

The Reflective Turn for a Neuroaffirmative Pedagogy and Educational Research in Autism and Neurodiversity

Overcoming Deficit Approaches and 'Best Practice Protocols' with Contributions from Schön, Dewey, and Karmiloff-Smith

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Abstract

The dominant technical-rational model in autism education and research, exemplified by deficit-based interventions and validation through Randomized Controlled Trials (RCTs), has established itself as a 'gold standard.' However, it has generated growing criticism for focusing on conformity to external norms and being perceived as harmful by the autistic community. This article proposes a fundamental reflective turn to establish a Neuroaffirmative Pedagogy. To substantiate this shift, we articulate a conceptual framework based on the coordination of three key constructs: Donald A. Schön's Reflective Practitioner, which offers the methodology for transformation in and on action for educators and families; Annette Karmiloff-Smith's Representational Redescription (RR) model, which explains the cognitive mechanism of the agent's internal epistemic change; and John Dewey's philosophy of education, which reorients the epistemological focus from fixed, external "objectives" toward "goals and ends" inherent in the process of continuous growth. We argue that this framework not only establishes a strictly pedagogical foundation for professional and family formation (3) but also lays the groundwork for a new model of educational research with ecological validity. This new research approach centers on the transformation of the educator/tutor as an agent of change, validating pedagogical formation as the critical, high-impact intervention.

1. Introduction: Beyond Deficit and 'Best Practice Protocols'

Various authors find evidence regarding the suitability and even efficacy of pedagogical or educational devices in the care of autistic people over other types of interventions (Baron-Cohen, 2010; Baron-Cohen & Bolton, 1998; Frith, 2004; Lansing & Shopler, 1984; Odom, Boyd, Hall & Hume, 2010; Wing, 1976). On the other hand, based on the proposals of O. I. Lovaas (1981), it has become common practice to consider behaviorist interventions, particularly those of the ABA type, as the gold standard in autism treatment, as well as the research into their efficacy through RCTs (Randomized Controlled Trials) (e.g., Bradshaw, Steiner, Gengoux, & Koegel, 2015; Daniolou Pandis, & Znoj, 2022; Green et al., 2010; Kuntz, Santos, & Kennedy, 2020). Consistent with this situation, in the field of neurodiversity education, particularly in the field of autism, the technical-rational model (cf. Angulo Rasco, 2021) corresponding to interventions and research of this type seems to have been naturalized as the gold standard.

Although this logic has generated measurable results in the acquisition of discrete skills, or the modification of behaviors considered 'problematic' over more than forty years of intensive application, numerous current studies exhibit reasons to call even such efficacy into question (Anderson, 2023; Jonkman et al., 2025; Jonkman, 2026; Yu, Li & Liang, 2020), in addition to accounting for conceptions of autism that are currently being analyzed and

proposed for resolution (Alexandrovsky, Frayne, & Lai, 2025). In particular, the debate centers on the fact that interventions of this type continue to focus on conformity to external norms of uniformity, instead of celebrating neurodiversity (Chapman & Botha, 2021). Furthermore, recent studies show that this type of practice can be perceived as harmful by the autistic community (Kupferstein, 2018, Leaf et al., 2022; Shkedy, Shkedy, & Sandoval-Norton, 2021), in addition to ignoring the complexity and unrepeatable nature of everyday educational interactions, as well as subjective dimensions such as the learner's dignity and agency (Melton et al., 2025; Wilkenfeld, D. A., & McCarthy, 2020).

It is noteworthy that the pedagogical debate and criticism towards educational forms based on behaviorism had begun decades ago, along with the criticisms of numerous researchers in the field of Pedagogy. Indeed, this type of practice corresponds to logics outside that of educational and pedagogical experience, a discrepancy pointed out decades ago by John Dewey when he warned about the primacy of external, static, and predefined objectives over goals as the continuous direction of growth (Dewey, 1916).

