



CULTURAL EPISTEMOLOGY TOWARDS A NEW PERCEPTION OF TRANSDISCIPLINARY RESEARCH IN EDUCATION

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ABSTRACT

This study explores cultural epistemology as a transformative paradigm for considering transdisciplinary research within educational contexts, moving away from traditional multidisciplinary barriers toward a truly integrated pedagogical approach. The research investigates how a foundational cultural framework composed of contextual understanding, cognitive readiness, a collaborative mindset, and structural and social upgradation serves as the essential precursor for meaningful knowledge production. The paper explores how these four pillars interact to show how their convergence promotes a thorough cultural synthesis, which is the source of advanced cross-sectoral collaboration. The results indicate that by bridging the gap between theoretical academic frameworks and actual social realities, this synthesizing technique effectively constructs a new cultural epistemology through qualitative mixed-method research, which combines various qualitative methods to justify the paper's outcomes. Embracing an expanded perception of research not only enhances the inclusivity of educational systems, but it also provides a scalable approach for solving complex, real-world challenges through a unified, culturally informed point of view. The study argues that cultural epistemology is not merely a theoretical construct but a practical necessity for developing educational paradigms, ensuring that knowledge production is inclusive, flexible, and deeply rooted in the social realities of the modern global landscape.

Keywords: Cultural Epistemology, Transdisciplinary Research, Knowledge Systems, Indigenous Knowledge System, Collaborative Knowledge Production.



INTRODUCTION

In the era of the 21st century, education is encountering new obstacles and problems stemming from the complex interaction of social, cultural, technological and ecological phenomena that transcend the traditional framework of disciplines (Nicolescu, 2002; Bernstein, 2015). Such phenomena include, for example, globalization, ecological sustainability, diversity of cultures, new technologies and the list of such factors is not limited. As Max-Neef (2005) remarks, although a deep understanding of educational problems cannot be developed within the limits of a single discipline, it is equally the case that education cannot be resolved within the framework of separate disciplines, because educational problems arise from complex interactions of a culturally and socially diverse nature that cannot be dealt with successfully by dividing them into specific disciplines.

The mentioned limitations made us look for new ways of approaching and tackling the difficulties and problems that appear in educational systems. That is why, based on the suggestions presented in the debate on alternative approaches to educational research, we chose the transdisciplinary approach. In the paper “The Transdisciplinary Method” (Nicolescu, 2002) the author explains very well the ways in which the new approach transcends the multidisciplinary and interdisciplinary approaches, by providing the basis of a new way of thinking and of understanding, beyond the frameworks of the separate disciplines; it is thus a knowledge approach that is holistic, problem-oriented, and social. The transdisciplinary way of approaching, in turn, implies the co-construction of the knowledge, the plurality of the views, and as a consequence, the offering of more adequate and durable answers to the complex problems that arise in the education system. (Bernstein, 2015).

According to Geertz (1973), cultural epistemology holds that knowledge is a culturally generated artifact that is dependent on the social and cultural context of the moment in which it is created rather than an absolute or universal construct. A particular culture's learning and thought processes are directly impacted by this context, which is a collection of socially and



culturally produced values, beliefs, conventions, and practices. In this way, cultural epistemology offers a means of introducing the idea of cultural diversity, often referred to as epistemic diversity, and going beyond the conventional framework of object-subject connections.

Cultural epistemology therefore becomes a critical element so as to ensure that the integration of knowledge for the purposes of resolving various global challenges is not just done technically but also in a culturally and socially meaningful way. To address the complexity of the issue, transdisciplinary research combines different knowledge systems in a thorough, context-appropriate manner (Nicolescu 2002). It encourages participatory approaches to knowledge creation that allow people from diverse socio-cultural contexts to share their distinctive experiences and viewpoints on learning and knowledge, as well as culturally relevant and suitable education (Dei, 2011; Banks, 2015).

OBJECTIVES OF THE STUDY

1. To study the concept of cultural epistemology in the context of education.
2. To explore the role of perspectives and contextual understanding in transdisciplinary research.

METHODOLOGY

Research Design

This study adopts the **Qualitative Mixed Method Research (QMMR)** approach which emphasizes the integration of multiple qualitative methods to generate a holistic and context-sensitive understanding of complex educational phenomena. Unlike conventional mixed-method research that combines qualitative and quantitative data, QMMR employs diverse qualitative strategies to examine a phenomenon from multiple epistemological perspectives.



