

Explaining the Variations of Definitions in Gifted Education

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ABSTRACT

Whether we need to agree on a definition of giftedness and whether a general definition is even necessary for the field to move forward has been debated across several paradigms. This article explores variation in definitions and discusses why we encounter so many different views on giftedness. I evaluate definitions of giftedness through the interdisciplinary lens of the philosophy of language and definition theory, arguing that our field can benefit from an interdisciplinary approach. I contend that intelligence-based definitions, which have received much criticism within the field of gifted education, are actually broader in their conceptual range than multidimensional definitions of giftedness. Further, I discuss whether the concept of giftedness is too vague to be defined through a single or few definitions.

Keywords: *definition of giftedness, gifted education, philosophy of language, concept formation, vagueness*

Explaining Variation in Definitions of Gifted Education

Perhaps one of the most challenging and debated topics in gifted education is whether a unified definition of giftedness can or should be a goal for the field, or whether a unified definition of giftedness is possible, and, if so, something we should aim to achieve. Human activity and capability are arguably so diverse and culturally based that a unified field theory, in line with gravity, for instance, might be difficult to achieve. Our collective failure to create a unified definition of giftedness does not necessarily indicate that the task is impossible, but, rather, that we have not yet succeeded (Cramond, 2004; Phillips & Lindsay, 2006; Stephens & Karnes, 2000). Instead the field has moved from intelligence-grounded definitions toward a more multidimensional understanding of

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the concept (Winner, 2000). Nevertheless, some educators view the search for a single definition of giftedness as a step back to the limited, behavioristic era of the 1950s (Cramond, 2004). Others describe the lack of a unified definition as the main problem of the field, arguing that, without validated definitions in gifted research, we have no common ground for our work (Ackerman, 1997; Coleman, 2004). Grappling with complex concepts such as 'giftedness' can require going beyond established norms within the borders of our own field and the field of psychology, upon which traditional views of giftedness rely heavily. These variations illustrate Carman's (2013) findings, which indicate great diversity in the definitions used by our field to determine who qualifies as gifted. In gifted education, we describe and explore phenomena often connected to the social sciences and educational science. We use a vocabulary that can, in many ways, be criticized for its lack of consistency and clarity compared with that of the natural sciences (Gerring, 2002; Gerring & Barresi, 2003). In this way, we also describe phenomena through experience, position, and education. As an example, there is a difference between the psychometric approach to giftedness and the educational approach to giftedness.

In this article, I discuss whether variation in definitions of gifted education might be better understood through the philosophy of language and, more specifically, through Scheffler's (1974) ideas concerning definitions in the social sciences. Scheffler's work is relevant for explaining variation in definitions found in the field, and he is explicit about how he discusses these ideas in the context of educational science. Furthermore, I explore whether the min-max strategy of concept formation (Gerring, 2002; Gerring & Barresi, 2003) can help eliminate some assumptions made about useful definitions in gifted education. I wish to challenge the notion that one definition of giftedness is more suited than another across contexts and, instead, discuss why there are so many definitions and whether there is a need for a general definition of the concept. I discuss how intelligence-based definitions can be understood as broader in their conceptual range than multifactorial definitions. In the final section of the paper, I address whether or not we should agree on a general definition of giftedness.

Different Concepts of Giftedness

By far, the most common method of identifying giftedness is some form of intelligence, meaning that, indirectly, intelligence is of foremost interest in research identifying giftedness. A rather common definition of highly gifted individuals predicts gifted behavior in children exceeding an arbitrary cut-off point of 130 or more in IQ testing (Winner, 2000). The view that intelligence (the 'g' factor) is the baseline of giftedness has a long tradition beginning in the early years of the term's conceptualization (Warne, 2015). This view of giftedness is both a reductionist (Warne, 2015) and an essentialist (Ambrose, VanTassel-Baska, Coleman, & Cross, 2010; Dai, 2009) approach to giftedness. However, it can also be argued that such a view is outdated and overutilized in practice. Sternberg & Kaufman (2018), for example, describe a shift from a single dimension view (e.g., IQ) towards an assessment of growth over time within an

