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Editorial

The Inagural Issue of the CEF

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At last. We have the first edition of the scholarly journal, *Culture, Education, and Future,* is ready for release. I and the editors, Akif Erdener, Sümer Aktan and Ünal Deniz, are genuinely excited about this journal. But even more important, at last there is a journal that looks at emergent educational issues that impact us today and which promise to impact our futures.

So, what does this mean? There are several elements to consider. The first is culture. What is culture and what causes it to change (other than normal drift)? According to dictionary.com, culture is "the behaviors and beliefs characteristic of a particular social, ethnic or age group." The important thing to not here is that culture is not monolithic at any level, rather it is characterized my multiple sub-cultures.

Second, what influences cultural change? Here the question becomes quite involved for change is often related to multiple events, but we can identify some of the major causes. The first dynamic that influences cultural change is its epistemologies, or ways of perceiving reality. There are four primary epistemologies operating on culture:

- Positivism, or a belief that reality is fixed and waiting for humans to discover it. A tree falling in a forest makes a noise whether humans are present to interpret it or not (see philosophers George Berkeley and John Locke).
- Constructivism, the perspective that reality is created. This explains, for example, why there are multiple cultures in any given society.
- Post-structuralism argues that reality is constantly changing, and that the only way to understand it is to analyze the shifting dynamics that comprise culture.
- Critical theory perceives reality as conflict among sub-cultures over scarce resources. Minority ethnic groups that feel they don't share equitably in the monetary resources of a society conflict with dominant groups for better shares.

The epistemologies of societies change over time—at one time, the dominant perspective in the US was clearly positivist but now it can best be described as an amalgam of all four. The dominant perspective of decision makers will affect education and future events.

Epistemologies are not the only influence on the future. Technological or scientific advances can affect it as well. Note, for example, the tremendous effect that relativity or desktop computers had in our culture and future. Politics influence cultures, education, and futures; the recent shift in Turkey to more centralized decision making illustrates, as does the Brexit movement in Great Britain. Religion influences culture. There are often spontaneous emergences of major ideas that influences culture, such as the "Me Too" movement in the West (this is also an example of post-structuralism). This, and similar movements (LBGT rights, abortion, transgender, Black Lives Matter, Critical Race Theory, etc.) have caused acrimonious debates and even violence in some countries. Schools are often flash points in these debates, with demands that certain books be censored in libraries, that textbooks be chosen which do not include "offensive" materials, that CRT be banned from school discussions, and so on. How are these events changing culture and education? Triggers can spark major culture realignments; there are numerous examples, but one of the more famous is the assignation of Archduke Ferdinand, which sparked WWI. This is hardly an exhaustive list, and we expect future authors to help us expand the events that change cultures and, consequently, the future.

Now, what sort of questions might appear in CEF. What specific events emerge from the above cultural change agents that could be explored. Currently, a big one is a technological change: the influence of artificial intelligence on culture and education. AI is affecting education already. The most immediate current concern is TextGPT and other text generators. Students can now use a generator to write term papers; unscrupulous scholars can similarly write manuscripts for publication. Will we be able to tell the difference between a paper written by a human and one by a computer? Is this plagiarism? Is this the same as buying a paper from an online manuscript seller or paying the smart kid in the class to write one's paper? Will programs that check for plagiarism be able to successfully detect AI written papers (Turnitin currently has an AI checker, but it is not 100% successful). But this may only be the tip of the AI iceberg. We don't know, for example, what will happen when different computers running AI programs communicate with and learn from one another. Imagine a world-wide web of AI learning computers. The resemblance to a brain is not accidental. What will this mean for education if intelligent computers begin to dominate the education of children. Unfortunately, this is no longer science fiction.

There are positive possibilities to AI in education. Would it be desirable and acceptable to use controlled AI to do the grunt work in creating a literature review that could then be modified to meet the structure and needs of one's paper. How do educators feel about using machine earning statistics, which are important to building AI programs, to create highly dependable checklists for identifying effective teachers? Can AI evaluate an individual student weakness, learning style, and motivation to better help the student learn?

There is so much to debate involving AI, but there are many other cultural changes that our journal needs to discuss. Are there political movements in given countries or globally that enhance or threaten education's future? What will the mass movements of populations due to war, economic difficulties, or global warming mean for education? Is higher education shifting because of political or epistemological shifts? The *Chronicles of Higher Education* recently reported that college students are lass engaged in their courses than before the Covid pandemic (June 6, 2022) How is this related to Covid and did Covid change our culture in ways that affect students? How is the policy shift in the US that permits athletes to sell their image (e.g., be paid for being in advertisement) affecting college sports?

How can we evaluate such trends and futures empirically? Perhaps we can try to predict current behaviors using historical databases (being careful of tautology)? We could use qualitative research strategies to analyze opinions about possible futures or culture shifts. Can agent-based modeling (a science for modeling the effects of controlled change on outcomes in a network) reveal possible outcomes (futures) of cultural events?

I am not implying that these topics are certain to be published if you write about them; but they are interesting subjects, and we would be interested in hearing from someone with expertise on these subjects. But they only represent types of topics appropriate for this journal; there are many other subjects that might be addressed. The articles we have published in this first edition exemplify other topics of interest for this journal. We present a paper by **William F. Pinar** on noted Italian educational philosopher, Pier Paolo Pasolini. Pinar discusses how culture in Italy may be drifting away from Pasolini's perspectives—perhaps to society's detriment. **Marcea Ingersoll's** manuscript examines the "intersections between culture, education, and future through the lens of curriculum studies," and proposes a set of viewpoints to guide the future of curriculum. **Joseph Jordania** argues that culture has moved away from the child-centered educational strategies in which students asks questions and seeks answers, to a more teacher-centered strategy in which teachers ask questions and gives answers. Jordania then proposes that both approaches could be effective in a curriculum of the future. **Hüseyin Can Coşkun** shows how culture in one region of Pakistan is negatively affecting its educational policies. And **Thade Buchborn** and **Johannes Treß** discuss the digitation of music and its impact on music education.

This journal, then, asks how cultural trends are influencing education and the future of education, for the good or the bad. We seek substantive, well-conceived and researched discussions of the nexuses between culture, education, and the future.

Can we predict likely outcomes. We can predict some of what we will deal with in the near future due to AI. But long term or currently unanticipated futures are merely speculative; one cannot predict without some evidence. We are not, like politicians who promise doom and gloom if policies they don't like are adopted; rather we do want to explore culture, education, and the future thoughtfully and intelligently. Our vision is to formulate credible information for school personnel that will allow them to act changes early in the emergence dynamic.

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ARTICLE

Pasolini, Public Pedagogy, Subjective Presence

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ABSTRACT

In this paper, I invoke the post-World-War-II Italian public intellectual Pier Paolo Pasolini, juxtaposing Pasolini's public pedagogy – his subjective presence always attuned to the historical moment - with a 2013 essay composed by contemporary U.S. scholars Jake Burdick and Jennifer Sandlin, who perform what I term discursive engineering, dismissing canonical concepts of education (without argument or evidence), apparently fantasizing that by changing what we say we can change the world. Alas, Pasolini knew better. No securely tenured professor, Pasolini risked his life to teach the Italian public, calling out the catastrophic path humanity has taken, specifically substituting virtuality for actuality, technologization that we imagine leaves us immune to the consequences of unbridled capitalism. Focused on Pasolini's unfinished novel Petrolio (petroleum or crude oil) and a 2014 film focused on the final few days before Pasolini was assassinated, I conclude this curricular juxtaposition hoping to carve out what Tetsuo Aoki termed a generative space of difference, wherein we might re-experience – even reactivate – an earlier anthropological moment when we were still – sort of – "human."

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Introduction

The post-World War II Italian poet, novelist, filmmaker, journalist - Pier Paolo Pasolini - remains a figure of influence not only in scholarship but also among members of the Italian public. In fact, Gordon (2018, p. 227) suggests that while Pasolini may not be exactly "ubiquitous, he is nothing if not uncontainable," in Italian now even an adjective: "*pasoliniano*" (Peretti & Raizen 2019, p. 3). Pasolini's name and work surface, Peretti and Raizen (2019, p. 3) report, in a "perplexing variety of contexts and discourses," including those by Matteo Salvini, Italy's 2018 right-wing leader, who "used Pasolini's words on anti-fascism to attack the left." From the mouth of demagogues to the walls of the eternal city: in May 2015, street art by French artist Pignon-Ernest appeared on walls around Rome, "always the same image: a Pasolinian *Pietà* in which Pasolini holds a corpse of himself" (Peretti & Raizen 2019, p. 3). Beyond Europe, Peretti and Raizen (2019, p. 4) note that "Pasolini was the subject of a comprehensive film retrospective at the Museum of Modern Art in New York in 2013, as well as a wealth of recent conferences, exhibitions, and publications."

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What Sartre was to France, Pasolini was to Italy, a public, indeed "prophetic" (Garofalo 2019, p. 167), "organic" (Garofalo 2019, p. 169), "mimetic" (Patti, 2016, p. 43) intellectual. Pasolini appeared on sports as well as literary and film criticism programs, always addressing a wide range of issues, both popular and esoteric, a public pedagogue who used television (of which he was also critical) as a "public tool of knowledge" (Garofalo, 2019, p. 169). By the end of the 1960s, he did seem a more "traditional" intellectual, by then "appearing on TV as a misplaced and obsolete *persona*," painfully personifying the "inability to be a proper organic intellectual within a mass society" (Garofalo, 2019, p. 169). "Mass society" is a "people" *sans* spirit, dedicated to acquisition, consumption, sensory satiation, customers not citizens. Consumer capitalism, Pasolini complained, compelled a degree of conformity even Mussolini's fascism failed to command, as not only the bourgeoisie but also the proletariat and the subaltern now "mutated" according to the "dictates of capital" (Williams, 2019, p. 136).

In his efforts to emphasize the organic heterogeneity of the people, including the distinctiveness of working-class culture, and specifically of subproletarian culture – the so-called lumpen proletariat – Pasolini expressed his outrage by eulogizing the loss. Williams (2019, p. 142) worries he was guilty of "reducing that culture and its political formations to a static – and itself 'timeless' or 'ancient' – essence under threat from a monolithic and incontrovertible force." Rather than class warfare and the inevitable triumph of the proletariat, Williams (2019, p. 144) argues, the "veracity of *il popolo* (the people) [resided] in what he sees as its obstinate corporality, its fundamental bind to the physicality of human existence," using "libidinal cathexis – including but not limited to its erotics – as a conduit to the continual activation of historical memory." Williams' insight stands, but it decontextualizes Pasolini's embrace of the subproletarian male body, then a courageous enactment of cross-class solidarity, binding the bodies of old and young in search of sexual-spiritual epiphanies – and, for the boys, profits.

One cannot, of course, be a public pedagogue without a public. Especially in our era of social media, the public has fractured, splintered by political polarization, propaganda, economic inequality, social isolation, the latter intensified during the Covid-19 pandemic lockdowns. What we have now are social media influencers, not exactly public pedagogues but cultist figures who profit from the digitalized attentional economy, figures who have followers because they entertain, stimulating already extant interests not necessarily teaching knowledge of most worth, worth understood not in economic but ethical terms, social ethics in service to the public interest. In our neoliberal – one should say "necro-liberal" (Salecl, 2021, p. 93) - era, "ethics" and "public interest" can seem antiquated ideas, not exactly breaking news for K-12 teachers who find themselves surrounded by students submerged in smartphone screens not school, school itself increasingly structured by screens, certainly during the COVID-19 pandemic. Learning online then turned out to be not learning at all (Mervosh, 2022), learning now under assault in war-torn Ukraine, (Specia, 2023, A6), threatened everywhere by Artificial Intelligence (Huang, 2023, A16), specifically ChatGPT (Roose 2023, B1).

Despite present circumstances, we teachers continue to teach, steadied by resolve. Resolve hovers between hope and despair, a pair Roger Simon knew well (Pinar, 2015, p. 180). It is animated by what we remember - that educational experience can be sublime while contributing to the public interest - and what we foresee, the end of the species if climate calamity isn't averted, war ended, injustice redressed. The embodied convergence of indi-

vidual life history with History intensifies the embodied immediacy of the moment, our professional-ethical obligation to teach the truth. We may have little time left to attempt to intervene in humanity's ignorance (inadvertent and willed), intervention that requires reactivation of the past, yes literally, as in converting pavement back to wetlands, industrial agriculture to national parks, ending fossil fuel extraction. But also metaphorically, returning to the face of the other, no longer mediated by the Medusa-like screen of the (de) vice. It means a poor curriculum, that is, one with minimal technology (both equipment and mind-set), attentive to the embodied spiritual creatures surrounding and within us, curriculum understood as a verb: *currere* (Pinar, 2023).

Teaching has been replaced by Ted Talks, entertaining, informative, formatted like fast food restaurants, reassuringly the same, never too much seasoning whatever the topic, and absent any calls for contemplation, critique, creativity. Those three require not a profile but a subjectively present person, an at least partially unpredictable creature with an inner life s/he shares, not a hawker trying to sell us something. The ubiquitous screen substitutes itself for subjectivity when we become fused with it. If bored – our attention spans atrophy - we change channels. The medium is the message, maybe not entirely (as McLuhan implied) but apparently primarily, as cultures of narcissism – including "temporal narcissism" (North, 2018, p. 2) – require constant sensory stimulation, constant but never enough. The culprit is no longer the television; as mentioned earlier, Pasolini loathed TV, it was (after the radio) an iteration of technology which, he worried, threatened the interiority of fiction and poetry, the inner actuality his art referenced. I'm thinking both the size of the TV screen and the distance one sits from it establish some perceptual awareness of watching that discourages fusion. You remember you're watching the TV. But hand-held devices can suck you in, incorporate you within images and information that too often teach nothing, only ensure your absence from yourself and those in your midst. The content can be banal – or not, Pasolini is all over YouTube – but the medium (ah, McLuhan) almost becomes the message, a message that simulates sensory stimulation, even a moment of (illusory) satiation. We keep checking our phones.

Without a public to represent, politicians become pathetic performers, wicked Orwellian collaborators in humanity's spiritual self-immolation. Even scholars succumb, as students demand fast supportive service, accelerated by email, now almost endless feature of our professional lives, taking time away from scholarship, undermining the sensibility prerequisite to conducting careful scholarship. As conceptual products sold on the academic market – ah, www.academia.edu and the obsession with citation counts - there can be little enactment of public pedagogy, in what are still called "public" schools or even outside them, this latter expansive space where two prominent U.S. theorists of "public pedagogy" retreat, as I complain in the subsequent section. Pasolini fought to remain in the public sphere, first against being relegated to the status of an irksome ornament sidelined on the shelf, that before being violently removed altogether, assassinated in 1975. His unfinished novel – *Petrolio* – signaled both the absence of the public while pointing to its possible presencing in the future, a future found not in front of us, but in back, requiring us to restart a present now stalled, a pseudo-present profiled online, thus virtual not material, fantasy not actuality. Virtue is now signaled not enacted, substituting statements for actions, imagining that reality can be transformed by simply depicting it differently. I critique this set of circumstances in the following section – a critique of the Burdick-Sandlin conception of public pedagogy - after which I return to Pasolini and his performance of a subjectively informed public pedagogy, juxtaposing the two topics to carve out what

Tetsuo Aoki (2005 [1995], p. 310) termed a "generative space of difference," wherein we might re-experience – even reactivate – an earlier anthropological moment when we were still – sort of - "human."

Public pedagogy

Jake Burdick and Jennifer Sandlin (2013, p. 142) define public pedagogy as education that "operates" in "non-institutional spaces," as "non-school" (2013, p. 146), thereby assuming that the "public" in "public school" denotes only the source of funding, not what the school was established to help form. And if "non-institutional spaces" are those that can be "counterhegemonic" as Burdick and Sandlin (2013, p. 143) assert, where exactly can these be found, as it is difficult to name a space in (post)modern life that has not already been institutionalized, if now under the guise of governmentality. Inadvertently I should think, it seems Burdick and Sandlin have banished public pedagogy altogether, no longer a possibility in school and without a home outside it.

Next, we learn that "counterhegemonic aspirations" require ridding ourselves of Western conceptions of the self; Burdick and Sandlin reject the proposition that education must focus on "developing individuals' cognitive capacities," or even encouraging students' engagement as citizens, not even learning in service to becoming more fully human (2013, p. 145). Their issue with these canonical conceptions of education (and not only in the West) seems to be their associations with what they term the "archetypes" of "culturally dominant groups" (2013, p. 144).

It is not only "archetypes" and "culturally dominant groups" Burdick and Sandlin are determined to depose, it is the very concept of "human," as they pledge allegiance to post-humanism, accusing the concept of "human" of rationalism and estrangement from and exploitation of the natural world, two of a constellation of concerns they associate with modernity (2013, p. 146). Many modernists have critiqued modernity of course – I think of the Canadian educator George Parkin Grant (Pinar 2019a) - but Burdick and Sandlin (2013, p. 147) manage to name only one: Henry Giroux.

The category of the post-human, we're told, is untainted by the "cognitivist, rationalist, and ultimately humanist overtones that have largely funded educational theory" (2013, p.147-148). The post-human "embraces the monstrous," and in so doing it "ruptures" not only "identity" but any Western conception of "self" (2013, p. 148). Burdick and Sandlin make these claims without evidence or argument, an irrelevant observation one supposes, as those (evidence, argumentation, observation) are among "cognitivist, rationalist, and ultimately humanist overtones" that are being "ruptured." That everything is now "arbitrary" (2013, p. 148) is precisely what right-wing ideologues assert, making a mockery of ethics or veracity. Never mind that it is an assertion that undermines the veracity of own their assertion: it is, after all, "arbitrary."

Burdick and Sandlin (2013, p. 154) seem suspicious of any conception of the so-called "critical" educator who is presumably an "agent" of "systemic transformation" – not because the idea is grandiose (certainly it is that) – but because it positions the educator as "key," thereby harboring a "humanist, rationalist view." While I am wary of positioning the educator as even responsible for student learning (Pinar, 2019b, p. 4) - let alone for "systemic transformation" - I can only lament the repudiation of educators' calling to cultivate reason and transmit knowledge as these are, have always been, crucial to becoming human.

This perversion of public pedagogy proceeds by divestment, as the "critical learning" it presumably provides is, Burdick and Sandlin (2013, p. 157) insist, "free" of the school's so-called rationalism, surely an unwelcome "freedom" in a society increasingly irrational, racked by right-wing disinformation, conspiracy theories, monstrous lies that would make earlier advocates of the imagination cringe. (Think of Kieran Egan or Maxine Greene.) "Embodied, holistic, performative, intersubjective, and aesthetic" elements are emphasized – Pasolini would approve of that list but not leaving learning "more tentative and ambiguous" (2013, p. 157). Learning that is *only* tentative is the last kind of learning needed in the face of climate catastrophe, right-wing authoritarianism, warfare, systemic racism, heterosexism, ageism, misogyny. Reason is not the only strawman that these advocates of post-human public pedagogy fabricate. Predictably the "modernist subject" has got to go, to be replaced by "interconnectedness" rather than "individualized subjectivity" (2013, p. 157). I wonder how can there be "interconnectedness" without singular subjectivities who are interconnected?

In addition to the individual person, posthuman public pedagogy also rids us of past "critical-theory approaches," marred by their reliance on a "Freirian-style critical consciousness" dedicated to "rational dialogue and critical reflection" (2013, p. 168). In contrast, posthuman pedagogies "rupture" distinctions between the cognitive and the sensory, thereby redefining "what it means to be critically conscious" (2013, p. 168). Burdick and Sandlin (2013, p. 169) assure us that posthuman pedagogy disavows those earlier approaches that still position "the human" at the "center" of "pedagogical relationship," thereby rejecting "relationships" resting on "identities" or "subjectification." One wonders what is then at the "center" of the "pedagogical relationship." Oh, that's right, there is no center and no relationship, only "interconnectedness."

One way to understand the Burdick-Sandlin attack on canonical concepts of education is decode it as "largely symbolic, an imaginary resolution of real social problems" (Kindley, 2023, p. 20), an interpretation made also by Philip Wexler in his denunciation of the neo-Marxism of Michael Apple and others almost fifty years ago (Pinar et al. 1995, p. 277). The Burdick-Sandlin repudiation of rationality and dialogue, their embrace of the "monstrous," could also function as "a surrogate politics"; given our collective inability to constrain capitalism or eliminate racism, critics target concepts they allege are associated with, even causes of, these evils, perhaps even considering this rhetorical tactic as "a sufficient political act" (Kindley, 2023, p. 20). In our era, simulation substitutes for action, virtuality for actuality, presentism over historicity, the latter of which requires sensibilities structured temporally, modes of being enabling subjective presence through reactivation of the past (Pinar, 2019a, p. 14-15). One way to understand such a praxis of presence is Pasolini's portrayal in a film made about him.

A praxis of presence

Willem Dafoe plays Pasolini in Abel Ferrara's 2014 film *Pasolini*. In July 2014 Dafoe was interviewed by Maurizio Braucci, who also served as one of the screenwriters of the film. Dafoe's sense of what was at stake in his portrayal of Pasolini helps specify what I mean by the phrase "reactivation of the past." As in the quoted passage below, "reactivation" is denoted in the gerund "inhabiting" which, in contrast to a "haunting," is an act of imaginative agency, a "partaking" of the past (Pinar, 2019a, p. 17) that enables re-experiencing - imaginatively, obviously not empirically - what was. "We imagined the state of mind of

Pasolini on the last day of his life," Dafoe told Braucci, adding: "So the performance was not an imitation or interpretation of who he was, but more a record of me inhabiting the actions and thoughts of a man that happened to be Pasolini" (quoted in Braucci 2019, p. 223.) Reactivating Pasolini's past, if threaded through the script and personages portraying it – as Dafoe confirms - "changes your thoughts. That is the heart of the personal transformation that fuels the interior life of the performance" (quoted in Braucci 2019, p. 224).

Reactivation of the past, then, reanimates – restructures – one's "performance" of the present moment. It does so subjectively, as Dafoe testifies, reconfiguring what, where, and how one thinks and feels, nothing less than "subjective reconstruction" (Pinar, 2019b, p. 9), an undertaking stimulated by "study" (Pinar, 2023, p. 35-53). Not only was the 2014 film made where Pasolini's "real-life events" had taken place, the props were real too, as Pasolini's "personal objects" were strewn about the set; Dafoe even wore Pasolini's clothes, a little creepy for me, but maybe helpful in reactivating the man and the moment - plus items that "friends and family gave us," "relics" even "icons" that had, Dafoe tells Braucci, "great power and magic, and help[ed] in making contact with the past. I am like a medium inviting something to appear through my committed actions" (quoted in Braucci, 2019, p. 224-225). Serving as a "medium" implies self-suspension, but Dafoe ends that last sentence reasserting his presence performed through his agency. He may have "inhabited" Pasolini, and Pasolini may have inhabited him, but Dafoe reaffirms himself with the phrase "my committed actions," and also with the use of "my," implying there's a person in the present who takes "actions."

So the fusion or merging with Pasolini that Dafoe describes is less mystical and more a provocation from the past, as, like Dafoe the actor, one is obligated (unless "possessed") to return to oneself, to the present moment, to a "now" demarcated by its internal temporal complexity and circumstantial actuality. Asked how he felt "playing him," Dafoe reaffirmed his reactivation of the past: "I didn't 'play' him. I just tried to be his flesh, his voice, his presence during the last day of his life" (quoted in Braucci, 2019, p. 226). Dafoe's statement makes clear that reactivation of the past is less recalling what happened before *from* one's present positioning, in which case the past is confined to one's memory of it, a past now relocated – recalled - into the present, implying no shift, no reconstruction of that present, only an addition to it. Rather, reactivation implies returning to an earlier moment – in Dafoe's instance to Pasolini's last day of life - through immersion in the past, its tone, mood, ambiance, its utter immediacy and singularity. When one returns, the present – specifically one's present – becomes expanded, altered, possibly clearer, including its call to be present in the present. Dafoe could see Pasolini clearly now:

> He was inspiring in his work, courageous in his life and a visionary thinker. He foresaw an anthropological revolution of Italian culture that is still happening. While many of his observations were specific to Italy, they apply to us all. The deadening conformism, homogenization, impotence of peoples brought about by the false freedom of progress – the culprits of television, consumerism, false tolerance, corruption – can now be joined by globalization, the internet, and multinational corporate culture. He fought in his art and life to preserve what is human and beautiful and that fight is still on. (quoted in Braucci, 2019, p. 226)

I focus on the verb "preserve" in that last line, "preservation" a concept that I substituted for "reconstruction" in the third edition of *What Is Curriculum Theory*? (Pinar, 2019b, p. 52), as in the present moment of subjective peril – when "profilicity" replaces sincerity and

authenticity (Pinar, 2023, p. 212) - preservation represents an enactment of reconstruction. As we slide toward humanity's extinction, preservation seems our last desperate (some would say doomed) move to make.

Few actors, I suspect, understand their characters as completely as Dafoe understood his. As a teacher, I keep my distance – yes, "non-coincidence" in service to "subjective presence" (Pinar 2019a, p. 99, 204) – but I, too, because I regularly return to the past (as in this essay), am acutely aware that the "fight is still on." One arena – some would say *the* arena - in which combat occurs is the climate crisis. The Anthropocene accents the "unprecedented nature of the present," Pinkus (2019, p. 195) points out, but it is "not reducible to a familiar vision of apocalypse or to forms of narrative – comforting in their repeatability, regardless of content." Pasolini, Pinkus (2019, p. 195) continues, "profoundly anticipates the Anthropocene in his unfinished work titled, precisely, for one of the two major fossil fuels, *Petrolio*." Over 600 pages when Pasolini declared it not quite half finished, had it been finished, Pinkus (2019, p. 198) suggests, "it would have been an epic and a Great Work, the term for a successful alchemical transformation, from a base to a noble substance," adding that the "alchemical analogue is crucial for reading this text." Pinkus (2019, p. 200) notes that in its pre-modern formulations, "alchemical transformations are also supposed to lead to spiritual transformation or redemption of the alchemist." Likewise, reactivation of the past promises something less sweeping but still significant: temporally attuned subjective presence, one perquisite for public pedagogy.

"[A] rich form of stratigraphy, Pasolini's *Petrolio* "embodies futurity," Pinkus (2019, p. 207) suggests, while Luisetti (2019, p. 211) is sure that the novel "evokes a history beyond our comprehension," a "time in which the archaic and the actual, nature and history, the immemorial underworld and contemporary neo-capitalism, ungovernable matter and geopolitical forces [all] enter into unprecedented relations and produce disturbing assemblages." Such a forecast of "contamination" sounds exactly right, as we experience, in our historical moment, in Luisetti's (2019, p. 211) words, an "unleashing of mythic violence and archaic rituals, the metamorphoses of humans into uncanny monsters, point[ing] toward an apocalyptic mutation of capitalism and exhaustion of humanism." The last thing we need now is characterization of that "exhaustion" as welcome, as somehow progressive, as Burdick and Sandlin proclaim. The "post-human" is no new beginning, it forecasts the end.

Certainly Pasolini anticipated "contemporary preoccupations – the centrality of oil [and fossil fuels generally], debates on 'ancestrality' in speculative realism, the return of animism in postcolonial anthropologies," and he employed a "demoniac technique" disclosing their "double nature," Luisetti (2019, p. 213) points out, including those "irrational, oneiric, elementary, and barbaric elements" of cinema which, he (2019, p. 212) adds, renders *Petrolio* a "hypnotic 'monstrum.'" Luisetti (2019, p. 212) also suggests that Pasolini has "explored, beyond Foucault's biopower, a new form of power, for which what matters is not the difference between life and death but the articulation of Life and Nonlife, the human and the non-human." He quotes Pasolini: "As with gestures and brute reality, so dreams and the processes of our memory are almost prehuman events, or on the border of what is human. In any case, they are pregrammatical and even premorphological" (quoted in Luisetti 2019, p. 212). But Pasolini's tone is not (Luisetti again: 2019, p. 216) "pre- but post-apocalyptic," one of "emotional detachment from this disfigured and polluted earth," in contrast to the "redemptory style of most climate change activism and Anthropocenic millenarianism." It is too late to save many species – mass extinction already well underway (Sengupta,

Einhorn & Andreoni 2021, March 12, A13) - but it may not be too late to save ourselves, that is, if we can somehow dislodge ourselves from this technological black hole that is the pseudo-present, restart time, become subjectively present.