The present research investigates the role of cultural epistemology in shaping new perceptions of transdisciplinary research in education. Since the study is theoretical and exploratory in nature, it relies on qualitative evidence gathered from scholarly and documentary sources. Following Bhattacharyya's QMMR framework, the study combines the following qualitative methods:

1. Document Analysis
2. Interpretative Analysis
3. Thematic Analysis.

Cultural Epistemology in Transdisciplinary Research

Multiplicity: Unlike traditional research paradigms that privilege universal and standardized forms of knowledge, cultural epistemology advocates for the inclusion of multiple knowledge systems, such as indigenous, local, experiential, and community-based knowledge, alongside formal academic knowledge. This perspective is consistent with the one that posits that there is no epistemology alone that can solve complex and real-world problems, more especially in different educational settings (Battiste, 2002; Nicolescu, 2002).

In transdisciplinary research, the goal is to break down disciplines but, if without cultural underpinning, it may be a reminder of the dominant epistemology that silences other modes of knowing. The issue is resolved by cultural epistemology, which promotes epistemic pluralism, whereby different perspectives are valid and important. It follows the idea of the 'ecology of knowledge' that posits the coexistence and interaction of different knowledge systems for the purposes of planning solutions to global and local problems (Santos, 2014).

Collaboration: It becomes a key element in this framework. The cultural epistemology approach to transdisciplinary research needs active engagement from a variety of stakeholders, such as educators, researchers, policymakers, and local communities. This kind of co-operation encourages discussion, exchange of knowledge and knowledge creation. It also guarantees that the findings of the study are not only academically sound but also socially relevant and culturally relevant (Freire, 1970; Vygotsky, 1978).



For example, the concept of cultural epistemology helped to inspire innovative approaches in teaching, curriculum planning and policy making in schools and education. Finally, cultural epistemology redefines transdisciplinary research as a process of knowledge creation that is dynamic, inclusive and culturally responsive, not a process of incorporation of disciplines. (Max-Neef, 2005).

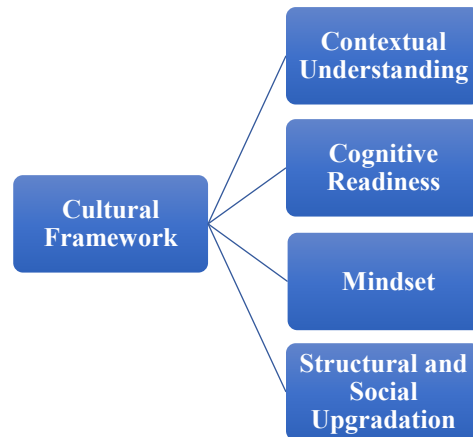
Cultural synthesis: The important cultural approach to this is cultural synthesis, which is an approach that encourages transdisciplinary research in the cultural epistemology. Cultural synthesis refers to the process of synthesizing or negotiating between a number of cultural perspectives, experiences and knowledge traditions to produce new, comprehension understandings. It does not just represent the merging of disciplines, but an engagement with the cultural context and conceptual frameworks. This process will help researchers break through the silos of knowledge and develop contextually appropriate and socially responsive solutions (Nicolescu, 2008).

CONCEPTUAL FRAMEWORK OF CULTURAL EPISTEMOLOGY

The proposed framework situates the cultural framework as the base of knowledge in the beginnings of knowledge formation with an emphasis that knowledge is not neutral or universal, but is formed by socio-cultural circumstances. This view is consistent with the view that learning and cognition are socially determined and that there is a strong linkage between learning and cultural contexts (Vygotsky, 1978). The framework identifies four interrelated components that influence knowledge construction:



Figure: Cultural Framework



Contextual Understanding

Perspective is influenced by cultural and social context in the way that it affects the interpretation and construction of knowledge. Cultural epistemology is a focus on the fact that there is no single perspective that can capture the complexities of reality (Bruner, 1996). Thus, Contextual understanding is crucial in transdisciplinary research. The educational strategies should take into account the learners' cultural backgrounds, social contexts and historical experiences. This facilitates the application and sense of knowledge. For example, teaching strategies that are culturally appropriate for pupils enhance engagement and comprehension. Therefore, incorporating multiple perspectives results in a more comprehensive understanding of educational issues.