individual. Moreover, the statement “*No serious giftedness researcher today believes that general intelligence is the whole picture or believes that gifted abilities are solely the result of innate, genetic endowment*” (Sternber, 2018, p. 42). Although empirical evidence seems to validate intelligence as a predictor of achievement, the use of intelligence as a baseline for giftedness has been criticized as a static approach (see; Achter, Lubinski, & Benbow, 1996; Colom, Escorial, Shih, & Privado, 2007; Deary, Strand, Smith, & Fernandes, 2007; Kuncel, Hezlett, & Ones, 2004; Watkins, Lei, & Canivez, 2007; Wellisch & Brown, 2012). Traditional views of intelligence favor individuals with strong memories and analytical abilities and disfavor others; thus, they are unable to identify people who might have the talent needed to succeed in life, but who do not score highly on traditional tests (Sternberg, 1997, 1999, 2005). To address this gap, Sternberg (1997, 1999) has developed a broader theory of intelligence called the *theory of successful intelligence*. This theory conceptualizes intelligence as something that develops within a cultural context. Therefore, if we wish to identify the most intelligent individuals, both culture and individual ability to achieve culture-specific success must be considered. Boreland (2010) proposes that gifted education is preoccupied with measures that can provide valid identification for gifted programs. However, it could be argued that a test is only valid if it measures what it is intended to measure, meaning that the measures, too, must be valid. The tests used to identify giftedness offer different levels of validity in identifying gifted students (Boreland, 2010). In particular, it has been difficult to develop good tests that identify creativity. Boreland (2010) further suggests that professionals are better suited to identify gifted students than any ‘objective’ measurement.

Other models build on a multidimensional understanding of giftedness. For example, Renzulli’s (1985, 2002, 2012) *three-ring conception of giftedness*, which has received much attention in the field, postulates the following three clusters of characteristics in gifted children: *above-average ability*, *creativity*, and *task commitment*. Furthermore, Gagnês (1985, 2004) *differential model of giftedness and talent* (DMGT) distinguishes between gifts (*aptitude*) and talent (*performance*), capturing a broad spectrum of possible domains in which children can show aptitude and emphasizing the transition between gifts and talent and environmental influences. Mönks (1992) sees giftedness as a combination of inherent potential and environmental factors. In his *multifactor model of giftedness*, he adds three environmental factors: *family*, *peers*, and *school*, to Renzulli’s (1982) three-ring concept.

In Norway, the official Norwegian report (NOU, 2016) did extensive work in deconceptualizing giftedness for the Norwegian context, defining gifted children as children with extraordinary learning potential, or children with high learning potential (NOU, 2016: 14). High learning potential refers to 10–15 % of the population whilst extraordinary learning potential refers to 2–5 percent (NOU: 2016, 14, p. 8). This view of giftedness is in line with both Renzulli’s three-ring concept (1982), and Mönks’ (1992) multifactor model. The Norwegian NOU states that; *willpower*, *motivation*, *endurance*, *self-control* and *impulse-control* (NOU, 2016: 14, p. 18), are important factors determining

whether gifted children will realize their potential. At the same time, extraordinary students are described as having an IQ of 130 or more and are referred to as the top 2–5 % as the population (NOU, 2016: 14, p. 19). This means that inherently, intelligence is used as the measurement tool for identifying extraordinary students.

Systemic views on giftedness posit that if we are to understand giftedness we need to understand the system that leads to exceptionality before we understand the components (cognitive and non-cognitive) factors (Heller, Perleth, & Lim, 2005). Examples of systemic theories of giftedness are the Munich Model of Giftedness (MMG) and the actiotope model of giftedness (Heller, et al., 2005; Heller, & Hany, 1986; Ziegler, Vialle & Wimmer, 2013). The Munich model is also a multidimensional model, and classifies seven relatively independent ability factor groups (predictors), several performance domains (criterion variables), personality traits (motivation, task commitments etc.), and environmental factors that serve as moderators for the transition of individual potential to high performance (Heller, et al., 2005). The combination of cognitive (intelligence) and non-cognitive (motivation, control, expectations, self-concept) traits and social moderators was developed for diagnostic purposes and, thus, can also serve as an identification tool. The actiotope model of giftedness views giftedness as a characteristic that can change over time. In the latter model, giftedness is not seen as a personal attribute, but rather as an attribute constructed by scientists (Ziegler, Vialle & Wimmer, 2013). In this model, six distinctions between subjective and objective influences are needed for giftedness: (1) *Actions*: These consist of a sequence of partial actions, each of them being a composition of parallel and multiple actions; (2) *The action repertoire*: understood as sustainable possibilities for actions that an individual is capable of executing; (3) *The subjective action space*: what people believe they are able to do; (4) *The goals*: what people want to do; (5) *The environment*: characterized by a rapid alteration of domains; and (6) *The interactions among the components*: resulting in a constant quest for equilibrium and the progressive adaptation of the individual to the environment and the ability to realize when an action is successful (Ziegler, 2005). As seen under this heading, there are several concept of giftedness that have emerged from different perspectives and through a variety of empirical support. To further understand the variety of definitions of giftedness we will now discuss the philosophical underpinning of giftedness.

Philosophical Underpinnings of Giftedness

In gifted education, several concepts have emerged from practice, through observations of single subjects and individual students, or from philosophical discourse (Ambrose, VanTassel-Baska, