Editorial
Research Trends and Development Perspectives in Early Childhood Science Education: An Overview
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Abstract: This article serves as a critical approach to both the emergence and the identity formation of Early Childhood Science Education (ECSE) as a new scientific field, consolidated within the association of certain research divisions of Early Childhood Education, various branches of Psychology dealing with learning, and of Science Education. Consequently, we present research trends, orientations, and currents in ECSE, such as the study of children’s mental representations, the development of teaching activities, teachers’ perspectives, the preparation of teaching materials, scientific skills, diversity and inclusive education, the influence of the family, etc. Finally, we formulate some concluding remarks on research perspectives and the epistemological formation of ECSE.

Keywords: Early Childhood Science Education; research trends

1. Introduction

The field of research, development, and application known as “Early Childhood Science Education” (ECSE) gradually emerged from the osmosis of wider scientific fields, various dimensions of which silently intersected after the 1950s. Indeed, Early Childhood Education, Genetic, Cognitive, Developmental and Educational Psychology and Science Education, despite their clear epistemological delineation, or even entrenchment, gradually adopted common fields of study—a development largely attributed to the increasing interest in children’s initiation to the natural world phenomena. It is certainly very difficult, if not impossible, to trace the beginning of this implicit process, or to make any sort of safe assumption in regards to the necessity, or even the mere interest of this new perspective. However, during the past few decades, a large number of research papers has been written, approaching a very wide spectrum of subjects and orientations. This variety, despite its indisputable interest, creates a complexity that obstructs the epistemological identification of ECSE. Consequently, this hinders the efforts to create adjustments that enable the approach and comprehension of different choices, and their rational treatment within the broader fields of research, pedagogical applications, and, possibly, political-educative options.

In this article, we attempt to illuminate different dimensions of this scientific field, aiming to contribute to a discussion, which could, in turn, lead to finding common ground. The rationale behind this undertaking is that the effort to pinpoint, discuss, and try to arbitrate between certain concessions stands as a prerequisite to the creation of both a coherent scientific community and a genuine scientific tradition.

2. The Emergence of the ECSE: A Study Plan

Based on the hypothesis that aspects of early childhood or preschool education, of different branches of Psychology studying the development of children’s intellect and of Science Education coexist within the field of ECSE, there is interest in observing the troubled and contradictory trajectory of this convergence.

To begin with, the prominent currents of traditional Preschool Pedagogy have always maintained a stable interest in children’s familiarization with nature. The creation of...
pathways that lead pedagogical activity to the discovery of the natural world underlines a consistent choice, which influenced the most important theoretical currents of the field, despite their differences [1–3]. However, as time passed, Preschool Pedagogy began to transform, both due to an internal process of maturation, but also due to the ever increasing societal expectations regarding the role of this institution. Thus, in lieu of a general study framework, relying on philosophical thinking as its main source of ideas, we gradually witness not only the emergence of a field characterized by the creation of theoretical constructs, but also the articulation of questions related to a broad spectrum of issues within daily school life. It becomes apparent that there exists a distance between theoretical constructs and real educational issues; such a distance is to be covered by the practice of scientific research, arguably a common occurrence in every maturing scientific area within Social Sciences. Thus, modern Early Childhood Education has inherited from Preschool Pedagogy a stable orientation towards the familiarization of children with the natural world. Simultaneously, the approach of questions through research has developed to be a widely accepted practice, within the relevant scientific community. The combination of these two realities led a section of the Early Childhood Education scientific community to the field of research, regarding questions relevant to activity planning and development, drawn from the world of Physical and Biological Sciences [4–6].

From a different perspective, the interest of various branches of Psychology in ECSE has largely pivoted around the systematic relationship between this field and child development. Indeed, given the fact that learning figures as the main research subject within the framework of ECSE, psychologists’ interest towards this orientation seems almost self-evident. It is widely accepted that Piaget’s work [7] as well as the work of the school of Genetic Epistemology [8] has been a driving force towards this direction. It is also known that the theoretical orientation of this school is epistemological, not psychological, since it strives toward the study of the epistemic subject’s thought development, namely human thought, and not that of the psychological subject, namely the child within different learning environments. Nevertheless, psychological research oriented towards learning issues has been influenced both by the clinical methodology of approaches to children’s thought, as well as by the very research data which has helped construct the major Piagetian theoretical construct [9,10]. Thus, a research current started to gradually develop on the conceptualization of the natural world during early childhood. The main subjects of this research were the depiction of children’s mental representations, the comprehension of concepts and phenomena, learning support techniques and strategies, the study of cognitive transformations, and the importance of social interactions and of the cultural environment [11–15].

