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Context Matters in Gifted Education

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Abstract: Bruce M. Shore's research contributions in gifted education have focused on three contexts that impact how giftedness is understood and the instructional environments that serve gifted learners' educational needs. This article describes these contributions and provides selected examples plus a more complete Supplemental Online bibliography. First, giftedness benefits from being conceptualized in terms of theories that address the development of expertise. Featured expert–gifted parallels include interconnectedness of knowledge, metacognitive processes, perspective taking, active learner roles, affinity for novelty and complexity, and task representation and planning. Illustrative research is described from preschool age through higher education, including connections to creativity research. Second, gifted education benefits when guided by social-constructivist theory of education and its expression in inquiry-based instruction. Examples include building upon learner interests, question asking, collaborative inquiry, and active learner roles. Desirable specific instructional practices are framed by the above theories and by being considered in the contexts of widely recommended and best practices with their research support. Third, gifted education, at all levels including higher education and teacher education, needs to be an integral part of the context of general education. Most specific gifted education practices also work in general education, including learning high-level skills within subject matter. Nineteen examples are cited about how gifted education contributes to the quality of general education.

Keywords: giftedness; context; theory; expertise; social constructivism; inquiry; evidence; instruction

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Contributors to this Special Issue of *Education Sciences* were invited to describe how our work contributed to the theme, New Perspectives on Cultivating Creativity, Giftedness, and Leadership. My short reply, the focus of this article, is "context matters". I intentionally used the word "matters" as both verb and noun. Context is important and these are but a few examples.

With invaluable contributions by my graduate students and other collaborators, my research on giftedness has contributed to three contexts in which giftedness is addressed: (a) theories that guide our understanding of the cognitive and social-motivational nature of giftedness and provide an aligned overall instructional framework, (b) evidence-based specific instructional practices, and (c) situating gifted education within general education.

Isolating these three interrelated contexts is artificial but valuable to better understanding each. The details below include examples of evidence we contributed (see the Supplementary Materials for this article for a complete bibliography) and selections from that of others. In addition to these three contexts about which I take the position of an observer, the perspective from which I and my coresearchers have made these observations is relevant. I work in a Western country that is nonetheless highly multicultural both internally with multiple Indigenous nations and also has an official bilingual (English-French) and multicultural policy. The university at which this work was conducted enrolls students from over 170 countries. The initial psychological lens through which I have observed educational theory and practice is social-constructivist (as described below), and the assumptions explicit in this approach sometimes challenge norms elsewhere. Key examples arise in the roles of students and instructors. The assertion for example, that learning is more effective in active-learning situations in which learners explain key ideas to each

other as part of their own learning, that learners should ask questions beyond clarification (a challenge to accepted authority in some situations), and that learners' interests should play a part in curriculum design, can conflict with other views. Another potentially culture-related assertion might be that gifted learners do not necessarily prefer to work alone. At the same time, international comparisons to which this article refers briefly, found that jurisdictions in countries (or parts of countries) as diverse as Finland, Canada, China, and Singapore have implemented social-constructivist pedagogical regimes to positive effect. To explore these particular applications is beyond the scope of this article, but indeed the research reported has emerged from within its own context. In the bibliography are several works that are especially sensitive to this reality (e.g., [1–4]). Indeed, context matters.

1. Theory Context Matters

Two theories are essential to contemporary understanding of giftedness and providing appropriate curricular experiences: (a) expertise and (b) social-constructivist instruction theory, including inquiry-based teaching and learning. Neither theory is specifically about giftedness.

1.1. Contributions to the Context of Theories about the Nature of Abilities

Since the 1980s, several scholars have promoted the idea that giftedness should be regarded as evolving expertise (e.g., [5–9]). The underlying idea is that the highest levels of cognitive and creative performance are achieved by experts in various fields of endeavor. Like expertise, giftedness embraces a complex set of evolving cognitive, social, and motivational skills and dispositions. These abilities and dispositions can, to an important degree, be learned at home [1], school, and beyond. Creativity falls within this general framework; for example, practicing with intentional variation rather than reproducible perfection aids creative performance, the ability to recover seamlessly from an error [10], and perhaps flexibly invoking new strategies when challenged rather than floundering unsystematically [11–14]. Six ways experts think differently from others, and gifted persons' performance resembles that of experts, to which we have provided evidence include the following (see [15] for a longer list).