Subjective presence – being present to oneself and others – takes different forms in different moments in one's life, in different moments socially, politically, historically. "As an external witness to the [1968] student movement," Bondavalli (2015, p. 160) explains, referencing Pasolini's efforts to thread his subjectivity into his public pedagogy, "an intellectual must establish another form of presence in order to fulfil his critical role." Bondavalli quotes (in 2015, p. 160) Pasolini: "He must somehow try to be present, at least pragmatically and existentially, even if theoretically his presence cannot be proved!" During 1968, Bondavalli (2015, p. 160) continues, Pasolini labored to "establish alternative forms of presence in consideration of the conditions created by the student movement." It was not only these "conditions" but the youth themselves that mesmerized him; indeed, through cinema he created a "saga of the young," as Foucault later characterized Pasolini's cinematographic *oeuvre*, emphasizing with this definition "both the sustained presence of young people in film after film, and the celebratory approach characterizing their representation" (Bondavalli, 2015, p. 123). Initially enraptured, then astonished, Pasolini was finally horrified. Placing the young in front of our eyes – at times entirely naked in his films – astonished and horrified us as well.

By the late 1960s, Testa (1994, p. 183) tells us, Pasolini knew the "rationalist-Marxist vein had run dry and this shook his politics, which caused him to turn to religion," acknowledging that, as Pasolini puts it: "In me, [ideological] uncertainty took the form of this regression to certain religious themes which nonetheless had been constant in all my work" (quoted in Testa 1994, p. 183). Not only had Marxism run dry, so had subjectivity, now sucked inside technique, inside technology. Pasolini knew:

> It is not by chance that conformist and dissenters are equally deaf to poetry … unless it is technicised, in the products of the avant-garde which says nothing of their existence as producers. If, thus, I can hope for the "restoration" of a true revolutionary spirit, extremist but not fanatical, rigorous but not moralistic, I welcome as a positive sign the appearance of a neo-existentialist poetry, which instead speaks a great deal about the existence of its authors: who are necessarily diverse, and thus a scandal for the conformists and ridiculousness for the dissenters; a crack in the "industrial puritanism" which the directors of Fiat and the young outside-of-parliament communists share in common. (quoted in Rohdie, 1995, p. 171)

Note his depiction of "neo-existentialist poetry" as testifying to "the existence of its authors." In service to such testimony, poetry – not STEM – might be, in our moment too, knowledge of most worth.

In our era, who has time for poetry? There was no time then, either. Aghast at the accelerating totalizing instrumentalism of his age, Pasolini complained that (in Bondavalli's words: 2015, p. 165) "action has taken precedence over contemplation, pragmatic goals over visionary ideals: *organizzar* (to organize) prevails over *trasumanar* (to transfigure)." Pasolini pressed for "creative ambiguity" over "revolutionary clarity," that is, "poetic, rather than, political action" (Bondavalli, 2015, p. 167). For him, "neo-existentialist poetry" *was* political action. "Because poets speak from a marginalized condition," he explained, "poetry maintains its performative function, even in a world that expects action" (Bondavalli 2015,

p. 168). In contrast to the "action" of 1968 – student protests that produced neo-fascist figures not only in Italy – Pasolini preferred the "absolute confrontation taking place on the screen [that] produces a scandal that destroys the bourgeois family. *Teorema* and *Porcile* indeed destroy the bourgeoise, but they do so without subscribing to what Pasolini decried as "Fascism of the Left" (Bondavalli 2015, p. 168).

Pasolini knew that the twentieth-century crisis of European culture could not be solved in its self-presented categories. It could not be solved by a Marxist-minded resistance, but maybe by a constantly shifting style of politics, including one that affirmed the "authenticity" of archaic – pre-capitalist – civilizations, the reactivation of which Pasolini perceived to be a "defense against the present" (Rohdie, 1995, p. 100). Anticipating his own assassination, Pasolini declared:

> Every volunteer who seeks a meaningful death "as exhibition" must deliberately present himself on the firing line: there is nowhere else where he can so rigorously carry out his course of action. Only the hero's death is a spectacle; and it alone is useful. Therefore martyr-directors, by their own decision, always find themselves, stylistically, on the firing line, and thus at the front line of linguistic transgressions. By dint of provoking the code (and therefore the world which uses it), by dint of *exposing themselves*, they wind up by obtaining what they desire so aggressively: to be wounded and killed with the weapons they themselves offer to the enemy. (quoted in Greene, 1990, p. 222)

Conclusion and Implications

Subjectively present in his public pedagogy, Pasolini positioned him*self* on the "front-lines" of artistic and of social-political struggle. Each new poem, novel, and film contradicted another configuration of codes and conventions. By creating compelling transgressions which opened those "infinite possibilities of modifying and enlarging the code" (Greene, 1990, p. 222), Pasolini challenged the political limits, indeed the social reality, of his time, prompting protests – sometimes legal, sometimes violent. His artistically distinctive – defiant - emphasis upon missing moral elements of contemporary culture marks him, in Naomi Greene's view, one of the "central figures" of the twentieth century (1990, p. 222). Solitary, resolute, utterly committed to the public whose absence he abhorred, Pasolini positioned himself, Maria-Antonietta Macciocchi astutely observed, at the intersection of "three great protests against the power of the state: political, sexual, and mystic" (quoted in Greene, 1990, p. 222).

It was Pasolini's sacralization of sexuality, his divination of the subproletariat, his attunement to History, his compulsion to engage the public pedagogically that converted society into a classroom, defending by revising humanism – as would Kwame Appiah, Paul Gilroy and Edward Said decades later (Pinar 2009, p. 149-150, n. 3) - against its dissolution in neo-capitalism. For Pasolini, today's post-humanism would hardly represent an advance theoretically or politically, only an admission of the absence of the human. In Pasolini's cosmopolitan curriculum theory, history, art, and politics – not STEM - are central. In poetic, fictional, essayistic, journalistic and cinematic "lessons" addressed to the public he juxtaposed images exposing both Right and the Left as entangled in the very economic and political systems they claimed to critique. His films provoked viewers to question reality itself (Viano, 1993), in part due to his "incessant" use of "juxtaposition" (Ryan-Scheutz, 2007, p. 222; Rohdie, 1995, p. 123), what he termed contamination. His borgate boys – members of the lumpenproletariat – provided Pasolini opportunities for not only for sexual pleasure

but also for subjective reconstruction, affirming his own peasant past, his commitment to the poor in the present, to art's capacity to both represent and reconstruct reality. In so doing he affirmed our humanity, the significance of subjective presence in pedagogically addressing the public, citizens as educators and students participating in the complicated conversation that is History. The past is paramount, as a defense against the present, prophesy of the future, parole from the involuntary self-enclosure narcissism necessitates.

The prison-house of the present precludes public pedagogy, as we live in a time lacking both a public – in its place a marketplace (for Pasolini a place of pimps and prostitutes) – and pedagogy, replaced by propaganda on the Right, on the Left by conformity of another kind. Subjective presence is replaced by profilicity, i.e. persons replaced by profiles on social media (Pinar, 2023, p. 212). In this era of presentism, narcissism, technologization, what's left of us becomes submerged in software, computer codes threatening to interpellate a (supra)national identity accented by avatars, passports replaced by passcodes, soulless yes post-human citizens of nowhere, fleeing the plundered planet for the Cloud. The prescient Pier Paolo Pasolini warned us, his own subjective presence professed pedagogically in poetry, fiction, cinema and journalism, testifying to the crisis of the present, prophesizing the catastrophe to come. "It is the most eternal irony of humankind," Ece Temelkuran (2020, p. 84) points out, "that it's history and evidence is provided by those who are hated most, yet it is those same individuals who refuse to give up believing in humans." Temelkuran (2020, p. 84) is speaking of everyone "who work[s] with words … who record the definition of the human and therefore build humankind's image for itself," an apt depiction of Pasolini, of subjectively-present public pedagogues everywhere.

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References

Aoki, T. (2005 [1995)]. In the midst of doubled imaginaries: The pacific community as diversity and as difference. In W. F. Pinar & R. L. Irwin (Eds.), *Curriculum in a new key* (pp. 303-319). Lawrence Erlbaum.

Benini, S. (2015). *Pasolini: The sacred flesh.* University of Toronto Press.

Bondavalli, S. (2015). *Fictions of youth: Pier Paolo Pasolini, adolescence, fascisms*. University of Toronto Press.

Braucci, M. (2019). Pasolini embodied: Interview with Willem Dafoe. In L. Peretti & K. T. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed*: *A thinker for the twenty-first century* (pp. 223-226). Bloomsbury Academic.

Burdick, J., & Sandlin, J. (2013). Learning, becoming, and the unknowable: Conceptualizations, mechanisms, and process in public pedagogy literature. *Curriculum Inquiry 43*(1), *142-177.*

Egan, K. (1992). *Imagination in teaching and learning.* University of Chicago Press.

Forgacs, D. (2019). Dirt and order in Pasolini. In L. Peretti & K. T. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 11-34). Bloomsbury Academic.

Garofalo, D. (2019). Television, neo-capitalism, and modernity: Pasolini on TV. In L. Peretti & K. T. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 159-175). Bloomsbury Academic.

Greene, M. (1995). *Releasing the imagination*. Jossey-Bass.

Greene, N. (1990). *Pier Paolo Pasolini: Cinema as heresy*. Princeton University Press.

Huang, K. (2023, January 17). A. I. Is doing homework. Can it be outsmarted? *The New York Times*, CLXXII, No. 59,671, A1, A16.

Kindley, E. (2023, March 9). Departments on the Defensive. *The New York Review of Books*, LXX (4), 19-21.

Luisetti, F. (2019). Pier Paolo Pasolini's political animism. In L. Peretti & K. T. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 211-220). Bloomsbury Academic.

Mervosh, S. (2022, September 1). Pandemic set schools back two decades. *The New York Times*, CLXXI, No. 59, 533, A1, A15.

North, M. (2018). *What is the present*? Princeton University Press.

Peretti, L., & Raizen, K. (2019). Introduction to *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 3-9). Bloomsbury Academic.

Pinar, W. (2009). *The Worldliness of a cosmopolitan education*. Routledge.

Pinar, W. (2015). *Educational experience as lived*: *Knowledge, history, alterity*. Routledge.

Pinar, W. (2019a). *Moving images of eternity: George Grant's critique of time, teaching, and technology*. University of Ottawa Press.

Pinar, W. (2019b). *What is curriculum theory*?. Routledge.

Pinar, W. (2023). *A praxis of presence in curriculum theory*. Routledge.

Pinar, W., Reynolds, W., Slattery, P., & Taubman, P. (1995). *Understanding curriculum*. Peter Lang.

Pinkus, K. (2019). Pasolini for the anthropocene. In L. Peretti & K. T. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 195-210). Bloomsbury Academic.

Rohdie, S. (1995). *The Passion of Pier Paolo Pasolini*. Indiana University Press.

Roose, K. (2023, January 13). A.I., Once the Future, has become the present. What do we do now? Some educators fear ChatGPT will be used for cheating, but others see it as a teaching tool. *The New York Times*, CLXXII, No. 59,667, B1, B5.

Ryan-Scheutz, C. (2007). *Sex, the self, and the sacred: Women in the cinema of Pier Paolo Pasolini*. University of Toronto Press.

Salecl, R. (2021). Corona envy and the violence of the pandemic. In E. Degot & D. Riff (Eds.), *There is no society? Individuals and community in pandemic times* (pp. 89-106). Verlag.

Sartarelli, S. (2014). Pier Paolo Pasolini: A life in poetry. In Stephen Sartarelli (Ed.), *The selected poetry of Pier Paolo Pasolini. A bilingual education* (pp. 1-58). University of Chicago Press.

Schwartz, D. (1992). *Pasolini requiem.* Pantheon.

Sengupta, S., Einhorn, C., & Andreoni, M. (2021, March 12). A global plan to conserve nature is lacking a vital ingredient. *The New York Times*, CLXX, No. 58,995, A13.

Specia, M. (2023, January 18). Reading, writing, arithmetic and air raid sirens. *The New York Times*, CLXXII, No. 59,672, A6.

Temelkuran, E. (2021). Reinventing the politics of friendship in a "post-society": Spinoza's cloak and my cardigan. In E. Degot & D. Riff (Eds.), *There is no society? Individuals and community in pandemic times* (pp. 75-86). Verlag.

Testa, B. (1994). To film a gospel.... and Advent of theoretical stranger. In P. Rumble & B. Testa (Eds.), *Pier Paolo Pasolini: Contemporary perspectives (*pp. 180-209). University of Toronto Press.

Viano, M. (1993). *A certain realism: Making use of Pasolini's film theory and practice*. University of California Press.

Williams, E. (2019). The loss of the separated world: On Pasolini's communism. In L. Peretti & K. Raizen (Eds.), *Pier Paolo Pasolini, framed and unframed. A thinker for the twenty-first century* (pp. 129-155). Bloomsbury Academic.

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ARTICLE

Waypoints: Narrative Connections for Curriculum Futures

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ABSTRACT

In this article, I examine the intersections between culture, education, and future through the lens of curriculum studies. Drawing upon key concepts in the field (Wearing et al., 2020), I explore the relationship between culture and curriculum and situate this relationship within the broader context of education. Schwab's four commonplaces of curriculum and Pinar's four phases of currere guide this narrative exploration of curriculum thinking. By revisiting six key curriculum concepts, I show how connecting multiple curriculum constructs using keyword responses can be a method for curricular insight. Arguing for curriculum theory that is accessible to a broad audience of readers, I introduce "waypoints" as a conceptual tool for navigating future directions in education. The result is an inclusive and accessible curriculum approach that has the potential to engage scholars and teachers in conversations with young people about desirable futures. The article offers valuable insights into the narrative interconnections between culture, education, and future, and provides an opportunity for meaningful engagement with curriculum studies.

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Introduction

I come from a scholarly tradition of thinking about education in terms of key concepts (Wearing et al., 2020) and keyword writing (Luce-Kapler, 2020). Derived from Raymond Williams' (1976) notion of keywords, "the purpose of keyword writing is to arrive at new points of resonance and deepen understanding of words and their meanings in relation to self, group, and society" (The Curriculum Collective, 2007, p. 65). Typically in keyword writing, we choose one word or phrase from a reading, and respond in a way that connects our personal experience to the text. However, the juxtaposition of three key words in the title of this journal—culture, education, and future—brought me to think about the interconnection between concepts. In this paper, I would like to map these intersections by connecting these key words to my reading of other key concepts in curriculum studies. By exploring this relationship, I arrive at a new conceptual tool for navigating future directions in education: the notion of *waypoints*.

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As you read this article, you are joining me at this location on the curriculum map and will hopefully read and write into the ideas you find here in your own unique ways. The voice I bring to this conversation is, as Tennyson famously said, a part of all that I have seen and met. I recognize the privileges that have enabled my encounters with others and how these encounters have enriched my learning (Ingersoll & Whitty, 2021). My curriculum journey is informed by and limited to my experiences, and I position myself as a learner-teacher-scholar on this continuing journey. In this article I take an approach and tone that some in the academy may consider lacking in sophistication. Others may recognize it as deliberate and conscious, an effort to speak to a broad audience of readers and make curriculum theory accessible and inclusive, in the hope that such conversations can support insightful movement toward informed, desired, and shared curriculum futures across the world. I chart a way for scholars and teachers to enter conversations with and co-construct theory for the next generation of learners, so that we might generate stories of desirable futures with one another and young people.

In curriculum work, frames of four have been valuable for thinking about the field. Schwab's (1970) four commonplaces, for instance, suggests four elements for consideration: teacher, learner, subject matter and milieu. A narrative framework invites us to, quite similarly, consider who is the teller, who is the listener, what stories are valued, and who gains from the telling (Riessman, 2020). Currere challenges us to question the regressive, progressive, analytic, and synthetic domains (Pinar, 2004) as we consider what knowledge is of the most worth, for whom, and when. Each of these conceptual frames provides guidance for the curriculum thinking that I chart next.

Navigating curriculum

In previous work with other curriculum leaders and learners (Wearing et al., 2020), I helped to explore the keyword methodology as a process of reading and interpreting experience as shared curriculum work. Together, we selected nineteen key concepts from contemporary curriculum thinking to guide our exploration of common constructs past and present. Each of the nineteen constructs—aesthetics, becoming, complexity, currere, discourse, ecology, ethics, experience, hermeneutics, imagination, Indigeneity, narrative, normativity, place, poetics, representation, social justice, standards, and temporality—came from our complicated conversations (Pinar, 2004) about and readings in the field of curriculum. We invited scholars in the field to write short anchor texts as theoretical entry points that could situate these key concepts within the field of curriculum scholarship. Then we sought perspectives from scholars, teachers, graduate students, undergraduate students, high school students, parents, professors, and community members. These perspectives came in the form of keyword responses, a process by which careful reading of a text is followed by the selection of a word, phrase, or idea that is resonant and serves as a key to unlocking an integrated personal, textual, theoretical experience. The keyword process is grounded in a method of curriculum scholarship that demonstrates how meaning is unlocked through collective inquiry into common constructs and that multiple individual responses guide us to new understandings and directions. In our keyword response collection, the deliberate inclusion of multiple voices located curriculum work within the realm of individuals connecting on a journey of dialogic encounter, asserting that we "are all learning in relation to others across time and place on a landscape that is historically, contemporaneously, and future-oriented" (Ingersoll et al., 2020, p. 9). Here in this paper I reflect on and extend that thinking, by contemplating how the intersections of five key concepts of curriculum provide a navigational waypoint for curricular futures: currere, experience, place, narrative, ecology, and social justice are touchpoints for this curriculum conversation.

Currere as a key concept

For this article, I write from a curriculum theory perspective that invokes the tradition of *currere*, first brought forward by William Pinar in 1975 and comprised of a four-phase method to explore the planned curriculum and the lived curriculum (Pinar, 2020). The method of currere integrates the autobiographical, the temporal, and the conceptual as these become reexamined and reorganized. It asks us to slow down, to remember and re-enter the past, and to meditatively imagine the future (Pinar, 2004). This process is ongoing and iterative, subjective and complex, and draws on memory and experience to imagine a curricular future.

William Pinar's notion of *currere* has influenced our educational understanding of the role of lived experiences in shaping curriculum. Seeing curriculum as an "embodied potentially educational experience that is structured by the past while focused on the future" (2020, p. 50), *currere* offers a framework for attaining curricular insight. The four phase method of *currere* includes (a) the regressive phase, invoked by returning to autobiographical school experiences of the past, (b) the progressive moment where fantasies of the future are considered in relation the intertwined dimensions of a personal, social, and political present, (c) the analytic moment where reconsideration, research, and study informs the problem of the present, and (d) the synthetic fourth phase, an opportunity for curricular insight is derived from the coherent synthesis of past, present, and future imaginings. In using this method to frame this paper, I create a navigational waypoint for others to consider, engage with, or move toward.

Phase 1: Regressive looking back to look ahead

The traditions of curriculum

Within the method of currere, considering the future means understanding the past and the present, and the tradition of curriculum theory has been to consider questions of knowledge. Throughout human existence, knowledge has been produced, captured, and conveyed in multiple forms. Anthropologists, philosophers, historians, elders, and other scholars have long studied knowledge–how it is gathered and shared, and by whom it is carried forward. Within the field of education, curriculum studies has emerged as a scholarly home for studying the content, context, and processes that comprise contemporary notions of education. The Encyclopedia of Curriculum Studies claims that the field "now embraces an array of academic scholarship in relation to personal and institutional needs and interests while it also focuses upon a diverse and complex dynamic among educational experiences, practices, settings, actions, and theories" (see Kridel, 2010, p. 1). University programs and projects committed to the study of curriculum are typically housed within faculties of education, where graduate students can pursue specialized study in the field (see Ng-A-Fook, n.d.). As one such program notes:

> Curriculum Theory, as the interdisciplinary study of educational experience, aspires to understand educational practices within broad social and cultural frameworks, focusing on what counts as knowledge, and what knowledge is most valued, by whom, at what time, and for what purpose. Engaging experience, analysis and imagination, this field of scholarly inquiry seeks to articulate the significance of curriculum as lived and explore at the nexus of subject matter, society and self its generative possibilities. (Curriculum Theory Project, n.d.)

The historiography of curriculum as a field both traces and disputes its origins (Petrina et al., 2016). The field has been declared moribund (Schwab, 1970), dead (Huebner, 1976), under threat (Christou & Deluca, 2013), of no use (Hlebowitsh, 2014), at risk of deadlock (Paraskava, 2022), and in need of internationalization (Hébert et al., 2019; Pinar, 2003). Contemporary curriculum considers questions and uses methods that span the social sciences and the humanities, and the central pursuit of curriculum inquiry is to ask questions about what knowledge is worthwhile, why, and for whose benefit (Schubert, 2010). Schubert makes an argument for understanding curriculum inquiry as an "integration of form and substance" and identifies several types of inquiry that shape the curriculum landscape (Schubert, 2008, p. 399). Ethnography (Janesick, 2003), narrative (Connelly & Clandinin, 2000), autobiography, (Bullough & Pinnegar, 2001) artistic criticism (Eisner, 1991), biography (Kridel, 1998), phenomenological hermeneutics (van Manen, 1997), revisionist history (Spring, 2006), speculative essay (Schubert, 1991), critical theory (Young, 2003), ideological analysis (Apple, 1979/2004), feminist studies (Lather, 1991), post-modernist renditions (Doll & Gough, 2002), and cultural studies (Edgerton, 1995) are just some examples of the multiple ways of looking at and into curriculum. It is not a field without tensions, and continues to engage with the overarching question of what knowledge is of the most worth (Christou & Deluca, 2019; Schubert, 2010).

My own scholarship falls within these overlapping tensions and ongoing lack of resolution. Glancing through a notebook recently I found questions scribbled in 2008, the first year of my graduate work, are questions that brought me to pursue academic work: *Why are we driven by a need to compete and accumulate rather than a compulsion to share and protect? Are humans hardwired for such an existence? If we're not—how much longer can we exist? What knowledge is worth knowing, what knowledge can be taught to support caring, cooperative futures?*

These questions linger today. "Curriculum theory studies that support deep questioning and critical thinking in the field of curriculum are…considered important for the future of the field." (Yaşar & Aslan, 2021, p. 251). More than a decade after I transitioned from schoolteacher to academic, curriculum theory has provided a scholarly home for my enduring questions about education as a universal human endeavour, and what knowledge is of the most worth in times of rapid change and heightened connection. The exploration of curriculum through key concepts and multiple personal narratives on these concepts has provided some degree of curricular insight.

Experience as a key concept

If we understand curriculum to be a process that embraces the writing of personal experience into curricular constructs, and the sharing of those experiences as a movement toward greater interpersonal understanding, we can approximate a more culturally inclusive approach to curriculum building for the future. Diverse perspectives that consider the relation between curriculum constructs and individual experience with those constructs can inform curriculum theory, inquiry, pedagogy, and practice as they are enacted and acted upon, and as we might act in future. Educational philosopher John Dewey called for education to be grounded in experience, eventually using the term culture instead (Dewey, 1981; Seamen & Nelsen, 2011). As Awad Ibrahim (2020) points out, our experiences are culturally and historically shaped, thereby taking and producing meanings that reflect how the self is a subject that intersects with representation, power, and curriculum. "What we end up deciding to include in a specific curriculum for example is not a question of truth and knowledge but of power: who decides, how it is decided and why, and who is included and who is excluded" (p. 179). From this view, knowledge is not

truth, but a specific set of understandings that are specific in time and space and connected to power. Ibrahim notes that opening our curriculum "so that multiple subjectivities can be 'represented' in the curriculum and multiple voices and stories can be heard and told" (p. 179) is the pathway to radical possibilities for curriculum across cultures.

Place as a key concept

Ibrahim notes that radical possibilities for future curriculum work would ensure that students "feel reflected in the curriculum and can locate themselves in time and space and at the same time question the adequacy of their location" (p. 179). Dwayne Donald takes up the notion of space as a curricular concept that has dominated and even displaced "place" as a key concept in curriculum. Donald reminds us that the felt meaning of the word place conjures notions of location and belonging that are more connected to human experience than Enlightenment-influenced notions of curriculum and space. In Canada, public education has created what he calls a "*relational psychosis* resulting from a decades-long curricular project dedicated to the telling of a Canadian national narrative that has largely excluded the memories and experiences of Indigenous peoples" (Donald, 2020, p. 157). The Truth and Reconciliation Commission (TRC) has revealed the intergenerational trauma created by Indian Residential schools in Canada and "unsettled" curricular approaches, provoking fundamental questions about whether curriculum constitutes truth and for whom, especially as we confront the "institutional and socio-cultural perpetuation of colonial logics [that] trained Canadians to disregard Indigenous peoples as fellow human beings" (p. 157). As a next step for the future, Donald challenges us to consider Indigenous stories and understandings of the unique animacy of place and interconnectedness of all lifeforms as a way to honour and nurture life.

> If curriculum can be understood as stories we tell about the worlds and our place in it, then we need to start telling different stories in order to renew balanced and sustainable relationships with the more-than-human entities that give life. (Donald, 2018, p. 160).

Based on Deweyan notions of experience, Connelly and Clandinin (2000) suggest three dimensions for narrative work: (a) temporality, (b) social and personal, and (c) place. They explain how a three-dimensional narrative inquiry space allows for narrative inquiry to travel *inward, outward, backward, forward*, while being *situated within place* (p. 49, 2000). Building on these understandings, experience and place are key concepts for thinking narratively about culture and education: who we are, where we belong, how and where we live, with whom and what we value, and what we must know and understand in order to live well now and story ourselves into the commonplaces of curriculum future.

Phase 2: Progressive: Interconnection and the commonplaces

In currere, the second phase of inquiry is the progressive moment where fantasies of the future are considered in relation the intertwined dimensions of a personal, social, and political present. Within the tradition of curriculum, the "autobiographical and biographical turn…emerged to address a void created by 'the political'. It was crucial 'to understand teachers and teaching biographically and autobiographically' (Pinar et al., 1995, p. 516). Autobiography becomes counter history, history proper (Paraskeva, 2022), and here I will fantasize about the future by asking you as a reader to join me as we momentarily consider the autobiographical present in relation to the future.

Ecology as a key concept

The world is still recovering from the collective shock and aftershocks of a pandemic that heightened our global interdependence and connection, and interconnection. This key concept—ecology—inspires a keyword response for the present, recognizing that ecocentric thinking integrates every aspect of humanity, yet schools presently "reproduce ways of thinking and acting that are antithetical to ecocentric thinking" (Upitis, 2020, p. 73). As Upitis explains, ecology encapsulates the interconnection among human and nonhuman forms. The complexity of these systems of relation (Doll, 2008) is reflected in how the words of Upitis become connected in the mind to those of Donald, inspiring a keyword response (Wearing et al., 2020) that brings together personal autobiographical stories both impacted by and enmeshed in a global educational present.

Keyword: Enmeshed

Contemporary classrooms have been characterized as increasingly diverse in many global locales, raising questions about whose cultural backgrounds become curriculum foregrounds, and the ethics (Helfenbein & Mason, 2012) of globally (Gough, 2000) enmeshed curricular enterprises in the context of increasing of internationalization (Hébert et al., 2019).

As I write this, Russia is at war with Ukraine, and the interconnection of this geographically distant event is felt in the small Canadian island where I grew up—Ukranian students are now embedded as newcomers to classrooms typically comprised of island children who have known one another since birth. Sitting in a kitchen in Genoa, where I spent a portion of my sabbatical, a young Italian woman shared with me how her family is one of many experiencing inflationary stressors due to rising housing, heating, and food costs around the globe. At a conference in another Canadian province, I learn how the government is removing environmental protections to a greenbelt in order to raze rich farmlands and replace irreplaceable food-sustaining places with concrete, a highway, and nature-destroying development. During a university meeting, someone announces that balloons are being shot out of the sky in an atmosphere of heightened global suspicion. Messages between colleagues express condolences, as Turkey and Syria are under a shroud of sadness from devastating earthquakes.