The establishment of the field of Science Education began in response to the general disquiet associated with serious problems in the teaching and learning of Physical and Biological Sciences. Reasonably, initial interest focused on teaching subjects such as Physics or Biology, while the first issues posed were laboratory teaching, or curriculum planning, namely questions relating to the configuration of the teaching subject. During these initial pursuits, students and teachers were, in a way, viewed as “constants” within the educational framework. However, the study of problems in teaching, combined with an interest on scholarly performance, is inevitably filtered through learning issues. Thus, the scientific community operating within this field, following a trajectory not without doubt, ambiguity, and oftentimes misunderstandings, began approaching Social Sciences relevant to education. In this course, Science Education was influenced by theories that study the developmental course of students’ thoughts and recognize learning as a product of active cognitive construction, and not as a transmission of information and knowledge; indeed, these theories attribute cognitive transformations to educational, social, and cultural interactions [16,17]. Consequently, and to a great extent, Science Education research was reoriented from the teaching subject itself to the relationship of students’ thought with it. What is more, it focused on the sum of human and material resources and elements that foster the comprehension of concepts and phenomena within the Sciences. Integral to this
course was the gradual realization that difficulties in students’ learning encountered in the context of secondary education develop over time and undoubtedly originate in Early Childhood Education. Therefore, the structural and functional integration of developmental perspectives into Science Education research planning redirected a small part of this research to the age group of 4–8 years old [18–20].

It becomes evident that, since Early Childhood Education, Psychology and Science Education converged in a common general framework, albeit through different pathways, the cooperation of researchers and the creation of research groups comprising members of all three fields have been inevitable.

Undoubtedly, we are outlining a course with many setbacks, and the lack of communication between researchers originating from different scientific traditions figures as one of the most prominent ones. Nevertheless, a broad research spectrum has already developed despite these difficulties; truly, despite a lack of homogeneity, common orientation or epistemological coordination, research produced has, in the broadest sense possible, contributed to the initiation of young children to the world of Physical and Biological Sciences. During the last few years, the research horizon has broadened to include Technology, Engineering, and Mathematics, an approach also known as STEM. Despite the above, this approach constitutes a particular research field, and requires a specialized discussion, as its epistemological outlook is truly different. Briefly examined, it underlines the affinity of different areas, indeed an issue that remains constantly open to discussion in ECSE.

3. Research Trends, Orientations, and Currents in ECSE

An effort to map a scientific area, developed without a stable course, theoretically heterogeneous, and lacking a common perspective that researchers can share, will undoubtedly have inherent weaknesses and possibly contradictions. As a consequence, in lieu of an epistemological analysis starting from ECSE’s origins, the only possible route appears to be an ex post approach, which is primarily based on research subject matter. For example, in a paper analyzing a section of post-1990 Anglophone research on 0–6-year-old children’s approach to the Sciences, O’Connor et al. [21] state that the number of research papers on children aged 0–3 years old is much smaller than the number on children aged 3–6 years old, and on which there exists a critical mass of studies already. As a result, the authors highlight the need to further and deepen the study of the cognitive processes for the approach of phenomena studied by the Sciences. The general parameters used to analyze the selected papers were the following: (a) the teaching of Science concepts (emphasizing pedagogical practices), (b) the product of Science concept formation (conceptual understanding and/or demonstrated capabilities), and (c) the development of Science concept formation over time. The findings of this analysis showcased strong and weak aspects of ECSE research, and suggested future research needs and perspectives.

This type of targeted analysis highlights the issue of searching for key trends in research. However, ex post approaches are necessarily limited to the selection of explicit or implicit criteria for approaching texts. The choices of key research trends made in this article are based on an analysis of relevant published texts found in the Google Scholar database over the last 5 years with quantitative criteria and qualitative parameters such as the ages of the research subjects, single or multi-topic research, reference to a STEM or purely Physical and Biological Sciences learning and teaching environment, the appearance of these articles in other databases (for example, Web of Science and Scopus), etc.

Following and operating within a framework such as the above, we will trace the main tendencies in ECSE research, some of which tend to show signs of maturity, while others are still in development.

