Post-qualitative Inquiry and CHAT's Formative Interventions: Epistemological Legitimacy Beyond Methodological Concerns*
La ricerca post-qualitativa e gli interventi formativi della CHAT: Validità epistemologica e superamento dei problemi di metodo

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ABSTRACT

Cultural-historical activity theory (CHAT) appears to match the tenets of post-qualitative inquiry. However, post-qualitative inquiry is credited with being averse to method and to adopt post-modernist stances that are not consistent with CHAT's structured reading of social reality. Notwithstanding this, it is possible to propose an interpretation of post-qualitative inquiry that overcomes such conceptual challenges. This article tackles the issue both theoretically and with reference to the way current CHAT research is undertaken. First, we propose post-qualitative research should be understood as compliant with post-Gettier epistemological standpoints. Second, we show that CHAT-inspired formative interventions are both educational in nature and, given their approach to learning processes, display the core features of post-qualitative research. Given CHAT's distinction between immanent aspects of social reality and methods tailored to tackle local issues, post-qualitative inquiry is justified in retaining its flexible—almost anarchic—methodology while, at the same time, enjoying epistemological soundness.

La teoria dell'attività storico-culturale (CHAT) mostra di corrispondere ai principi della ricerca post-qualitativa. Tuttavia, la ricerca post-qualitativa si oppone al metodo e adotta posizioni post-moderniste che non paiono coerenti con la visione strutturata della realtà sociale promossa dalla CHAT. Ciononostante, proponiamo un'interpretazione della ricerca post-qualitativa che supera tali difficoltà concettuali. Questo articolo affronta la questione sia teoricamente che con riferimento al modo in cui si svolge l'attuale ricerca in seno alla CHAT. Per prima cosa, proponiamo di collocare la ricerca post-qualitativa entro il quadro dell'epistemologia post-Gettier. Successivamente, mostriamo che gli interventi formativi ispirati alla CHAT hanno sia carattere educativo che investigativo in virtù del loro approccio ai processi di appren-

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*   Section 1 (D. Morselli); Section 2 (A. M. Marcelli): Section 3 (A. M. Marcelli: §3.1, §3.2; D. Morselli: §3.3, §3.4, §3.5); Section 4 (D. Morselli).

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dimento. Poiché la CHAT distingue tra aspetti immanenti della realtà sociale e metodi costruiti su misura per affrontare problemi locali, la ricerca post-qualitativa risulta giustificata nel preservare una metodologia flessibile—quasi anarchica—e, parimenti, godere di validità epistemologica.

KEYWORDS
Cultural-historical activity theory (CHAT), Education sciences, Formative interventions, Post-qualitative inquiry, Qualitative research.
Teoria dell'attività storico-culturale (CHAT), Scienze della formazione, Interventi formativi, Ricerca post-qualitativa, Ricerca qualitativa.

1. Introduction: CHAT and post-qualitative inquiry

Cultural-historical activity theory (CHAT) began with the studies of Vygotsky, Luria, and Leon'tev and were developed in the following decades first by Russian scholarship and later by Helsinki's CRADLE research hub led by Engeström (Bakhurst, 2009).

In their historical review, Sannino and Engeström (2018) identify two of CHAT's basic tenets:(a) Marxist dialectic materialism and (b) the idea that mind is external to human bodies and does not correspond to individual brains. Such assumptions influenced the culturalist movement and currently ground a model of inquiry than that has become an alternative to (neo)positivism.[1] This means CHAT is loaded with epistemological consequences, which affect the way we understand social sciences—and education sciences in particular.

Education sciences, broadly construed, aim to transform societies and organizations: through the development of citizenship competences, by interpreting the Planet's needs, or simply by removing obstacles to self-fulfilment (Tesar et al., 2022). Such interest into transformation is shared by CHAT. The comparison is even more compelling if we consider that an increasing number of educational theories now focus on contextual, environmental, and supra-individualistic aspects at the expense of the conventional monadic views of human beings (see, e.g., Alessandrini et al., 2022; Bribes, 2022; Bufalino & D'Aprile, 2022; Caparrotta, 2022; Cavrini et al., 2021).

However, not all current models of education sciences keep CHAT into account. This paper endeavours to address the relative absence of CHAT in an approach dubbed *post-qualitative inquiry*. This approach was developed by St. Pierre (2021) as an epistemological standpoint that is competitive with the empiricist epistemology that grounds both qualitative and quantitative research methodologies.

According to St. Pierre (2016), broad methodological umbrellas such as qualitative and quantitative inquiry are, to some extent, two sides of the same coin: they both share a certain degree of essentialism and have a fetishism for raw data. When talking of qualitative research, this might sound counterintuitive because such branch of science is usually seen as averse to positivism. However, such aver-

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1   González Rey (2020) shows that Durkheim's neopositivism was regarded as a contentious notion in the first stages of activity theory and was used by Leon'tev to discredit some of Vygotsky's points.

sion is more ideological than practical: as St. Pierre shows, qualitative inquiries suffer *de facto* from a heavy scientistic bias that is typical of positivism.

St. Pierre (2013) supports post-qualitative inquiry as a form of opposition to the rampant scientism of conventional qualitative research. Post-qualitative researchers are supposed to:

a) exercise radical critique;
b) privilege idiographic ways of knowing;
c) engage in non-transferable experiences.

In social and education sciences alike, the goal of post-qualitative research is change. Change could indeed be individual but St. Pierre warns this might lead inquirers to rely too much on idealised versions of subjectivity and the self. What matters to her is action and, to some extent, performativity. When St. Pierre's post-qualitative inquiry is retrospectively compared with CHAT, similarities emerge:

a) CHAT's materialism constitutes a radical critique of idealism;
b) CHAT's historicism is sensitive to difference and singularity;
c) although CHAT-driven interventions could be repeated, their outcomes are heavily context-dependent.

Compare these points with those of post-qualitative research (see above) and the analogy will emerge.

Additionally, it appears that CHAT-styled inquiries respond to the issues raised by post-Gettier philosophers, whose critique of knowledge is in line with the demands of post-qualitative inquiry. Post-Gettier philosophers aims to overcome the individualistic, mentalist, and subject-driven accounts of knowledge that used to be promoted by 20th Century epistemology.

Such is the case of Pritchard's (2005) concept of epistemic luck and of Saillant's (2017) treatise on the truth-conduciveness of evolved human doxastic faculties. This further substantial correspondence between CHAT inquiry and post-Gettier epistemology is unexpected but welcome, since the philosophical divide between analytic and continental approaches can make it hard to see the consistency of the respective research programmes (Conant, 2016).

The resulting picture is that of CHAT as a post-qualitative approach to scientific inquiry that grounds education sciences by promoting attention to the transformation and change of groups, organisations, and communities. Thus, CHAT-inspired formative interventions (Engeström & Sannino, 2021) qualify as the spearhead of a theory that overcomes the conventional humanist qualitative approach in education sciences.

However, for CHAT to be applied effectively, a moderate pluralist version of St. Pierre's post-qualitativism is needed, since its most radical form develops into full methodological anarchism and challenges the very possibility of achieving transferable educational results. Such a moderate approach will be outlined in the following sections. First, St. Pierre's interpretation of conventional qualitative inquiry and the later development of post-qualitative inquiry will be framed against the tenets of post-Gettier epistemology (*Section §2*). Second, post-qualitative inquiry will be analysed in order to infer its key concepts and compare with those of CHAT (*Section §3*). Eventually (*Section §3* and *Section §4*), we will show that CHAT could act as a framework that provides epistemological legitimization to post-qualitative inquiry, yet without forcing it to comply with the strict metho-

dological requirements that characterise naïve empiricism: that is, CHAT's methodological soundness backs up the adaptability of post-qualitative research and paves the way for the adoption of a plurality of approaches notwithstanding its reading of immanent features of social reality.

Furthermore, the resulting post-qualitative CHAT approach is shown to be particularly sound for education sciences, inasmuch its formative interventions are *de facto* investigative endeavours, which accomplish the double task of producing change (transformativity), and of gathering and deploying knowledge to solve compelling issues of historical relevance (social research).

2. Limits of conventional humanist qualitative inquiry

2.1 Conventional qualitative inquiry and the myth of the given

Qualitative research and positivism-inspired quantitative inquiry are seen as distinct approaches (Taylor & Medina, 2011). Badley calls it "an epistemological and ontological apartheid" and maintains that a "false primacy" is ascribed to the naïve objectivism entertained by public institutions, which draws on different notions of positivism (Bradley, 2003, pp. 297–298). This means positivism tends to hegemonize the definition of what is scientific and what is not, so that social scientists feel compelled to abide by positivist ontologies on pain of being accused of making things up.

The fear of being labelled pseudoscience affects what St. Pierre calls "conventional humanist qualitative research" (2013, p. 223). St. Pierre agrees this qualitative approach is distinct from neopositivism but believes they both share the same shortcomings, which derive from their adherence to empiricist tenets. In fact, although qualitative approaches—such as hermeneutics—appear to be more at ease with the management of ambiguity, creativity, and subjectivity, their core assumption is similar to that of neopositivism: an underlying brute reality exists that ultimately validates theories (St. Pierre, 2013).

Consider, for example, "physicalism" (Putnam, 1982) and "weak textual[ism]" (Rorty, 1981, p. 167). On the one hand, physicalism argues the objects of physics constitute a primitive reality, whose detection provides *raw data* to be interpreted. On the other hand, textualism believes social reality is a text to be interpreted: interpretations may vary (epistemic relativism), but there is no doubt on the existence of the text and its coincidence with *raw data*.

Consequently, St. Pierre (2013) maintains conventional qualitative research and neopositivist approaches differ in the way they conceive of accessibility to *raw data* (as well as their inherent qualities) but neither approach questions the existence of such data. Thus, the divide is epistemological but not ontological and, where ontological differences exist, they are skin-deep.

Although, as seen above, conventional qualitative is affected by such empiricist tenets, it does not always recognise their role in its epistemology. Therefore, its definition of data is far from being straightforward and St. Pierre and Jackson (2014) argue that different conventional qualitative inquirers draw different lines when it comes to data. For example, in Geertz-styled textual narratives of cultural phenomena, narratives count as *brute datum* for the purpose of coding. Conversely, an author's views on society (such as Foucault's) are treated as elements for literature review. Hence, St. Pierre and Jackson ask: Why is there a double standard depending on the adopted qualitative approach and methodology?

The existence of such double standards highlights the challenges conventional qualitative inquiry faces when dealing with the issue of data. As in the above examples, it addresses texts as something that *is already out there* (i.e., a *given*) but, at the same time, it claims to have challenged positive realism. St. Pierre (2013) believes such manifesto is misleading and *raw data* realism dominates qualitative research no more and no less than it dominates quantitative inquiry.

Thus, St. Pierre (2016) concludes conventional qualitative inquiry is an offspring of modernist epistemology. Its grounds have been extensively criticized by Sellars (1956), who claims modern thought is hostage of the *myth of the given*. Such myth is the idea that an underlying bedrock exists, which could ground all possible knowledge claims. Hence, the issue at stake is not that qualitative research is 'going positivist' but that both positivist and (alleged) anti-positivist inquiries are the expressions of an underlying empiricism (St. Pierre, 2016).

2.2 Beyond conventional epistemology: from Gettier's critique to the ecosystemic view of post-qualitative research

St. Pierre (2013) believes a solution to those shortcomings is represented by Deleuzian epistemology. In the conventional view, social sciences should work to unveil an ultimate external reality, whose immutability constitutes the norm we must adhere to. Instead, the Deleuzian view maintains social sciences should embrace the constructive nature of meaning and commit themselves to showing the manifold possibilities of existence.

A way to do so is to waive conventional subjectivity (St. Pierre, 2016). That is, because the *myth of the given* goes hand in hand with the myth of an ideal knowing subject. To reinforce this point St. Pierre (2014) examines some aspects of qualitative methodologies. For example, conventional humanist qualitative research tries to increase its reliability by recruiting as many coders as possible. It does so to nullify *actual* subjects and achieve a viewpoint that coincides with the *desideratum* of neutral subjectivity. However, such practice is woefully surreptitious, precisely because it is against valuing individualities in the research process.

As anticipated (see *Section §1.2*), the idea of a neutral and idealised subject has proved so problematic that post-Gettier analytic epistemology tried to dispense with it. Gettier (1963) put forward the most popular critique of the then-in-vogue 'accreditation framework' for knowledge. In early 20th Century epistemology—he remarked—knowledge was understood as "true, justified belief" (1963, p. 121). This means knowledge was understood to be (a) a mental state possessed by a potential thinking subject (belief), which (b) enjoys correspondence with a state of affairs that is external to her (truth) and (c) such mental state should be entertained *for a reason* (justification).

By means of thought experiments, Gettier proved that the above account is unsatisfactory because it does not take into consideration several cases of what is now dubbed "epistemic luck" (Pritchard, 2005). Epistemic luck occurs when a subject reasonably entertains a belief that is *true* in the actual world, and yet the belief is the result of sheer luck and not of properly working cognitive processes. The consequences of epistemic luck are the following:

- The lucky subject regards herself as a knower and acts accordingly.
- Since her belief is true, she does also act successfully.

In other words, the lucky subject is someone who followed a process, obtained a good epistemic result, and yet something went wrong, unknowingly to her but not enough to cloud the effectiveness of the overall result. This also means that, in the view of a fully omniscient observer, knowledge should not be ascribed to a subject that experiences epistemic luck. Conversely, to a non-omniscient external observer, the lucky subject is indistinguishable from a subject that obtained the same (true) belief through a controlled and valid cognitive process.

For instance, imagine a tourist who is looking for the shortest route between two monuments in town A. He owns a map of town B, which she mistakenly believes to be that of town A. Luckily, town B enjoys the exact same topography as town A. Moreover, town B has two monuments that stand in the same spatial relation as those in town A. Consequently, when the tourist plots her route on the (wrong) map, she happens to plot the route that is right in *both* cities. Thanks to the homology between the two towns, she gets to destination in time. Such thought examples prompted epistemologists to ask: does the success of a subject's actions suffice to qualify her as a genuine "knower"? If so, would her knowledge be "scientific" in any meaningful sense of the term?

This paper does not aim to solve the formal and analytic issues related to the definition of knowledge. The relevance of the Gettier debate for post-qualitative inquiry does not lie with its proposed solution, but with its *becoming*. That is, thanks to Gettier, traditional focus on the description and categorical demarcation of the concept of knowledge changed into focus on the process through which knowledge is obtained. This is good news for the post-qualitative inquirer, because it is an analytic vindication of some tenets of constructivism.

In the post-Gettier scenario, knowledge is not understood as a property or state that is predicated of a subject. Moreover, knowledge is not any more treated in dichotomic terms: it is not an either/or quality enjoyed by subjects, but it comes in degrees and depends on environmental contingencies. This is in line with St. Pierre's claim: "data appear, come into being, exist (or not) in a particular ontological, epistemological, and methodological structure" (2013, p. 223). Hence, data are more likely to be digested than raw.

This renewed epistemological stress on the role of contingencies paves the way for an ecosystemic view of knowledge as the result of adaptive processes (see, e.g., Hull, 2001). Again, this is consistent with what Lather and St. Pierre (2013) maintain: if knowledge enjoys an ecological dimension, then scientific inquiry should prioritize "being" over "knowing" (2013, p. 630). In turn, they add, "being" is always supported by ways of "doing," whose study reflects an existentialist (i.e., non-essentialist) approach to epistemic ontologies.

Such pragmatist perspective on knowledge (and scientific knowledge, in particular) does not waive all subjectivity. As Hull (1988) puts it, science does still enjoy a "mentalistic character" (1988, p. 472). However, the stress on knowledge as a contextual phenomenon does away with the idealised subjectivity that, according to St. Pierre (2016), plagues conventional qualitative research.

Another way to outline the above arguments is by drawing on the *knowing that* versus *knowing how* distinction (Ryle, 1949). Carter and Pritchard (2015) remark that the latter tolerates luck better than the former: environmental luck (fortuitous contextual circumstances) is admissible in a *knowing how* scenario and does not subtract from the epistemic standing of the knower. Conversely, *knowing that* does not allow for environmental luck because this would entail that the alleged knower cannot explain herself.

2.3 The transitional nature of conventional research methodologies

As shown above (*Section §2.2*), St. Pierre's account of the shortcomings of conventional humanist qualitative research prompts us to go beyond idealized subjectivists accounts of knowledge. This is a way to take seriously Feyerabend's (1993) call for action against "tradition-independent objectivism" (1993, p. 218).

However, constructivists have warned against the Latourian allure of "critique for the sake of critique" in favour of "critique for the sake of something better" (Sterne & Leach, 2005, p. 193). That is, why should we dismiss tradition when it proved to be epistemically effective (Ferraris, 2014)? Moreover: why should we have a duty towards relativism, especially when it goes beyond the acceptable limits of pluralism in exchange for a delusional view of reality (Marconi, 2007; Ferraris, 2014)? This paper argues the most compelling reason to embrace St. Pierre's Deleuze-inspired take on qualitative research is methodological in nature.

Bryman (1984) remarked that several quarrels between qualitativists and quantitativists bore on their definition of knowledge rather than on debating the pragmatic effectiveness of their respective methods for data collection. Independently from Bryman's own conclusions, such observation is in line with what would later become the position of St. Pierre: qualitative versus quantitative debates argue from essentialist and crypto-essentialist perspectives, so that even qualitativists, who are best equipped to criticize the shortcomings of essentialism, fail to overcome the hegemonic paradigm. In a parallel with Stanley and Wise's (1990) epistemological analysis of feminist research practices, it could be claimed that both qualitativism and quantitativism suffer inner tensions because they are transitional methodologies and foreshadow the coming of a "successor science" (Stanley & Wise, 1990, p. 27). This paves the way to a reformed understanding of science that dispenses with traditional objectivism without denying the obvious pragmatic benefits of neopositivist (and crypto-positivist) quantitative and qualitative research.

3. CHAT between post-qualitative inquiry and education sciences

3.1 A successor science?

The issue of constructing a successor science becomes urgent when we consider sciences and related methodologies that are at odds when it comes to the idealised subjectivism of modern empiricism—that is, the conventional epistemology criticized above (*Section §2*).

Education sciences constitute an emblematic example of this point. Their focus on evaluation reflects an epistemology that is oriented towards performativity and transformation, with description and knowledge being only a means to an end. Borrowing from Latour's terminology, it could be said that, in education sciences, "matters of fact" are subordinate to "matters of concern" (Latour, 2004, p. 231).[2] Notwithstanding their inherent transformative nature, education sciences have long been kept in check by an overdue reliance on a mentalist account of knowledge, which results from what Stables defines "a highly individualistic tendency" (Stables, 2017, p. 1). Correspondingly, education sciences could potentially

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2   However, the problem with a wholly Latourian approach is that the philosopher himself advocates the return to a form of social descriptivism in ways that are more like the modernist obsession for the *given*.

comply with the tenets of post-qualitative research and move forward on their path of discovery but are currently anchored by their reliance on conventional subjectivities.

The epistemic reform of education sciences comes in different fashions. For instance, according to Papastephanou (2016), there is no such thing as uninterested education. Tubbs (2016) echoes this view and argues that the questioning of experience—which is grounds for world epistemology—is ultimately an ethical endeavour aimed at the betterment of the self. A reconciliation between empiricism, realism, hermeneutics, and matters of concerns is offered by Clifford (2013), who maintains that current social sciences and humanities should be gathered under the "Greater Humanities" umbrella and account for research projects that involve: (a) a realist approach to state of affairs, which is (b) mindful of their historical and transient nature while, at the same time, (c) it tackles ethical-political issues through the exercise of (d) mindful hermeneutics (Clifford, 2013, p. 3). Marcelli (2020) elaborated on this sequence to show that this is also the tendency of education sciences in the Italian context. Drawing on St. Pierre's (2016) terminology, the resulting academic construct supporting the reformed education sciences could be dubbed "*ethico-onto-epistem-ology*" (St. Pierre, 2016; St. Pierre et al., 2016).

3.2 Post-qualitative education research

Ethico-onto-epistem-ology grounds the reform of education sciences and pushes them beyond conventional epistemologies. Consequently, reformed education sciences meet Clifford's (2013) requirements for *Greater Humanities* and makes education sciences excellent candidates for post-qualitative research frameworks. Hence, following from Lather and St. Pierre (2013), a logical research question is: what would post-qualitative education research look like?

The first aspect is that education sciences do not need to cease being humanist. The idea of catering to the *anthropos* (Minello, 2019) is still there but Lather and St. Pierre argue for a redrawing of "humanist ontology" in order to account not just for individuals but also for the environments that define them (Lather & St. Pierre, 2013, pp. 629–630).[3] According to Jackson (2005), it is not possible to conceive of individual ontogeny separately from the environment and, in particular, their relations with society. A notable educational concept that models the intertwining of subjects and environments is that of capabilities (Nussbaum, 1988). Hence, in education, the capability approach is post-qualitative, since it lays the foundations of the ontological reform Lather and St. Pierre call for. In other words, post-qualitative education research takes the *anthropos* not as a monad or a subject, but as the Aristotelian integration of environments and individuals, that is, a *becoming* substance (*Metaph* .1, 1046ª12–37).[4] At a general level, ecosystemic analysis could be used to explain the specific relations between individuals and the educational settings they interact with.