Views about how schools should focus on students' skills for the future are part of the popular discourse on education, and scholars continue to challenge governmental approaches to schooling as preparation for economic participation over citizenship within the context of global educational reforms (Sahlberg, 2016). In the past few months, the local impact of global events has run a river through my scholarly networks. Ecological events especially, with colleagues reporting delays in their work in many parts of the world. In Italy the offices have been too hot to work and the air-conditioning too expensive for the university to operate, in Australia colleagues have had wildfires threaten their homes, in Canada unseasonable weather events have closed schools and campuses. The economic participation our schooling is supposed to prepare us for becomes impossible under these conditions, unthinkable on a planet that cannot sustain life. As Dwyane Donald reminds us, this is an urgent curricular challenge, and Indigenous stories of the unique animacy of places are integral to our understanding of the enmeshment of all lifeforms (Donald, 2020). Life, in all its forms—people, plants, animals, trees, rocks, are intricately connected and under threat.

Last night I dreamed of a school where children eat, learn, plant, grow, love, and live well, and awakened just as Rena Upitis introduced John Dewey and Dwayne Donald as our guest speakers. Even as I am writing and you are reading this piece, we are enmeshed.

Conjoined across time, geography, and experience, we are connected: reading the words of another is an act of cognitive magic—we can see inside the mind of another person through their words and return to a person's thinking time and time again. We are able to access this thinking despite not being in the same place or time, and to access reality through stories of the world we know and the worlds we do not. In the traditions of keyword writing and currere, we can capture the personal, social, and political, drawing together key concepts from the autobiographical present to fantasize about the future.

Phase 3: The analytic moment

Phase 3 of currere is the analytic moment where reconsideration, research, and study informs the problem of the present (Pinar, 2020). At this juncture I return to the integral value of bringing autobiography (Pinar, 2004) into curricular conversations, and connect personal narratives of experience and keyword response writing as a method for creating inclusive curriculum conversations across cultures. Connection through personal narratives of experience has a generative power, and becomes "an act of coming to understand the world empathetically, exploring and negotiating polysemic meanings" (Bresler, 2006, p. 22). In this way, shared stories have powerful potential to create meaning across cultures. When experiences are investigated narratively, they "become curricular experiences for the inquirer—and possibly also for the audience, if the experiential narratives are read or listened to by others"(Conle, 2003). Keyword responses to curriculum constructs are meant to be read aloud and shared with others, so that writers and listeners might "hear their words anew" (Luce-Kapler, 2020, p. xiv), reorder experience, and create alternative understandings and a broader range of perspectives through this inclusive process. Inclusive does not mean aligned, and keywords inherently build commonality while recognizing difference, they "enable localized considerations of curriculum work that shape the individual and move outward to the collective community of curriculum scholars through cascading conversations, complicated by sometimes discordant, sometimes harmonious tones and overtones." (Ingersoll et al., 2020, p. 9). As some in the field of curriculum have pointed out, curriculum conversations are not always inclusive (Christou & Deluca, 2013), and can become so complicated that they are incomprehensible, and far from practical.

Schwab (1973) provides a useful and practical frame for understanding curriculum through four components, which he referred to as commonplaces: the teacher, learner, subject matter, and milieu. Inherent in the keyword process is the consideration of each of these components. If curriculum is concerned with the people, processes and contexts of education, then the key concepts of experience and place are captured by and reflected from these commonplaces. Culture is engaged through both concepts—a subjective and dialogic process of seeing the self, society, and other lifeforms in ecological relation to these concepts, since all experiences are located within a place, or milieu. Curriculum—what knowledge is of value—also necessarily involves cognition—how we come to know, and I draw on cognitive theorist Jerome Bruner's work to connect knowledge and learning to culture as milieu. According to Bruner, knowledge is constructed actively and within social and cultural contexts (Bruner, 1997). A social constructivist, Bruner's spiral curriculum emphasized learning as being constantly in motion and relation, asserting that cognitive growth is enabled by language, by discovery, by interaction, and that by revisiting concepts we strengthen our learning. Bruner's work harkens to the Socratic tradition of learning, with an emphasis on dialogue and an understanding that the cultural and social frameworks that form our experiences shape how we will interpret those experiences. What we come to know is impacted by where, with whom, and how the knowledge is conveyed and selected for transmission—our cultural contexts, Schwab's milieu.

Keywords are a form of autobiographical writing in which personal experiences intersect with the milieu that created them: they become a site for the exploration and negotiation of meaning through the words of another's experience, a process that fosters empathy among teachers and learners as they consider the subject at hand.

Narrative as a key concept

Across cultures, stories are one of the oldest forms of knowledge-keeping. Narratives have acted as containers, capturing human experience and carrying it to the next generation: narrative and knowledge are intricately linked (Fowler, 2020). Stories have also served as guideposts for how to live well and be a good person. Contemporary scholar Nel Noddings reminds us of education as a "moral enterprise, and teachers are almost universally expected to be exemplars of ethical behaviour" (2020, p. 82). Turkish scholar Sümer Aktan describes how, in Islamic educational thought, a good education included moral education and teaching children how to be good involves the telling of stories. According to Aktan, Islamic educational thinker Ibn Miskaweyh, whose work was influenced by Classical Greek scholars, emphasized "that in a learning process in which behavior is very important, children's characters can be developed through poetry, stories, and historical narratives" (Aktan, 2018, p. 29). Curriculum calls us to think about what knowledge is of the most worth in life, what it means to be worthy, and what is life.

> Our precommitment about the nature of a life is that it is a story, some narrative however incoherently put together. Perhaps we can say one other thing: any story one may tell about anything is better understood by considering other possible ways in which it can be told. (Bruner, 2004, p. 709)

If we consider truth, knowledge, and what is most worthy of knowing in this life, I want to emphasize the point that the stories we have been told are shaped by culture (Donald, 2020) and that life is narrative (Bruner, 2004). Narrative will continue to shape the future.

Phase 4: Future

Currere calls us to re-order time: reflecting on the past and projecting into the future is a way of understanding and transforming the self and society (Pinar, 2004). In the synthetic fourth phase, where an opportunity for curricular insight is derived from the coherent synthesis of past, present, and future imaginings. Comprehensible conversations about imagined futures are a necessary direction for curriculum theory, and keyword writing can be a form for engaging us in these conversations by bringing currere to the commonplaces. If curriculum draws its subject matter from what knowledge is most important, and who it benefits, then now is the time for a refocusing on the commonplace most dependent upon scholars and teachers getting it right for life in the future: the learners.

Keywords as waypoints for the future

Curriculum has been explored as a cultural object (Grumet et al., 2008) a cultural practice, (Kanu, 2009) and Paraskeva's (2011) *Conflicts in Curriculum Theory: Challenging Hegemonic Epistemologies* engages critical theory in his consideration of issues of culture and curriculum. Paraskeva points to a turn in the curriculum field where curriculum becomes itinerant, "a form of decolonial thinking that recognizes an ecological co-existence of varying epistemological forms of knowledge around the world," (Paraskeva,

2022, p. 11). Pointing to the need for a move away from Eurocentric forms of curricular elitism, he notes that critical curriculum theorists have been "working fundamentally within a Modern Western Eurocentric epistemological platform, which propels an abyssal reason, thus ignoring the legitimacy and importance of non-Western non-Eurocentric epistemes" (p. 13). Accurate as this may be, I share an ongoing concern in the field that curriculum theory runs the risk of being insular, elitist, and disconnected from its public, by virtue of such obfuscating language. The commonplaces of curriculum (Schwab, 1973) remind us that teacher, learner, subject matter, and milieu are central to educational practice and curriculum thinking. Yet, the language of theory can be incoherent even to others in the field (Christou & Deluca, 2013), much less the schoolteachers who "just don't speak the same language" (Grumet, 2008, p. 141) as educators at the university level. Curricular and cultural disconnects can be repaired if we bring personal narratives of experience with key curriculum concepts together in relation to these four commonplaces. Teachers and learners must be part of the conversations about subject matter, bring global stories of the uniqueness of their locations and contexts, and scholars must be in touch with the realities of the milieu.

Social justice as a key concept

As scholars, the language we choose to form and inform the future of curriculum can be powerful without being insular or elitist. Take, for example, the following excerpt from a keyword response written by sixteen-year-old New York public school student Leanne Nunes (2020). In keeping with the keyword pedagogy, Nunes' keyword writing focuses on and responds to one word or phrase in a text, then writes into that phrase creatively and from personal experience. Choosing the phrase "full and equal participation from all groups in society" from a curriculum anchor text on the key concept of social justice (Sonu, 2020, p. 190), Nunes writes:

> I grew up with images of *High School Musical*, seeing happy students with delicious lunches, spacious buildings and clean halls. I felt through contrast with my own school experiences that it was and probably could never be real.
>
> If "full and equal participation from all groups in society" were the reality in our school system, it would look much different than it currently does. It would look like High School Musical for everyone.
>
> I've gone to schools where students are segregated racially, economically, religiously, and through language and culture. Many people have enough privilege to not have to think about how a poor education impacts others, and don't feel like they have to, but for many marginalized students across New York City and the country, it is our reality. (Nunes, 2020, p. 193).

Verisimilitude is a literary term that refers to how stories can create a semblance of truth or reflection of reality, what Bruner calls a "truth-likeness" (2010, p. 45). Nunes' keyword response demonstrates how the reality of Schwab's commonplaces of milieu and learner are revealed through the power of personal narrative. Philosophers have long considered the question of what is the good life, and Nunes reveals the disjuncture between popular depictions of idealized schooling and the reality of her own. Complexity thinking reveals that education is a "slow domain", and formal education "out of step with the times" (Davis, 2020, p. 43). If we look to the field of futures studies, there is evidence that "strong misalignment in the school system exists between the a-temporal or historically oriented teaching approaches and the need to support the young to construct visions of the future that empowers actions in the present" (Barelli et al., 2022, p. 2). Young people today are

increasingly confronted not only with questions of the good life, but with whether there will even be a future that can sustain human life. Students at my institution are marching with posters that our house is on fire. My cellphone news alert just flashed across the screen—the headline appearing and disappearing, flashing a warning that immediate action is needed to ensure a livable future for all. Under the conditions of planetary crisis and youth despair (Sanson & Bellemo, 2021), contemporary curriculum theory must contend with what knowledge is of the most worth for today's learners, and whether we as scholars are willing to listen.

Whether in classrooms or communities or nature, each of us is situated as an individual in relation to and with others. Do we as curriculum scholars see ourselves in relation to today's learners? Each of the curriculum scholars who writes themselves into the complicated conversation is and was a learner and brings authority of perspective in this way. However, it is worth considering whether our voices are more representative of curriculum past than curriculum present, and how we can engage more productively with one another and those closer to the everyday processes and contexts of contemporary schooling. As noted earlier, as curriculum scholars, we are called to ask difficult questions about the field, and here are two: 1) how many of us are long disconnected from the curricular spaces we theorize about? If, looking back from this waypoint we are stopping at, we have travelled so far from those spaces we cannot see or hear others on the journey, then 2) what does this curricular distance imply about the validity of our theorizing? As scholars we may observe the classrooms in which contemporary curriculum is practiced, but where are we in the commonplaces? We may write about these classrooms, contexts, and processes, but for whom do we write? The voices of the learners who are the subjects that curriculum scholars theorize about (and ostensibly for) are seldom present in scholarly texts on curriculum theory. As Nunes shows us in *High School Musical Not!*, her keyword response to the construct of social justice, when learners are part of the curriculum theorizing they have much for us to listen to, and learn from.

Conceptualizing waypoints

If we conceptualize curriculum as a journey, I'd like to offer the term waypoint as a metaphorical point of reference for thinking about the conceptual locations where we might navigate toward new curriculum futures. Navigation is considered both the art and science of locating a position enroute to a destination (National Geographic, 2022) and curriculum comprises the art and science of learning. Waypoint as a navigational term has been used to indicate stopping places along a journey, places where travellers can locate themselves and determine their next directional steps. Waypoints recognize that we are enmeshed within larger grids of connection.

Just as currere calls for the incorporation of the autobiographical in curriculum thinking, in our work on key concepts in curriculum, we asserted that curriculum theory comprises a "constellation of perspectives surrounding theoretical centre points, where the meeting places, the multiple paths that lead there, and those who travel the pathways constitute the whole" (Wearing et al., 2020, p. 2). We recognized that curriculum is a dynamic process that involves movement as method, and personal narratives of experience with key curriculum concepts can be important points of individual awareness.

> As we journey, we are constantly coming to know where we have been, where we are, and looking in anticipation toward the journey to come. We are in relation to others and see ourselves in relation to our surroundings, and to our place on the curricular journey. (Ingersoll et al., 2018, p. 4).

If curriculum centre points are the spaces where we share common constructs, then we need to find our way to these centre points. We must know where we are in order to journey forward.

Waypoints can be a way of situating ourselves on the landscape: recognizing our locations and travelling to other waypoints will enable us to consider what the constellations of curriculum look like from above, below, and across the world. Each of the concepts in this article—experience, place, ecology, narrative, currere, social justice—are stars on their own, but in bringing them together and connecting them they become a constellation, a waypoint for future conversations. Each star of a constellation may shine on its own, but it is through their connection that these constructs gain form and become a new waypoint.

I draw the distinction between waypoints and centre-points to recognize (a) the inner and outer realms of experience on the curricular journey—the parts we create imaginatively and those we share, (b) the differences between place and space—understanding that space is more centralized, constructed, and frequently cosmopolitan, whereas waypoints are conceived as more contextual, local, and naturally occurring. Space in a curricular sense is often connected to temporality and referred to as a pressure—we do not have enough space in the curriculum, it is crammed, jammed, full. Conversely, we do not need to make time or space for place—because we are already there, already connected, already existing within. Our oldest waypoints have been natural landmarks, and our oldest knowledge told through stories—the reordering of experience through currere and consideration of the commonplaces presents a new constellation, drawn here through the concepts of experience, place, ecology, social justice, and narrative. In looking backward, forward, inward, and outward to locate myself on the curriculum journey—this waypoint connects me as a teacher and learner to concepts (subject matter), and culture (milieu). By bringing together seven key concepts of curriculum and connecting them through a keyword response (Enmeshed), I offer a new conceptual and temporal waypoint, from which to draw upon, explore, and create narrative networks for navigating transcultural curriculum futures.

The next waypoint: Curriculum commonplaces to chart new constellations

as I locate myself at this waypoint along the curricular journey, the words I bring to the curricular conversation are mine, and not mine. My perspectives are individual, collective, and limited: I am a part of all I have seen and met along the journey thus far, but I have more of you to meet, more to learn, and more to know. At some point in time I may wish to change these words, take them back, or replace them: because as we learn we grow. We grow out of particular words and ideas, and into others: we grow out of and into knowing. Currere acknowledges that knowledge can be partial and provisional, and the notion of waypoints recognizes that stopping points are places from which to navigate the next destination but are not an entire map.

The metaphor of waypoints recognizes that even as I stop along the journey, even if I am travelling alone, I did not get here alone. My story is intricately connected to and embedded in the stories of others. By definition a story contains at its most basic level a plot, setting, and characters—none of which can function as a narrative in isolation. Narrative is connected and it connects. Stories have long been conveyors of human values and a valued currency of human exchange, and intercultural connections that bring together the sharing of stories recognize the importance of narrative as a conveyor of self and society. Before we had theory we had narrative--it has been a vehicle for transmitting our cultural pasts and capturing our cultural presents and its enduring nature reveals its potential as a tool for shaping a journey through culture, with education, into the future.

For curriculum maps to be mutually intelligible, we need common navigational tools for the journey, the course, the currere. Shared stories that revisit key curriculum concepts in connection with one another can provide future direction. By identifying key concepts, situating them within the field, and connecting them narratively, this paper creates a waypoint for others to do the same. Teachers, learners, scholars are invited to select and story their own curricular experiences with the nineteen constructs—aesthetics, becoming, complexity, currere, discourse, ecology, ethics, experience, hermeneutics, imagination, Indigeneity, narrative, normativity, place, poetics, representation, social justice, standards, and temporality (Wearing et al., 2020)—to create their own waypoints. Transcultural, contextualized, relational, individual responses that connect curricular constructs can simultaneously broaden and deepen our collective understanding, and create new constellations: new narratives about key concepts in curriculum can serve as waypoints along the journey to curricular centre-points past, present, and future. At this waypoint, let us consider how—through inclusive and comprehensible approaches—scholars can bring learners into the curriculum conversation and create new waypoints that highlight our responsibility for learners' desired futures.

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References

Aktan, S. (2018). *Curriculum studies in Turkey: A historical perspective*. Palgrave Macmillan US.

Barelli, E., Tasquier, G., Caramaschi, M., Satanassi, S., Fantini, P., Branchetti, L., & Levrini, O. (2022). Making sense of youth futures narratives: Recognition of emerging tensions in students' imagination of the future. *Frontiers in Education*, 7, 1-17. https://doi.org/10.3389/feduc.2022.911052

Bruner, J. (1997). *The culture of education*. Harvard University Press.

Bruner, J. (2004). Life as narrative. *Social Research: An International Quarterly, 71*(3), 691-710.

Bruner, J. (2010). Narrative, culture, and mind. In D. Bakhurst & S. Shanker (Eds.), *Telling stories: Language, narrative, and social life* (pp. 45-49). MIT Press.

Christou, T., & DeLuca, C. (2013). Curriculum Studies at a Crossroad: Curating Inclusive and Coherent Curriculum Conversations in Canada. *Journal of the Canadian Association for Curriculum Studies*, 11(1), 13–22. https://doi.org/10.7202/1022779ar

Christou, T.M., & DeLuca, C. (2019). Toward a complex coherence in the field of curriculum studies. In C. Hébert, N. Ng-A-Fook, A. Ibrahim, & B. Smith (Eds.), *Internationalizing Curriculum Studies* (pp. 17-32). Palgrave Macmillan.

Connelly, F. M., & Clandinin, D. J. (2000). *Narrative inquiry: Experience and story in qualitative research*. Jossey-Bass.

Conle, C. (2003). An anatomy of narrative curricula. *Educational Researcher*, 32(3), 3-15.

The Curriculum Collective. (2007). The pedagogy of hinges. *Journal of the Canadian Association for Curriculum Studies, 5*(2). Retrieved March 11, 2023, from https://jcacs.journals.yorku.ca/index.php/jcacs/article/view/17044

Curriculum Theory Project. (n.d.) Retrieved March 19, 2023, from https://www.lsu.edu/chse/education/research_and_outreach/curriculum_theory_project/curriculumtheoryproject.php

Bresler, L. (2006). Embodied narrative inquiry: A methodology of connection. *Research Studies in Music Education*, 27(1), 21-43.

Dewey, J. (1981). Experience and nature: A re-introduction. In J. Ratner (Ed.), *John Dewey, the later works* (Vol. 1, pp. 330-361). Carbondale, IL: Southern Illinois University Press. (Original work published n.d.).

Doll, W. E. (2008). Complexity and the culture of curriculum. *Educational Philosophy and Theory, 40*(1), 190-212.

Fowler, L. C. (2020). Narrative. In J. Wearing, M. Ingersoll, C. DeLuca, B. Bolden, H. Ogden, & T. M. Christou (Eds.), *Key concepts in curriculum studies: Perspectives on the fundamentals* (pp. 134-138). Routledge.

Gough, N. (2000). Locating curriculum studies in the global village. *Journal of Curriculum Studies*, 32(2), 329-342.

Grumet, M., Anderson, A., & Osmond, C. (2008). Finding form for curriculum research. In K. Gallagher (Ed.), *The methodological dilemma: Creative, critical and collaborative approaches to qualitative research* (pp. 136-156). Routledge.

Hébert, C., Ibrahim, A., Ng-A-Fook, N., & Smith, B. (2019). *Internationalizing curriculum studies: Histories, environments, and critiques*. Springer International Publishing.

Helfenbein, R. J., & Mason, T. C. (Eds.). (2012). *Ethics and international curriculum work: The challenges of culture and context*. Information Age Publishing.

Hlebowitsh, P. (2012). When best practices aren't: A Schwabian perspective on teaching. *Journal of Curriculum Studies, 44*(1), 1-12. https://doi.org/10.1080/00220272.2011.637184

Huebner, D. (1976). The moribund curriculum field: Its wake and our work. *Curriculum Inquiry, 6*(2), 153-167.

Ingersoll, M., & Whitty, P. (2021). Critical narrative nostalgia: Places, spaces, and privilege. In E. Lyle & S. Mahani (Eds.), *Sister scholars: Untangling issues of identity as women in academe* (pp. 41-48). DIO Press.

Kanu, Y. (Ed.). (2009). *Curriculum as cultural practice: Postcolonial imaginations*. University of Toronto Press.

Kridel, C. A. (Ed.). (1998). *Writing educational biography: Explorations in qualitative research* (Vol. 13). Taylor & Francis.

Kridel, C. (Ed.). (2010). Encyclopedia of curriculum studies. SAGE Publications. https://doi.org/10.4135/9781412958806

Paraskeva, J. M. (2022). The generation of the utopia: Itinerant curriculum theory towards a 'futurable future'. *Discourse: Studies in the Cultural Politics of Education*, 43(3), 446-459. https://doi.org/10.1080/01596306.2022.2030594

Luce-Kapler, R. (2020). Foreword: The curriculum of keywords. In J. Wearing, M. Ingersoll, C. DeLuca, B. Bolden, H. Ogden, & T. M. Christou (Eds.), *Key concepts in curriculum studies: Perspectives on the fundamentals* (pp. xiii-xvi). Routledge.

National Geographic. (2022). Navigation. Retrieved April 3, 2023, from https://education.nationalgeographic.org/resource/navigation/

National Geographic. (2022). Waypoint. Retrieved March 28, 2023, from https://education.nationalgeographic.org/resource/waypoint/

Ng-A Fook, N. (n.d.). A Canadian curriculum theory project. Retrieved March 16, 2023, from https://curriculumtheoryproject.ca/about/

Nunes, L. (2020). High School Musical—Not! In J. Wearing, M. Ingersoll, C. DeLuca, B. Bolden, H. Ogden, & T. M. Christou (Eds.), Key concepts in curriculum studies: Perspectives on the fundamentals (pp. 193-194). Routledge.

Petrina, S., Lee, Y.-L., & Feng, F. (2016). *On the historiography of curriculum: The legend of Petrus Ramus*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC, April 8-12, 2016.

Pinar, W. F. (2004). *What is curriculum theory?* (1st edition). Routledge.

Pinar, W. F. (2003). Toward the internationalization of curriculum studies. In D. Trueit, W. Doll, H. Wang, & W. Pinar (Eds.), *The internationalization of curriculum studies* (pp. 1–14). Peter Lang.

Pinar, W. F., Slattery, P., Reynolds, W. M., & Taubman, P. M. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses* (Vol. 17). Peter Lang.

Pinar, W.F. (2020). Currere. In J. Wearing, M. Ingersoll, C. DeLuca, B. Bolden, H. Ogden, & T. M. Christou (Eds.), *Key concepts in curriculum studies: Perspectives on the Fundamentals* (pp. 50-52). Routledge.

Riessman, C. K. (2020). Looking back, looking forward. *Narrative Works*, 10, 117-124.

Sahlberg, P. (2016). The global educational reform movement and its impact on schooling. In K. Mundy, A. Green, B. Lingard, & A. Verger (Eds.), *Handbook of global education policy* (pp. 128-144). John Wiley & Sons.

Sanson, A., & Bellemo, M. (2021). Children and youth in the climate crisis. *BJPsych bulletin*, 45(4), 205-209. https://doi.org/10.1192/bjb.2021.18

Seaman, J., & Nelsen, P.J. (2011). An overburdened term: Dewey's concept of "experience" as curriculum theory. *Education and Culture*, 27(1), 5-25.

Schubert, W. H. (2008). Curriculum inquiry. In F. M. Connelly, M. F. He, & J. Phillion (Eds.), *The SAGE Handbook of Curriculum and Instruction* (pp. 399–419). Thousand Oaks, CA: Sage.

Schubert, W.H. (2010). Journeys of expansion and synopsis: Tensions in books that shaped curriculum inquiry, 1968–Present. *Curriculum Inquiry*, 40, 17-94.

Schwab, J. J. (1970). The practical: A language for curriculum. *The School Review*, 78(1), 1–23.

Sonu, D. (2020). Social Justice. In J. Wearing, M. Ingersoll, C. DeLuca, B. Bolden, H. Ogden, & T. M. Christou (Eds.), *Key concepts in curriculum studies: Perspectives on the fundamentals* (pp. 187-192). Routledge.

Wearing, J., Ingersoll, M., DeLuca, C., Bolden, B., Ogden, H., & Christou, T. M. (Eds.). (2020). *Key concepts in curriculum studies: Perspectives on the fundamentals*. Routledge.

Yaşar, C. G., & Aslan, B. (2021). Curriculum theory: A review study. *International Journal of Curriculum and Instructional Studies, 11*(2), 237-260. https://doi.org/10.31704/ijocis.2021.012

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ARTICLE

Asking or Answering Questions: Musing over the Educational Strategy for the Future

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ABSTRACT

Mainstream education systems are largely heavily based on checking students' knowledge by asking them questions and checking their answers. This is the complete reversal of the natural way of developing children's brains from early age—through asking questions themselves. This article discusses the evolutionary importance of the ability of asking questions for human intelligence and its potential for creating a new strategy of education, based on encouraging students' natural curiosity, and encouraging their natural ability to search for knowledge. The article proposes that the most natural way to develop young human brains is through asking questions to adults from a very young age, the strategy developed and honed during the evolution of Homo sapiens through natural selection. The article concludes with some concrete classroom strategies and play suggestions that can be used to encourage young learners to ask questions freely in both child-centered education (CCE) and more traditional teacher-centered education models.

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Introduction

Asking questions of students, and their answering the teacher's questions, is the central element of educational systems all over the world. Everything in current educational systems is based on answering questions. In textbooks "control questions" check the students' knowledge; "questions" are to be answered during most tests. This educational strategy inadvertently works in a very undesired direction: to keep children passive and obedient, rendering them only passive learners of existing knowledge instead of encouraging them to become thinking, creative human beings.

These problems have been long addressed in the new, progressive educational strategy, which gradually received the name "Child-Centered Education" (CCE), or "Learner-Centered Education" (LCE). Most of the world's prominent educators during the last few centuries took part in the movement towards the gradual creation of CCE, including Jean-

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Jacques Rousseau, Johann Heinrich Pestolozzi, Friedrich Froebel, Maria Montessori, John Dewey, to name a few (Lee, 2018). Their educational ideas received validation from cognitive scholars as well. Developmental psychologist Piaget's stages of cognitive development theory influenced teachers' understanding of how children develop and learn in classroom settings (Piaget, 1936/1952), and Vygotsky's sociocultural cognitive development theory (Vygotsky, 1978) helped shift pedagogical practice in classrooms to facilitate children's learning and development (Matthews, 2003, p. 54; Stone, 1996, p. 11-12). Scholars claimed that children naturally have an inductive scientific thinking; they formulate and test hypotheses, learn from statistics and learn from interactions with the people around them the same way scientists do (Gopnik, 2012).

As a result of these findings, during recent decades proponents of CCE gradually changed the mainstream educational strategies, primarily in Western countries, concentrating on the needs and abilities of students. From the 1980s and particularly 1990s, CCE has been legitimized by government policies to be promoted in educational reforms in many developing countries as well (Brodie et al., 2002, O'Sullivan, 2003). Educators proposed new ways of classroom organization (Stacey, 2018; Jones, 2007), which led to inevitable changes, particularly teaching science in curricula and turning teachers into facilitators (Khalick et al., 2015). Primary attention was given to bringing more creativity in science classes (Cremin et al., 2015; Dejonckheere et al., 2016; Minner et al., 2009). Experiential and hands-on activities have been emphasized (MacDonald, 2016). Another study explored young children's literacy meaning-making experiences before and after tablets were introduced into classes (Harwood et al., 2015). The new strategy assumed that both teachers and students have different roles than those typical in a traditional classroom (Chichekian & Shore, 2016). CCE proponents concluded that experiential learning is primarily self-initiated learning as people have a natural inclination to learn (Rodgers, 2002). Governmental education bodies also stressed the importance of creating a class atmosphere that fosters creativity (National Research Council, 2000).

The response to CCE has not been unequivocally positive, though. It created controversies for several reasons. The major part (but not all) of the critique of CCE strategies came, understandably, from educators in the developing world, favoring traditional methods of teacher-based strategies. Many countries of the developing world were not ready to shift to CCE due to traditional values and cultural practices, and other objective reasons, like the size of classes, limited availability of resources and qualified teachers, etc. (Guthrie, 1990; O'Donoghue, 1994).

Several educators noted that CCE enhances a stereotypic masculine image among students, and early childhood education settings are 'feminized' as a result of the predominance of female teachers (Walkerdine, 1985, 1990; Skelton, 2002). Critics allege that many institutions or educators claim to be putting CCE into practice, but in reality are not (Lea et al. 2003:322). Others propose that CCE is a "White-Centered" discourse (Norquay, 1999); among other critical issues is the criticism of Rousseau for taking for granted that the child's self-development is driven by immediate interests, not by instruction (Oelkers, 2002). Others describe how teachers disturb children playing and solve conflicts between children rather than helping them work together and develop strong social relationships, and generally, there is insufficient pedagogical support, particularly for those children deemed at risk (Singer, 2005). These individual children appeared invisible in the teachers' understanding of CCE (Simon, 1981; Graue, 2005). Finally, there is an important claim

that contemporary Western countries use economic and political pressure to force developing countries to teach Western values in their classrooms (Shah, 2019; Tabulawa, 2003). In this article I will only indirectly discuss the arguments and counterarguments for and against CCE. Instead, I want to concentrate on a specific element of educational systems actively used in both CCE and traditional educational strategy—the questions children ask.

So, in this article for the first time in educational and developmental cognitivist literature I want to propose that *the most natural way to develop young humans' brains is through asking questions* from a very young age. This ingenious strategy was developed and honed during the evolution of Homo sapiens through natural selection. Asking questions in young age is indispensable for developing human intelligence and self-confidence. Currently children stop asking questions as soon as they go to school, as our current educational strategy purposefully trains them to answer question, discouraging them from continuing to ask questions. This gradually leads to low self-reliance and a non-justified dependance among the future citizens of democratic countries. In the last part of the article the author recommends a few class strategies and games to encourage young students to continue to ask questions. Implementation of these games and strategies is relatively easy both in CCE education as well as more traditional teacher-centered educational models.

I want initially to discuss briefly the importance of this ability to ask questions in children's (and generally human) development of cognition. As a hypothesis I propose that the ability to ask questions was the revolutionary cognitive development in human evolution, and, therefore, this element of human cognition deserves special attention from cognitivist and educationist perspectives. In the central part of the article, I discuss the proposed hypothesis after the literature review, and later I discuss the contrasting educational practices that encourage (or discourage) asking questions of teachers, both their pros and cons.

Questions about questioning: Cognitive revolution?

One of the central problems that cognitivists (and cognitive educationists) try to answer is how human intelligence starts to develop and when is it favorable to start formal education. The general approach to this question is divided: governmental bodies are mostly arguing for the need for the early start of formal education, and at least part of professional educators propose we should not rush to formal educational process (e.g., see McDougall, 2014; Smith, 2013).

I belong to those educationists who believe there is no need for an early and heavy-handed intervention from educators to develop a child's intelligence in the same way we do not need to teach a child her/his native language. Nature, more precisely natural selection, has provided every normal human baby with the best possible tool for their independent intellectual development, including the acquisition of native language systems. The name of this evolutionary tool is the ability to ask questions.

Charles Darwin famously used close observations of his own children in order to understand the young human's intellectual development, including questioning, as curiosity expressed in an information-seeking communication, and he also paid attention to the shrug as a universal expression of curiosity and lack of knowledge (Darwin, 1972). One of the earliest works of English psychologist and philosopher James Sully was dedicated to the

motifs behind the deep questions children sometimes ask (Sully, 2000/1896). Another early work in this sphere was the 4-page article published in 1924 by Lou H. Thompson from Fairwood Elementary School, "Children's Questions." In the article the author asks reasons for the neglect of such an interesting and important topic (Thompson, 1924). Among other works on the topic are the 1932 article by Edith Davis, "The Form and Function of Children's Questions," in which she cited the percentage of children's questions in their communication (Davis, 1932).

In 1936 Piaget proposed that children's questions come from their assumption that everything was created to suit humans' needs (Piaget, 1936). In 1930, in a work dedicated to the intellectual growth of the children, Isaacs expressed the view (partly criticizing Piaget) that children asked questions when the reality was not anticipated by them (Isaacs, 1930). In the 1968 article "The Development of Grammatical structures by Formulating Wh Questions in Child Speech," Roger Brown concluded that there is evidence that children in the preschool years do develop a grammatical structure underlying Wh questions that is much like the structure described in current transformational grammars (Brown, 1968). Barbara Tizard and Martin Hudges, in a book dedicated to children's learning, found that in a question-and-answer dialogic form children are gathering information about the world around them, encouraging their cognitive development. As a result, children asked more questions of caregivers than of their friends at pre-schools (Tizard & Hudges, 1984). The need for dialogical communication in education was stressed in Paulo Freier's *Pedagogy of the Oppressed* (1970). In his 2006 monograph *Who Asked the First Question?* Joseph Jordania proposed that the ability to ask questions was a cognitive revolution for human intelligence and language (Jordania, 2006). Another special monograph from around the same time (2007) by Michelle Chouinard, *Children's Questions: A Mechanism for Cognitive Development,* concentrated on information-seeking questions. It examined the role children's questions play in their cognitive development. The studies presented here indicate that children ask information-seeking questions that are related in topic and structure to their cognitive development. If parents do not provide the answers to these questions, children persist in asking for the information, which suggests that the goal of this behavior is to recruit needed information, including the pre-speech stage of development (Chouinard, 2007).

The last few years were particularly prolific for the research of children's questions. Among them is study called "Question, Explanation, Follow-Up: A Mechanism for Learning from Others?" (Kurkul & Corriveau, 2017). A 2020 collection of articles on the subject, titled "The Questioning Child: Insights from Psychology and Education" is a multidimensional collection on this important topic (Butler et al, 2020). And finally, a very recent article by Paul Harris "Young Children Share Imagined Possibilities: Evidence for an Early-emerging Human Competence" comparatively discussed the children's and apes' cognitive abilities (Bronowski & Bellugi, 1980; Greenfield & Savage-Rumbaugh, 1990, 1993; Harris, 2022; McNeill, 1980; Premack & Premack, 1972, 1983; Terrace, 1980), a topic very close to the interests of this author.

The crucial topic for the current discussion on education here is that the ability to ask questions naturally appears in every child's intellectual development, without any visible and conscious effort from their elders. For about a year after birth, every normal human baby begins to ask questions. This happens much earlier than the ability to acquire syntactic structures, and even earlier than the correct pronunciation of words (Crystal, 1987, p. 235,

243, 248; Ferguson, 1977; Moskowitz, 1991, p. 147). Young babies ask questions by simply using a rising intonation, and ask one-word questions like "dada?" ("Dad, are you there?"), or "kaka?" ("Can I have another piece of cake?"). The ability to ask questions is a part of human genetic makeup, or in other words, is hardwired in our genes.

An important question is how this ability comes alive after babies are born. Is this an instinctive ability, like swimming skills among ducklings, or does it need a "triggering" from the social surroundings? This question is difficult to answer at the current level of knowledge, but if we use the only (so far) currently available well-documented case when a human baby was put in complete isolation for years, we can get the preliminary answer. Let us look at the tragic story of a Californian girl, known to the scientific community as "Genie." Genie was kept by her abusive father in a cellar for 13 years. She was finally rescued by her mother, herself a blind and sick woman. After her rescue, Genie received plenty of attention, care, and training from foster homes and scholars. Thanks to these caregivers, Genie, who appeared to have a normal intelligence, was able to develop some language skills, but unfortunately was unable to develop full language. Among the skills she failed to develop was the ability to ask questions (Wills, 1993, p. 288).

This fact strongly (although still preliminarily) suggests that, while questioning is obviously a genetic ability of every normal human mind, it needs a social environment to trigger its development (Jordania, 2006, p. 342-343). A most likely mechanism for triggering children's genetic ability is parents' asking questions by talking to children in a specific "musical" way, known in the scholarly literature as "motherese." Other names for this phenomenon include "infant-directed speech," "child-directed speech," "caretaker speech," and a few other informal terms. Most importantly, motherese consists predominantly of questions and cuddly play-words, pronounced with wide musical modulations of the voice. Infants love hearing this kind of speech and respond excitedly. As questions and phrases with rising question intonation constitute a large part of "motherese," it is logical to conclude that it is critical for teaching young children the crucially important art of asking questions. Caregivers basically teach children this essential cognitive ability (how to ask questions) without even realizing what they are doing this through "infant-directed speech."

In 2006 Jordania proposed that the ability to ask questions was a crucial step in our species' cognitive evolutionary history (Jordania, 2006). As linguists suggest, human language has three functions: declarations, commands, and questions (e.g., De Laguna, 1963; Revesz, 1956). With the emergence of the last—the ability to ask questions—Jordania proposed that the communication of our ancestors became a dialogic, human language.

Theory of mind and the ability to ask questions

A very interesting logical puzzle regarding the ability to ask questions is the Theory of Mind (TOM), the ability of individuals to understand the mental state of others. A specific "Sally-Anne Test," designed to check the presence of TOM in young children, establishes that young children are unable to realize that other children around them may not have the same knowledge they possess (Wimmer & Perner, 1983). During the test, children are introduced to two dolls, Sally and Anne. Sally takes a marble and hides it in her basket. Then she leaves the room, and the Anne doll shifts the marble from Sally's to her own basket. When Sally returns, the child is asked: "Where will Sally look for the marble?" If a child is able to take Sally's perspective, knowing that Sally was not present when the marble

was shifted, the child will answer correctly, but if the child cannot take the perspective, the child will be sure that Sally knows as much as the child knows. Based on this popular test, it is believed that children develop TOM at about 4.5 years (Astington & Gopnik, 1991; Roessler, 2013).

For a long time, it was believed that humans were the only species able to understand the mental states of others. This is hardly surprising. Attribution of any complex mental abilities to our species as "uniquely human" has a long history. Plenty of our mental abilities, from "designing features of a language," displacement, the duality of patterning, traditional transmission, openness, arbitrariness, and productivity (e.g., Hockett, 1959; Hockett & Archer, 1964), to the TOM have been considered at different times "uniquely human." All such "uniquely human" mental abilities were gradually found in the animal kingdom as well (and not only among the apes). Today, scholars agree (e.g., Savage-Rumbaugh & Lewin, 1994) that apes can learn successful communication with virtually all these features.

Even the lions have TOM: "After having killed, a lion either begins to eat immediately or else moves the carcass to another location. On several occasions, the prey was caught in high grass by a lion which then sat down and looked around casually for as long as 5 minutes, as if its hunt had been unsuccessful. It gave the impression of trying to conceal the presence of the carcass from the others that had taken part in the hunt, for as soon as these lay down or moved away it began to eat." (Schaller, 1972, p. 268).

I suggest that we pay a special attention to the correlation of the presence of TOM and the ability to ask questions among humans. At first sight, it might seem obvious that asking a question *requires* TOM, as one needs to understand that others have different knowledge about which one might inquire. So, the idea that someone might have an ability to ask a question without having a TOM might seem absurd, but the facts are against this sensible proposition:

1) In normal children's development, the ability to understand that others have a different knowledge from them, or TOM, appears at about age 4.5 years (Astington & Gopnik, 1991, p. 12; Roessler, 2013);

2) In the development of the same normal children, the ability to ask questions appears in the form of a correctly pronounced question intonation much earlier—before a child's first birthday (Crystal, 1987, p. 143, 241).

If there is a close link between the ability to ask questions and TOM (which seems likely), the controversy over the earlier onset of questioning ability might have two explanations. First, the ability to ask questions might be the primary cognitive function in the evolution of our mental abilities, and TOM came later, possibly even partially based on the ability to ask questions. A second explanation might be that, in this case, children's intellectual development does not represent the evolutionary sequence of forming human cognitive abilities.

1) The first explanation cannot be true, at least if we believe that we are evolutionarily closely related to apes. Apes, as discussed, have TOM but no ability to ask questions. Therefore, TOM was most likely present in the common chimpanzee-human ancestor, but the ability to ask questions was not. This fact strongly opposes the possibility that the ability to ask questions appeared among human ancestors earlier than TOM.

2) What about the second explanation? How to deal with the "ontogeny recapitulates phylogeny" argument, also known as the recapitulation theory? The "ontogeny recapitulates phylogeny" argument has become at least partially discredited and is now often referred as "biological mythology" (e.g., Kalinka & Tomancak, 2012). This brings us to the possible conclusion that the earlier onset of the ability to ask questions in children most likely does not represent an evolutionary chronology. So, it is possible that the ability to ask questions is phylogenetically late, but in ontogeny, it starts developing earlier because of its immense importance for the intellectual development of every member of the human species.

Beginning of the formal education: Asking questions at school

Let us now return to the existing educational strategy. Natural selection provided every human baby with the best possible way to develop intelligence and creativity. By asking myriad questions, young children *independently* (this is important!) develop their intellectual abilities. Basically, every young child's brain is a powerful *self-developing system*. All those who have had to answer thousands of questions from their children and grandchildren know the strength of this ability. This powerful process of self-education continues until children go to school. And as soon as formal education starts, children stop asking questions (e.g., Shah et al., 2018). This is a natural result of currently widespread teaching strategy, as at school children are gradually taught several all-important lessons:

1) When it comes to school, if they want to be considered good students, children need to learn how to *answer questions, not how to ask questions*,
2) At school, it is teachers who ask questions,
3) Good students are those who are the first to answer the questions,
4) So, in order to be loved and appreciated at school and by parents, children should forget about their insatiable urge to ask questions and concentrate on answering them.

Of course, at school, children are not banned from asking questions, but still, there are important limitations. As a rule, children are allowed to ask questions after a teacher gives permission with the words: "Does anyone have questions?" Teachers see such questions as a welcome expression of interest from students. By the way, this does not occur in every educational system, as will be discussed below. Governmental schools with relatively rigid curricula enforce the unitary schedule of what should go into the pupils' heads and when. So, instead of the joy of self-discovery (what our brains are best at, and what they are naturally designed to do), all the knowledge is presented to children in the form of ready-made facts. Students just need to remember these facts to be considered good students, doing well at the tests and exams of various levels.

Regarding the problem of early childhood education from another point of view, perhaps children are better off with human-designed systematic education than the chaotic process of acquiring information in the form of their own haphazard questions and the even more haphazard answers from adults (or as they are known in educational philosophy, MKO – "more knowledgeable other")? Is not it better to gradually explain to children all the basic knowledge that humanity has managed to obtain over its history, instead of

answering thousands of their silly questions? Well, the proponents of CCE will agree that the passion for the search, the process of the search, and the joy of discovery are inherently more important for human intellectual development than the passive acquisition of existing knowledge. The most important function of our brain is the ability to search, receive and organize (or construct) knowledge in a unique and creative way, and our brains are already designed to do this. It is crucial for educators to remember that children naturally have the skills to think and to learn.

According to Piaget: "The goal of education is not to increase the amount of knowledge but to create the possibilities for a child to invent and discover, to create men who are capable of doing new things" (Piaget, Quotes). And Einstein said, "The important thing is to not stop questioning" (Einstein, Quotes). Many things have changed during the past centuries and decades (not everywhere, sadly). Child Centered Education has made a big step forward. For example, most contemporary schools have stopped physical punishment, but the fight against the natural curiosity of students still rages on, from primary to tertiary education. Should we be surprised then that there are complaints about adults' lack of interest when compared with young children's inquisitive minds? "What a distressing contrast there is between the radiant intelligence of the child and the feeble mentality of the average adult" (Freud, Quotes). "Men are born ignorant, not stupid; they are made stupid by education" (Russel, Quotes).

Let us now ask: if many prominent humans are critical of the existing strict system of education, why it is still so popular? The most probable answer to the question of why schools are so rigid and restrictive is probably found in the so-called "domestication theory" (e.g., Simler & Hanson, 2018, p. 238-240). The center of the theory is that schools, with their strict rules of obedience, prepare children for their future life as adults who will have to spend most of their lives working day jobs from 9 to 5. And there is a more direct financial reason as well. Stephen R. Donaldson, a contemporary American author, pointed out probably the most attractive side of the existing system of education, together with the ugly side of it: "Whatever the explanation, it's perfectly obvious that our educational system has nothing to do with education: it's a babysitting service designed to replicate the worst qualities of the parents" (Donaldson, Quotes). Our rigid schooling system is just too convenient for many families (and employers) to discard. But even if we need to take children to school for several hours five days a week, schools do not have to be rigid and conservative to the point they close off children's curiosity.

A case of Chinese Education

The achievements of Chinese students have understandably created a loud buzz in the world of education, and for good reason. In the educational ranking system of countries according to mathematics, science and reading tests, China and other East Asian countries boast the greatest achievements in school test scores. They dominate the Program of International Student Assessment (PISA) reports (Pisa Reports by Country). Shanghai (China), Singapore, and Hong Kong are usually the top three on the list. Other East Asian entries follow, only debating the top places among themselves. From other countries, the first appearance of the Western World is Finland, coming in at the fifth place in science and sixth in reading tests (see. Finland remains…). The United States ranks number 36, 28, and 24 on the three tests, Germany at 16-12-19, the United Kingdom at 26-20-23, and France

at 25-26-21. The home country of arguably the largest number of Nobel Laureates, Israel, can be found at a low and unexpected rank of 41-41-34. The success of Chinese students is quite well known to the circles of educators. A number of international educators (e.g., Jensen, et al., 2012) suggest that East Asian students have much better literacy and mathematical skills than European and American students because their system of education is simply better.

One of the great aspects of the Chinese educational system is that teachers are more respected in China than in any other country. For a Chinese student, her or his teacher is almost a god-like figure. According to cultural expectations, a Chinese teacher should have a ready answer to every question from students. A student who tries to challenge or question the teacher would be perceived as arrogant and a social outcast, a threat to the class, educational system, and society at large. Total respect for teachers and past generations invariably leads to an atmosphere where experience and the existing order become an overriding force in life, education, and science. This is the direct road toward overall mental and intellectual stasis. Sustaining the status quo becomes the most important driving force in many fields of life, and new ideas are viewed as a threat to the social health and well-being of the already balanced community. As a result, coming up with new ideas is very alien to students in the Chinese educational system. This is not surprising, given that the legendary Confucius himself made a similar claim. According to Confucius's own words, he was seeking knowledge in the past, without trying to create any new knowledge himself: "I am not one who was born in the possession of knowledge; I am one who is fond of antiquity, and earnest in seeking it there" … "I transmit [knowledge] but I do not create" (Chan, 1963, p. 18-48).

Deep respect and reverence for teachers create another feature of the Chinese educational system that is hard to understand from the Western point of view. This points to students asking questions to teachers, which is the article's main topic. While it was emphasized at the beginning of this article that Western schools forcefully discourage children's natural urge to ask questions, this prohibition is never too strict or absolute. Students can ask questions (mostly at designated times, with the teacher's permission), and most important, students who do ask questions are usually seen as the *most enthusiastic learners*.

It is very different in Chinese and other Confucian cultures. It is fair to say students are never explicitly banned from asking questions, but doing so is considered a negative phenomenon. According to an article on the Chinese educational system (Starr, 2012), a question asked by a student at Chinese schools might mean one of the following two things: (1) the student is silly and did not understand what the teacher already explained (and what everybody else understood), or (2) the student is too ambitious and wants to show a teacher in a bad light — that the teacher cannot answer a new question. Both of these possible reasons are viewed as *extremely undesirable behavior*. Besides, virtually every Chinese student believes that questions asked by students waste valuable lesson time. Therefore, we can conclude, at least for our discussion, that Chinese students are discouraged from asking questions (e.g., Starr, 2012).

At the same time, the Chinese educational system achieves excellent results in raising generations of hard-working and law-abiding citizens, who have a deep respect for their teachers and are very knowledgeable in the existing set of educational requirements. Their domination of the world ranking education systems is well deserved, and Chinese and other East Asian students also excel in the USA and many European countries with very different

systems of education. They are sometimes referred to as the "model minority" (e.g., Chen, 2012; Chen 1995; Kao, 1995; Kao & Thomson, 2003). Amy Chua, Chinese-American lawyer and author of the bestselling 2011 book *Battle Hymn of the Tiger Mother*, formulated eloquently the above-mentioned principles that are held high in the Chinese traditional attitude towards education. They are so different from Western principles that the editor of the *Financial Times* Isabel Berwick called the "tiger mother" approach to parenting "the exact opposite of everything that the Western liberal holds dear" (Berwick, 2011).

I am suggesting that the striving towards the brilliance of the Confucian educational system in exams and tests might have negative implications as well, severely limiting students' creativity and ambition from an early age. Deep reverence for the past, teachers, and existing rules is a great method for maintaining a stable and easy-to-govern society, but it is probably not the best strategy for the development of a free, open society. The big, exciting question for future educators is whether it is possible to have the best of both educational systems—hardworking and law-abiding citizens on one side and creative scholars and freely thinking citizens on the other. And on a more practical note, what type of education should we prefer for our children?

There is no easy answer to this question. Probably the best option is to *give children and their parents a choice*, so the presence of various school systems in a society and a wider knowledge of these systems in the general population would be helpful. I can only suggest a very rough guide to assist parents and teachers. Possibly it would be beneficial for some children, good and successful students, who try to get high marks in every subject and are highly motivated to be at the top of the class, to be taken into a school with a stricter approach, where their higher learning abilities are tested against stricter curricula requirements and against other high-achieving fellow students. As for the other, more self-motivated, and passionate learners, who clearly distinguish among school subjects their favorite and least favorite classes, the creative atmosphere and freedom of alternative schools with a free educational system (CCE) would be more beneficial. In many countries, such an option with schools with various educational systems already exists.

The problem starts when we try to "classify" children according to their natural tendencies. Although a small number of children are relatively easy to "classify" into these two rigid groups, who decides which child should attend which type of school? In China, students take their education extremely seriously, and their reverence for their teacher's words has no limits. But these two ostensibly wonderful things for a good education might become enemies for the development of creative thinking. In total contrast to Confucian teaching philosophy, Leonardo Da Vinci once said: "Poor is a pupil who does not surpass his master" (Da Vinci, Quotes). It is not a matter of which is better. It depends on the educational aim. For responsible, hardworking citizens who do their best in following existing rules, a stricter education is more effective. The downside of the strict educational strategy is reduced creativity. On the other hand, a more open and egalitarian teaching strategy, based on CCE, in which teachers are not considered untouchable and their knowledge and authority can be questioned by students, boosts creativity and self-reliance, but on the negative side, citizens who undergo such a democratic educational strategy are not as obedient in following existing rules and regulations. It is up to us, educators, scholars, governmental bodies, parents, and citizens, to make a choice.

Conclusion

Developing a more creative educational method that would not be child indoctrination has been a dream for many thinkers who gradually built a new strategy of CCE. At the same time, stopping students from asking questions might be an educational "crime against human nature" that we are still committing. If we do not deal with this problem, if we prohibit our children to continue their natural cognitive development by asking questions, forcing them instead to concentrate on answering our questions, our efforts of raising them as free, creative individuals might be mostly wasted.

Plutarch said, "The mind is not a vessel to be filled, but a fire to be kindled" some 25 centuries ago (Serrant, 2020). Malcolm S. Forbes, the publisher of *Forbes* magazine, agreed: "Education's purpose is to replace an empty mind with an open one" (Forbes, Quotes). This idea would find plenty of supporters among educators and parents, but it is the opposite of what we are often doing at our schools, particularly our schools for gifted children. We mostly use their minds exactly as vessels of various capacity, and we are filling them as fast as we can. Unlike computers with a huge memory, the most valuable part of every child is their creative thinking, the ability to see and organize things in their own unique way. Above all, we should treasure a student's emotional life.

We should not forget that gifted students can be very different from one other. I suggest dividing students with extraordinary intellectual capacities roughly into two categories: (1) students who need external stimulation and challenge in order to stay alert and interested, and (2) students who are happy to be left alone, as they are constantly motivated to follow their own interests. We can call the first category of students "prodigious learners" and the second category "autonomous learners." Both are gifted and can be extremely successful at school, but they are quite different.

The first category might be eager to go to the most prestigious schools and institutions where their gifts will allow them to learn an exceptional amount of information and shine among peers. These students might be moved by their ambition more than their love for the subject of study; they often try to get the highest marks in every subject. If this is the case, despite my critical view of the policy of exploiting children's memory, I would suggest giving such students a chance to go to a special school with overloaded programs. Ambition can be a driving force as purposeful and passionate as any other life-long human passion or desire. This category of gifted students might become bored without sufficient challenge to keep their extraordinary intellectual capacities up and running. There is an internal cognitive conflict in this category of students: their ability to learn is higher than their motivation to learn. Schools with extremely busy curricula will most likely be beneficial for such students. If such students are left at ordinary schools, they might abandon learning (as "too easy" and "not challenging") and get into unwanted activities, from using various substances to save them from boredom to criminal activities to get some excitement.

The second category of gifted students, "autonomous learners," as a rule consists of avid readers, who can keep busy and interested without any external pressure. They are happy to use their free time for various activities, are highly motivated, and do not seem to be bored with extra free time. They actually do not seem to have any free time! They often have their favorite subjects at school and might neglect other subjects. Such children should be allowed some independence in their development. They should not be taken to

special schools but provided with more books, libraries, bookshops, and various scholarly exhibitions. They also benefit from seeing different countries and meeting people from various cultures. For such a self-developing or an "autonomous learner" student, going to a special school with overloaded programs might become a major source of discomfort and anxiety.

Pressure for students in special schools is understandably very high, and it comes at a price. For example, the rate of student suicide at Harvard is about double than at any other university (Hatoff, 2012). There are other negative results as well. Harvard is very highly rated because some of the best scholars and teachers are invited to work there and because a large number of brilliant students completed their doctoral degrees there. Most such scholars, however, were educated as undergraduates at different, more "ordinary" universities. Of course, Harvard graduates are brilliantly represented in the world of politics, but the undergraduate students did not make the great impact in science as expected (Bero, 2021). For example, arguably the most difficult math teaching program, the year-long "Math 55" course from Harvard, is so difficult that only about half of the most talented and dedicated of the initial group complete it (Yefremova, 2023). And how are those who successfully managed to complete this legendary course represented among the world's best scholars, inventors, Nobel Prize winners? Apart from very few distinguished professors, no other major scholars came out of this Harvard course, and no Nobel Prize winners. Tellingly, the two most famous students from this course are Bill Gates and Richard Stallman, two computer geniuses who both dropped out of Harvard.

In summary:

1) A child's brain is a powerful self-developing system, and early and heavy-handed intervention in the natural intellectual development of a young child is highly undesirable;

2) By stopping children from asking questions, our existing system of education goes against the most natural way of the development of human intelligence;

3) The most prestigious schools use the greater learning ability of their students' primarily as hard drives of extraordinary capacity to store a vast amount of information;

4) To raise independent and creative thinkers from gifted children, particularly from the "autonomous learners," we should give them more independence, and allow them to have a hand in their own education;

5) We can briefly summarize that there does not exist a universal pedagogy which works with equal effectiveness irrespective of the context (Holliday, 1994).

These conclusions bring us to a perennial question about the need for a new and better educational strategy with a variety of possibilities of implications.

Implications

Probably the best thing about the suggested model of educational strategy that it is extremely flexible. We can easily adapt this strategy from the rare "questioning classes" and "questioning games" in existing educational systems, both governmental and private, both

CCE based, or traditional strategies, to the completely new educational system, based on encouraging students to ask questions. In a paper dedicated to the subject delivered at an educational congress in Delhi in January of 2011, Jordania proposed a list of various techniques and strategies to encourage students to ask questions at different educational levels (Jordania, 2011). The central idea is that we need to design different ways to encourage students to ask questions, and therefore, to be more critical, independent, and creative. Following are a few practical suggestions of how to organize special lessons, games, and tests.

Since asking questions is a natural state of children's early intellectual development, we do not really need to "*teach*" children how to ask questions in primary school. We just need not to stop them from asking questions. Importantly, we need to take into account that there always will be a few children who are naturally good and confident in asking questions, but also students who are shy to ask questions, as they are afraid of speaking in front of the class, or that their question will be considered silly. To overcome this, I suggest to organize a special class (or classes): for example, a special "lesson of silly questions" devoted to asking any questions, particularly "silly," funny questions. For example, teachers could provide situational pictures and ask students to ask any questions, including the silliest possible questions, about the picture, what the subjects in the picture might ask or say to each other, explaining that a question might be normal in itself, but can become silly when it is out of place. For example, "which school do you go to" is not a silly question by itself, but if this question is asked, for example, by a cloud to a train, it becomes silly. Or, in another example, a teacher would bring a box to the class, and say something is in the box, inviting students one by one to ask questions about the qualities of the hidden object to find out what is in the box, with the teacher answering only "yes" or "no". As the game progresses, children get closer and closer to the answer. Alternatively, a teacher (or students) could bring several pictures with a question and an answer connected to each picture, but written separately from the pictures. Students must choose (1) which question and answer goes with which picture most logically, or (2) which combinations of pictures and answers are the funniest.