3.1. The Mental Representations

Children’s thought itself and, more specifically, their mental representations on Physical and Biological Sciences concepts and natural world phenomena constitute a significant research field [22–24]. The aforementioned epistemological variety (or rather ambiguity)
frequently suggests that, in relevant bibliography, mental representations are presented as ideas, alternative conceptions, mental models, perceptions, misconceptions, etc. This use of terminology is due to, on the one hand, researchers’ differences in terms of scientific tradition, while, on the other hand, a lack of interest or even denial to develop a conversation that could illuminate these differences. Regardless, the terms above are identical entities in children’s thought and their distinct characteristics allow children to engage with and comprehend in unique ways the elements of the world of Physical and Biological Sciences. This constitutes a typical research subject in Science Education for primary and secondary school students, and is usually presented as an effort to map the difficulties leading to the divergence of mental representations from knowledge gained in school. The identification of these difficulties facilitate the planning of appropriate but necessary teaching interventions. When applied to early childhood years, this subject adopts additional forms, as in that particular developmental stage mental representations are influenced to a great extent by different intellectual dimensions such as language or the organization of rational thought.

For instance, in research conducted on 5–6 year-old children’s mental representations on the concept of the propagation of sound, special stress was placed on whether children comprehend that sound is an entity propagated in space [25]. Thus, in individual discussions with children on the concept of sound itself, the subjective characteristics of sound, and the phenomenon of the production and propagation of sound, it became evident that a very small number of children comprehend sound as a spatially located entity, or the trajectory between source and receiver. The large majority of children associate sound with objects that create or receive sound. These findings are interpreted as difficulties in children’s thought formation, which inhibit their treatment of the propagation of sound as the movement of a typical natural entity. However, this research highlights the potential to develop teaching activities to that end, given the fact that some children are already able to recognize sound as an entity in space.

The development of mental representations over time and through education is another important subject. This is particularly interesting because, based on individual research aims found in relevant studies, it is possible to ascertain whether, and under which circumstances, it is possible to achieve cognitive transformation. For example, the main characteristics of a developmental course were found in research studying the development of 5–10 year-old children’s mental representations regarding the shape of the Earth; truly, children were found to initially construct in their thought the idea of a spherical Earth, and then proceed to conceive of the relationship between the Earth and the sun [26]. Furthermore, “the order of resolving cognitive problems was established. It was assumed that problem solving involves re-establishing the location of people and objects on the surface and their movement. It was found that children first solve the problem of how people move on Earth, then their location, as well as the location of clouds, the Sun at night and trees. Finally, children match the way a kicked ball moves on Earth and the phenomenon of nightfall” [26].

In addition, the factors through which it would be possible to correlate the configuration of mental representations is an especially timely subject. For example, in research on the approach of certain thermal phenomena, working with 4–6 year-old children, observations were made to record children’s behavior, interests, and abilities. During interviews based on specialized tasks, it was recorded that preschool children do not use the word “heat” or interpret change using this concept, but can, nevertheless, correlate changes in water temperature with certain phenomena. Concurrently, it became clear “that interest in science and language comprehension are significantly related to children’s understanding of thermal phenomena” [27].

3.2. The Teaching Activities

The planning and development of activities to familiarize young children with Physical and Biological Sciences constitute possibly the most significant field of research in ECSE. In
this case, the multiplicity of approaches warrants certain schematizations, which inevitably inherit the drawbacks encountered during the categorization of related, but not identical entities. Thus, we can generally recognize two major sub-fields of relevant research: research on integrated teaching activities, and point-focused research, emphasizing on specific aspects or study objects.

3.2.1. Research on Integrated Teaching Activities

In this first sub-field, we can classify research emphasizing activities’ general characteristics, namely their theoretical framework, their overall planning as well as their structural elements. Such an analysis recognized three distinct research currents and frameworks, respectively influenced by Piagetian Genetic Epistemology, sociocognitive, and sociocultural approaches [28,29]. Out of the three distinct types, Piagetian approaches are no longer current since they are limited in many ways, while sociocultural approaches have been developing the past few years and are in a generalized process of discovery. Conversely, the sociocognitive approach remains a strong framework within which, historically, various research currents have been planning and implementing special teaching interventions as well as studying their characteristics and effectiveness.

Therefore, in relevant bibliography, we encounter efforts to plan interventions aiming for cognitive progress, after first illuminating difficulties that children face [30]. Other studies are oriented towards the transition of children’s thought from mental representations to precursor models, namely fixed stable forms of thinking compatible with school knowledge [31], and most work in this context is generally based on inquiry-based methods [32,33].

For instance, research carried out by Gerhátová et al. [34] engages with the understanding of the process of temperature measuring by 8–9 year-old students, using a curriculum of Inquiry-Based Learning activities. This is carried out through a process of group and individual “guided inquiry” using on-site and remote experiments as well as electronic study materials. Research data has shown that the learning results of these activities are significantly of better quality than the results of traditional teaching, because children were observed to develop a satisfactory conceptual understanding of temperature. What is more, within the framework of Inquiry-Based Learning, it assisted children in developing a particular interest in the process, engage in discussion and present their work.

Nevertheless, socio-cultural approaches have recently begun to grow in importance in ECSE research, both because there is an increase in empirical research publications and because they implement theoretical tools that reinvigorate teaching practices [35–38].

For instance, Christodoulakis et al. [39] study the ways in which the Vygotskian concept of “perezhivanie” is showcased and utilized, a concept which generally connects the affective aspects of children’s activity with the cognitive and psychomotor aspects. After the analysis of different emphases and modes of reception regarding perezhivanie in various research, they approach the use of the concept with a focus on early childhood education. Analysis of the data collected from this research shows that the concept is applied in related but distinct theoretical frameworks, and contributes greatly to the comprehension of different modes of experiencing, the development of self-awareness and to the planning of innovative teaching methods. Starting from this approach, they highlight the importance of the turn towards affective aspects of learning, as well as the potential effects this can have on ECSE research, teaching, and instructor training.

3.2.2. Point-Focused Research

In the second sub-field, the issues approached are related to internal aspects of activities, such as reasoning, explanation, communication, interaction, argumentation, etc [40–42]. Thus, the study of specific structural and functional parameters of the organization, communication, and content of activities create a particular research field, with a micro-approach orientation.

For example, the aim of a particular research paper on 4–5 year-old children was the identification of the reasoning processes and representations that they develop regarding
sound [43]. The analysis of the interviews that took place illuminated the intentionality, representations, sign-material expressions, inferences, and coordination rules in children’s mental constructions. Data collected from this research show that children’s interpretations, reasoning, and conclusions rely on the ability to create certain epistemic tools.

The matter of argumentation encountered in children’s conversation with their peers or adults is approached within the same general framework. Indeed, it is viewed as important in understanding children’s reasoning, as well as certain affective, cognitive, and social dimensions of their thought, in studying the ways in which children approach the natural and social environment and, finally, in facilitating learning and educational activities. For example, in research carried out with 3–5 year-old children, there was an effort to study difficulties in argument formation, during problem-solving activities aiming to construct certain mechanical contraptions, alongside the researcher [44]. This research scrutinizes the issues occurring in each argumentative episode, standpoints and arguments, argumentative structures, implicit premises connecting each argument to its standpoint, distribution of arguments among the participants, and persistence in arguments expanding the boundaries of interactions. The analysis of this research’s findings exhibits that successful resolution of issues and children’s self-perception of their competences have a positive impact in argument formation.

An equally important issue approached in this research sub-field is that regarding the explanations given by children on natural phenomena. For instance, in research carried out with 5–6 year-old children, the attempt was made to study children’s interpretations concerning the burning of a candle in an inverted receptacle, in relation to those children’s previous experiences [45]. The data analyzed here show that children tend to provide naturalistic explanations regarding combustion, which was interpreted as an indication that they are able to form relevant mental representations in their thought.

3.3. Teachers’ Perspective on ECSE

The matter of approaching issues pertinent to teachers is significant both in ECSE specifically and in the broader spectrum of educational research as a whole. Indeed, questions such as basic training and learning, attitudes and beliefs or teaching practices among Early Childhood Education teachers in the Physical and Biological Sciences are always important. This holds true as they are clearly related to matters of quality and effectiveness in young children’s education [46–49].

For example, research carried out by Zoupidis et al. [50], through the use of a specialized questionnaire, focused on kindergarten teachers’ intentions to utilize in their teaching practice knowledge and teaching methods gained in a learning seminar. Research data analysis showed that these intentions are based on estimates regarding the teachers’ own competence in implementing relevant activities. Furthermore, they are based on their own approximation of students’ ability to learn in a meaningful manner. Last but not least, this research showcased that teachers’ options are linked to a calculation of personal gain or loss, to the views held by important third parties, and to the stress placed on the traditions of Science Education or Early Childhood Education.

