves linking and combining intellectual and technical disciplines to produce high-quality results based on fundamental and natural sciences (Mahmoud, 2022, p. 04).
2. **Creativity in Thinking**: This objective is about enhancing the ability to address issues from various perspectives, challenging existing assumptions, and deepening understanding. It requires employing research methods from different fields to identify problems and solutions beyond the scope of a single discipline (Amin, 2023).
3. **Achieving Integration**: This involves recognizing and addressing the differences between disciplines to create a unified and comprehensive body of knowledge. According to Veronica Mansella and Howard Gardner (2003), Cognitive Integration Studies aim to merge the knowledge and methodologies of multiple disciplines. For instance, at King Abdulaziz University, the study of water resources is shared among three faculties: the Faculty of Meteorology (Water Resources Science and Management), the Faculty of Engineering (Saline Water Desalination Technology), and

the Faculty of Earth Sciences (Water Geology). The integration of these faculties into a unified cognitive integration studies program demonstrates this approach (Ibrahim, 2016, pp. 583-586).

4. **Knowledge Production**: The need for cognitive integration studies has become more urgent as many complex societal problems cannot be addressed by a single discipline. Interdisciplinary studies, using modern methods and skilled researchers, are essential for generating new knowledge. These studies help universities stay current with global advancements and meet the evolving needs of modern societies that demand higher specialization (Promising Research Center for Social Research and Women Studies, 2023, p. 10).

2.3.3. Cognitive Integration Functions in University Education

Cognitive integration serves several functions in university education:

- **Diagnosis**: Diagnosis is a fundamental function of cognitive integration in both university education and scientific research. Describing the society being studied and identifying the research focus are critical initial steps in scientific inquiry.
- **Prospecting**: Another function is to prospect for information, explore facts, and gather evidence and data. This helps in understanding various aspects of the research topic.
- **Interpretation**: Based on diagnosis and exploration, interpretation is the third objective of cognitive integration. It involves identifying patterns or phenomena in society and gathering sufficient information to explain or analyze these phenomena.
- **Prediction**: Interpretation helps researchers make predictions. Without the ability to explain phenomena, prediction is not possible. Thus, science aims not only to interpret but also to predict future developments based on current data (Mahjoub, 2005, p. 20). Prediction or extrapolation is a goal in studies that track the chronological development of social phenomena or

examine how different societal factors interact and influence each other (Maged, 2016, p. 16).

- **Control**: Given the nature of integrative research and its capacity to identify patterns and forecast based on accurate data, control and planning become essential functions of scientific research (Hani &Saadawi, 2022, p. 438).
- **Archiving**: Lastly, cognitive integration involves building a repository of information and data that other researchers can use. This helps in maintaining a valuable resource for future research.

The primary goal of cognitive integration in university education and scientific research is to develop researchers who can generate new knowledge, advance science, and address various problems. Implementing this strategy in university education is crucial due to emerging challenges that impact education systems and policymaking.

Moreover, the need for overlap within educational fields has become apparent. Some studies highlight the necessity of integrating knowledge to meet educational, intellectual, and cultural needs. Edgar Morin emphasizes that education's first task is to help students connect different areas of knowledge and understand complex systems. Education should assist learners in navigating the vast amount of information provided by modern communication methods, enabling them to process and select information relevant to their competencies and understanding of the world (Al-Abad, 2022, p. 283).

Obstacles to Cognitive Integration in University Education and Scientific Research

Knowledge integration faces numerous obstacles that hinder researchers and research institutions. Despite the widespread recognition of its importance, authorities have struggled to overcome these barriers. Although technology has aided in its development, significant challenges remain. The primary obstacles include:

- **Lack of Awareness about Cognitive Integration in University Education**: Universities are meant to be institutions that generate scientific knowledge and serve various sectors, including addressing state, governmental, and public issues such as corruption, development challenges, and public administration modernization. University research centers and laboratories should produce valuable ideas, such as strategies to tackle past issues and present challenges, while aiming for a successful future within the realm of various scientific phenomena (Hani &Saadawi, 2022, p. 444).
- **Overemphasis on Discipline Boundaries**: The rigid separation between disciplines has negatively impacted human thinking. This segregation limits the ability to approach issues and solve problems in a comprehensive and integrated manner, restricting openness to various fields of knowledge (Al-Dhaba &Al-Hanfi, 2021, p. 34).
- **Traditional University Structures**: Many universities maintain isolated departments that are not interconnected, and cognitive integration studies often lack adequate support and funding. Researchers frequently encounter significant difficulties in securing research grants and have limited participation in exchange programs (Ibrahim, 2016, p. 584).
- **Lack of Clear Vision for Building Cognitive Integration Studies**: There is an insufficient vision for developing cognitive integration studies within universities, primarily due to the weak relationship between universities and the labor market.
- **Inefficient Work Environment**: The work environment necessary for cognitive integration studies often lacks effectiveness.
- **Absence of Integrated Postgraduate Programs**: There is a shortage of comprehensive postgraduate programs that promote the integration and overlap of various knowledge areas, sciences, and cultural diversity (Al-Dhaba &Al-Hanfi, 2021, p. 34).

- **Linguistic Issues**: The difficulty in using terminology across disciplines is a notable problem. For example, the term "criterion" may have different meanings in different fields.

Edgar Morin highlights several concerns related to cognitive integration studies:

- **Approximate Perceptions and Conceptual Confusion**: Cognitive integration studies can lead to vague perceptions and confusion between concepts, as well as an illusion of comprehensive knowledge. This is particularly problematic when such studies are conducted by individuals or small research teams. It is crucial to balance the integration of various fields with maintaining the distinctiveness of each discipline (Ibrahim, 2016, p. 585).

Arab culture often absorbs Western cultural influences, but there is limited awareness of how theories relate to their original cultural contexts. Kenyan writer Wathiongo highlights this issue, noting, “the most serious facet of this situation is the rapid and ready adoption of Western academic structures at the expense of localism, as in English literature” (Ibrahim, 2016, p. 585).

Despite the challenges and criticisms associated with cognitive integration studies, which can sometimes lead to outright rejection, these studies are gaining traction in academic and research communities. They are becoming crucial for shaping the future of science and supporting its various roles in promoting sustainable societal development.

Mechanisms for Activating Cognitive Integration in University Education

Activating cognitive integration studies in university education requires several steps:

- **Increase Funding for Research:** In Algeria, enhancing funding for scientific research is essential for success. It's important to align research with community development goals to drive progress. Reassessing the timing of achievements to match research quality is also necessary (Ahmad, 2010, p. 41).

- **Establish Research Centers:** Universities should create research centers focused on cognitive integration. These centers will facilitate integrated scientific supervision and distribute manuals and bulletins to faculty members, educating them about the importance of integrated scientific partnerships (Al-Dhaba &Al-Hanfi, 2021, p. 66).
- **Form Scientific Committees:** These centers should include expert committees specializing in cognitive integration studies. These committees will develop standards and plans to implement this system, ensuring it meets quality standards and evolves with the new knowledge society (Muhammad, 2013, p. 138).
- **Implement and Test Research:** Quickly put modern integrative research into practice, test it, and provide feedback on its strategic value. Assess how well this research can be applied in practical settings, such as economic institutions (Hani &Saadawi, 2022, p. 449).
- **Award Prizes:** Introduce awards for the best examples of integrated knowledge partnerships in university scientific research across various disciplines.
- **Strengthen University Links:** Enhance collaboration between universities and economic and social institutions in both planning and implementation.
- **Leverage Expertise:** Utilize both Arab and international expertise in cognitive integration studies. Coordination among Algerian universities will help unify efforts, share experiences, and benefit from collective knowledge (Al-Dhaba &Al-Hanfi, 2021, p. 67).

Reevaluating the roles of professors and university researchers is crucial for initiating successful cognitive integration research. It is important to address the conditions of faculty members and academic and administrative leaders, who currently face numerous challenges. These challenges require specialized sources of sustainable professional development, including programs, fields, and planning strategies.

Addressing the obstacles to implementing the proposed concept is essential. From this perspective, the methodology of cognitive integration studies is vital for transferring practical experiences to university education in Algeria. It contributes to educational reform and plays a key role in solving society's complex problems. Cognitive integration studies connect various sciences and hold promise for linking the humanities with other disciplines. These studies could also serve as a new foundation for the future of humanities, social sciences, and educational studies (Mahmoud, 2022, p. 07).