Teachers could also ask students to think of silly questions as homework. Children could bring their own pictures, or photos with their own silly questions. It is important that everyone participate in this exercise and that everyone be encouraged to engender confidence in shy students that might stay with them during their entire educational process. Another situation might be to ask children to think which questions they would ask different people, including real people or characters from books and movies, such as Santa Claus. Special "questioning lessons" might be also a good way to introduce the whole class to the natural cultural or environmental diversity of the children in their class. Still another possibility is to choose a child and encourage other children to ask questions about their family, ethnic origin, interests, favorite food, games, etc. If children are enthusiastic, every child might become the centre of such questions. Primary school teachers can design plenty of interesting and engaging games to involve children in fun, interesting question-asking games. It is crucial that students are encouraged for their inventiveness and creativity as early as possible.

I believe the traditional method (students answering questions) should still remain the centre of educational system, but I am recommending quality time during the educational process—classes, games, tests, and strategies—to encourage students to continue to ask questions as well. Such activities will make the educational process more creative, more

open to suggestions, more interesting, more productive, and more fun. For secondary school, teachers could use different games and strategies, including well-known games totally based on asking questions. For example, somebody thinks of a person, and others ask this person indirect "yes/no" questions in order to find out who the person is. Different classes can use this game according to subject (for example, science students need to identify a scholar, media or arts students, a media or arts personality, etc.). For me the key factor should be the *student perspective in the educational process*. I am not alone in my preferences. "Education does not start in teachers' words. It starts in students' heads," remarked Ignacio Estrada, director for grants administration at the Gordon and Betty Moore Foundation (Estrada, Quotes). This perspective is crucial for the CCE strategy.

Rousseau famously gave the foundations of a new system of education that was later labelled as "free education." His ideas were used as a basis for several contemporary educational systems, including the Montessori, Regio Emilia, and Steiner (Waldorf) systems, probably the three most popular alternative systems in the Western world today. Instead of restraining children from asking questions, we should encourage them to do so, in different ways and by different strategies. And I suggest using this educational tool throughout most of the primary, secondary, and tertiary educational institutions to foster open creativity and to help form a society of open-minded and free-thinking citizens.

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References

Astington, J. W., & Gopnik, A. (1991). Theoretical explanations of children's understanding of the mind. *British Journal of Developmental Psychology*, *9*(1), 7-31.

Bero, T. (2023). Turns out, Harvard students aren't that smart after all. The Guardian. Retrieved March 9, 2023, from https://www.theguardian.com/commentisfree/2021/nov/17/harvard-university-students-smart-iq

Berwick, I. (2011). Review: Battle hymn of the tiger mother. Retrieved March 13, 2023, https://www.theguardian.com/books/2011/jan/29/tiger-mother-amy-chua-review

Brodie, K., Lelliott, A., & Davis, H. (2002). Forms and substance in learner-centred teaching: Teachers' take-up from an in-service programme in South Africa. *Teaching and teacher Education*, *18*(5), 541-559.

Bronowski, J., & Bellugi, U. (1980). Language, name and concept. In T. A. Sebeok & J. Umiker-Sebeok (Eds.), *Speaking of apes: A critical anthology of two-way communication with man* (pp. 103-113). Plenum Press.

Brown, R. (1968). The development of wh questions in child speech. *Journal of Verbal Learning and Verbal Behavior, 7*(2), 279-290.

Butler, L. P., Ronfard S., & Corriveau, K. H. (Eds.) (2020). *The questioning child: Insights from psychology and education*. Cambridge University Press.

Chan, Wing-Tsit. (1963). *A source book in Chinese philosophy* (Trans. Wing-Tsit Chan). Princeton University Press.

Chen, C. (2012). Asians: Too smart for their own good? *The New York Times*. Retrieved March 1, 2023, https://www.nytimes.com/2012/12/20/opinion/asians-too-smart-for-their-own-good.html

Chen, J. L. (1995). *The internalization of the model minority stereotype as a predictor of depression among Chinese-Americans* (Unpublished doctoral dissertation). California School of Professional Psychology, Los Angeles.

Chichekian, T., & Shore, B. M. (2016). Preservice and practicing teachers' self-efficacy for inquiry-based instruction. *Cogent Education*, *3*(1), 1236872.

Chouinard, M. M., Harris, P. L., & Maratsos, M. P. (2007). Children's questions: A mechanism for cognitive development. III. Diary study of children's questions. *Monographs of the Society for Research in Child Development*, 72(1), 45–57.

Cremin, T., Glauert, E., Craft, A., Compton, A., & Stylianidou, F. (2015). Creative little scientists: Exploring pedagogical synergies between inquiry-based and creative approaches in early years science. *Education 3-13*, *43*(4), 404-419.

Crystal, D. (1987). *The Cambridge encyclopaedia of language.* Cambridge University Press.

Da Vinci, L. (Quotes). Retrieved March 7, 2023, https://www.brainyquote.com/quotes/leonardo-da_vinci_542476

Darwin, C. R. (1872). *The expression of the emotions in man and animals*. John Murray.

Davis, E. A. (1932). The form and function of children's questions. *Child Development*, 3(1), 57–74.

De Laguna, G. A. (1963). *Speech, its function and development*. Indiana University Press.

Dejonckheere, P. J. N., De Wit, N. L., Van de Keere, K. V., & Vervaet, S. (2016). Exploring the classroom: Teaching science in early childhood. *European Journal of Educational Research, 5*(3), 149-164.

Donaldson, S. R. (Quotes). Retrieved February 21, 2023, https://www.azquotes.com/quote/566447

Einstein, A. (Quotes). Retrieved February 19, 2023, https://www.goodreads.com/quotes/20604-the-important-thing-is-not-to-stop-questioning-curiosity-has

Ferguson, C. A. (1977). Baby talk as a simplified register. In C. E. Snow & C. A. Ferguson (Eds.), *Talking to children* (pp. 219-235). Cambridge University Press.

Finland remains among top nations in PISA education survey. Retrieved February 27, 2023, https://finland.fi/life-society/finland-remains-among-top-nations-in-pisa-education-survey/

Forbes, M. (Quotes). Retrieved February 14, 2023, https://www.goodreads.com/quotes/3338-the-purpose-of-education-is-to-replace-an-empty-mind

Freier, P. (1970). *Pedagogy of the oppressed*. Seabury Press.

Freud, S. (Quotes). Retrieved February 14, 2023, https://www.brainyquote.com/quotes/sigmund_freud_106066

Gardner, B. T., & Gardner, R. A. (1975). Evidence for sentence constitutents in the early utterances of child and chimpanzee. *Journal of Experimental Psychology: General*, *104*(3), 244-267.

Gardner, R. A., & Gardner, B. T. (1969). Teaching sign language to a chimpanzee: A standardized system of gestures provides a means of two-way communication with a chimpanzee. *Science*, *165*(3894), 664-672.

Gopnik, A. (2012). Scientific thinking in young children: Theoretical advances, empirical research, and policy implications. *Science*, 337(6102), 1623–1627.

Graue E. (2005). (De)centering the kindergarten prototype in the child-centred classroom. In Ryan S. & Grieshaber S. (Eds.), *Practical transformations and transformational practices: Globalization, postmodernism, and early childhood education* (pp. 39-58). Elsevier.

Greenfield, P. M., & Savage-Rumbaugh, E. S. (1993). Comparing communicative competence in child and chimp: The pragmatics of repetition. *Journal of Child Language*, *20*(1), 1-26.

Greenfield, P.M., & Savage-Rumbaugh S. (1990). Grammatical combination in Pan paniscus: processes of learning and invention in the evolution and development of language. In S. T. Parker & K. R. Gibson (Eds.), *Language and intelligence in monkeys and apes: Comparative developmental perspectives* (pp. 540–578). Cambridge University Press.

Guthrie, G. (1990). In the defense of formalistic teaching. In Rust, V. D. & Dalin, P. (Eds.), *Teachers and teaching in the developing world* (pp. 219-232). Garland Publishers.

Harris, P. L. (2020). The point, the Shrug, and the question of clarification. In Butler, L. P., Ronfard S., & Corriveau, K. H. (Eds.), *The questioning child: Insights from psychology and education* (pp. 29-50). Cambridge University Press.

Harris, P. L. (2022). Young children share imagined possibilities: evidence for an early-emerging human competence. *Philosophical Transactions of the Royal Society B*, *377*(1866), 20220022.

Harwood, D., Bajovic, M., Woloshyn, V., Di Cesare, D. M., Lane, L., & Scott, K. (2015). Intersecting spaces in early childhood education: Inquiry-based pedagogy and tablets. *The International Journal of Holistic Early Learning and Development*, *1*, 53-67.

Hatoff, Q. (2012). Donning a mask: Suicide at Harvard. The Harvard Crimson. Retrieved February 26, 2023, https://www.thecrimson.com/article/2012/12/10/suicide-harvard-mental-health/

Hocket, C. F. (1959). Animal 'Languages' and human language. In J. N. Spuhler (Ed.), *The evolution of man's capacity for culture* (pp. 32-39). Wayne State University Press.

Hockett, C. F., & Archer, R. (1964). The human revolution. *Current Anthropology, 5,* 135-168.

Holliday, A. (1994). *Appropriate methodology and social context*. Cambridge University Press.

Isaacs, S. S. (1930). *The intellectual growth of young children*. Routledge and Kegan Paul.

Jensen, B., Hunter, A., Sonnemann, J., & Burns, T. (2012). Catching up: Learning from the best school systems in East Asia, Grattan Institute. Retrieved February 8, 2023, https://core.ac.uk/download/pdf/30679884.pdf

Jones, L. (2007). *The student-centered classroom*. Cambridge University Press.

Jordania, J. (2006). *Who asked the first question? Origins of human choral singing, intelligence, language and speech*. Tbilisi State University Press.

Jordania, J. (2011). Should we teach students how to answer questions or how to ask questions? Towards a new educational strategy. *Sutra the thread, A Quarterly Journal for Research on Education, Psychology, Traditional Sciences and Systems, Health and Consciousness*. Vol. 8: 29-42. Materials of the International congress "Revisiting Education Culture Learning and Training Formats for Human Empowerment," held in New Delhi, 14-18 January, 2010.

Kalinka, A. T., & Tomancak, P. (2012). The evolution of early animal embryos: conservation or divergence?. *Trends in ecology & evolution*, *27*(7), 385-393.

Kao, G. (1995). Asian Americans as model minorities? A look at their academic performance. *American Journal of Education,* 103(2), 121–159.

Kao, G., & Thompson, J. S. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology*, *29*(1), 417-442.

Khalick, A-E, F., Lederman, N., & Schwartz, R. (2015). Inquiry, as a curriculum strand. *Encyclopedia of science education* (pp. 510-514). Springer.

Kurkul, K. E., & Corriveau, K. H. (2018). Question, explanation, follow-up: A mechanism for learning from others?. *Child Development*, *89*(1), 280-294.

Lea, S. J., Stephenson, D., & Troy, J. (2003). Higher education students' attitudes to student-centred learning: beyond'educational bulimia'?. *Studies in Higher Education*, *28*(3), 321-334.

Lee, I-F. (2018). Child-centered learning. In Shackelford, T., & Weekes-Shackelford, V. (Eds.), *Encyclopedia of evolutionary psychological science*. Springer, Cham. Retrieved March 1, 2023, https://doi.org/10.1007/978-3-319-16999-6_2439-1

MacDonald, K. (2016). *Back to the garten: Inquiry-based learning in an outdoor kindergarten classroom* (Unpublished masters' thesis). Faculty of Social Sciences, Brock University, St. Catherines, Ontario.

Matthews, W. J. (2003). Constructivism in the classroom: Epistemology, history, and empirical evidence. *Teacher Education Quarterly*, *30*(3), 51-64.

McDougall, B. (2014). Principals call for a national standard school starting age of five-and-a-half. August 29, 2014. News. Daily Telegraph, Sydney.

McNeill, D. (1980). Sentence structure in chimpanzee communication. In T. A. Sebeok & J. Umiker-Sebeok (Eds.), *Speaking of apes: A critical anthology of two-way communication with man* (pp. 150-156). Plenium Press.

Minner, D., Levy, A., & Century, J. (2009). Inquiry-based science instruction. What is it and does it matter? Results from a research synthesis year 1984 to 2002. *Journal of Research in Science Teaching, 47*(4), 474-496.

Moskowitz, B. A. (1978). The acquisition of language. *Scientific American*, *239*(5), 92-109.

National Research Council. (2000). Inquiry and the National Science Education Standards: A guide for Teaching and Learning. National Academy Press. Retrieved March 2, 2023, https://www.nap.edu/read/9596/chapter/1#xi.

Norquay, N. (1999). Social difference and the problem of the 'unique individual': An uneasy legacy of child-centred pedagogy. *Canadian Journal of Education, 24*(2)183-196.

O'Donoghue, T. A. (1994). The need for educational reform and the role of teacher training: An alternative perspective. *International Journal of Educational Development*, *14*(2), 207-210.

Oelkers, J. (2002). Rousseau and the image of modern education. *Journal of Curriculum Studies*, *34*(6), 679-698.

O'Sullivan, E. (2003). Bringing a perspective of transformative learning to globalized consumption. *International Journal of Consumer Studies*, *27*(4), 326-330.

Piaget, J. (1936). *The origin of intelligence in the child.* Routledge & Kegan Paul.

Pisa Records by Country. (2023). Retrieved March 4, 2023, https://worldpopulationreview.com-/country-rankings/pisa-scores-by-country

Premack, A. J., & Premack, D. (1972). Teaching language to an ape. *Scientific American*, *227*(4), 92-99.

Premack, D., & Premack, A. J. (1983). *The mind of an ape*. W.W. Norton & Company.

Revesz, G. (1956). *The origin and prehistory of language*. Longmans, Green and Co.

Rivas, E. (2005). Recent use of signs by chimpanzees (Pan Troglodytes) in interactions with humans. *Journal of Comparative Psychology*, *119*(4), 404.

Rodgers, C. R. (2002). Seeing student learning: Teacher change and the role of reflection. *Harvard Educational Review*, *72*(2), 230.

Roessler, J. (2013). Knowledge, causal explanation, and teleology. In T. S. Gendler & J. Hawthorne (Eds.), *Oxford studies in epistemology volume 4*, (pp. 321–332). Retrieved February 18, 2023, https://academic.oup.com/book/274/chapter-abstract/134840263?redirectedFrom=fulltext

Russel, B. B. (Quotes). Retrieved March 10, 2023, https://www.brainyquote.com/authors/bertrand-russell-quotes

Savage-Rumbaugh, E. S., & Lewin, R. (1994). *Kanzi: The ape at the brink of the human mind*. John Wiley & Sons, Inc.

Schaller, G. B. (1972). *The serengeti lion: A study of predator-prey relations*. University of Chicago Press.

Serrant, L. (2020). *How well do you listen? Plutarch and his letter on listening.* Retrieved March 3, 2023, https://classicalwisdom.com/people/historians/how-well-do-you-listen-plutarch-and-his-letter-on-listening/

Shah, P. E., Weeks, H. M., Richards, B., & Kaciroti, N. (2018). Early childhood curiosity and kindergarten reading and math academic achievement. *Pediatric Research*, *84*(3), 380-386.

Shah, R. K. (2019). Child-centered education: Criticisms. *Shanlax International Journal of Education*, 8(1), 22–37.

Simler, K., & Hanson, R. (2018). *The elephant in the brain: Hidden motives in everyday life*. Oxford University Press.

Simon, B. (1981). The primary school revolution: Myth or reality? In B. Simon & J. Willcocks (Eds.), *Research and practice in the primary classroom*. Routledge & Kegan Paul.

Singer, E. (2005). The liberation of the child: A recurrent theme in the history of education in western societies. *Early Child Development and Care*, *175*(6), 611-620.

Skelton, C. (2002). The feminisation of schooling or re-masculinising primary education?. *International Studies in Sociology of Education*, *12*(1), 77-96.

Smith, S. (2013). *'Too much, too soon': Children should not start school until age six or seven, say education experts.* Retrieved February 14, 2023, http://www.dailymail.co.uk/news/article-2418281/Children-start-school-age-seven-say-education-experts.html#ixzz3MfEqS1Th

Stacey, S. (2018). *Inquiry-based early learning environments: Creating, supporting, and collaborating*. Redleaf Press.

Starr, D. (2012). China and the Confucian education model. *Universitas, 21*(1), 1-27.

Stone, J. E. (1996). Developmentalism: An obscure but pervasive restriction on educational improvement. *Education Policy Analysis Archives, 4*(8), 1-32.

Sully, J. (1896/2000). *Studies of childhood*. D. Appleton.

Tabulawa, R. (2003). International aid agencies, learner-centred pedagogy and political democratisation: A critique. *Comparative education*, *39*(1), 7-26.

Terrace, H. S. (1980). *Nim*. Eyre Methuen.

Thompson, L. H. (1924). Children's questions. *Educational Research Bulletin*, 3(16), 347-352.

Tizard, B., & Hughes M. (1984). *Young children learning*. Harvard University Press.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Walkerdine, V. (1985). On the regulation of speaking and silence: Subjectivity, class, and gender in contemporary schooling. In C. Steedman, C. Urwin, & V. Walkerdine (Eds.), *Language, gender, and childhood* (pp. 203-241). Routledge & Kegan Paul.

Walkerdine, V. (1990). *Schoolgirl fictions*. Verso Books.

Wills, C. (1993). *The runaway brain: The evolution of human uniqueness*. Basic Books.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, *13*(1), 103-128.

Wise, S. M. (2002). *Drawing the line*. Perseus Books.

Yefremova. A. (2023). *Demystifying math 55.* Retrieved February 20, 2023, https://www.math.harvard.edu/demystifying-math-55/

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ARTICLE

Reflection of the Iceberg: Key Issues and Challenges of Education in Balochistan

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ABSTRACT

Education is widely recognized as a key driver of social and economic development. However, in Pakistan's Balochistan province, the education sector faces numerous challenges and issues that hinder its progress and development. This paper aims to identify and analyze the key issues and challenges facing the education sector in Balochistan. The research is based on a comprehensive review of the relevant literature, policy documents, and reports. The study identifies several key challenges, including inadequate infrastructure and facilities, inadequate funding, low teacher qualifications and training, high dropout rates, gender disparity, and limited access to education. Moreover, political instability, security concerns, and cultural barriers further exacerbate these challenges. The study proposes several recommendations to address these challenges, including increasing funding and investment in the education sector, improving teacher training and professional development programs, enhancing governance and management of schools, implementing targeted interventions to address gender and social disparities, and participation in education reform initiatives.

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Introduction

While school systems may exhibit differences across countries, they display commonalities in their fundamental features as well (Heyneman, 2001). Education plays a multifaceted role in society, extending beyond its function of placing young people in various occupational positions. It also has significant cultural dimensions that influence socialization and citizenship. These dimensions, in turn, create boundaries that impact opportunities and life chances based on factors such as gender, class, ethnicity, and disability (Brock & Alexiadou, 2013). Higher education institutions have traditionally played a crucial role in bringing about positive change and development in societies. Even today, these institutions are recognized as important entities in shaping and equipping future generations with the skills, knowledge, and values necessary to contribute effectively to their respective communities and society as a whole (Deniz, 2022). Moreover, education has certain rules and issues which are related to certain details such as equality,

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finance, etc. According to the Organization for Economic Co-operation and Development (OECD), around 20% of students across OECD countries do not attain the essential skills necessary to function effectively in modern societies (OECD, 2012).

In recent years, educational managers worldwide have prioritized addressing several common issues, such as school-based management, teacher incentives, multicultural education, civic responsibilities, tracking, curriculum depth, individualized instruction, fair testing and assessment, special learning needs, and effective communication with the public. By focusing on these key areas, educational leaders hope to promote greater equity, access, and quality in education, while also meeting the diverse needs of their communities (Heyneman, 2001). Governance in education involves the decentralization of decision-making, the degree of choice and competition in school markets, and the regulatory framework for private schools. It is essential for ensuring that education systems operate effectively and meet the needs of students and communities (Damon et al., 2016). Although the problems associated with education vary from country to country, these problems may be more serious in underdeveloped and developing countries. One of those countries is Pakistan, where there are different ethnic elements and cultural diversity.

Pakistan's education system shows numerous drawbacks related to gender disparities, equal access to education, shortage of teachers, unit curriculum, etc. In Pakistan's education system, it is generally accepted that one of the most crucial problems is children who cannot find education opportunities and have to work for various reasons (Government of Pakistan, 2017). According to official sources, there are 51.53 million children between the ages of 5 and 16 in Pakistan. Within this group, 28.68 million children attended school in both the public and private sectors, while 22.84 million children had to leave school. When children were examined on a gender-based basis, 49% of girls and 40% of boys could not benefit from educational opportunities and were excluded from the education system (Government of Pakistan, 2017). is a shortage of teachers, poor laboratory facilities, and an outdated curriculum in education. The root causes include flawed curriculum, dual medium of instruction, poor teacher quality, and overcrowding. Addressing these issues is crucial for improving education quality (Memon et al., 2010).

The Province of Balochistan is deprived of these kinds of educational opportunities because of natural, local, and political reasons. The literacy ratio in Balochistan, a province in Pakistan, is reported to be 43.58%, which is lower than the national average of 58.92%. The gender disparity in literacy rates is significant, with males having a higher literacy ratio of 54.15% compared to females (31.89%) (Provincial Census Report Balochistan, 2017). The Balochistan Education Sector Plan 2013-2018 (BESP) identifies Balochistan as the province in Pakistan with the lowest literacy rate, widest gender gaps, and weakest access indicators, highlighting the urgent need for targeted interventions to address these challenges (BESP, 2013). This study aims to shed light on the prevailing challenges within the education system of Balochistan Province, a subject that has received limited attention in Pakistan's educational discourse. By critically examining the relevant literature, this research endeavors to uncover the primary issues that hinder educational progress in the region. The findings derived from this study hold significant potential in guiding policymakers, education administrators, and practitioners in devising effective strategies to enhance the schooling system. Moreover, it is anticipated that this research will make valuable contributions to the body of knowledge in the field of education, serving as a valuable resource for researches and educators engaged in similar endeavors.

Review of Pakistan's Education System

The founders of Pakistan saw the educational system as the driving force for achieving national goals. At the first national education conference in 1974, it was decided that the education system should align with Pakistan's national aspirations and be linked to the needs of the people. This reflects the belief that education is crucial for national development and progress, equipping individuals with skills and knowledge to contribute to society and achieve national objectives (Ahmad et al., 2014).

Pakistan has a distinctive educational system because it makes use of different methods in many ways. It is stated that while the country would maintain its educational system, it also had a British system of education. For this reason, this type of uncertainty occurs with negative results related to direct education. The curriculum in Pakistan is not uniform and has resulted in the emergence of different schools of thought. As a result, there are notable differences in the attitudes of students who have completed their education in public educational institutions (Ahmad et al., 2014).

The 'National Education Policy' prepared by the Federal Ministry of Education of Pakistan in 2009 (p. 18) covers the following items:

- To play a fundamental role in the preservation of the ideals that led to the creation of Pakistan and strengthen the concept of the basic ideology within Islamic morality contained in the 1973 Constitution of the Islamic Republic of Pakistan.

- Develop a confident individual who is analytically and authentically minded, a responsible member of society, and a global citizen.

The Global Competitiveness Index report prepared by the World Economic Forum in 2017-2018 has an important role in shaping the education policies of the Islamic Republic of Pakistan in the last quarter century. In this report, Pakistan ranked 129th out of 137 countries in the field of education and ranked last among the countries in the region, such as China, India, Sri Lanka, Bangladesh, and Malaysia (Küçükali & Coşkun, 2020). The government of Pakistan acknowledges that education is a basic human right, and access to education for every citizen is essential for economic development and poverty reduction. The present government has recognized the critical role of education in the country's progress and has placed significant importance on the education sector. The government aims not only to increase the current literacy rate but also to improve the quality of education, acknowledging that education quality is a crucial factor in achieving sustainable development (Shah, 2003). When the "National Education Policy" prepared by the Federal Ministry of Education of Pakistan in 2009 is examined, the following issues are addressed:

- To provide equal educational opportunities to all Pakistani citizens, to provide adequate opportunities for the cultural and religious development of minorities, and to ensure the effective participation of minorities in general national efforts,

- Equalize access to education by providing special opportunities for privileged/non-marginal groups and disabled children and adults.

The Islamic Republic of Pakistan is governed by a parliamentary democratic system and has a federal structure consisting of a federal capital and four provinces. These provinces are Sindh, Punjab, Khyber Pakhtunkhwa, and Balochistan. In addition, outside these provinces is Islamabad, which is the federal capital. In Pakistan, while the Federal Ministry of Education and provincial governments oversee education, the federal government mainly provides financial assistance for curriculum development, accreditation, research, and development. This reflects the decentralized nature of Pakistan's education system, with provincial governments having significant autonomy in shaping education policy and programs (Küçükali & Coşkun, 2020). To fully comprehend the issue of an outdated curriculum in undergraduate and postgraduate programs of law, it is firstly necessary to understand the context in which these programs are delivered to students (Reayat et al., 2020). Pakistan's current educational curriculum does not meet contemporary standards of education and research, as it prioritizes rote memorization and theoretical learning over practical work, research, scientific knowledge, and reflective observation. As a result, students have limited opportunities to develop critical thinking and problem-solving skills. To better prepare students for success in higher education and the workforce, Pakistan must revise its curriculum to promote a more practical, research-oriented approach that fosters innovation and lifelong learning (Ahmad et al., 2014).

Demographic structure of Balochistan Province

Balochistan, literally means "land of the Balochs," which is situated on the south-western part of the country. It is the largest province in Pakistan with an area-wise spread over 347,190 square km, but is the most sparsely populated region with 5.94% share of the total country population according to Census-2017 (Provincial Census Report, 2017). Balochistan is a rural, impoverished area in Pakistan. Quetta is the capital city and the economic hub of Balochistan. Besides Quetta, Gwadar Port is also emerging as an important area of trade and economic activity connecting the province to the other parts of the country (Provincial Census Report, 2017).

Balochistan has various languages, cultures, and ethnicities. Just as the province naturally divides into certain areas, it is also separated by the main ethnic groups. While Baloch people live in the province, Pashtuns, Hazaras, and Emigrants from Afghanistan are settled there as well. Simultaneously, these ethnic groups have different tribes. The population of Balochistan Province is predominantly Muslim with a Sunni majority. The Baloch, Brahvi, and Pashtuns are the three main ethnic groups in Balochistan, with Baloch being the majority (Provincial Census Report, 2017). The region in question was predominantly inhabited by three major tribes, namely the Baloch (comprising Baloch and Brahvi speakers) and Pashtuns. The Balochi-speaking tribes in the region included Rind, Lashar, Marri, Jamot, Ahmedzai, Bugti Domki, Magsi, Kenazai, Khosa, Rakhashani, Dashti, Umrani, Nosherwani, Gichki, Buledi, Notazai, Sanjarani, Meerwani, Zahrozai, Langove, Kenazai, Khidai, and Sirmastani.

Method

In the study, the document review method, one of the qualitative research methods, was used. Document review involves the analysis of written materials containing information

about the case or facts that are intended to be investigated. In qualitative research, document review can be a stand-alone data collection method, or it can be used in combination with other data collection methods (Creswell & Poth 2016). Data for this study was collected from both printed and internet sources, including scholarly journals, articles, official documents, and reports related to the Pakistani education system. Some of the sources consulted include the Balochistan Education Statistics (Government of Balochistan, 2021), as well as the Education for All (EFA) initiative (UNESCO, 2015). It was decided to evaluate the information about the Pakistani education system separately under the relevant headings as a result of the data obtained from the Ministry of National Education of Pakistan (Ministry of Education, 2009).