Cognitive Readiness

The term “cognitive readiness” describes a learner’s willingness to interact with new information, which is significantly influenced by prior cultural experiences and existing cognitive structures. Vygotsky’s theory of the Zone of Proximal Development, states that learning occurs when new information is connected to existing knowledge within a culturally relevant framework (Vygotsky, 1978). Context plays a crucial role for shaping cognitive



structures. According to Vygotsky (1978), that learning is a socially mediated process, and that interaction within cultural contexts leads to cognitive development. Cultural epistemology supports that cognition is indirectly linked to the learner's surrounding rather than existing in a vacuum. When educational content reflects learners' cultural experiences, it strengthens their ability to understand and apply knowledge. In transdisciplinary research, recognizing the role of context helps in constructing learning experiences that engage with learners' cognitive frameworks, which encourages deeper and more meaningful learning.

Cultural Epistemology and Mindset

Learner awareness and mindset are critical for effective knowledge integration. Cultural epistemology suggests that willingness is influenced by social norms, previous knowledge, and social prospects (Bandura, 1997). "Mindset" signifies individual's attitudes, beliefs, and values that they embrace towards learning. Social norms and value systems play a critical role in determining students' motivation, sincerity, and receiving of knowledge. These cultural mindsets form how students address challenges and create meaning (Dweck, 2006). A learner's mindset regulates their genuineness to new ideas and their ability to engage with several knowledge systems. Transdisciplinary research needs students to adopt flexible and critical thinking approaches. Teachers must consequently make learning environments that support cultural diversity and encourage curiosity. Developing such readiness enables learners to effectively contribute to transdisciplinary knowledge creation.

Structural and Social Upgradation

The incorporation of cultural epistemology in education leads to both structural and social upgradation. Structurally, it effects curriculum design, teaching strategies, and valuation approaches by combining various cultural perceptions (Freire, 1970). Knowledge pays to the conversion of social structures and formal practices. Culturally conversant knowledge systems can encourage social equity, inclusion, and development by addressing remaining disparities



and permitting progressive change (Freire, 1970). Socially, it encourages inclusivity, equity, and common admiration among students. Education progresses a tool for social renovation by addressing disparities and allowing relegated communities. Transdisciplinary research, led by cultural epistemology, contributes to sustainable development by addressing multifaceted social problems in a comprehensive manner.

These mechanisms interact energetically and cooperatively contribute to the development of cultural synthesis, where various knowledge systems, perceptions, and skills are integrated. This synthesis encourages discussion and common understanding across cultural boundaries. Furthermore, it nurtures collaboration, which is crucial for transdisciplinary engagement and cooperative knowledge construction. Through this procedure, cultural epistemology develops as a comprehensive, inclusive, and sprouting system of knowledge that replicates the diversity and involvedness of human experience (Battiste, 2002).

Cultural Synthesis

Cultural synthesis is the process of integrating different cultural knowledge systems in the production of new ways of understanding. In education this translates into the integration of traditional knowledge and modern scientific methods (Gibbons et al., 1994). Cultural synthesis is an essential step in knowledge construction, when various aspects of the culture, and learning dimensions combine into a coherent, sensuous and meaningful whole. It is the product of four pillars of understanding-contextual understanding, cognitive readiness, mindset, and structural and social upgradation -all of which have a strong influence on the perception, interpretation, and application of knowledge.

Cultural synthesis is also embedded in context, that is, knowledge is always historically and culturally local. Learners make sense from and construct knowledge from their experience and cultural contexts, so that there can be several different points of view and they can be heard



and understood. Concurrently, cognitive readiness refers to whether the person is ready to take in and assimilate new material and relate it to past cultural experiences (Vygotsky, 1978).

In addition, mindset is a significant factor in this process. Cultural beliefs, values and attitudes influence how learners are receptive of other perspectives and adapt to and accept new forms of knowledge. There is open and tolerant attitude which enables the integration of knowledge systems and synthesis. In addition, structural and social upgradation creates the wider societal and institutional setting which enables the integration of knowledge by fostering inclusivity, equity and progressive change (Freire 1970).

These elements are dynamic and allow for the synthesis of a variety of cultural perspectives, disciplines and knowledge traditions. It does not just provide a side-by-side presentation of ideas but makes new, enriched understandings that are holistic and contextually relevant. This is the process of not only bridging the different knowledge systems, but also of laying foundation for collaboration, where shared learning and knowledge building will happen.