Another element of post-qualitative education research is the idiographic scope of inquiry: it is "risky, creative, surprising, and remarkable. It cannot be measured, predicted, controlled, systematized, formalized, described in a textbook,

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3   This multi-layered understanding is also at the core of ecopedagogy (Malavasi, 2010), which aims to become one of the mainstay paradigms of education sciences.
4   It is however accepted that Aristotelian philosophy is ultimately essentialist (Sober, 1980).

or called forth by preexisting, approved methodological processes, methods, and practices" (St. Pierre, 2018, p. 2). The issue of qualifying idiographic sciences is well-known. For example, Lyman and O'Brien (2004) addresses history as a science, but the same argument could be applied to education: "most discussants characterise science as generalising and involving laws and characterise history as particularistic and having no laws" (Lyman & O'Brien, 2004, p. 77). Lyman and O'Brien maintain that this framing misses the point: historicity is a feature of phenomena no less than general laws; if anything, laws describe the immanence of processes, whereas history can explain the causes behind single occurrences. Much like Lyman and O'Brien's interpretation of history, education sciences cannot be thought of as pursuing law generation as their primary goal. Reliance on non-empirical standpoints appear to be a main feature of all human sciences, and education sciences are no exception: as Clifford (2013) shows, humanities and social sciences are as subject to empirical realism as they are to history and ethics. In the specific case of education, it appears the ethical dimension and the ability to produce change according to values comes before the obtainment of general laws (Marcelli, 2020).

With further reference to Lyman and O'Brien (2004), a third facet of post-qualitative education sciences emerge: testing. This aspect is implied but not fully explored by St. Pierre (2018): in post-qualitative inquiry, interpretations could be tested. As Lyman and O'Brien put it (2004), this type of testing is distinct from traditional laboratory experiments because it entails retrodictive explanation rather than ability to predict the future. As anticipated, this is very common in education: for instance, Poddiakov (2001) observes that unpredictability is a typical feature of educational interventions. Another example is offered by Swertz et al. (2017), who are concerned with computer-driven instructional design and maintain educational processes have inherently unpredictable results. Unpredictability does also play a role in Lovat's (2020) value-based pedagogy since its benefits show instrumentalism in education in unpalatable or even detrimental. According to St. Pierre (2013), post-qualitative inquiry does not seek to establish a situation where doubt is no longer possible. Such stress on unpredictability in educational research and design does not entail a rejection of testing across the board but illustrates the fact testing an educational theory or design might lead to unique results that it might not be possible to replicate.

3.3   Is there something such as a post-qualitative 'method'?

Although St. Pierre (2018) maintains post-qualitative inquiry cannot be taught, it does not follow that the qualitative inquirer is completely method-free from the start to the end of their path of discovery. Rather, they are theory-driven and the materials and methods they use could be constructed along the road or borrowed from neighbouring scientific grounds.

For example, Blalock and Akehi (2018) use collaborative autobiography to achieve transformation. Transformativity (Mezirow, 2018/2006) appears to be the common element underpinned by all post-qualitative inquiries. Likewise, McDowall (2021) introduces the idea of how the practice of reflexivity affects indigenous identities in educational settings: the proposed action is devoid of fixed nomothetic frameworks, and yet materials and methods come into play as required by the contingencies. This is even more compelling than in the case of Blalock and Akehi (2018), because transformation through education is a delicate topic when

it comes to indigenous peoples, as it has often been identified with a covert continuation of colonial hegemony (McDowall, 2021).

Hence, in post-qualitative research settings, methodological rigour might not constitute an early priority; nevertheless, there are always *ways* that lead to transformative outcomes. Therefore, even if a *method*—in the Cartesian sense of the term—is not warranted by post-qualitative research, there is room for a panoply of approaches, provided the inquirer is aware of their transient nature. This reconciles post-qualitative inquiry with the worries of the post-Gettier's epistemologists, such as Pritchard (2005): knowledge is not always the result of universally transferable and unambiguous processes but is often the result of fortuitous environmental contingencies. In this sense, St. Pierre's post-qualitative inquirer aims to make herself 'lucky': if there is no *method* for knowledge, there could at least be a *way* to it.

Thus, despite St. Pierre's stress on the fact post-qualitative inquiry is 'methodless' there appear to be rigorous investigative practices that are compatible with it. An emblematic case is that of Nye and Clark (2021). Nye and Clark addressed the educational issue of framing the way history is taught in a way that is mindful of both the methodology of historical studies and of educational sciences. Their observation of classroom activities lead them to conceive the teaching of history in the following terms:

a) it creates for students and experience that is akin to "nomadic inquiry," which "relieve[s] the pressure to deduce the 'right' answer and encourage thinking outside the box" (Nye & Clark, 2021, 119; see also Richardson & St. Pierre, 2018);
b) it accepts the unknown and makes use of the power of reflexivity to address it (Nye & Clark, 2021; see also Somerville, 2008);
c) it welcomes "difference" and "nonlinearity" perspectives (Nye & Clark, 2021, 120; see also Braidotti, 2012).