3.4. Teaching Material

Teaching materials generally constitute important tools in Science learning and in ECSE; so much so that they warrant a specialized and particular approach. Such materials are curricula and programs, specialized instruments utilized in the Sciences, mindfully selected everyday objects, specialized software and informational books, collections of activities, etc. Research in this thematic area is not well-developed and thus focuses lately on the latter categories of material, namely texts. The creation and use of multimodal material in which different types of representation and semiotic modes are combined, i.e., text, images, graphs, are treated as particularly significant [51–54].

For instance, relevant research focuses on “... verbal text-image relations in terms of the interpersonal meaning dimensions of address (the way the reader is addressed), social
distance (the type of relationship between the reader and the represented participants), and engagement (the extent to which the reader engages with what is represented) in multimodal text extracts from science books for preschoolers” [55]. Research data collected on the concepts of “address”, “involvement” and “social distance” were studied in terms of “complementarity”, “divergence” and “convergence” relations. Based on their analysis, the researchers presented thoughts and hypotheses on the selection, creation and effective utilization of multimodal science texts for young children.

3.5. Contemporary Research Issues at ECSE

Lately research fields in Educational Sciences have begun to develop and reorient to new areas of study, which approach aspects of learning processes connected to “horizontal” issues in education. Indeed, these issues are related to children’s initiation with the Sciences, but they also have a broader scope and are not exclusively tied to learning objectives. Thus, it is not uncommon to encounter issues in relevant bibliography such as socio-scientific questions, diversities, and inclusive education [56,57].

3.5.1. Scientific Skills

Research on scientific skills is based on the notion that human beings, in their effort to answer spontaneous questions on the way the world works, but also on every issue that requires reason as well as critical reflection, use types of thinking pathways that require the activation of certain mental tools. Within this framework, various scientific processes include skills such as quantity measurement, observation, classification and grading of items or properties, prediction, experimentation, hypothesizing, communication, etc.

For example, in research focusing on the development of nutritional competence in a class of students aged 4–5 years, a sequence of teaching units was designed and implemented “that focused on learning skills such as observing, measuring or interpreting data related to plants, their germination and growth, and its relation to the development of nutritional competence” [58]. This research’s results showed that these activities motivated students to engage with the subject while also cultivating their interest and ability to take initiative. Last but not least, the researchers recorded a general inclination towards the Sciences, leading the students to develop nutritional competence.

The objective of another relevant research was to develop an observation tool for early childhood problem-solving skills and science and engineering knowledge [59]. This tool was implemented on multiple levels, and it provided the opportunity to record a large spectrum of observable behavior of 3–5 year-old children, within a wide timeframe, during which teachers were asked to teach their current science/STEM curriculum. The research findings showed that, through their participation in activities, subjects exhibit behaviors that verify the view that preschool children are indeed competent to meaningfully engage in problem-solving. Furthermore, the researchers recorded a correlation tendency between the duration and level of exposure children have to curricular activities, with the development of new vocabulary words.

3.5.2. Diversity and Inclusive Education

The last few decades an important issue has arisen across all levels of education—namely, the effort to secure equal opportunities and appropriate learning environments for students that are diverse in terms of gender, ethnicity, national origin, language, religion, disability, socioeconomic status, special needs, etc. Clearly, this sort of research has different orientations, despite its common general framework, due to the variety of its subjects. What is more, these concerns have recently appeared in the study of issues relating to the approach of the Sciences in Early Childhood Education [60,61].

For example, the study focus in research carried out with dual language learners 3–5 years-old was the importance of teachers’ language use during instruction, of the language of assessment, and of language dominance when approaching the Sciences [62]. Therefore, “differences between the two languages were examined, then associations
between performance on science assessments were compared and related to children’s language dominance, teacher quantity of English and Spanish, and teachers’ academic science language” [62]. The most significant research data showed that Spanish-dominant children had better results on Spanish science assessments, while differences in language use by teachers, namely Spanish or English, was apparently not pivotal. Nevertheless, while the use of high-quality Spanish vocabulary influenced children’s performance in Science learning, the same was not observed when speaking English.