Therefore, cultural synthesis can be seen as a transformative process in the context of cultural epistemology. It supports the creation of inclusive and dynamic knowledge systems that reflect human experiences and create more meaningful and context-sensitive learning and transdisciplinary research. This synthesis is supported by transdisciplinary research practice which promotes cross-disciplinary and cross-cultural collaboration. It results in innovative solutions and enhances the educational experience.

Revisiting Cultural Epistemology

The proposed framework is revealed as dynamic, emergent, and integrative in revisiting the cultural epistemology in the construction of knowledge. The technology framework proposes that cultural epistemology is not a static or universal knowledge; it is a process that is open and dynamic and results from a continuous process of interaction between the cultural, cognitive and social dimensions. In the context of culture, knowledge is formed due to the circumstantial



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understanding, cognitive readiness, mindset and structural and social upgradation, which has an impact on the perception, interpretation and application of the knowledge.

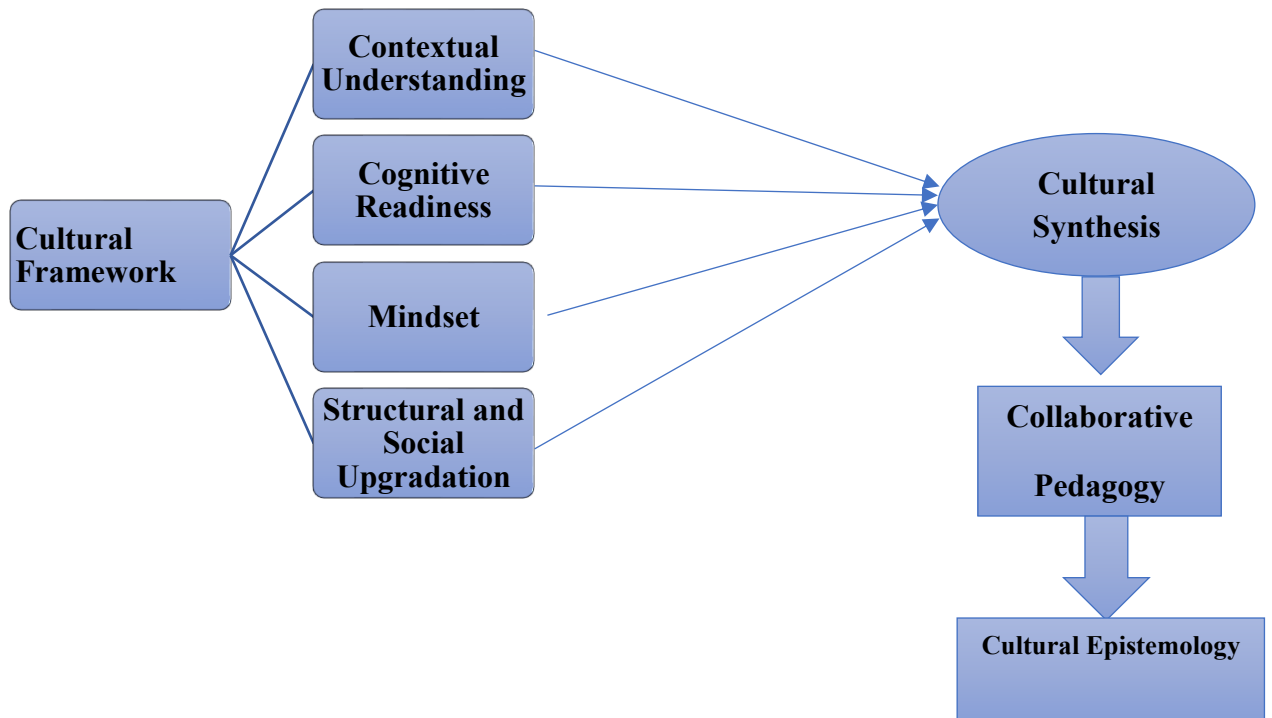
This view breaks with the dominant epistemologies that tend to privilege standardised and decontextualised knowledge. Rather, it is claimed that knowledge is locally produced and is of a cultural nature, and that it has to be viewed in its cultural and historical context (Bruner, 1996). The cultural epistemological revisiting therefore entails acknowledging the legitimacy of other knowledge systems, such as indigenous, local and experiential knowledge systems, which may have been marginalized in formal schooling (Battiste, 2002).