1.1.1. Nature of Knowledge

Experts have more extensive specialized knowledge, they better connect different parts of this knowledge and accurately explain these connections [16,17], as in concept maps. Experts and able students link more concepts and can explain the connections. They see less-obvious interconnections and, like experts who better categorize problems into meaningful groups that make suitable solutions more accessible, more able learners also create hierarchical clusters of related ideas [18].

1.1.2. Metacognition

Experts use metacognition in problem solving. They think ahead, evaluate their progress, and change approach if needed. Metacognition is an important part of Self-Regulated Learning [19]. In the classic task of combining different-sized jars of water to make a new volume, several examples in a row need three different-sized jars, but then a problem can be solved with two or three, then several only with two. More capable learners switched to the two-jar solution when it was optional and made fewer errors when it was required [20]. Children with dual exceptionalities also more often use expert-like cognitive skills when given the chance [21,22].

1.1.3. Perspective Taking

Experts can easily take another person's perspective. Even preschoolers can more readily tell that another child's view of a toy barnyard would be different from their own [23]. The ability extends to taking on another person's role in a learning situation [24] and friendship sustainability in adolescence [25].

1.1.4. Interests and Roles

Experts find and invent problems for themselves and others, another link to creativity. Type III activities in Renzulli's Enrichment Triad Model [26] are an example; individuals or small groups investigate real problems in which they are interested; adults can promote these interests. Evidence of classroom inquiry is students and teachers taking on new roles. One study reported three months of in-class observation of two groups of upper-elementary students engaged in collaborative inquiry [27]. Of almost 50 observed roles, only asking questions was universally shared by teachers and learners. Other frequent student roles included responding to others' questions, being an information finder, connecting knowledge, planning investigations, critical thinking, and being a source of knowledge. Key in all forms of active learning, including higher education [28], is students engaging in the role of explainer to the teacher and especially to other learners [29].

1.1.5. Novelty and Complexity

Experts know that important problems rarely have simple solutions. Like creative people [30–32], they enjoy novel and complex situations, adding complexity, and redefining problems to align with their own perspectives [33]. Gifted students asked to improve a computer game they were playing sought more difficulty levels and greater complexity [34].

1.1.6. Task Representation and Solution Planning

Experts can represent a problem in more than one way [35]. Gifted learners can also see multiple ways to approach a task [12]. We also found this strategy flexibility on a perceptual task [13,14]—students used their verbal or spatial strengths; able high school mathematics students did, too [15]. Gifted learners spend relatively more time exploring problems before carrying out the solution on which other learners take longer [36]; experts also take longer pauses when they gather relevant information they need to work on a problem.

1.2. Contributions to the Context of Theories about Instruction

Our comparative portrayal of experts and gifted learners [15] also noted becoming quick and automatic on basic processes so they can focus on main topics, being goal driven, and separating good from irrelevant evidence. These are also central to doing inquiry, our next topic.

Social-constructivist, inquiry-driven instruction closely complements an expertise-based view of giftedness. Social constructivism refers to Vygotsky's two main ideas [37]: Learners construct their own meaning in social interaction with more knowledgeable peers and adults, especially through dialogue, such as learners explaining ideas to each other. Inquiry-based instruction is based on social-constructivism [29,38,39]; gifted learners thrive in inquiry [40]. Systems that implemented inquiry curricula rank high in international comparisons of achievement [3]. Through interests, inquiry engages motivational and cognitive properties of expertise. Like experts, gifted learners more often experience flow [41], being deeply in a zone of concentrated, extended attention in their favorite areas of activity [42].