Faced with this paradigmatic situation, this article proposes a change of focus: moving from formative practice and research centered on interventions as 'treatments', shifting towards the consideration of pedagogical formation trajectories, as well as a way

to carry out pedagogical research in the field of education for neurodiversity. We base this change on the coordination of three key philosophical and cognitive constructs: Donald A. Schön's Reflective Practitioner (1983), the primacy of educational ends and goals proposed by John Dewey, and Annette Karmiloff-Smith's Representational Redescription (RR) model (1992).

We argue that the adoption of this reflective framework not only establishes a strictly pedagogical foundation for the pedagogical formation (1) of the teacher and families (mothers, fathers, and caregivers, since they are responsible for family education), but also lays the groundwork for a new model of educational research with ecological validity, or an action-research route, which could be an alternative to RCTs in some cases. This type of pedagogical study, or research model, focuses on the internal transformation of the educator/tutor (2) as an agent of change, distancing pedagogical research from the pharmacological or psychiatric logic that has dominated the field.

2. The Reflective Practitioner (Schön) as a Path of Transformation: From Protocol to Research-in-Action

Schön's theory is based on the idea that the most competent professionals do not merely apply rules but also reflect on their own practice in real-time. This reflective process allows them to adjust their strategies to address complex problems that "technical rationality" cannot solve.

His proposal was revolutionary in the field of education, as it challenged the traditional teaching model centered on theory, advocating for new formation designs for education (mostly as teacher formation) based on reflective practice.

This approach prioritizes experiential learning—that is, through doing and the direct experience of the learner—over decontextualized theories or externally received instructions. It also values formation contexts as practice scenarios (or practicum), where learners can acquire the capacity for reflection alongside a mentor. Furthermore, Schön proposes that the objective of formation is to prepare one to face the complex and unpredictable challenges of the real world, which do not always fit into standard theories. All of this makes Schön's model offer a powerful framework for professional development, particularly in the educational field, where it constitutes a recognized formation paradigm.

The contribution of this article focuses on extending and validating the Reflective Practitioner proposal for pedagogical formation in the field of education for autism and neurodiversity, both for educational professionals and within the scope of family education.

2.1. Distinguishing Role and Practice

Schön argues that professionals routinely operate in the "indeterminate zone of practice" (unique, uncertain, and conflictive situations) that falls outside the scope of applied science. In neurodiversity education, this zone is the norm. In response, he proposes two key concepts:

- *Reflection-in-action*: This is the capacity to think and adjust on the fly, while performing a task. It is a type of tacit or implicit knowledge that professionals develop through experience. It is the reflective process in which the practitioner, upon encountering a "surprise" (Minz, 2012)—an event or condition that challenges their foresight—actively restructures their understanding and strategy in real-time within a given educational situation. Its conceptualization can be expanded to the procedural form of the agent's Personal Epistemology (Muis & Bendixen, 2007), or the dimension corresponding to their enactive epistemology—distinct from their professed epistemology, which they explicitly state in words or declarations for whatever reasons (Louca, Elby, Hammer, & Kagey, 2004).
- *Reflection-on-action*: This occurs after the action. It consists of analyzing past experience to understand what happened, why, and how it could be improved in the future. This a posteriori analysis helps convert implicit knowledge into explicit knowledge.

Both processes feed back into each other. We propose that this systematic reflection can be the central tool for pedagogical formation, equipping the tutor (2) or educator with the capacity to face the uncertainty and complexity of each autistic person without relying on rigid protocols. The role of the formator shifts from content transmitter to facilitator of reflection (Perrenoud, 2001).

2.2. Application in Pedagogical Formation for Families (Fathers, Mothers, and Caregivers)

We propose also extending Schön's paradigm to the field of family education, where fathers, mothers, and other caregivers are the intensive "practitioners."

By equipping them with Schön's reflective methodology, they are provided with a tool for their development as educators, with the potential to recognize the "traps of good intentions" (Ruiz-Danegger, 2025) and facilitate their educational experiences, including possible frustrations, errors, or failures, to lead to useful and practical learning. This approach reconfigures parental roles in autism and neurodiversity, moving them from mere "therapy implementers" to protagonists and researchers of their own family practice.