Hence, Nye and Clark highlight the fact successful teaching of history is not separated from the ability to have learners engage in actual historical research, with all the doubts and deconstructions it entails. This shows historical approaches to knowledge could constitute the staple of post-qualitative methodologies—again, in line with what postulated by Clifford (2013) and Marcelli (2020).

3.4   Analogies between CHAT and post-qualitative inquiry

As anticipated in *Section §1*, CHAT displays several features that make it compliant with post-qualitative research:

a) When compared with post-Gettier epistemology (Section §2.2), CHAT appears to overcome the shortcomings of subject essentialism and individualism, in favour of abidance by an extended mind paradigm (Sannino & Engeström, 2018).
b) Additionally, CHAT is born out of "materialist dialectics" (Sannino & Engeström, 2018, p. 46), which constitutes a historically informed alternative to empiricism.
c) Another aspect of CHAT is its ability to generate unpredictable results based on the background of communities and participating individuals. Unpredictability leads to the non-transferability of results and practice and is averse to a nomothetic understanding. Conversely, it is an idiographic way of knowing

that is suitable to research that is oriented by values such as those of diversity and the preservation of cultural difference.

In sum, CHAT displays a case of post-qualitative research that addresses conventional qualitative approaches in a radically critical ways, thus subverting their paradigmatic goals yet without challenging the relative fruitfulness of their results. These features suggest that empirical inquiry could be preserved to some extent but only if researchers are ready to understand that the power-oriented nomothetic knowledge they produce contributes to building a process that works towards findings, but not a goal in itself.

3.5 Formative interventions as post-qualitative research designs

However, one thing is the epistemological accreditation of CHAT in post-qualitative terms, whereas another thing is the understanding of CHAT's theory of learning and related educational intervention as post-qualitative actions. This means that, to acknowledge CHAT as a key player in post-qualitative research, we must not only look at its theoretical attributes but also at the way it is done in practice. Such latter aim requires a closer examination of what CHAT-guided education is about.

The key actions in CHAT's educational approach are "formative interventions", which are designs aimed at inferring the activity model involved in a specific object and solve issues related to it by designing and implementing change to the activity model itself (Sannino & Engeström, 2018, p. 52).

For example, Brito Rivera (2022), who implements Change Laboratories drawn on the Helsinki school, stresses on the importance of making participants agentive and reflexive with regard to the new model design, whose delivery and application is the ultimate goal of the Change Lab formative intervention. The change effected by Brito Rivera is systemic rather than individual, so that the knowledge unfolded during such formative intervention cannot be fully explained by an individualistic and mentalistic account. As a matter of fact, formative interventions are frameworks for organisational change in which social contexts are prioritised over single subjectivities (Engeström, 2015). In this regard, tests such as those carried out by Morselli and Sannino (2021) corroborate the idea that agency should be treated as an extended feature: it does not coincide with individual powers but is also featured in artefacts, tools, and social structures.

On a similar note, Grant (2022) addresses the issue of youth leadership in Southern Africa. Her study shows that the key educational issue of leadership-related competences cannot be fostered through the mere delivery of training programmes to learners. Rather, it requires societal transformation, which she achieves through a formative intervention that changes the schools' organisation. That is, because the issue of South African youth leadership is deeply rooted in the organisational structure, which, in turn, results from the historical disadvantages of the region. This is also apparent when CHAT is used to analyse workplaces starting from systemic contradictions that affect them and—again—with the purpose of producing change (Engeström & Pyörälä, 2021).

As highlighted by Grant (2022), formative interventions rely on the fact change—and revolutionary change in particular—is driven by issues that have arisen historically (Sannino & Engeström, 2018, p. 45). Therefore, CHAT's take on education sciences is that they should solve issues that have authentically developed

in given communities and societies. To put it bluntly: education sciences, for CHAT, are not a solution looking for a problem.

However, as Engeström, Nuttal, and Hopwood (2022) point out, the issues addressed by formative interventions have no clear or correct answers. Expansive learning designs—which are based on CHAT—acknowledge that the paths to transformation are often non-linear and miss clear-cut milestones and endpoints. This aspect of formative intervention makes CHAT more akin to evolutionism than what earlier argued by Sannino and Engeström (2018): in fact, evolutionary science, once conceived in terms of post-Gettier epistemology, is inherently historical (Lyman & O'Brien, 2004).