Social constructivism connects cognitive and social-emotional variables. In addition to addressing cognitive or academic qualities of inquiry-based instruction and learning, we have contributed to updated understanding of three interrelated social-emotional variables that aid understanding high ability and the success of inquiry implementation:

1.2.1. No Universal Preference to Work Alone

Contrary to decades of misrepresentation [43] and largely ignoring the learning context [44], gifted learners do not always prefer to work alone. We surveyed 247 school-identified Grades 4 to 7 gifted learners about ideal learning situations and when and why they prefer to work alone [45]. Those who felt their contributions were valued by teachers and fellow students most strongly preferred to work with others. Our subsequent

survey [46] revealed other context variables, such as high- versus low-stakes tasks, who was grading the work, and how groups were formed. Gifted learners want input about with whom they work. They care that coworkers contribute a fair share of the effort and work, fully discuss the goals—even if it takes a lot of time, and not be "free riders" [47]. In extended interviews, we asked high-achieving and other students what they expected would actually occur when teachers tell them they would engage in group work. Both expected their teachers to be sitting at their desks. High performers expected to work harder in groups, a greater number of negative social experiences, and to work together rather than divide the task into parts [48].

1.2.2. Working with Friends Can Be Positive

In our three-month observation of inquiry in two classrooms, students who were friends functioned better over time than a group created for the task [27]. Friends collaborating works with a rule to leave out no student. Friendship groups of gifted learners better withstand events that might upset others, for example, friendly arguing, sticking to their positions during arguments [49], and competition based on task mastery—not winning and losing [50]. Group work virtually guarantees difficult social moments [51], but promoting active listening and turn-taking, for example, can help effective classroom collaborative inquiry [29].

1.2.3. Gifted Students' Friendships Are Somewhat Distinctive

Rather than having fewer friends or being socially isolated, gifted students seem to structure their friendships differently, perhaps because they can have intense and unusual interests [52]. Although they report fewer positive qualities in specific friendships [51], they appear to have different friends for different needs. High-quality gifted friendships were predicted by social-perspective coordination and simply having a close personal friend [25]. Less able students seem to expect support on many common dimensions from most of their friends. More able students support each friendship with a smaller number of pillars, perhaps only one, and simply need fewer friends to feel cared for and supported [53]. In inquiry, depending on the task, they might want to have a different friend working closely with them.

2. Practice Context Matters

Practice in gifted education needs to be aligned with the theoretical contexts for understanding the nature of giftedness and instruction. My work has contributed in two ways to the choices we make in designing and implementing teaching, learning, and evaluation: (a) identifying overall best practices in gifted education based on the quality of research evidence, and (b) supporting specific practices that arise from interest in inquiry-based instruction.

2.1. Identifying Best Practices

In *Recommended Practices in Gifted Education: A Critical Analysis* [54], we extracted 101 specific practices from 100 books on gifted education. We then sought research evidence for each practices and summarized what was known, defensible, and worthy of further study. We chose textbooks as the knowledge base because they were more likely to give teaching and curricular advice than scientific journal articles, and the Internet as a source of the latter was not yet highly developed. Unsurprisingly, there was a lot of research on IQ in identification; but research is not an election and, although IQ-test use was frequently recommended, the need to better align identification practices with emerging new theories was already evident. The state of research in support for many practices was weak and remained so over the next 15 years [55].

The next effort [40] used a Delphi approach by a panel of 14 experts in the field identified 29 specific practices that had varying degrees of research support. The resulting work was *Best Practices in Gifted Education: An Evidence-Based Guide*.

Especially in their focus on evaluating support for particular practices, and being targeted to practitioners, both contributions differ from the many yearbooks, handbooks, guides, and encyclopedias of giftedness and gifted education The latter gather known research on the widest range of giftedness topics or on a theme. Examples that include our contributions are *Creative Intelligence: Toward Theoretic Integration* [56], the *International Handbook on Giftedness* [57], *The Routledge International Companion to Gifted Education* [58], *Critical Issues and Practices in gifted Education: What the Research Says* (2nd ed.) [59], the *APA Handbook of Giftedness and Talent* [60], and *The SAGE Handbook of Gifted and Talented Education* [61].