The focus on reflection in Schön's proposal facilitates the possibility of generating explicit knowledge from their perspectives, (co-)creating contextually valid solutions, and promoting their own self-efficacy and agency—some of the pillars of neuroaffirmation. Furthermore, this reflection implies that the educator/tutor attunes to the autistic learner's experience and positively addresses the "double empathy problem" (Milton, 2012; Brosnan & Camilleri, 2025), and leads to strategies that promote agency, fostering the learner's autonomy, self-determination, and self-authorship (Stenning, 2024).

3. Representational Redescription (RR) as an Explanation of Epistemic Change Through Reflection

Schön's Reflective Practitioner model offers a path for formation in educational practice, but the paradigm shift requires a cognitive and embodied mechanism that explains how the agent's internal transformation occurs. For this, we propose considering the Representational Redescription (RR) model proposed by Annette Karmiloff-Smith (1992). RR describes the process by which knowledge is internalized and reformulated into a progressive series of representational levels: starting from what Karmiloff-Smith calls "behavioral mastery," knowledge progresses by becoming explicit, moving from a level where knowledge exists implicitly, tacitly, and procedurally ("in-action," E1 in the RR model), toward other progressively more abstract, explicit, and flexible levels (E2, E3, and +).

This progression also allows for modeling the risk that knowledge may stagnate and become "inert knowledge" (Perkins, Lesgold, 2001)—information the person possesses but is unable to apply or mobilize in new contexts. From this perspective, the RR Model and its pedagogical correlates hold potential keys for the deep transformation of practice (Musholt, 2015) necessary in education for autism and neurodiversity.

3.1. The Dual Role of Reflection and Interaction in Practice

The RR process operates optimally when individual reflection is integrated with social interaction (Perez-Peña et al., 2022). According to the reflective model we propose for practice, two levels can therefore be distinguished:

- *Reflection (Internal RR):* The agent confronts the "surprise" or unexpected result in practice (Minz, 2012), forcing the redescription of their assumptions, re-recognizing them, and initiating a process of greater explication and flexibilization of that knowledge, serving the educational action in this case.
- *Social Interaction:* The verbalization of assumptions and co-construction within a social context (for example, in a tutor meeting, or in a conversation between parents to review the day) provide the context and the intersubjective scaffolding for the

processes that facilitate the entry of tacit knowledge into the explicit phases (E2 to E+) of RR.

3.2. Neuroaffirmation as Facilitation of Positive Change

The reflective foundation we propose also entails providing the educational agent with a framework that can validate their subjective experience, promoting their self-efficacy and self-affirmation, and the progression of the caregiver-tutor/educator role.

This process reduces reactance and promotes both self-awareness and self-authorship (Baxter Magolda, 2014; Ruiz-Danegger, 2024b). It could also diminish the psychological resistance to abandoning inherited technical-rational protocols, establishing the displacement of internal cognitive barriers to a change in perspective.

Furthermore, it facilitates this shift in perspective, allowing the agent to develop greater awareness and metacognition, making the practice and underlying assumptions more compatible with neuroaffirmative principles.

In this sense, the reflective approach turns the adult into a "reflective participant observer" (Long, 2020), a co-researcher of the family experience, instead of a mere director or witness of behaviors.

4. Philosophical Critique and the Transition from Objectives to Ends: An Epistemological and Methodological Reorientation

The reflective framework proposes alternatives for the traditional metric used in applied neurodiversity research, through its encounter and dialogue with the core and logic of pedagogical research itself.

4.1. The Epistemological Reductionism of Outcomes

The vast majority of autism intervention studies—including RCTs—operate under a tacit reductionist epistemological foundation centered on the elicitation and measurement of discrete objectives as fixed ends, which can only focus on specific, observable, and quantifiable behavioral changes.

This approach relies on philosophical, psychological, and pedagogical starting points that limit or prevent ecological validity, representing an ontological bias. In effect, even with the best intentions, empathy, or resources, this foundation implicitly conditions undesirable educational characteristics, such as the undue objectification of processes or the denial of learners' agency. By fixing an outcome as a predefined and external "objective," the organic, uncertain, and unpredictable nature of human

development is ignored (Schön, 1983). For its part, the autistic person is reduced to a series of behaviors to be "corrected" or "normalized," denying their intrinsic agency.

4.2. Structural Limitations and Model Biases

The necessity for this reorientation is not only based on pedagogy or the philosophy of education but also due to methodological limitations in the standard design of RCTs, as the designs generally used are based on the General Linear Model (GLM), which is optimized to detect average changes between groups. Research traditions as diverse as the Dynamic Systems Model (Thelen & Smith, 1994) and Cultural Psychology (Toomela, 2008, Valsiner & Benigni, 1986) emphasize that the modeling of changes such as developmental or educational ones is inherently non-linear, idiosyncratic, and micro-developed, which limits the validity of the GLM. Furthermore, in the case of RCTs, there are basic criteria that are difficult to impossible to meet, such as treatment equivalence or random assignment.

4.3. Ends and Goals as Foundational Concepts of Pedagogy

Moreover, in Dewey's thought, diverse forms of purpose are inherent to the reconstruction of experience, a central concept of his proposal (Garrison, Neubert, & Reich, 2012, 2015).

John Dewey's philosophy of education proposes distinguishing between objectives (fixed purposes) and goals or ends (purposes inherent to the process). A goal is a continuous, guiding direction for action, which allows for the constant modification of the means as progress is made (Dewey, 1916).

Unlike behaviorism, which focuses on "objectives" (what the learner or "one undergoing treatment" must demonstrate), Dewey prioritizes the "end" (the learning experience) and the "goal" (the desired outcome) as parts of an organic and evolutionary process. In his view, with profound educational depth, one strictly cannot anticipate the results in the educational field, but one can anticipate the desired direction for the process.

4.4. Renewing Controlled Trials for Pedagogical Research

Revisiting Schön's proposals in neurodiversity education allows us to reformulate the RCT (Randomized Controlled Trial) methodology in the pedagogical field, in line with what Dewey's philosophical depth proposed about education.

We propose that the study of the reflective model can contribute to turning the situation around by allowing the estimation of the agent's (the educator/tutor's) transformation in the sense of their progress, not just the change in the learner.

This shift in focus toward reflection on one's own practice enables multiple objects of study, such as aspects of subjective experience like the perception of self-efficacy, or content such as their terminological preferences in relation to various proposals and consensus, the developmental trajectory of the educator/tutor's personal epistemology in education-related aspects, or the divergence between their professed and enactive epistemology.

By considering the professional/parent's path to being a reflective change agent who operates based on their own motivations, ends, and goals, this type of controlled trial validates that pedagogical formation constitutes, in itself, a critical and high-impact "intervention," separating educational research from pharmacological or psychiatric logic.

5. From Intervention to Pedagogical Transformation

The dominance of the technical-rational model in autism education has created a "trap of good intention" which, despite its declared purposes, tends to nullify the learner's agency and strip autistic or neurodivergent individuals of the internal tools necessary for achieving the long-term goals and ends of education, beyond segmented learning achievements.

The articulation of a framework based on Schön, Dewey, and Karmiloff-Smith provides context, conceptualizations, and methodologies with the potential to shift away from the deficit-based model or adherence to external standards provided by 'best practice protocols,' which are often presented a priori, manualized, and decontextualized. Drawing from Schön's Reflective Practitioner model, adults can cease to be mere "therapy implementers" and instead undertake a path as researchers of their own practice (Kinsella, 2010). Furthermore, Karmiloff-Smith's Representational Redescription (RR) model offers a way to understand what the reflective process entails in its transition toward explicit conceptual understanding and stable practice. This knowledge can also provide a basis for comprehending and exploring alternatives, as it allows for the recognition of the role of error, challenges, and 'comings and goings' (trial and error, nonlinear progression). Dewey's philosophical framework provides a shift in the level of analysis, allowing one to view the educational process in perspective, with a focus on growth.

The possibility of pedagogical controlled trials in the field of neurodiversity and autism studies represents a shift in focus that enables the consideration of professional development based on epistemic development. This holds the potential to embrace uncertainty as the engine of professional thought and shift the focus from pathology to the pedagogical transformation of the agent.

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