3. Discussion

Scientific research in universities is crucial for discovering facts and advancing understanding across various academic fields. Fadlallah (1993) emphasized this importance, linking scientific research to critical and analytical thinking. He argued that research should not merely validate ideas but also develop knowledge. Recent studies affirm that strengthening scientific research within universities is vital to stimulate cognitive integration, now essential in addressing modern cognitive challenges. Therefore, scientific research serves as the foundation for fostering cognitive integration across university disciplines, which is essential for tackling complex societal issues and supporting the knowledge economy.

However, there are considerable challenges impeding cognitive integration in university education. Saadawi (2022) highlighted a lack of awareness about the importance of cognitive integration and interdisciplinarity. This issue is exacerbated by traditional university structures, which often create barriers between disciplines, thus limiting collaboration and knowledge exchange. This situation contrasts with Blanche's (2014) observation that modern scientific research increasingly involves the merging of diverse fields. To address this, universities may need to revamp their academic frameworks to support innovative teaching and learning methods that encourage interdisciplinary integration.

Studies like Hanafi (2021) advocate for establishing specialized research centers within universities to support cognitive integration. These centers can strengthen integrative partnerships in scientific supervision and encourage collaboration across disciplines. Through such integration, universities are better positioned to offer innovative solutions to contemporary societal problems. Cognitive integration also enhances research and creative skills, enabling both researchers and students to move beyond narrow disciplinary limits toward more comprehensive solutions.

Nevertheless, some scholars, including Edgar Moran (2016), caution that cognitive integration can sometimes blur concepts, potentially undermining research rigor, particularly when conducted by small teams or applied on a limited scale. However, the benefits of interdisciplinary integration—particularly in addressing complex phenomena—outweigh these challenges. Obstacles such as these can be mitigated through educational programs that promote holistic and critical thinking, which many researchers advocate in the context of university education.

The need to develop scientific research methods in Algeria is pressing to ensure successful cognitive integration. Ahmed (2010) highlighted the importance of increasing funding for scientific research and allocating resources to support integrative projects. Such efforts can promote research that bridges academic knowledge and societal needs. This approach should include training for researchers and professors in advanced research methods, with an emphasis on connecting research outcomes to community development. Saadawi (2022) stressed that the success of cognitive integration relies heavily on institutional support and funding.

In summary, cognitive integration in university education represents a promising approach for fostering interaction across disciplines, contributing to innovative solutions for societal challenges. While challenges persist, such as limited

institutional awareness and disciplinary divisions, establishing interdisciplinary research centers, along with providing financial and training support, would significantly enhance the activation of cognitive integration in higher education.

Conclusion

A core philosophy of higher education and scientific research, both private and public, is the cognitive integration of sciences. This approach aims to explore how different fields can interconnect to benefit students and societies. It is based on the idea that sciences are fundamentally interconnected and mutually dependent. Historical developments have shown that this interdisciplinary approach has led to significant advancements for humanity.

Many higher education institutions are now working to implement cognitive integration curricula and overcome related obstacles. Universities are increasingly forming research teams to support this approach. Developing and implementing specific policies to support these teams can be a driving force in addressing community issues and finding solutions.

The success of cognitive integration studies in research and university education depends on finding effective answers to evolving questions posed by scientific research. Despite the challenges, this field plays a crucial role in bridging knowledge gaps and fostering interaction and dialogue, providing a foundation for cognitive integration.

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Houria ZIDELKHEIR is a Lecturer in the Department of Philosophy at the University of Oran 2 Mohamed Ben Ahmed in Algeria. She holds a Ph.D. in Philosophy, awarded in January 2023. Her academic interests focus on researching various aspects of philosophical thought and its applications in contemporary issues. Houria is committed to fostering critical thinking and philosophical inquiry in her academic work.

Houria ZIDELKHEIR
University of Oran 2 Mohamed Ben Ahmed (Algeria)
zidelkheir.houria@univ-oran2.dz

Fayssal ZIAT, Professor, Lecturer, Department A, in Logic and Philosophy of Science, Department of Philosophy, University of Echahid Cheikh Larbi Tebessi- Tebessa/Algeria, member of the research team in philosophy and humanities at the university, head of a formative research project PRFU entitled Man, the Environment, and Contemporary Environmental Problems, and responsible for the Formation Division team. in philosophy, and a member of the supplementary training cell for doctoral students in philosophy. His research focuses on the areas of philosophy of science, logical thinking, and contemporary philosophical questions.

Fayssal ZIAT
Echahid Cheikh Larbi Tebessi University - Tebessa
fayssal.ziat@univ-tebessa.dz