2.2. Specific Pedagogical Practices

Here are four examples of evidence for practices arising from our theoretical foci.

2.2.1. Goal Setting

Expert behavior is goal driven; goal setting is important, even if goals change. Gifted learners in collaborative contexts want to discuss goals up-front ([46]. Morisano studied undergraduates in a university with extremely high entering grades [62]. She identified students whose grades slipped and engaged an experimental subgroup in a very brief exercise of writing down any personal goals. A control group wrote about neutral topics. The experimental group's grades rebounded and the recovery was sustained the following semester. We also explored the potential of this approach to help gifted underachievers [63]. Enabling engagement in goal setting helps students plan ahead about strategies to use in the task, and sharing responsibilities.

2.2.2. Group Work Guidelines

Group work benefits from several specific actions. Excluding no classmates, students should participate in deciding with whom they work [27,46]. The teacher should actively circulate, oversee and assist the process when it stumbles [48]. Whereas most students expect to do a part of the total task, high achieving learners anticipate working as a group—collaboratively rather than just cooperatively, on a considerable part of the task. The group work process should therefore schedule in opportunities for the work groups to discuss their goals, progress toward their goals, each others' contributions, and a fair distribution of effort and contributions to the final product. In a survey of parents and teachers, teachers were more favorable to group work than parents [64]. We wondered if parents were sensitive to the same concern about their children's exceptional performance being undervalued. The added value of group work needs to be discussed openly with students and their parents, not just about learning collaborative skills, but the deeper learning that occurs when students expand their repertoire of roles, for example, asking questions, explaining, and offering evidence for statements.

2.2.3. Knowledge Fairs and Integrity

A learning experience that can be done individually or in groups is knowledge fairs. We casually asked participants in a regional science fair where they got their project ideas and how they did them. Several students revealed that the ideas came from books or parents (understandably) but they did not actually do the work they were exhibiting. Did they cheat? We then systematically surveyed science fair participants [65]. Five of 24 students, all of whom were required to participate, openly admitted that they did not fully do the work they were presenting. We then did a second survey to ask why, and what was missing so that they could have presented their own honest work. The main reasons they gave were lack of time and support. Cheaters received more help from parents than teachers, and only one from another student. They would especially have liked more help coming up with and shaping the idea, and setting up the project. Cheaters and noncheaters both reported the three greatest obstacles to be pressure to do the project, disappointment along the way, and coming up with project ideas. All the projects were

undertaken individually. We extended the study to academic scientists, graduate students, and elementary and secondary school students who voluntarily or compulsorily entered a science fair [39]. Graduate students, scientists, and voluntary participants were interested in the topics and self-motivated. Others were mostly assigned their topics. Voluntary projects evolved over time, often becoming more complex. The greatest obstacles were lack of time, knowledge, and resources. The students who were required to participate did not prepare their projects with an authentic audience in mind (as proposed in Renzulli's Type III activities [26]). The obstacles resembled those reported by professional adults who have been caught cheating. For knowledge fairs to succeed, the following advice emerges: give students opportunities to develop interests (Renzulli's Type I activities are one way), extensively discuss goals at the beginning, explain the work in stages so students can assess their own progress, allow enough time to complete the work, encourage working in groups including a trusted friend, have students "ask another student first" and give each other feedback at each stage of the work, closely monitor progress not just at the end. All this advice overlaps with the requirements of inquiry.

2.3. Identification by Provision

In our summer gifted program, identification is by provision—offer the program and suitable students will come. A local school district asked us to operate a similar program for them for two years. They would identify students on IQ and related criteria. We obtained approvals to compare the students on aptitude, social, and achievement measures [66,67]. Only one differed statistically significantly: Our group was higher on the Torrance divergent figural subtest [68]. There were no significant differences on self concept (both high), IQ (both in the 120 s), or other measures. Although this study was of a summer, not regular, school, and there were other constraints, it mildly supported our preference to invest in programming first [69]. Most tests do not inform teachers about abilities in ways related to contemporary theories of learning and instruction and perhaps their use should be selective and inclusive—focused on giftedness rather than who is gifted.