Results

Key issues of education in Balochistan

Balochistan, one of the provinces of Pakistan, is characterized by a low literacy rate, high gender gaps, and weak access indicators compared to other regions in the country. The quality of education in the province is also deemed inadequate, and the growing number of private schools operating in the region suggests that public sector schooling is viewed with skepticism (BESP, 2013). The causes of low-quality education in Balochistan are also derived from several inadequate schools and teachers. The lack of teachers, schools, and colleges has had serious negative effects on education in Balochistan. According to official records, there are 9.894 male and 5.313 female teaching staff members in primary public schools. While the number of the male teaching staff was 9.161 and female teaching staff was 6.231 in the middle section, there were 15.324 male teaching staff and 8.115 female staff in high schools in the public sector (number of primary, middle, and high schools covered by teaching staff in Balochistan (Balochistan Development Statistics, n.d.). The Table 1 below shows the number of government schools in Balochistan.

Table 1. Total Number of government primary, middle and high schools by gender

Number of Public Schools in Balochistan	2016-2017	2018-2019
Boys	9.761	10.055
Girls	3.984	4.238

Source: Balochistan Development Statistics.

Table 1 presents the significant disparities in the number of public schools for boys and girls in Balochistan from 2016 to 2019. Despite an increase in the number of public schools for girls, the number of boys' schools remained significantly higher than that of girls'. This disparity in school access and enrollment opportunities between genders can have long-lasting implications for gender equality and development (Chaudhury et al., 2009). It is imperative for the government to prioritize equal access to education for all children, irrespective of gender, to ensure a more inclusive and equitable education system. Education plays a pivotal role in addressing the issues of income distribution and poverty, as well as aspects of demographic, political, and social development. Human capital is relatively more critical in developing countries as compared to developed countries, because educa-

tion is a fundamental requirement for the political, social, and economic transformation of institutions (Rasheed et al., 2021). The provision of quality education is vital for reducing poverty and promoting social development. A weak education system may be a significant barrier to economic growth in impoverished countries (Memon et al., 2020).

Despite notable advancements in the education sector, certain provinces of the country still confront issues related to enhancing access and quality of education for all students. To address these challenges, policymakers must adopt a dual approach, emphasizing on both access and quality objectives. The relative emphasis placed on each objective is subject to vary across provinces, contingent upon the level of educational facilities available. In regions where schools are absent, prioritizing access is of utmost importance, whereas in other areas, policymakers must prioritize improving the quality of education beyond the previous standards (BESP, 2013). These rural villages have been largely neglected by the central authorities, leading to a lack of resources and access to education. As a result, education in these areas is severely underfunded, and women and girls are the most adversely affected group (Naz, 2013).

Literacy

Pakistan has experienced minimal improvements in its literacy rate between 1990-1991 and 2004-2005, with an increase from 35% to 53% for individuals aged 10 years and above. However, progress has slowed down significantly since then, with the literacy rate reaching only 58% by 2011-2012 (Ministry of Education and Training, 2014). Pakistan exhibits significant gender-based inequalities in literacy rates, with 70% of males and 47% of females being literate in 2011-2012, in comparison to 48% of males and 21% of females in 1990-1991 (Azeem & Ismat, 2016). The education sector in Pakistan confronts a range of daunting obstacles, including inadequate financial resources, low levels of program implementation efficiency, and suboptimal management, monitoring, supervision, and teaching quality. These issues underscore the need for targeted interventions aimed at improving education governance, teacher training, and infrastructure development to enhance the quality and effectiveness of the sector (Memon et al., 2010). The literacy rate in Pakistan is one of the lowest in the world, and it is even lower when compared to countries with similar resources and social and economic conditions (Memon et al., 2010).

In Pakistan, the literacy rates among youth (aged 15-24) have experienced only a slight increase over the past decade, largely due to limited budgetary allocations for youth education and lack of effective strategies to reach vulnerable groups. From 2001/02 to 2012/13, the youth literacy rate rose from 63% to 72%, resulting in an average annual increase of less than 1% (Ministry of Education). The educational situation was even worse in the province of Balochistan, which is located in the southwestern part of Pakistan (BESP, 2013).

Literacy is generally accepted to be a serious issue in education. Even though awareness related to literacy is widespread across the world, there are still significant figures in Balochistan. The Table 2 below illustrates the literacy rates of the youth population in Balochistan between 2001 and 2013. Literacy rates are essential indicators of the education system's performance and impact on the younger generation's educational attainment.

Table 2. Youth Literacy Rate from 2001-02 to 2012-13 by Province.

Province	2001-02	2005-6	2009-10	2012-13
Balochistan	39.8%	48.1%	60.6%	55.9%

Source: Ministry of Education, 2014.

The data provided in Table 2 can serve as a useful reference for educational policymakers, researchers, and stakeholders to assess progress made in the province's education system. Furthermore, the data can also be used to identify areas that require further attention and investment to improve the literacy rates of the youth population in Balochistan.

In Pakistan, there is a notable disparity between male and female literacy rates in all provinces. In Balochistan, where tribal culture and lack of social mobility prevail, the female adult literacy rate is shockingly low at only 19%. The situation highlights the need for innovative and targeted strategies to reach poor and illiterate women across the country, particularly in marginalized areas where educational resources are limited (UNESCO, 2015). According to the table, the literacy rate of adults reached significant figures over the years 2001 and 2013 in Balochistan. Similar to other indicators, Balochistan has the lowest literacy rate in the country (BESP, n.d.). The Table 3 below demonstrates the rate of adult literacy in Balochistan between 2001 and 2013.

Table 3. Adult Literacy Rate from 2001-02 to 2012-13 by Province.

Province	2001-02	2005-6	2009-10	2012-13
Balochistan	26.9%	32.4%	43.4%	43.6%

Source: Ministry of Education, 2014.

Table 3 illustrates the literacy rate of youth in Balochistan between 2001 and 2013, indicating a high level of illiteracy in the region. In 2001-02, the literacy rate was only 26.9%, which increased significantly to 43.6% in 2012-13. These figures highlight the pressing need to address the issue of illiteracy in Balochistan and to implement effective measures to improve the education system in the region. The province of Balochistan exhibits a high rate of multidimensional poverty, lowest coverage of immunization for children, highest prevalence of nutritional deficiencies, and lowest literacy rates. According to the Pakistan Social and Living Standards Measurement Survey, the literacy rate of the population aged 10 years and above in Balochistan is merely 44%, which is the lowest among all provinces in the country. Additionally, the female literacy rate in rural areas is particularly abysmal, with a mere 17% literacy rate. These statistics underscore the dire need for the government to allocate more resources to address the education crisis in the province (BESP, n.d.). Based on official reports and available resources, Balochistan has faced a decline in its literacy rate in recent years. In response, education authorities have implemented strategies to address this issue. However, at the current rate of improvement, it is projected that achieving a literacy rate of 100% in the province will only be possible by the year 2095. If the rate of improvement doubles, the target could be achieved by 2055, and with three times the current rate of improvement, the target could be achieved as early as 2042 (BESP, n.d.).

Problem of qualified teaching staff

Effective educators are those who are committed to lifelong learning in their respective fields, demonstrate excellence in teaching, and engage in reflective practices to refine their instructional approaches. They possess the ability to convey their subject matter knowledge and understanding of the learning process through clear communication, sound diagnostic skills, and sensitivity to diverse learning styles and cultural backgrounds. In addition, they possess knowledge of child development and the ability to utilize a wide range of instructional techniques to meet the unique needs of each student. They set high expectations and provide support to help students achieve them, foster an environment conducive to learning, and effectively utilize available resources both inside and outside the classroom. Therefore, well-trained, efficient, and ethical teachers represent the greatest asset of any education system and are vital to the success of any nation. The importance of teacher training and quality is widely acknowledged as a fundamental component of high-quality education in general, and specifically for improving student learning outcomes. Additionally, teacher training centers can be established to provide ongoing support for teachers and ensure that they are equipped with the necessary skills and knowledge to deliver quality education to their students. It is also essential to attract and retain qualified and competent teachers by providing them with fair compensation and working conditions, which can positively impact the quality of education (Darling-Hammond et al., 2017). Low-income countries, such as India and Pakistan, encounter various challenges in their pursuit of quality education. Among the most significant obstacles is the task of developing or recruiting quality teachers. The complexity of this challenge stems from several factors, including but not limited to limited financial resources, insufficient infrastructure, and a lack of effective teacher training programs. These factors together contribute to a shortage of skilled and knowledgeable teachers, resulting in subpar educational outcomes for students (Khan et al., 2016).

Efforts to improve the quality of education in Pakistan require addressing a range of pressing issues. The challenges are particularly acute in remote areas of Punjab, Sindh, and Balochistan, where a lack of teachers in schools exacerbates existing issues. Research indicates that many teachers in Pakistan do not employ innovative methods or strategies for teaching and learning, and lack fundamental knowledge about lesson planning, hindering their ability to address the various challenges that arise in the classroom. Resolving these issues is crucial to achieving significant progress towards enhancing the quality of education across the country (Ahmad et al., 2014). Teachers play a crucial role in the success of an educational system, and their effectiveness is influenced by numerous factors, such as motivation, qualifications, experience, training, aptitude, and the educational environment and management structures in which they operate (Memon et al., 2010). It is widely recognized that the quality of teachers is a crucial component of any education system. In Pakistan, however, the quality of teachers is generally perceived to be low (Memon et al., 2010). In the realm of education, the teacher serves as a beacon of enlightenment, responsible for disseminating knowledge far and wide. As such, teacher training and effectiveness represent critical and arguably the most pivotal elements within the educational system. A common tenet regarding the function of quality teacher training asserts that it represents one of the most significant and vital requisites for fostering, augmenting, and advancing education (Siddiqui et al., 2021). Insufficient resources in teacher training institutions and universities present a significant challenge in developing quality teachers.

Teacher training institutions frequently lack resources such as well-equipped laboratories, libraries, up-to-date reading materials, adequate building infrastructure, and information and communication technology facilities. These deficiencies have a negative impact on the professional development of teachers (Khan et al., 2016). Teaching is a complex and challenging profession that requires extensive training to develop and maintain the necessary skills and knowledge. In Pakistan, however, the availability of high-quality teacher training opportunities is limited, which has a detrimental impact on the quality of education in the country. Although there are numerous teacher training institutions in Pakistan, many of them are under-resourced and poorly managed, resulting in inadequate training for teachers. A lack of funding and trained human resources such as trainers and administrators exacerbates this issue. As a result, the professional development of teachers is hindered, and their ability to provide high-quality education is compromised (Ahmad et al., 2014).

Educational environments and lack of materials

One of the major issues affecting the quality of education in Pakistan is a lack of adequate educational environments and materials. Research has shown that the physical environment of schools can significantly affect learning outcomes (Barrett et al., 2015). In Pakistan, many schools lack basic facilities such as electricity, clean water, and proper sanitation (UNESCO, 2019).

The scarcity of teaching and learning resources in schools presents significant challenges for the teaching and learning process in Pakistan. Many schools lack even the most basic resources such as blackboards, attendance registers, offices, libraries, laboratories, and up-to-date books, which hinders the ability of teachers to provide quality education. Furthermore, inadequate physical infrastructure, such as insufficient classrooms and playgrounds, has a detrimental effect on the overall learning environment and hinders the physical development of both students and teachers. The absence of such basic facilities contributes to the larger issue of poor-quality education in Pakistan (Qureshi, 2002). This has led to poor learning outcomes and high dropout rates, especially among girls (Government of Pakistan, 2017).

Knowledge production is often the result of inquiry and experimentation and is not limited to teacher-dominated learning environments. In these settings, individuals are responsible for their own learning, and teachers are expected to have the necessary competence and confidence to effectively facilitate this process (Kolb & Fry, 1975). The educational environment, physical conditions of schools, and educational materials are inadequate in Pakistan. Teachers' attendance, physical facilities, and multigrade classes are other aspects where secondary-level private schools struggled more than public schools (ASER, 2015). This situation is not good in Balochistan. Most schools in rural areas do not have sufficient physical facilities. At the provincial level, 88% of schools have a designated building, 11% are shelters, and no information is provided about 1% of schools. At the provincial level, 89% of boys and 84% of girls' schools have buildings. Districts Dera Bug, Harnai, Kalat, Quetta, and Sherani provide school buildings for 71% to 80% of schools (Government of Balochistan, 2021). Table 4 provides information on the learning space and physical facilities of the four schools, including student classroom ratio, classroom school ratio, and the percentage of schools with various physical facilities such as buildings, drinking water, toilets, boundary walls, electricity, and computer labs.

Table 4. Physical facilities in Balochistan between 2019-20.

Learning Space	Averages			
Student Classroom Ratio	23.3	22.1	26.3	25.5
Classroom School Ratio	2.9	2.81	1.57	3.16
Physical Facilities				
Schools with Buildings	88.0%	89.1%	95.8%	84.0%
Schools with Drinking Water	30.9%	30.4%	21.1%	33.8%
Schools with Toilets	36.3%	30.9%	59.3%	45.3%
Schools with Boundary Walls	45.8%	38.7%	79.4%	59.2%
Schools with Electricity	21.9%	19.9%	16.4%	27.7%
Schools with Computer Lab	6.4%	6.4%	25.0%	6.4%

Source: Government of Balochistan, 2021.

According to Table 4, current physical facilities are not appropriate for an educational environment in Balochistan. Excluding educational materials, the vital prerequisites were not satisfied. The provided data indicates that the physical facilities in educational institutions in Balochistan, such as classroom ratios, access to basic amenities, and availability of essential resources, fall below desirable standards. These inadequacies pose significant challenges to creating an optimal learning environment. Addressing these shortcomings is crucial to ensure a conducive educational setting that promotes effective teaching and learning outcomes in Balochistan.

Gender discrimination

Balochistan is considered the least literate province in Pakistan, with an estimated 60-70% of children not attending school, according to UNICEF. This low rate of attendance can be attributed to various factors, including poor infrastructure and connectivity within the province, security concerns, and a lack of political motivation to improve the educational conditions of the region (Pakistan Coalition for Education, 2021). Despite having a considerable number of school-aged children out of school in Balochistan, the province has enrolled a total of 884405 students. However, the current enrollment rate in Balochistan is imbalanced across different educational levels, with the primary section having the highest percentage of enrolment, comprising 79% of the total enrolment. In contrast, there is a sharp decline in enrolment rates in the middle section, with only 14% of children being enrolled in this level. Furthermore, the higher secondary section has the lowest enrolment rate of only 7%. This imbalance in enrolment rates across different educational levels highlights the need for policy interventions to promote enrolment and retention in middle and higher secondary education in Balochistan (Pakistan Coalition for Education, 2021). The importance of education for women cannot be overstated as it serves as a crucial means of empowerment. Education not only provides knowledge and values for social advancement but also cultivates skills such as logical and analytical thinking, organizational, administrative, and management skills. In addition to enhancing self-esteem, education leads to improved financial and social status within the community. Hence, it is imperative that education is made accessible to all individuals regardless of gender (Memon et al., 2010).

The situation of female education in rural Balochistan is concerning, with the literacy rate among rural women lower than the overall illiteracy rate in Pakistan, which is 80% and growing. According to estimates, less than 2% of rural females in Balochistan are literate. Traditional gender roles assign women domestic responsibilities, such as cooking, cleaning, and child-rearing, which may hinder their access to education and contribute to the low literacy rate (Naz, 2003). Girls' attendance at school in rural areas decreases during harvest season as they contribute significantly to their families' agricultural labor as unpaid workers (Tusinska, 2020). The issue of restricted access to education, early and coerced marriages, acid attacks, domestic violence, and honor killings are significant challenges faced by women in Pakistan. These societal problems have long-standing roots and are particularly severe in the country, contributing to the marginalization and oppression of women (Mustafa et al., 2016). Table 5 presents enrollment data in Balochistan for the years 2016-2017 and 2018-2019, showing the number of boys and girls enrolled in educational institutions.

Table 5. The enrollment figures for boys and girls in Balochistan between 2016 and 2019.

Enrollments in Balochistan	Boys	Girls
2016-2017	442.579	229.960
2018-2019	768.246	554.175

Source: Government of Balochistan, 2021.

According to Table 5, the number of enrollments in Balochistan between 2016 and 2019 varied significantly between boys and girls. In 2016-2017, the number of enrolled boys was 442,579 while the number of enrolled girls was 229,960. By 2018-2019, the number of enrollments have increased for both genders, with 768, 246 boys and 554, 175 girls. Access to education in Balochistan is impeded not only by the imbalance between primary and post-primary government schools, but also by the severe lack of adequate school infrastructure, particularly for girls. The number of children enrolled in primary schools in Balochistan is almost 2.5 times higher than the number of children enrolled in middle and high schools. Moreover, only one-third of all children enrolled in government schools in Balochistan are girls, which further exacerbates the gender disparity in education (Government of Balochistan, 2018). In certain conservative Pakistani communities, there exists a belief that girls are incapable of receiving education. This attitude is influenced by the low social status of women, and the cultural expectation that they prioritize domestic duties over academic pursuits, resulting in the exclusion of girls from the educational process (Tusinska, 2020).

The status of women in rural areas of Pakistan is particularly concerning, with slightly better conditions found in urban areas. While women in urban areas may have greater access to education and employment opportunities, women in rural areas face significant challenges in accessing education and improving their economic status. As a result, they often face difficult living conditions and limited opportunities for personal and professional growth (Mustafa et al., 2016). In rural areas of Pakistan, government schools for girls typically provide education up to the elementary level. However, only a small number of girls with exceptional academic potential progress beyond this level. Most parents are reluctant to allow their daughters to pursue higher education outside of the village, as they believe that education can be obtained within the village for those who are interested. Conversely,

parents are more willing to allow their sons to leave the village to pursue higher education (Mohyuddin & Ambreen, 2012). In Pakistan, gender discrimination has long been a pervasive issue and has contributed to the lack of education for females. This bias towards sons over daughters is prevalent across all socio-economic statuses and education levels, but is particularly prevalent in less-educated families (Atif et al., 2016). The population of Pakistan is comprised of more females than males. However, the case in Pakistan shows that the women are not preferred for receiving education and illiterate women would obviously find it difficult to build the society (Mustafa et al., 2016).

Issues and challenges of public and private schools

In Pakistan, both public and private schools and educational institutions play significant roles in the education system. However, it is important to maintain a reasonable balance between the two, as over-reliance on one can adversely affect the quality of education. In Balochistan, there is a higher than average number of private schools, as the facilities and quality of education provided by government schools are often inadequate. Consequently, parents tend to prefer private schools to government schools. As of 2011, there were 12,293 schools, 10,668 of which were primary schools, 961 were middle schools, and 664 were high schools (Government of Balochistan, 2014). In 2008, a significant initiative was launched with the aim of increasing access to education in Pakistan. Since then, a total of 421,735 educational institutions have been established. Furthermore, 1,271,606 children have been evaluated, 29,168 school profiles comprising 70% government and 30% private schools have been compiled, and 42,874 volunteers (primarily young individuals) have been enlisted to participate in this crucial social movement that aims to transform the educational landscape of the country (ASER, 2015). Private schools have a significant enrollment of school-aged children, with non-state schools in urban areas accounting for 63% of all students attending school (ASER, 2015). The province of Balochistan has the same figure for private schools and institutions. The province is also home to a large number of Madrassahs and private schools (BESP, n.d.).

The Balochistan Education Foundation (BEF) functions as an independent entity to provide support to the Secondary Education Department. Previously, it has collaborated with private entities to improve access to education, and at present, it is responsible for regulating and registering private schools (BESP, n.d.). Since 2015, BEF has also been entrusted with the role of private educational institutions, Registration, and Regulatory Authority under the Act passed by the Provincial Assembly. BEF has been very effective in performing its role, and around 1,230 private educational institutions with more than 327,000 students have been registered with BEF under the Balochistan Private Educational Institutions Registration and Regulation Authority (BPEIRRA). The private sector has become a major player in the educational landscape of Pakistan. This phenomenon can be attributed, in part, to low public confidence in government schools and the lack of availability of public schools, particularly in urban and rural areas (BESP, n.d.). Table 6 below highlights the number of private schools operating in Balochistan between 2018 and 2019.

Table 6. Number of private schools in Balochistan 2018-19.

Section	Number of Private Schools
Primary School	276
Middle School	236
High School	317

Source: Balochistan Education Foundation, 2019.

According to Table 6, there were 276 private primary schools, 236 middle schools, and 317 high schools operating in the province. This growth in private schools is driven, in part, by low public confidence in government schools and the limited availability of public schools, particularly in urban and rural centers. Given the critical importance of education in developing cognitive skills and promoting social mobility, ensuring that all children have access to quality education and the opportunity to thrive academically must be a top priority in Balochistan (Government of Balochistan, 2018). The second component of the Balochistan Education Support Program supports and facilitates private-sector education through low-fee schools. Numerous large schools and school systems have developed and implemented their own teacher training programs, while others provide access to specialized courses through secondary schools, commonly known as normal private institutions (Memon et al., 2010). The quality of education dispensed by the majority of private schools in Pakistan is subpar due to a significant scarcity of adequately trained and qualified educators and a lack of supportive mechanisms for these instructors (Memon et al., 2010).

Discussion

Articles 37 (b) and (c) of the Constitution of the Islamic Republic of Pakistan (1973) guarantee its citizens the right to free and compulsory secondary education within the minimum possible period, as well as access to technical and professional education and higher education based on merit (UNESCO, 2015). In March 1998, the Government of Pakistan announced its education policy for the period 1998-2010, which included several initiatives to increase literacy rates. One of the key steps announced in the policy was the launch of a national literacy movement on an emergency basis in every village and district, as stated in an article (Masood & Ambreen, 2016). Despite the government's attempt to launch a national literacy movement in 1998, Pakistan still faces a significant literacy problem today for various local reasons. Pakistan's progress in improving its literacy rate has been slow in the recent years. Despite a moderate increase in the literacy rate for the population aged 10 years and above, from 35% to 53% between 1990-1991 and 2004-2005, progress has stagnated. By 2011-2012, the literacy rate had increased to 58%, indicating that significant challenges persisted. With 42% of the population remaining illiterate, the situation is a cause of concern, particularly in the context of the demands of the modern world (Azeeem & Ismat, 2016). Specifically, rural areas have higher literacy rates than urban areas. This is due to the limited number of educational institutions in rural areas. However, Balochistan has different numbers that are linked to literacy rates. It has the lowest level of literacy compared to other provinces. Similar to other indicators, Balochistan has the lowest literacy rate in the country (BESP, n.d.). According to data provided by UNICEF, Balochistan is the least literate province of Pakistan, with an estimated 60-70% of children out of school. The province faces a range of challenges that contribute to this situation, including a lack of connectivity within the province, security concerns, and insufficient political will and

motivation to improve educational conditions in the region. These factors have combined to create a significant obstacle to the development of a robust educational infrastructure, leaving many children in the province without access to the knowledge and skills needed to succeed in an increasingly competitive world (Pakistan Coalition for Education, 2021).

There is lack of training opportunities for teachers in Pakistan (Ahmad et al., 2014). Only four institutions offered in-service teachers (Shah, 20013). The lack of an adequate number of teachers and their unsatisfactory qualifications and training made it difficult for primary schools to qualify students for admissions in good secondary schools or jobs (Azeeem & Ismat, 2016). Recent studies have indicated that teachers in Balochistan do not actively utilize new methods or strategies for teaching and learning. Additionally, the majority of teachers are not familiar with lesson planning, which limits their ability to effectively address various challenges that may arise in the classroom. This lack of professional development and training for teachers can negatively impact the quality of education being delivered to students in the province (Ahmad et al., 2014). The other educational problem in Balochistan is empty schools. In Balochistan, the issue of "ghost schools and teachers" refers to government-established school buildings without teachers or students. This problem has emerged due to local authorities' desire to obtain public funding from international foundations.

Physical infrastructure and educational resources are crucial for shaping the learning environment and determining students' academic achievement and learning outcomes. Inadequate educational facilities can result in student disengagement and lower academic performance, leading to a range of social problems, such as unemployment and crime. Therefore, it is imperative for the government to address these issues and provide sufficient educational and social facilities to promote inclusive and equitable access to education. Educational institutions do not receive the necessary attention to ensure the production of a high standard of education. UNESCO has also highlighted the need for adequate educational resources, such as textbooks and teaching materials, to promote quality education (UNESCO, 2015).

While boys' schools are generally sufficient, girls' schools are inadequate in many districts. Sociocultural attitudes and religious beliefs often result in limited availability of educational opportunities for women and girls, resulting in low enrollment numbers for females at all educational levels. Statistical data provided in the tables demonstrate that although there has been a slight increase in female enrollment in recent years, the current situation remains unsatisfactory. Gender disparities in literacy rates in Pakistan are significant, with a notable difference between males and females. The percentage of males who were literate was 48% in 1990-1991, while only 21% of females were literate during the same period. By 2011-2012, the percentage of literate males had increased to 70%, while the percentage of literate females had risen to 47%, indicating that gender disparities persisted over the two decades (Azeeem & Ismat, 2016). In Pakistan, every family must have witnessed various degrees of gender bias (Atif et al., 2016). The education of boys is preferred over that of girls (Rasheed et al., 2021). These inclinations are available in certain provinces that have a more conservative population. Balochistan is a conservative province in the country. In a gender-wise comparison, 39% of males and 69% of females in the 6-15 age group are out of school (Pakistan Coalition for Education, 2021).

Excluding this unique issue, there is another serious problem in Pakistan's educational environment. It is related to private education and a lack of public facilities. Most parents

would opt for private institutions because of their opportunities. The private education sector in Pakistan has experienced significant growth in the past 20 years, with private schools now accounting for approximately 40% of all educational institutions in the country. At the primary level, 34% of children aged 5-9 years old were enrolled in private schools, with 34% of them being boys and 33% being girls, according to the data on net enrollment rates. The popularity of private schools can be attributed to their reputation for providing better quality education compared to public schools. This trend towards private education is expected to continue in the future (Azeeem & Ismat, 2016). Private schools are perceived to provide better quality education than public schools by parents in Pakistan, leading to an increasing trend of sending children to private schools. As a result, private schools have grown rapidly and account for approximately 40% of all institutions in the country. At the primary level, about 34% of children in the age group of 5-9 years were enrolled in private schools, with roughly equal representation of boys and girls (Shah, 20013). Private sector enrollment in primary schools constitutes a substantial portion, estimated at nearly 40%, of the total enrollment in primary education across many regions. This trend can be attributed to the insufficient number of public sector primary schools, which often remain non-functional due to inadequate teacher availability and funding constraints. Consequently, parents are compelled to send their children to private schools for primary education (Azeeem & Ismat, 2016).

Conclusion and Implications

This research holds significant value as it sheds light on various issues prevalent in Pakistan's education system, particularly focusing on the Balochistan Province. This serves as a crucial first step in identifying problems related to literacy rates, gender disparity, curriculum, teacher qualifications, and physical infrastructure. The findings of this study are instrumental in uncovering the major challenges faced by both the education system of Pakistan and Balochistan. This study highlights the need for improvement in various areas of Pakistan's educational system. However, the situation in Balochistan is even dire, as the education system lacks many essential resources compared to the rest of the country. Therefore, this research suggests that a complete rebuilding of the education system in Balochistan is necessary to address the challenges faced by the region.

To effectively address these issues in Pakistan's education system, it is crucial for authorities to implement serious strategies. Firstly, they must establish a peaceful environment across the country and promote unity in education. It is important to create a peaceful environment for education and providing equal access to education for all students, especially those from marginalized communities (UNESCO, 2014). Additionally, literacy courses should be established throughout the country to reduce literacy rates. The government must ensure equal access to education for all students in every province. It is essential to improve the quality of teachers by providing appropriate training and training centers. Teacher training can significantly improve education quality. The physical environment of schools should be improved and educational materials should be provided on an uninterrupted basis. The importance of physical environments in education suggests that their development can positively impact learning outcomes (Barrett et al., 2015).

This study contributes to the existing literature by shedding light on the often overlooked subject of education in Balochistan Province within Pakistan's educational system. By examining the main problems faced in the region, the research provides valuable insights

for policymakers, higher education administrators, and practitioners seeking to improve the schooling system. The findings add to the body of knowledge in the field and serve as a valuable resource for future research and scholarly endeavors focused on addressing the educational challenges in Balochistan and similar contexts. Future research can focus on conducting qualitative studies to understand specific barriers, longitudinal studies to assess intervention effectiveness, and comparative studies to identify potential solutions for enhancing education in Balochistan.

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References

Ahmad, I., Ali, A., Khan, I., & Khan, F. A. (2014). Critical analysis of the problems of education in Pakistan: Possible solutions. *International Journal of Evaluation and Research in Education, 3*(2), 79-84.