3.5.3. Socio-Scientific Issues

Modern economic, scientific, and technological development has proven to be the currency of new, important questions. These questions are labeled socio-scientific because they are socially relevant and real-world problems that are informed by science, and which are oftentimes controversial and include an ethical component [63]. Issues such as genetic testing, global warming, the use of nuclear energy, water pollution, and recycling, in correspondence with children’s age, are essential in shaping informed, critically thinking citizens who adjust their views based on scientific data and are sensitive to the great issues humanity faces today. Such teaching approaches are hesitantly emerging in Early Childhood Education, emphasizing teacher training, even though the complexity of these subjects does not allow for a broad development [64,65].

For example, Ampartzaki et al. [66] present in their research a project that was realized in eight European countries in early-year settings, aiming to explore the relationship between water and human technological culture, from a sustainability perspective. In this project following a preparatory phase for both teachers and students, the researchers designed the search for a source of fresh water, and a subsequent visit to the site. During the visit, the participants collected information on the relationship of water to the natural and technological environment. This data was analyzed alongside the children and, based on the information collected, there was an effort to answer the initial set of questions. These activities were compiled in teachers’ portfolios, which were then analyzed by the researchers. Subsequent analysis emphasized the existence of three types of application. The first type has descriptive and surface characteristics; the second type includes well-designed and interconnected activities based on research questions, while the third type adopts the main characteristics of the second type but includes references to children’s social characteristics as well as the relationship of water to general human culture.

3.5.4. The Influence of the Family

Issues pertaining to Science learning and teaching are ordinarily approached within the framework of educational institutions, even regarding 3–8-year-old children. However, during the past few years and within a general tendency to showcase and study atypical and informal educational methods, we have witnessed the emergence of a new important dimension—namely, research on the potential role of the family in matters of familiarization with the Sciences, Technology, Engineering and Mathematics, that is to say, with fields also recognized in current bibliography as STEM. While this body of bibliography is not yet well-developed, relevant research papers have lately begun to proliferate [67].

In an effort to compile and document such papers, [68] studied relevant bibliography after 1995. The research findings analyzed show that STEM activities constitute a suitable framework, helping parents to recognize the value and importance behind these activities and to engage further with them, thus positively influencing STEM learning for preschoolers. What is more, it appears that parents are able to influence young children’s interest and self-efficacy regarding STEM activities, facilitating their involvement with them. Finally, the researchers highlight the lack of research correlating parental influence with young children’s involvement with STEM.
4. Concluding Remarks

The approach taken regarding the main research orientations realized shows that ECSE covers a broad study field, including matters of children’s cognitive development, teaching personnel, and the configuration of suitable teaching objectives and practices. In this sense, it constitutes a distinct, albeit still developing, scientific framework.

Naturally, the shaping of a scientific tradition with a stable epistemological formation and commonly accepted structural elements, both internally and within the broader framework of Education Sciences, is a long process. This process presupposes the objective maturation of a broader need, and the recognition of this need from members of a scientific community which decide to enter a common, interdisciplinary theoretical and research space. In the current phase of ECSE development this process is slow and hesitant; the fact that, to this day, specialized conferences or journals have not have the opportunity to emerge is especially interesting, and indicative of a general lack of growth.

Nonetheless, the work done thus far, despite the drawbacks mentioned above, has created a common field of reference in research, or, to be more exact, a spectrum of research fields, the pivotal point of which is child-oriented approach to Physical and Biological Sciences. This course inevitably creates interdisciplinary research questions that stress the need for the convergence of different perspectives [20,28,57,69]. For instance, when the need arises for teaching activities regarding a specific natural phenomenon on a kindergarten level, we witness this convergence within a common study field; the process of tracing difficulties in children’s thought studied by psychological research meets the processing and arrangement of subject matter studied by Science Education and the planning of pedagogical practices in the classroom studied by Preschool Education.

Indeed, the need for interdisciplinary options is proportionate to the complexity inherent to the connection of scientific traditions constituted within different traditions. Differences in terms of theoretical framework, methodological tradition, even variety in researcher’s identities oftentimes lead to isolation or distancing, which is not conducive to the creation of environments of synthesis and common perspective. If the current level of research development and its application within the framework of ECSE exhibits a particular dynamic in individual fields, then one of the pressing matters for the near future is the creation of an integral research and application space, allowing for theoretical and methodological convergence, and the creation of a forum for common scientific expression. This process could help shape a unique epistemological identity for ECSE, the constitution of which could be structured based on widely accepted starting principles, shared between the participating traditions.

Development towards this direction could influence, to a certain extent, official curricula as it could create a distinct, internationally grounded reality, offering reliable solutions to the need of curriculum renewal, and of Early Childhood Education programs.

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