The fact formative interventions' priorities are problems that have consolidated over time does not entail a fetishization of data as in the *myth of the given* (see *Section §1.1*). In fact, when it comes to educational challenges, formative interventions prioritize the way problems are *felt* by communities and rely also on their ways of knowing in order to co-construct effective models of change. Therefore, the key nodes of formative interventions are not unquestionable empirical assertions but contradictions that display ambiguity and demand for interpretive action (Sannino & Engeström, 2018, p. 49). Such contradictions are used as a fulcrum to apply leverage and achieve change. Because of this approach to problem-solving, the "objects" (Engeström & Sannino, 2011; Sannino & Engeström, 2018, p. 45) of CHAT enjoy a deep constructive dimension.

4. Conclusion: epistemology, methodology, heuristics, and the immanent structures of social reality

The accreditation of formative interventions as a form of post-qualitative research answers one of the concerns raised by Postholm, who claimed: "Relatively little research has been done on methodology within the CHAT framework" (Postholm 2015, p. 46). Her argument results from a review of a series of methodological articles on behalf of CHAT-oriented scholars, where she claims to find insufficient evidence at best, for the role of discursive practices in making contradictions emerge and in gathering participants around a common goal (Postholm, 2015, p. 44).

To the above issue, Postholm (2015; 2019) responds with her methodological contributions. Accordingly, when formative interventions take place, they could be understood as a type of quality-mediated feedback process, whose cyclical nature is epitomised by the R&D experiences she implemented in school settings. The latter ones, understood as "expansive learning cycle[s]" (Engeström & Sannino, 2017), bear similarity to other feedback processes devised for the same investigative contexts—e.g., the *Va-Re-Ri-In-Va* cycle authored by the Group of Pavia (Bondioli & Ferrari, 2004). In all these instances of educational research, objects align to the expectations of individuals, so that they can reshape their expectations as a consequence of their mutual interactions, or of their interactions with available artefacts.

Notwithstanding Postholm's valuable contribution to the methodology of formative interventions, there appears to be a misunderstanding concerning how a substantial methodological contribution should look like. To summarise Postholm's view, addressing formative interventions with methodological awareness means being able to outline a set of instructions to be followed in order to make the entire conceptual apparatus workable and applicable. However, the attempt

to make formative interventions fit into a methodological grid would overlook the fact that CHAT's conceptual analysis of the agent-structure-object interactions is meant to provide an immanent framework that allows for tailored interventions depending on the historical background of a given community and the challenges it faces.

Such remark does not subtract from the localised effectiveness of Postholm's method, but helps researchers draw a line between 'methods' *qua* artifacts or *dispositifs* that are crafted by inquirers and communities to cater to their own needs, and CHAT as the provider of general methodological guidelines that help researchers find which methods would best suit each historically consolidated situation.

Drawing on materialist dialectics and the Vygotskyan paradigm of the extended mind, CHAT provides researchers with an immanent framework to understand social reality. However, it is up to each formative initiative to saturate each node of the immanent structure so to obtain a reliable picture of how each component's dispositions stand in relation to the 'object' (or *desideratum*). Furthermore, given—as we have shown—CHAT's alignment with post-qualitative methodologies, it follows several other post-qualitative initiatives could be framed as formative interventions provided sufficient analysis is carried out in order to reveal their inherent reliance on the immanent structure conceived by CHAT. This means that, as long as current research is able to entertain a fruitful dialogue with CHAT, it will be epistemologically legitimised without the need to justify its activity at different levels—including ontology. Such perspective, which privileges epistemological justification over durability, makes it possible to re-evaluate interventions that brought about transformation yet without enjoying a high degree of replicability or even transferability.

Finally, it appears that since formative interventions are epistemologically supported by using CHAT to frame the immanent features of social reality, they qualify as educational actions as well as scientific actions. That is, formative interventions are not just a tool to produce change, but their side effect is that of making knowledge possible—either through engagement between participants and their world or by fostering learning processes in a perspective that treats 'learning' as equivalent to a process of discovery that is appropriated by those who take part in it. This is a blend of what St. Pierre et al. would call "ethics, curiosity, and experimentation" (St. Pierre et al., 2016, p. 3) and takes CHAT beyond the traditional modernist path characterized by conventional qualitative empiricism.

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