ASER. (2015). Annual Status of Education Report. South Asian Forum for Education Development (SAFED). Retrieved March 21, 2023 from http://aserpakistan.org/document/aser/2015/reports/national/ASER_National_Report_2015.pdf

Atif, K., Ullah, M. Z., Afsheen, A., Naqvi, S. A. H., Raja, Z. A., & Niazi, S. A. (2016). Son preference in Pakistan; a myth or reality. *Pakistan Journal of Medical Sciences*, *32*(4), 994-998.

Azeem, M., & Ismat, H. (2016), Education and development of Pakistan: A study of current situation of education and literacy in Pakistan. *US-China Education Review*, 6(11), 647-654.

Balochistan Development Statistics. (n.d.). *Number of government primary, middle and high schools by teaching staff in Balochistan.* Retrieved February 8, 2023, from http://emis.gob.pk/Uploads/

DETAIL%20OF%20GOVERNMENT%20SCHOOLS%20IN%20BALOCHISTAN.pdf

Balochistan Education Foundation. (2019). *List of private schools.* Retrieved February 2, 2023, from https://www.bef.org.pk/bpeirra/

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2015). The impact of classroom design on pupils' learning: Final results of a holistic, multi-level analysis. *Building and Environment*, *89*, 118-133.

BESP 2013-2018. (2013). Balochistan education department. Retrieved March 7, 2023, from http://www.emis.gob.pk/Uploads/Balochistan%20Education%20Sector%20Plan.pdf

BESP 2020-2025. (n.d.). Planning and development department government of Balochistan. Retrieved January 10, 2023, from http://emis.gob.pk/Uploads/BESP2020-25.pdf

Brock, C., & Alexiadou, N. (2013). *Education around the world: A comparative introduction* (Vol. 13). A&C Black.

Chaudhry, I. S., & Rahman, S. (2009). The impact of gender inequality in education on rural poverty in Pakistan: an empirical analysis. *European Journal of Economics, Finance and Administrative Sciences*, *15*(1), 174-188.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.

Damon, A., Glewwe, P., Wisniewski, S., & Sun, B. (2016). *Education in developing countries-what policies and programmes affect learning and time in school?*. Expertgruppen För Biståndsanalys (EBA). Retrieved March 3, 2023, from https://eba.se/wp-content/uploads/2016/05/Rapport-201602-Education-in-developing-coutries.pdf

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Retrieved April 1, 2023, from https://bibliotecadigital.mineduc.cl/bitstream/handle/20.500.12365/17357/46%20Effective_Teacher_Professional_Development_REPORT.pdf?sequence=1

Deniz, Ü. (2022). Main problems of higher education and quests for reform in Turkey. *Anatolian Journal of Education*, *7*(2), 173-192.

Education for All (EFA) Global Monitoring Report. (2015). *Education for all 2000-2015: Achievements and challenges.* UNESCO Publishing. Retrieved March 2, 2023, from https://reliefweb.int/report/world/education-all-global-monitoring-report-2015-education-all-2000-2015-achievements-and?gclid=CjwKCAjwscGjBhAXEiwAswQqNNBAa3O8O_QzQyZXV8xsm4H2ogxnBG7ceUIF4-AsKnUr_AHuK2zQWRoC2kYQAvD_BwE

Federal Ministry of Education. (2009). *National education policy government of Pakistan.* Retrieved March 12, 2023, from https://itacec.org/document/2015/7/National_Education_Policy_2009.pdf

Government of Balochistan. (2014). *State of school education in Balochistan.* Retrieved Feb 8, 2023 from http://aserpakistan.org/document/learning_resources/2014/State_of_School_Education.pdf

Government of Balochistan. (2018). *Five years of education reforms Balochistan 2013-2018.* Retrieved February 26, 2023, from https://www.researchgate.net/publication/342083608_Balochistan_Five_Years_of_Education_Reforms_2013-18_Wins_losses_and_challenges_for_future

Government of Balochistan. (2021). *Balochistan education statistics 2019-20.* Retrieved Feb 1, 2023 from http://www.emis.gob.pk/Uploads/BalochistanEducationStatistics/Balochistan_Education_Statistics_2019-20.pdf

Government of Pakistan. (2017). *Pakistan education statistics 2015-16.* National education management information system, ministry of federal education and professional training. Retrieved January 13, 2023, from http://library.aepam.edu.pk/Books/Pakistan%20Education%20Statis-

tics%202015-16.pdf

Heyneman, S. P. (2001). General introduction: Global issues in education. *Peabody Journal of Education*, *76*(3-4), 1-6.

Khan, F., Fauzee, O., & Daud, Y. (2016). Teacher training, problems and the challenges: a comparative study between India and Pakistan. *Gomal University Journal of Research*, *32*(1), 1-12.

Kolb, D. A., & Fry, R. (1975). Toward an applied theory of experiential learning. In C. Cooper (Ed.), *Theories of group process* (pp. 103–136). Wiley. Retrieved March 15, 2023, from https://digitalcommons.unomaha.edu/cgi/viewcontent.cgi?article=1123&context=slceslgen

Küçükali, R., & Coşkun, H. C. (2020). Pakistan eğitim sistemi ve okullara yönetici atama kriterlerinin incelenmesi. *Uluslararası Liderlik Çalışmaları Dergisi: Kuram ve Uygulama*, *3*(3), 86-98.

Masood, S., & Ambreen, M. (2016). Problems and issues in Pakistani education. In *Education in Pakistan*, (pp. 207-241). Retrieved January 18, 2023, from https://online.aiou.edu.pk/LIVE_SITE/SoftBooks/6405.pdf#page=214

Memon, G. R., Joubish, M. F., & Khurram, M. A. (2010). Education in Pakistan: The key issues, problems and the new challenges. *Middle-East Journal of Scientific Research*, *6*(6), 672-677.

Ministry of Education. (2009). *National education policy 2009.* Retrieved March 9, 2023 from https://planipolis.iiep.unesco.org/sites/default/files/ressources/pakistan_national_education_policy_2009.pdf

Ministry of Education. (2014). *National Education Census 2012-13 Pakistan. Academy of educational planning and management.* Islamabad, Pakistan. Retrieved March 8, 2023 from http://library.aepam.edu.pk/Books/Pakistan%20Education%20Statistics%202012-13.pdf

Mohyuddin, A., & Ambreen, H. C. M. (2012). Provision of better educational facilities in rural Balochistan (micro analysis of world system theory in anthropological perspective). *Research Journal of Social and Life Science, 13*(2), 198-215.

Mustafa, S., Khan, M. S. A., & Jameel, K. (2016). Women education in Pakistan: Is the level enough for empowerment. *International Journal of Scientific & Engineering Research*, *7*(8), 1747-1753.

Naz, S. (2003). *The status of female education in rural Balochistan.* Retrieved February 17, 2023, from https://ecommons.aku.edu/cgi/viewcontent.cgi?article=1066&context=book_chapters

OECD. (2012). *Equity and quality in education: Supporting disadvantaged students and schools.* Retrieved April 1, 2023, from https://www.oecd.org/education/school/50293148.pdf

Pakistan Coalition for Education. (2021). *Status of girls education in Balochistan.* Retrieved February 7, 2023 from https://page.org.pk/wp-content/uploads/2021/11/Balochistan-Report.pdf

Provincial Census Report Balochistan. (2017). *Pakistan bureau of statistics, government of Pakistan.* Retrieved March 3, 2023 from https://www.pbs.gov.pk/content/final-results-census-2017

Qureshi, S. (2002). Decentralization to district level. *Ministry of Education, Islamabad, Pakistan*, 31-40.

Rasheed, Z., Hussain, B., Ijaz, A., & Hashim, M. (2021). The level of girls education in rural areas of Pakistan subject to socio-economic, demographic and schooling characteristics: Count data models approach. *Ilkogretim Online*, *20*(5), 7451-7465.

Reayat, N. (2020). The problems of legal education in Pakistan: Teaching and learning, curriculum, and assessment methods. *International Review of Management and Business Research*, *9*(4), 357-368.

Shah, D. (2003). *Country report on decentralization in the education system of Pakistan: Policies and strategies.* Academy of Educational Planning and Management, Ministry of Education.

Siddiqui, K. A., Mughal, S. H., Soomro, I. A., & Dool, M. A. (2021). Teacher training in Pakistan: Overview of challenges and their suggested solutions. *IJORER: International Journal of Recent Educational Research*, *2*(2), 215-223.

Tusińska, M. (2020). Inequality of opportunity–gender bias in education in Pakistan. *Nierówności Społeczne a Wzrost Gospodarczy*, *63,* 233-245.

UNESCO. (2014). Teaching and learning: Achieving quality for all. Education for all global monitoring report. Retrieved January 24, 2023 from https://unesdoc.unesco.org/ark:/48223/pf0000225660_eng

UNESCO. (2015). Education for All 2000-2015: Achievements and challenges. UNESCO. Retrieved April 19, 2023 from https://reliefweb.int/report/world/education-all-global-monitoring-report-2015-education-all-2000-2015-achievements-and?gclid=CjwKCAjwxr2iBhBJEiwAdXECw_RLUQYVeWJE55OdM_1MpkSXmfyfQpI_5l6Zwi7ENhDe66s3B9VbVBoCEz8QAvD_BwE

UNESCO. (2019). UNESCO Pakistan country strategic document 2018-2022. Retrieved from https://en.unesco.org/sites/default/files/ucsd.pdf

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ARTICLE

Acting self-determinedly and critically in a post-digital future? A critical review on digitalisation in music education

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ABSTRACT

In this article, we will ask how music education can prepare learners for future-making in a post-digital world. Starting with a critical literature review we identify characteristic logics and central topics in the discourse on digitality in music education: the polarising argumentation in dichotomies, the tendencies of deterritorialization in post-digital practices, the focus on smart mobile technologies, the new awareness and changing role of things and musical instruments, and the strong interconnection to popular music (education), the upcoming discussion on creativity, artificial intelligence, hacking and sustainability, and the debate on the high demands on teachers, that are connected to the use and implementation of digital technologies in music education. On this basis we discuss the potentials and constraints that occur in music education due to the transformation to a post-digital world. Further, we discuss future steps for research and teacher education, and different practice contexts in the field of music education which help to enable learners to act in a self-determined way, and critically, in a post-digital future.

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Introduction

Like many fields of education in our days, music education is facing challenges that are strongly interconnected with central social issues: Demographic changes, the climate crisis, re-nationalisation tendencies, pandemics, migration movements, and the transformation to a post-digital society. This creates a pressure to act that can trigger constructive transformation processes but can also lead to conservative trends and to an increase in social tensions. However, the question as to how culture and education will develop and how it could be reconfigured to prepare learners to meet the challenges of today and tomorrow

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– actively, participatory, self-determinedly and critically – seems to be more relevant than ever (see Kultusministerkonferenz [KMK], 2018). In music education a debate began recently on how music education could be reconfigured for future-making (e. g. Buchborn et al., 2022). In this article, we will focus on one of the central questions connected to transformation processes driven by social change. We will ask how music education can harness the potential of technologies and face the challenges that arise from the transformation to a post-digital world in order to prepare learners for future-making. We analyse the potentials and challenges associated with the digitalisation of music education contexts and discuss how music education can prepare learners for future-making in a post-digital word.

In recent decades, digital technologies have transformed many aspects of our lives, including the way we create, consume and learn music. This technological change also had a strong influence on the field of music education. The use of digital tools and resources has become increasingly common as teachers and students alike embrace the potential of technology to enhance their musical learning experiences. From online music lessons and digital practice aids, to music production software and collaboration platforms, a wide range of digital tools and resources are now available to music teachers and students. During the global COVID-19 pandemic, the "digital 'turn' in music education" (Camlin & Lisboa, 2021, p. 1) once again picked up speed. However, as with any new technology, the integration of digital tools and resources into music education presents challenges and raises important questions about the role of technology in the music learning process.

It is a central question whether music education, in theory and practice, is ready to provide learners with opportunities to build up the key competences needed to face this digital turn – actively and critically, and in a self-determined and participatory way, – in a post-digital world (KMK, 2017, 2021). It is hard to build up these required competences in everyday life and in established institutions or traditional educational settings. Music education is, therefore, facing new challenges, especially regarding the discourse on musical participation and digital maturity. A task for the future lies in the development of innovative educational formats and concepts that enable active participation in shaping a digitalised (music) world and the acquisition of general and music-specific competences.

Against this background, we analyse the discourse on digitalisation in music education in order to determine where we stand and to begin to discuss perspectives on where to go. Starting with a critical literature review looking at the discourse – mainly from the perspective of music education in Germany – we identify central potentials and constraints and provide a solid needs analysis. On this basis we want to point out that the concepts are essential in order to give children, young people and adults more agency in the post-digital world. We will further illustrate that the maker education approach is an example that fulfils this educational need, as it particularly focuses on aspects of agency, self-empowerment and finding creative solutions to situation-specific problems and needs when dealing with technology. Maker education and hacking is enabling students, artists, teachers and citizens to have a self-determined, interest-driven, creative approach to music technology. By experimenting, tinkering, developing and playing, digital and musical maturity is promoted and, at the same time, an (experimenting and learning) space for collaborative and creative music practices is initiated. Making can also promote synergies between different educational institutions/stages as well as between formal, informal and non-formal educational offers.

A critical literature review

For this critical literature review, a comprehensive search was conducted using academic databases such as the German platform *Fachportal Pädagogik* as well as *Google Scholar*. In the first step we mapped the field by searching with global keywords such as "music education", "digitalisation", "technology". On the basis of our results, we identified trends and common topics in the discourse that delivered more specific search keywords such as "post-digitality", "mobile smart technologies", "digital musical things", "Digital Audio Workstation (DAW)", "New Interfaces for Musical Expression (NIME)", "Digital Musical Instrument (DMI)" etc. As a second stage, we used these keywords to follow the discourse through a deeper search on these topics raised in the literature. This enabled us to gain insights into sub-themes in more detail. In the results section we will map the discourse according to these sub-themes that characterise discussion on digitalisation in music education.

Our observation is that, particularly in the last 20 years, the topics related to digitalisation are discussed broadly in the field of music education. Furthermore, in recent years, the discourse has become more and more differentiated, also in relation to international perspectives. For this reason, we have decided to include a dedicated selection of literature in this critical review, also because we wish to focus on the national state of affairs in Germany. Our guiding question already starts from the assumption that education should enable a participation-oriented, self-determined, critical and active approach; – this assumption is strongly connected to recent national discussion on education (see KMK, 2017, 2018, 2021). As we positioned ourselves in this framework, the characteristics and the specific conditions, goals and conventions of the German education system became visible. This led us to the decision to focus our sample mainly on the German discourse. However, as the debate on digitalisation and music education in Germany is interrelated with the international discourse in many ways, we have also included several selected international studies that influenced or are connected to the German discourse. This allows us to provide a broader and comprehensive picture.

Results

In the following section we will show that we were able to identify different topics that are central in the discourse on digitalisation in music education. Regardless of the topics, the argumentation structure in many contributions is characterised by dichotomies. Central topics are the tendencies of deterritorialization that come along with post-digital practices, the focus on smart technologies, the new awareness and changing role of things in musical practice, the expansion of the concept of the musical instrument and the strong interconnection to popular music (education). Further, we were able to identify topics that point to the future: The discourse on creativity, artificial intelligence, hacking and sustainability. We close our review with another overarching theme that we identified: The debate on the high demands on teachers, that are connected to the use and implementation of digital technologies in music education.

From heated polarisation to post-digitality

Common to the discourse on the use of digital technologies in music education is the argumentation in dichotomies. Authors often distinguish between technology and non-technol-

ogy. Espeland already noted in 2010 that the critics of technology consider the "essence and qualities in music education to consist of practical, aesthetic, and expressive activities involving body and mind" (p. 130), that might be threatened by the use of technology. He continues to explain that, according to advocates, music technology could have a positive impact on future music education as it can increase access and opportunities for individuals to engage in and receive education in music (Espeland, 2010). In a discourse-analytical comparison of three exemplary music education articles on technology and music education, Sachsse (2021) shows that the field of tension described above can also be observed in current literature. According to him, the main lines of discourse run between pairs of terms such as sensuality versus non-sensuality, innovation versus tradition and digital versus analogue (Sachsse, 2021). However, thinking in dichotomies is also criticised, especially in recent publications. A number of researchers warn that these polarising argumentations prevent a proactive discourse on digitalisation in society as a whole. This can endanger the status of music in school, as it makes it much more difficult to connect with current academic and educational policy discourses (Ahlers & Godau, 2019; Brunner & Treß, 2021).

Additionally, Clements (2018), and other authors, point out that such polarisations have become superfluous and anachronistic in view of a declared departure into a post-digital age (Ahlers & Godau, 2019; Cramer, 2015). According to Bettinger (2019), this shift of paradigm is characterised by the ubiquity and hybridity of old and new media technology infrastructures in many areas of society. He states that the visionary talk of the disruptive potential of digitalisation therefore lags behind the actual development (Bettinger, 2019). With regard to music technology and music education, Clements (2018) argues that the aforementioned dichotomies are, therefore, becoming increasingly useless as categories for classifying and categorising music-specific media and technologies or related music-making and teaching practices. In contrast, the social situatedness and hybridity of a culture of digitality (Stalder, 2016) and the (musical) practices that accompany it have recently been emphasised (Clements, 2018).

Deterritorialization of music education and related practises

The fact that digital technologies were already integral agents in everyday praxis – not only in music education – opened up many possibilities for teaching and learning during the global COVID-19 pandemic. In times of lockdown and distance learning another characteristic aspect of the post-digital age became clear: Musical learning and practice is increasingly shifting towards decentralised and network-based communication channels. However, music educational implications of music learning and teaching in online communities were discussed much earlier than this, owing to the increasing use of online video platforms and social media channels with music educational content (Waldron, 2013a, 2013b); this aspect has recently gained importance in the discourse. In a mixed-method study, Weyel and Lehmann-Wermser (2020) examine informal digital learning environments and find that the social video platform YouTube, for example, is used both for the reception of music and for the self-organised acquisition of musical knowledge. The increasing networking of agents can also be observed in the field of technologies. Turchett et al. (2020) suggest the paradigm of the "Internet of Musical Things" and define this as "networks of computing devices embedded in physical objects (musical things) dedicated to the production and/or reception of musical content" (p. 1). Borchert et al. (2022) analyse different music-making formats, workshops and (online) educational prac-

tices in the context of an online music education conference. They conclude that there is an extensive interconnection of auditory and visual dimensions in online music formats (Borchert et al., 2022). Likewise, the authors note that digital and network-based forms of music-making often allow for control over the temporal dimension of musical interaction that previously seemed impossible (Borchert et al., 2022). In addition, they point out that the boundaries between production and consumption of musical content are becoming increasingly blurred (Borchert et al., 2022). Camlin and Lisboa (2021) also notice a general "convergence between recording and performing fields of music" (p. 134). To what extent the "disruption" (Camlin & Lisboa, p. 129) caused by the COVID-19 pandemic has also had a lasting effect on the use and inclusion of post-digital music technologies in music teaching remains an open question. Studies with a cross-curricular perspective on digitalisation processes in German schools do not suggest that there has been a clear sustainable effect (Eickelmann et al., 2020; Mußmann et al., 2021, p. 239).

Mobile smart technologies in music education

When considering the production of music, the increasing independence from location-based technologies such as a recording studio is being accelerated significantly by so-called 'mobile smart technologies'. Since Apple first introduced the iPhone in 2007 and the iPad in 2010, mobile smart technologies have become a frequently used tool in music education. The examination of mobile technologies is, therefore, also a central topic of music education discourse and of research and development projects in German-speaking, and other countries. A prominent example of this development is the collaborative project *MuBiTec: Musikalische Bildung mit mobilen Digitaltechnologien* (Godau et al., 2019). Similar to a large number of other international research projects in the field of music education technology research (Ahlers & Godau 2019), *MuBiTec* has a clear focus on digital mobile technologies (e.g., the music-specific use of smartphone and tablet apps). However, despite the widespread use of mobile technologies in music education and their central position in project work and research, their use in music education contexts is controversial. The new possibilities of mobility, for example, are generally viewed positively. Eusterbrock (2023) points out that such technologies can lead musicians to look for "specific places to make music with apps to get them into the state of mind they need for their creative process" (p. 61). He, thus, describes app music practices as "[m]usical technologies of the self" that "involve a complex interplay between music, place, and various aspects of the self, and they not only function as self-care and self constitution, but also as a creative strategy" (Eusterbrock, 2023, p. 61). With regard to app music practices, the importance of the design of music-specific software interfaces is becoming the focus of academic interest. This aspect is discussed more controversially. While Eusterbrock et al. (2021) emphasise the ludic qualities that can go hand in hand with the affordances of the app design, Simon (2020) and Bell (2015a) critically point to the simplification and reduction of operating options that accompany many music app interfaces in order to enable the most low-threshold and joyful musical practice possible. If technology makes music more accessible or not also remains questionable. Whether or not the respective technologies facilitate access to music, and under what conditions, also remain open questions. From an inclusion-oriented perspective, Godau (2018) draws attention to the fact that, in principle, all types of musical instruments come with certain possibilities and also limitations. With regard to the spectrum of music apps used in music classrooms, he suspects a monopolising tendency by

Apple's Garageband rather than a broad diversity of apps (Godau, 2018). As the majority of all educationally motivated app music projects are limited to this one app he states that this monoculture or canonisation tendency contradicts the argument of multiple approaches (Godau, 2018). Niediek and Gerland (2022) draw attention to the potentials of music apps, especially with regard to inclusion-oriented requirements, and point to the high presence of digital media in everyday life, the comparatively easy method of sound production, and the convenient integration into the student's lifeworld experiences. However, despite a generally positive view of the use of music apps in music lessons, they indicate that not all adaptation problems between material artefacts and musicians can be solved by individual configurations according to the current state of technologies (Niediek & Gerland, 2022). With regard to music-specific app use in informal learning contexts, Lehmann-Wermser et al. (2022) make it clear that the actors in their study often lacked the music- and technology-related competences to achieve lasting and motivating learning outcomes. They conclude that a naïve exposure to apps, which presupposes these music- and technology-related competences, is not very effective (Lehmann-Wermser et al., 2022). Further, Clements (2018) observes that the use of mobile technologies is leading to changes, especially with regard to the role of the body in music-making processes. She notes that the generally observable tendency towards the use of music apps in music education practice entails a potential neglect of "kinetic whole-body engagement, motion, and movement" (Clements, 2018 p. 60), which, according to her, is tantamount to a massive restriction of the scope of action in music education. Godau (2022b) in contrast, from a post-phenomenological perspective, explains that the control of the touchscreen of a smart device also allows for ludic modes of world appropriation and can, thus, be read as an expression of a particular experience of embodiment, intimacy and truthfulness.

The valorisation of things in musical practice and the expansion of the concept of the musical instrument

The hybridity and seamless connection of different analogue and digital technologies already mentioned above is particularly evident in human interface research on "Digital Musical Instruments" (Mirando & Wanderley, 2006) and New Interfaces for Musical Expression" (Jensenius & Lyons, 2017, p. xii). Both terms refer to a variety of different technology-supported sound generators that can be defined both by the type of sound generation (digital sound synthesis in the case of DMIs) or by the use of novel and unconventional operating concepts ("interfaces" in the case of NIME). The relationship between the two, initially, independent units for sound synthesis and control is first determined by certain "mapping strategies" (Mirando & Wanderley, 2006, p. 3). In this way, for example, a camera sensor for movement detection can be connected to a software synthesiser that produces specific sounds. The mapping concept could then, for example, link the movements of a person's arms with the volume, and those of the head with the pitch of the synthesized sound. Pessoa et al. (2020) state that such innovative music technologies generally hold great potential for the field of music education since, on the one hand, they allow low-threshold and prerequisite-free music-making and, on the other hand, they enable multifaceted, appealing and, thus, strongly motivating sound-aesthetic results. The authors also point to other positive factors such as portability, low acquisition costs and adaptability to individual requirements and needs (Pessoa et al., 2020). They identify particularly promising fields of practice in the area of sound art, sound design, multime-

dia performance practice, and in the promotion of cultural diversity through the critical connection of novel and traditional music-making and performance practices, as well as sound aesthetics (Pessoa et al., 2020).

So far, such new interfaces and musical instruments have been used increasingly in the field of inclusive and special needs music education, as the new operating concepts can be adapted to the needs of people with disabilities (Frid, 2019). In an interview study, Förster (2022) shows that teachers in this field of music education are open to the use of new technologies and interfaces but, explain that their lack of knowledge and experience are obstacles to their use in the classroom. He, therefore, sees dealing with new interfaces and digital musical instruments already included in teacher courses as a priority, and advocates students' participatory involvement in the development and design of such interfaces in order to ensure the best possible fit with aesthetic preferences and individual needs (Förster, 2022, p. 75). The German research project *MIDAKuK* also investigated the potential of new interfaces and music technologies and pursues research on material artefacts, devices and interfaces involved in musical and sound-artistic processes (Jörissen et al., 2019). In this context, material-digital transformation processes are investigated starting from digital musical instruments or 'music making things' ("MusikmachDinge", Ismaiel-Wendt, 2016, p. 3) among young people (novices) and professional musicians. As in the field of app music, here, the researchers are also asking about the relationship between power and affordance within hybrid digital-material music-making things, which they consider to be empirically unexplained to date (Jörissen et al., 2019). Although *MIDAKuK* investigates the potential of innovative technologies here, they focus on commercially available music technologies (Jörissen et al., 2019) that correspond to certain application purposes, performance styles and musical practice fields and the norms and expectations that apply to them (e. g. pad controllers for percussive playing for beat production and performance). Thus, the following statement by Clement (2018) also applies to these digital music practices: "[T]he creative process through which users can engage with and through [...digital technologies] is predetermined by their design and interface" (p. 57).

Due to the high significance of the design of music technologies in the age of post-digital music practice, it is evident that an expanded concept of the musical instrument has established itself here; this is constantly evolving in relation to technological innovation. Thus, the recording studio itself – or its digitised version, the Digital Audio Workstation (DAW), which can be operated on almost any digital device, whether smartphone, laptop or desktop computer – is now considered a fully-fledged musical instrument (Bell, 2018; Pierard & Lines, 2022). While Bell (2018) emphasises, in principle, the high music educational potential of "DIY Recording and Informal Learning Strategies" (p. 180) he identifies gender-related issues in this field and pointed out earlier (2015b) that a "male-centred legacy of recording technologies" (p. 138) is particularly evident in this field. As such, the author is critical: "[W]e can safely assume that women, especially minority women, have in most cases had little involvement in the development and refinement of DAWs and other computer-based technologies for music production" (Bell, 2015b, p. 139).

The intertwining of popular music education and music technology

Since the engagement with popular music phenomena and forms of practice has become a central area in music education, the close interconnection of popular music education

and the use of (digital) music technologies are discussed on a regular basis. Till (2017) points out that "[p]opular music today makes extensive use of the latest digital technologies, from the computer technology used by DJs and producers, to the social media, smartphones and tablets used for dissemination and reception of music" (p. 25). The extended possibilities with regard to the processing of recorded audio material through digital technologies have led to a significant expansion of the notion of music itself. Instead of talking about notes or tones, the term 'sound', which also has its origins in popular music research, is becoming more and more established (Brøvig-Hanssen & Danielsen, 2016). With the term "sound-based music" (Landy, 2012, p. 3), for example, Landy emphasises the digitally supported integration of all sounds and noises in musical practice and the potential of creative design of soundscapes and sound installations (see also Therapontos, 2013).

Till (2017) emphasizes that the strong connection of pop music and technological innovations also goes hand in hand with close relationships to the music industry. While partnerships and collaborations like this are positive for developments in many fields of pop music, they are also criticised – especially in the educational context (Benedict & O'Leary, 2019). It is viewed with concern that cultural innovations are dependent on industrial developments and, thus, indirectly, also on economic interests. One of the main reasons why state schools in Germany are not allowed to collaborate directly with partners from the business sector is to avoid non-transparent advertisement and product placement in schools.

Another critical aspect is the extensive and ongoing marginalisation of women and ethnic minorities at the intersection of popular music, music technology and music education. Hopkins and Berkers (2019) show, through an interview study with female music technology students, that women are often "a token in a mostly-male classroom" (p. 54), taught exclusively by men.