The framework also emphasizes cultural synthesis, which occurs when its core elements interact to produce more holistic and meaningful understandings, driven by the interaction of its core elements. Collaboration is a key element of this synthesis, and it facilitates dialogue, mutual learning and co-construction of knowledge between different stakeholders. This cooperative interaction is an example of the social nature of learning and knowledge construction (Vygotsky, 1978).

Furthermore, the study of cultural epistemology highlights its potential to change the world in response to current educational problems. It establishes cultural diversity in knowledge systems, fostering inclusivity, equity and relevance in education. It also encourages critical reflection on existing structures and practices, setting the stage to structurally and socially upgrade with respect to culturally-congruent and socially-just educational objectives (Freire, 1970).

The rethinking of cultural epistemology in the context of transdisciplinary research can redefine the process of knowledge creation in a new way, as a collaborative, context-sensitive and inclusive process. It transcends discipline and epistemological divisions and promotes innovation and comprehensive problem solving. Finally, the return to the cultural epistemology offers a route towards the construction of a robust, socially relevant and culturally situated knowledge system.

Figure: Cultural Epistemology



THEORETICAL IMPLICATIONS

This study, Cultural Epistemology towards a new perception of transdisciplinary research in education, offers conceptual understanding of the connection between culture, knowledge construction and educational research. It helps to develop epistemological awareness, and to articulate that knowledge is not constructed only through universal or discipline-based conclusions, but is also constructed through one's culture, experiences, and perspectives. The study highlights cultural epistemology as a paradigm that allows for understanding the various



ways of knowing and that supports the use of indigenous, local and experiential knowledge systems within educational research.

The study enhances the theory behind transdisciplinary research by proposing the need for cooperation between various disciplines in education such as cultural and contextual awareness. It suggests that the interpretation and use of knowledge is influenced by viewpoint, attitude and social context. This is a way to cross disciplines and to create a new knowledge making that is more diverse, flexible and comprehensive. The study adds to the theoretical framework of comprehensive education that cultural knowledge and contextual understanding can be used to offer meaningful learning experiences. It offers a framework for researchers and educators to contemplate the need for cultural diversity as an integral part of innovative educational approaches and practices.

LIMITATIONS

While the study is a conceptual analysis of cultural epistemology and transdisciplinary research, the study has some limitations. First, the research is an abstract or theoretical research study that no empirical data was collected from educational institutions, teachers and students. Therefore, the expected effectiveness of the proposed approaches should be further investigated by field study.

Second, cultural epistemology is a large and complex concept that is different in different social and cultural context. The study might not be representative of diverse cultural views and knowledge traditions around the world. Cultural knowledge may be understood within the context of culture, history and education. The study addresses primarily on the theoretical relationship between cultural epistemology and transdisciplinary research, but doesn't go into the implementation issues like institutional issues, curriculum issues or research methodology issues. Future study was required to ask about this practical.



FUTURE DIRECTIONS

This study can be extended in future research by conducting empirical studies on the potential applications of cultural epistemology in the classroom, in teacher training, and in the procedures of educational research. Comparative studies in different cultures could be used to identify the role of other knowledge systems in transdisciplinary learning and research.

There is a need for further research on the development of more inclusive knowledge system using the collaborative research methodology that engages educators, learners, communities and policy makers. These can contribute to developing a vision of education that is transformative, in which cultural diversity, contextual understandings and inter-disciplinary collaboration is significant to sustainable educational development.

CONCLUSION

As a transformative general framework that can be applied to re-examine interdisciplinary research in the education field, cultural epistemology centers its core focus on how context, perspectives, and cultural diversity shape knowledge. This study extends the value of this framework, proposing that it can cover the full process of knowledge development in multicultural contexts, and that the cultural framework it relies on incorporates five core categories of elements. These elements are not separate from each other but are interconnected and influence people's knowledge and learning. It encourages cultural integration and synergy, with a focus on context, cognition, attitude and upgrading, both structurally and socially. This is a more dynamic and inclusive process in terms of construction of knowledge. This view enables education systems to overcome the discipline boundaries and embrace diversity, resulting in meaningful learning and sustainable social development.

The process culminates in cultural synthesis, which combines multiple views and knowledge systems to generate a more comprehensive and inclusive understanding of reality. This synthesis is further strengthened through collaboration, by allowing for debate, mutual respect,



and the sharing of ideas across cultural and disciplinary boundaries. This type of collaboration is critical in addressing complex educational and social problems that cannot be answer a single epistemic viewpoint.

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