3. General-Education Context Matters

Conceptually and politically, gifted education needs to be contextualized as an integral part of general education (including higher and teacher education), not as a separate discipline [70].

Situating Gifted Education within Regular Education

Because an approach works well in gifted education does not usually mean it is less relevant elsewhere. Decades of publications have shown the educational value for gifted learners of curricula that incorporate student interests, individual and small-group investigations, and other inquiry-based approaches. However, in international comparisons, these are in general curricula in the highest performing general school curricula [3]. Just five practices from the 101 in *Recommended Practices in Gifted Education* [54] might be uniquely applicable in gifted education: acceleration, some career education, program organization addressing certain socio-affective outcomes, ability grouping, and using high- and above-level curricular materials [71]. In addition, learning is enhanced in disciplinary context. For example, "thinking skills" in isolation do not transfer to new tasks as well as those learned in subject areas [72].

The theme of the Fourth World Conference on Gifted and Talented Children [4] was Education of the Gifted for the Benefit of All Children. In the Parallel Curriculum Model [73], the first foundation stone of excellent gifted programming is a strong general curriculum. A volume commissioned by UNESCO, specifically connecting gifted, regular, and special education, documented 19 examples of direct contributions from gifted education to the field at large [2], recategorized here in relation to the three main domains described in this article (see Table 1).

Table 1. Nineteen Ways Gifted Education Contributes to the Quality of General Education.

Area of Contribution	Contributions of Gifted to General Education
Theory (definitions of giftedness and instruction)	Highlighting the full range of children's performance and potential Building curriculum around explicit models Linking education and creativity Promoting the idea of talent development
Specific Practices (curriculum and instruction)	Embracing inquiry-based instruction Promoting high-level questioning Promoting knowledge fairs Promoting fine and performing arts in school Promoting second-language, global, future, and intercultural studies Expanding the range of career education College-for-kids opportunities Encouraging subject matter interest clubs Supporting types of acceleration
Relationship to General Education	Encouraging high-quality state schools Seeking talent across social barriers Focusing on opportunities for girls Supporting early school entry Awareness of curricular loss in level Keeping up the "class average"

Despite these examples of practices in gifted education that also enhance general education, plus the parallel applicability of contemporary theories about expertise development and social-constructivist pedagogy, the goal of uniting gifted and regular education remains rather aspirational. The two are not yet well synchronized [74], as also shown by the continuing struggles to serve gifted learners either in the classroom or in complementary services such as counseling or school psychology [75].

4. Conclusions

My contribution to the field has been to provide evidence that (a) giftedness and gifted education should be contextualized within theories of the development of the cognitive, social, and emotional characteristics of expertise, (b) social-constructivist and inquiry-based instructional theories should guide practice, (c) specific instructional practices can be especially applicable to gifted education but are not necessarily uniquely so, and (d) gifted education needs to be an integral part of general education to thrive.

These contributions are consistent with the overall direction of contemporary scholarly argument about giftedness and gifted education. In practice, the ubiquity of high IQ and achievement scores as criteria for receiving gifted education services—emphasizing acceleration and more advanced materials as the most defensible matches—emerges as a possible area of conflict. However, it is also possible to not toss the proverbial baby with the bathwater. Giftedness is not a singular phenomenon. If we conceptualize giftedness differently and in multiple ways, then we need multiple ways to identify gifted learners differently. This also has implications for what gifted education can be—with less emphasis on more knowledge more quickly and more emphasis on interests, asking important questions, and collaborative knowledge creation, in pedagogically, socially, and emotionally supportive ways.

I have a parallel research interest in successful teaching and learning in higher education. Gifted and higher education are both concerned with student engagement, high-level learning, creating knowledge, and intellectual and creative leadership. The populations of postsecondary students and students needing gifted education considerably overlap. Additional sources on this topic are provided in the Supplementary Online Material linked to this article.

Supplementary Materials: A full bibliography of the author's related publications is available at https://www.mdpi.com/article/10.3390/educsci11080424/s1.

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