Topics pointing to the future: Creativities, sustainability, hacking and AI

A general observation reveals that the majority of literature dedicated to the use of technology in music education is located in the field of creative music making. Burnard (2009) emphasizes the close relation of creativity and technology in music education and points out that both are to be considered "Critical Agents of Change in the Work and Lives of Music Teachers" (p. 196). She also proposes that classroom enquiry should focus on learners' different perspectives both in and out of the classroom, taking into account institutional and home factors that contribute to creative learning and new models of teaching with technology (Burnard, 2009). Furthermore, she marks a desideratum for the development and sharing of effective didactic strategies for the use of music technology in music lessons in order to promote creativity and identify teaching and learning strategies that are suitable for practice (Burnard, 2007). Since these early contributions to the discourse, different aspects and techniques of music production in educational contexts became subjects of research. Godau and Haenisch (2019) analyse pop music songwriting processes in music lessons; Kattenbeck (2022) examines processes of beatmaking as a form of creative use of already existing sound material in informal contexts; Duve (2022) investigates the sociomateriality of digital group composition processes by means of sample-based audio software.

However, the increasing influence of digital technologies and their associated design-specific affordances on all areas of daily life, including education, is clearly in tension with values such as self-determination, autonomy and freedom of choice that are central for creativities and musical practices (Benedict & O'Leary, 2019). This is particularly true in the field of sustainable education, which contradicts the image of digital technology in education as an "inherently forward-looking and optimistically minded endeavour" (Selwyn, 2021, p. 497). The high demand for resources in terms of mass equipment, maintenance and updating of the respective technologies in educational institutions is particularly at odds with the goals of sustainable development.

According to several authors, a promising approach to music technologies in music education seems to be the maker education (Hughes & Kumpulainen, 2021). Hein (2017) highlights the music education potential of MakerSpaces as visionary informal learning spaces that could enable cross-generational and cross-institutional learning. The creative cannibalisation of discarded music technologies also opens up possibilities for education for sustainable development (Collins, 2020). Godau (2022a) sees a possible path towards more self-determination in "Hacking Music Education" (p. 52). In his opinion, this approach is one answer to regaining more control in the use of post-digital music technologies in the field of music education. Similarly, Benedict and O'Leary (2019) ask: "How might a shift from using music technologies created by others to creating and using music technologies shape music making and learning?" (p. 37) and invite music teachers "to explore the many creative possibilities that could arise through students' self-creation and self-modification of music technologies" (p. 38). First attempts at integrating such approaches for teaching technological pedagogical content knowledge and for increasing technology acceptance and student motivation in teacher training programs have already been made (Spieker, 2020). In this context, Campreguer França et al. (2021) emphasise, in particular, accessibility and the inclusive nature of opportunities for women and other underrepresented groups to gain access to self-determined music technology encounters. To date, whether, and under which conditions, such promising approaches can also be adapted for general music education, and what possibilities result, remain open questions.

Using the rich potentials of the technology while critically reflecting on the (power)relation of the agencies of human and non-human actors will also be the central challenge when bringing artificial intelligence (AI) into music education. The future relevance of artificial intelligence is one of the most current and controversial topics in the field of technology use in music education. Even though there are only isolated studies available, mainly from Asia (Shang, 2019; Yu et al., 2023), the first national funding lines of the Ministry of Education in Baden-Württemberg already indicate that the use of artificial intelligence will play a significant role in music teaching in the future.

Use of technology in music education: High demands on teachers

Another aspect that is addressed in many ways in the literature, relatively independently of specific technologies, is the high demands on teachers if they are to make effective use of technologies in music lessons (Gall, 2017). Bell sees, for example, the need for teachers to create a learning atmosphere "in which learners go beyond simply using music technologies and retroactively navigating their pre-programmed biases to avoid perpetuating a simplistic user mentality. Instead, music educators must engage their students in ac-

tivities of iterative technological tinkering that nurture a design mentality" (Bell, 2015b, p. 140). Similarly, discussing teachers, Himonides (2017) calls for "critical thinkers who are willing to polish old tools, forge new ones, creatively misuse existing tools, methods and processes, and creatively use whatever is at their disposal to facilitate learning and development" (p. 629). Burnard (2009) makes clear that such challenging demands on the teaching profession are not limited to the area of technology use. She, therefore, sees the task of teachers as being precisely linked to the relationship between the use of technology in music lessons and the creative learning processes (Burnard, 2009). In her view, more teaching-oriented, participatory and practice-based research should be conducted, which in the best case leads to "collaborative working environments where colleagues learn from each other" (Burnard, 2009, p. 196).

Digitalisation and music education: Between potentials and constraints

With regard to the use of digital technologies in music education, our literature review illustrates that rich potentials also include great challenges. Thus, in the discourse, a number of optimistic to euphoric positions can be found, which identify great opportunities for future pedagogy in digital technologies. Their accessibility is very often pointed out, especially in the context of the use of mobile music technologies and apps, since devices do not even have to be purchased separately, but can be installed and used on one's own smartphone. With regard to the sonic possibilities, the low-threshold possibility of achieving aesthetically pleasing results with little or no prior musical skills and knowledge, in a very short time, is particularly emphasised. At the same time, many applications seem to guarantee a direct connection to the lifeworld experience and aesthetic preferences of students through the provision of appropriate presets.

When considering diversity of sound, music cultures and practises, post-digital approaches are often associated with openness, inclusivity and participation. Modern music technologies only partially follow the traditional and eurocentric operating concepts of traditional musical instruments. The sound, which in many cases is synthetically generated, can be associated with different aesthetic musical cultures. Therefore, music technologies favour, in the best case, an opening of the understanding of music and the broadening of the aesthetic range of learners. Furthermore, the possibility to carry out musical learning processes in a decentralised and networked form is also described as a great benefit. Here, learning support on the basis of tutorials and in corresponding online communities plays a particularly important role. In this respect, the possibility of informal learning and related strategies in formal training institutions also seems promising.

However, our review also revealed that many authors see serious challenges and constraints. In many cases criticism is directly connected to the same thematic aspects that other authors discuss positively. On the one hand, the above-mentioned NIME or DMI carry potential for novel musical-artistic forms of expression, multimodal forms of interaction and associated musical learning processes. At the same time, innovative technologies bring special challenges for learners and teachers due to their unfamiliar and novel ways of functionality and operation. On the other hand, there is considerable criticism of the fact that, especially in the case of a large number of music apps, design-specific limitations stand in the way of a comprehensive music-making practice involving the whole body. Additionally, common music technologies are always developed for certain perfor-

mance formats and specific (production) styles and address certain users and buyers, so decisions made in product design become significant. It became clear, not only in this context, that, with the increasing use of music technologies, it is possible for manufacturers and software developers to gain more influence on educational practice. This inevitably raises the question of who has agency in music education, when and in which contexts, and where this is also prevented by (implicit) affordances of the respective technologies. Another limitation that became clear is that the inclusion of technology in the classroom often only addresses a certain selection of the student population. Equal opportunities and participation seem to be at risk, especially with regard to factors such as gender, but also social background and status.

Our review also revealed some 'blind spots' in the discourse. Despite the broad spectrum of music education literature on the topic of music technology and digitalisation, studies that are dedicated to the actual practice of music learning and teaching in classroom environments seem to be scarce. The main focus appears to be on the area of informal and extracurricular music practice with music technologies. Likewise, there is a lack of dedicated guidelines and design principles for music lessons in order to be able to plan and design the use of different music technologies in the classroom.

To put it in a nutshell: While diverse potentials are recognisable, the constraints indicate that the use of established and mainstream music technologies in music lessons is often accompanied by a massive restriction of the scope of action. In our view, this is clearly incompatible with the goals of a participation-oriented, self-determined, creative use of technologies mentioned in the introduction.

Conclusions and Implications

In the age of post-digitality, digital technologies are an integral part of everyday life in globalised societies. Therefore, digitalisation in many forms is also part of musical and music educational practices. Enabling teachers and learners to face this fundamental process of transformation is a central task of all fields of music education. It is a challenge for future music education to provide opportunities for learners – in all stages of their education from early childhood music education to teacher education and life-long learning – to build up competences, knowledge and skills to act self-determined and critically in order to co-create the post-digital world. The fact that digital technologies are already shaping and permeating the lives of all people in many ways is not only linked to challenges, but also to great opportunities. It opens up a wide range of possibilities in educational practice to link directly to the lifeworld of the learners and to develop participatory approaches. By acting as experts from the beginning and learning together, from and with each other, learners already experience their agency, and possibilities for action and scope in educational settings. In this way, they perceive themselves as co-creators at an early stage and can prepare themselves for a role as shapers of their own future.

In the field of pop music, numerous innovative creative and artistic formats have already been developed that can be linked to a participatory pedagogy oriented towards the lifeworld of the learners. The next steps are to develop technology-based learning and teaching formats for other areas, styles and practices, so that students can gain insight into the diversity of our contemporary musical cultures in the classroom. Furthermore, educational designs should be developed that are more open and inclusive by addressing the

interests and needs of all learners, regardless of their gender, social background and status, music cultural preferences.

The current narrowing of the discourse to app-based music-making also points to fields of action for the future: With regard to the possible uses of technologies in teaching, it is also important to orientate oneself towards breadth and diversity, and to make new technologies fruitful for music making, learning and teaching. This opens up new opportunities for a holistic and, thus, general educational concept of music practice with its performative component. Furthermore, it is important to take a critical stance on the appropriation of music lessons by consumer and growth-oriented logics and interests and to communicate this. This is the only way to ensure critical, self-determined action in post-digital societies.

Considering these general thoughts, we make the following proposals and end with a discussion of the implications in relation to reconfiguring music education. To face the lack of studies on the use of diverse music technologies in the classroom and the lack of empirically-based design principles for post-digital music education, we consider participatory and design-oriented approaches to classroom research to be particularly relevant and useful for the future of the discourse. Special attention should be paid to the students' perspectives, and the empirical analysis of the musical practice itself, as this remains largely unexamined in existing studies. In contrast, since the field of informal learning and music making with music technologies is often investigated, the question arises as to how a beneficial interweaving of informal learning processes can also be made fruitful in formal contexts. In our view, a particular challenge is the massively increased demands on teachers with regard to their own competences and to keeping pace with faster technological developments. Central concerns of teacher education and in-service training programmes should be how teachers can be inspired to use music technology and to deal with the associated opportunities and risks without discouraging them by massively overtaxing them. A significant aspect of this is the examination and critical reflection of neoliberal (market) logics and the commercial applicability of technologies. Instead of merely being at the end of the production chain, teachers should be involved in the development and design of music technologies for music education at a very early stage. This could also be done in a more or less close exchange with industry actors and in the form of designing and differentiating one's own openly accessible teaching materials (OER). Further developing research and teacher education like this should lead to innovative concepts of classroom learning and teaching, and prepare learners for future-making in a post digital world. In this context, we would like to emphasise the potential we see in creative concepts such as hacking and making. Corresponding approaches, which have recently been taken up in music education, should be further developed and implemented.

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References

Ahlers, M., & Godau, M. (2019). Digitalisierung – Musik – Unterricht: Rahmen, Theorien und Projekte. [Digitisation - music - teaching: Frameworks, theories and projects.] *Diskussion Musikpädagogik*, *82*, 4–9.

Bell, A. P. (2015a). Can we afford these affordances? GarageBand and the double-edged sword of the digital audio workstation. *Action, Criticism & Theory for Music Education*, *14*(1). Retrieved May 1, 2023 from http://act.maydaygroup.org/articles/Bell14_1.pdf

Bell, A. P. (2015b). DAW democracy? The dearth of diversity in 'playing the studio'. *Journal of Music, Technology and Education*, *8*(2), 129–146. https://doi.org/10.1386/jmte.8.2.129_1

Bell, A. P. (2018). *Dawn of the DAW* (Vol. 1). Oxford University Press. https://doi.org/10.1093/oso/9780190296605.001.0001

Benedict, C., & O'Leary, J. (2019). Reconceptualizing "Music Making:" Music Technology and Freedom in the Age of Neoliberalism. *Action, Criticism, and Theory for Music Education*, *18*(1), 26–43. https://doi.org/10.22176/act18.1.26

Bettinger, P. (2019). Normativität und Bildung im Kontext der Postdigitalität. Ein begleitender Kommentar. [Normativity and education in the context of postdigitality. An accompanying commentary.] In K. Klein & W. Noll (Eds.), *Postdigital Landscapes. Kunst und Medienbildung in der digital vernetzten Welt* (pp. 134–138).

Borchert, J., Endres, A., Schmid, S., & Treß, J. (2022). Music is what people do in 2020 & beyond: Music practices between produsing, prosuming & the diversification of musical frames. In *Proceedings of the EAS Conference Freiburg.*

Brøvig-Hanssen, R., & Danielsen, A. (2016). *Digital signatures: The impact of digitization on popular music sound*. The MIT Press. https://doi.org/10.7551/mitpress/10192.001.0001

Brunner, G., & Treß, J. (2021). "Da ist so ein bisschen Aufbruchstimmung ...": Einsichten zum Musikunterricht auf Distanz während der Corona-Pandemie. ["There's a bit of an atmosphere of

departure ...": Insights on teaching music at a distance during the Corona pandemic.] *Diskussion Musikpädagogik*, *92*, 17–23.

Buchborn, T., Burnard, P., Hebert, D. G., & Moore, G. (2022). Reconfiguring music education for future-making: How? *Music Education Research*, 1–7. https://doi.org/10.1080/14613808.2022.2076821

Burnard, P. (2007). Reframing creativity and technology: Promoting pedagogic change in music education. *Journal of Music, Technology and Education*, *1*(1), 37–55. https://doi.org/10.1386/jmte.1.1.37_1

Burnard, P. (2009). Creativity and technology: Critical agents of change in the work and lives of music teachers. In J. Finney & P. Burnard (Eds.), *Music education with digital technology* (pp. 196–206). Continuum International Publishing Group.

Camlin, D. A., & Lisboa, T. (2021). The digital 'turn' in music education (editorial). *Music Education Research*, *23*(2), 129–138. https://doi.org/10.1080/14613808.2021.1908792

Campreguer França, N., Smit, D., Wuschitz, S., & Fuchsberger, V. (2021). The women* Who made it: Experiences from being a woman* at a maker festival. *Sustainability*, *13*(16), 9361. https://doi.org/10.3390/su13169361

Clements, A. (2018). A postdigital future for music education: Definitions, implications, and questions. *Action, Criticism, and Theory for Music Education*, *17*(1), 48–80. https://doi.org/10.22176/act17.1.48

Collins, N. (2020). *Handmade electronic music: The art of hardware hacking*. Taylor & Francis Group. Retrieved April 9, 2023 from https://ebookcentral.proquest.com/lib/gbv/detail.action?docID=6215685

Cramer, F. (2015). What Is 'post-digital'? In D. M. Berry & M. Dieter (Eds.), *Postdigital Aesthetics* (pp. 12–26). Palgrave Macmillan UK. https://doi.org/10.1057/9781137437204_2

Duve, J. (2022). *Praktiken des Komponierens mit Loops und Samples*. [Practices of composing with loops and samples.] https://doi.org/10.17877/DE290R-22767

Eickelmann, B, Drossel, & K. (2020). *Schule auf Distanz. Perspektiven und Empfehlungen für den neuen schulalltag. Eine repräsentative Befragung von Lehrkräften in Deutschland.* [School at a distance. Perspectives and recommendations for the new everyday school life. A representative survey of teachers in Germany.] Retrieved April 14, 2023 from https://www.vodafone-stiftung.de/umfrage-coronakrise-lehrer/

Espeland, M. (2010). Dichotomies in music education – real or unreal? *Music Education Research*, *12*(2), 129–139. https://doi.org/10.1080/14613808.2010.481823

Eusterbrock, L. (2023). Mobile safe spaces and preset emotions: Making music with apps as a digital technology of the self. *Popular Music and Society*, 1–20. https://doi.org/10.1080/03007766.2022.2155029

Eusterbrock, L., Godau, M., Haenisch, M., & Rolle, C. (2021). Spielwiese und Spielzeug: Ludische Qualitäten ästhetischer Erfahrung in der Appmusikpraxis. [Playground and Toys: Ludic Qualities of Aesthetic Experience in App Music Practice.] In V. Krupp, A. Niessen, & V. Weidner (Eds.), *Wege und Perspektiven in der musikpädagogischen Forschung* (pp. 199–216). Waxmann.

Förster, A. (2022). Digitale Musikinstrumente im sonderpädagogischen Kontext. Eine explorative Erhebung mit Musiklehrer*innen an Schulen mit sonderpädagogischem Förderschwerpunkt. [Digital music instruments in a special education context. An explorative survey with music teachers at schools with special educational needs.] In M. Göllner, J. Knigge, A. Niessen, & V. Weidner (Eds.), *43. Jahresband des Arbeitskreises Musikpädagogische Forschung =: 43rd yearbook of the German Association for Research in Music Education* (Vol. 43, pp. 61–78). Waxmann.

Frid, E. (2019). Accessible digital musical instruments—A review of musical interfaces in inclusive music practice. *Multimodal Technologies and Interaction*, *3*(3), 57. https://doi.org/10.3390/mti3030057

Gall, M. (2017). Technology in music education in England and across Europe. In S. A. Ruthmann & R. Mantie (Eds.), *The Oxford handbook of technology and music education* (pp. 30–48). Oxford University Press.

Godau, M. (2018). Inklusion und Appmusik: Wie die Integration von Apps in den inklusiven Musikunterricht gelingen kann. [Inclusion and app music: How the integration of apps into inclusive music lessons can succeed.] In A. Bossen & B. Jank (Eds.), *Musikarbeit im Kontext von Inklusion und Integration* (pp. 97–120). Universität Potsdam and Universitätsverlag Potsdam.

Godau, M. (2022a). Hacking Music Education Über das Potenzial einer Kulturtechnik des Digitalzeitalters für musikpädagogisches Denken und Handeln. [Hacking music education on the potential of a cultural technique of the digital age for music pedagogical thinking and action.] *Üben & Musizieren*, *2*, 52.

Godau, M. (2022b). Touch-Screen-Music. Eine postphänomenologische Perspektive auf ästhetische Lern- und Bildungspraxis mit Musikapps auf Smarttechnologien. [Touch-screen music. A postphenomenological perspective on aesthetic learning and educational practice with music apps on smart technologies.] In M. Ahlers, B. Jörissen, M. Donner, & C. Wernicke (Eds.), *MusikmachDinge im Kontext. Forschungszugänge zur Soziomaterialität von Musiktechnologie* (pp. 89–121). Universitätsverlag Hildesheim. Retrieved April 11, 2023 from https://hildok.bsz-bw.de/frontdoor/index/index/docId/1366

Godau, M., Eusterbrock, L., Haenisch, M., Hasselhorn, J., Knigge, J., Krebs, M., Rolle, C., Stenzel, M., & Weidner, V. (2019). MuBiTec: Musikalische Bildung mit mobilen Digitaltechnologien. [MuBiTec: Musical education with mobile digital technologies.] In B. Jörissen, S. Kröner, & L. Unterberg (Eds.), *Forschung zur Digitalisierung in der Kulturellen Bildung* (pp. 129–148). Kopaed.

Godau, M., & Haenisch, M. (2019). *How popular musicians learn in the postdigital age. Ergebnisse einer Studie zur Soziomaterialität des Songwritings von Bands in informellen Kontexten*. [How popular musicians learn in the postdigital age. Results of a study on the sociomateriality of songwriting by bands in informal contexts.] Waxmann. https://doi.org/10.25656/01:20704

Hein, E. (2017). The promise and pitfalls of the digital studio. In S. A. Ruthmann & R. Mantie (Eds.), *The Oxford handbook of technology and music education* (pp. 618–632). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199372133.013.22

Himonides, E. (2017). Educators' roles and professional development. In S. A. Ruthmann & R. Mantie (Eds.), *The Oxford Handbook of Technology and Music Education* (pp. 618–632). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199372133.013.59

Hopkins, E., & Berkers, P. (2019). Engineering a place for women: Gendered experiences of the music technology classroom. In S. Raine & C. Strong (Eds.), *Towards gender equality in the music industry: Education, practice and strategies for change* (pp. 45–58). Bloomsbury Academic. https://doi.org/10.5040/9781501345531

Hughes, J. M., & Kumpulainen, K. (2021). Editorial: Maker education: Opportunities and challenges. *Frontiers in Education*, *6*, 798094. https://doi.org/10.3389/feduc.2021.798094

Ismaiel-Wendt, J. (2016). *Post_presets: Kultur, Wissen und populäre MusikmachDinge*. Universitätsverlag Hildesheim and Georg Olms Verlag. Retrieved April 14, 2023 from https://hildok.bsz-bw.de/frontdoor/index/index/year/2016/docId/581

Jensenius, A. R., & Lyons, M. J. (2017). *A NIME Reader: Fifteen Years of New Interfaces for Musical Expression: Vol. v.3*. Springer International Publishing AG.

Jörissen, B., Ahlers, M., Donner, M., & Wernicke, C. (2019). MIDAKuK: Musikalische Interface-Designs: Augmentierte Kreativität und Konnektivität. [MIDAKuK: Musical interface designs: Augmented creativity and connectivity.] In B. Jörissen, S. Kröner, & L. Unterberg (Eds.), *Forschung zur Digitalisierung in der Kulturellen Bildung* (pp. 109–127). Kopaed.

Kattenbeck, C. (2022). *Beats. Bauen. Lernen. – Manifestation, Konstitution und Entwicklung künstlerischer Handlungsfähigkeit beim Beatmaking.* [Beats. Making. Learning. – Manifestation, constitution and development of artistic agency in beatmaking.] Waxmann Verlag GmbH. https://doi.org/10.31244/9783830995869

Kultusministerkonferenz (2017). *Bildung in der digitalen Welt. Strategie der Kultusministerkonferenz* [Education in the Digital World. Conference of Ministers of Education and Cultural Affairs' strategy]. Beschluss der KMK vom 08.12.2016 i.d.F. vom 07.12.2017 [Resolution of the Conference of Ministers of Education and Cultural Affairs of 08.12.2016 as amended on 07.12.2017]. Retrieved April 20, 2023 from https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2016/2016_12_08-Bildung-in-der-digitalen-Welt.pdf

Kultusministerkonferenz (2018). *Demokratie als Ziel, Gegenstand und Praxis historisch-politischer Bildung und Erziehung in der Schule* [Democracy as a goal, content, and practice of historical-political education in school]. Beschluss der Kultusministerkonferenz vom 06.03.2009 i. d. F. vom 11.10.2018 [Resolution of the Conference of Ministers of Education and Cultural Affairs of 06.03.2009 as amended on 11.10.2018]. Retrieved April 20, 2023 from https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2009/2009_03_06-Staerkung_Demokratieerziehung.pdf

Kultusministerkonferenz (2021). Lehren und lernen in der digitalen welt. Ergänzung zur Strategie der Kultusministerkonferenz, Bildung in der digitalen Welt [Teaching and learning in the digital world. Supplement to the Conference of Ministers of Education and Cultural Affairs' strategy "Education in the Digital World"]. Beschluss der Kultusministerkonferenz vom 09.12.2021 [Resolution of the Conference of Ministers of Education and Cultural Affairs of 06.03.2009]. Retrieved April 21, 2023 from https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2021/2021_12_09-Lehren-und-Lernen-Digi.pdf

Landy, L. (2012). *Making music with sounds*. Routledge.

Lehmann-Wermser, A., Weyel, B., Breiter, A., Krieter, P., & Viertel, M. (2022). Selbstregulierte lernpraxen beim digitalen musiklernen. Ergebnisse aus einer multimethodischen untersuchung. [Self-regulated learning practices in digital music learning. Results from a multi-method study.] In M. Ahlers, B. Jörissen, M. Donner, & C. Wernicke (Eds.), *MusikmachDinge im Kontext. Forschungszugänge zur Soziomaterialität von Musiktechnologie*. Universitätsverlag Hildesheim. Retrieved April 16, 2023 from https://hildok.bsz-bw.de/frontdoor/index/index/docId/1366

Mirando, E. R., & Wanderley, M. M. (2006). *New digital musical instruments: Control and interactions beyond the keyboard: Vol. v.DAS21*. A-R Editions Inc. Retrieved April 11, 2023 from http://gbv.eblib.com/patron/FullRecord.aspx?p=3115109

Mußmann, F., Hardwig, T., Riethmüller, M., & Klötzer, S. (2021). *Digitalisierung im Schulsystem 2021*. [Digitisation in the school system 2021.] Kooperationsstelle Hochschulen und Gewerkschaften der Georg-August-Universität Göttingen. https://doi.org/10.3249/UGOE-PUBL-10

Niediek, I., & Gerland, J. (2022). Bildungspotenziale digitaler Musiziermedien im inklusionsorientierten musikunterricht. [Educational potentials of digital music making media in inclusive music teaching.] *Medienimpulse, 60*(2), 26 Seiten. https://doi.org/10.21243/MI-02-22-18

Pessoa, M., Parauta, C., Luís, P., Corintha, I., & Bernardes, G. (2020). Examining temporal trends and design goals of digital music instruments for education in NIME: A proposed taxonomy. *Proceedings of the International Conference on New Interfaces for Musical Expression*, 591–595.

https://doi.org/10.5281/ZENODO.4813210

Pierard, T., & Lines, D. (2022). A constructivist approach to music education with DAWs. *Teachers and Curriculum*, *22*(2), 135–145. https://doi.org/10.15663/tandc.v22i2.406

Sachsse, M. (2021). Informelles lernen mit digitalen Medien zwischen Gegenbild, Abbild und Utopie. [Informal learning with digital media between counter-image, image and utopia.] In G. Brunner, C. Lietzmann, S. Schmid, & J. Treß (Eds.), *Mastery & Mystery* (pp. 317–330). Helbling.

Selwyn, N. (2021). Ed-tech within limits: Anticipating educational technology in times of environmental crisis. *E-Learning and Digital Media*, *18*(5), 496–510. https://doi.org/10.1177/20427530211022951

Shang, M. (2019). The application of artificial intelligence in music education. In D.-S. Huang, K.-H. Jo, & Z.-K. Huang (Eds.), *Intelligent Computing Theories and Application* (Vol. 11644, pp. 662–668). Springer International Publishing. https://doi.org/10.1007/978-3-030-26969-2_62

Simon, V. (2020). Guided by delight: Music apps and the politics of user interface design in the iOS Platform. *Television & New Media*, *21*(1), 60–74. https://doi.org/10.1177/1527476418794634

Spieker, B. (2020). Towards a sustainable, student-centred approach for technology-supported music education: A Dutch perspective. *Journal of Music, Technology and Education*, *13*(2), 263–286. https://doi.org/10.1386/jmte_00026_1

Stalder, F. (2016). *Kultur der Digitalität* [Culture of digitality]. Suhrkamp.

Therapontos, N. (2013). *Evolving music education in the digital age: sound–based music in public schools of Cyprus*. Retrieved April 3, 2023 from http://hdl.handle.net/2086/11609

Till, R. (2017). A step into the light. In G. D. Smith, Z. Moir, M. Brennan, S. Rambarran, & P. Kirkman (Eds.), *The Routledge research companion to popular music education* (pp. 14–29). Routledge, Taylor & Francis Group.

Turchet, L., Antoniazzi, F., Viola, F., Giunchiglia, F., & Fazekas, G. (2020). The internet of musical things ontology. *Journal of Web Semantics*, *60*, 100548. https://doi.org/10.1016/j.websem.2020.100548

Waldron, J. (2013a). User-generated content, YouTube and participatory culture on the Web: Music learning and teaching in two contrasting online communities. *Music Education Research*, *15*(3), 257–274. https://doi.org/10.1080/14613808.2013.772131

Waldron, J. (2013b). YouTube, fanvids, forums, vlogs and blogs: Informal music learning in a convergent on- and offline music community. *International Journal of Music Education*, *31*(1), 91–105. https://doi.org/10.1177/0255761411434861

Weyel, B., & Lehmann-Wermser, A. (2020). Lernprozesse von Musik in digitalen Lernumgebungen verstehen: Ein Forschungsprojekt von Forschenden aus Musikpädagogik und Informatik. [Understanding music learning processes in digital learning environments: A research project by researchers from music education and computer science.] In E. Pürgstaller, S. Konietzko, & N. Neuber (Eds.), *Kulturelle Bildungsforschung* (Vol. 24, pp. 55–70). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-30602-1_5

Yu, X., Ma, N., Zheng, L., Wang, L., & Wang, K. (2023). Developments and applications of artificial intelligence in music education. *Technologies*, *11*(2), 42. https://doi.org/10.3390/technologies11020042

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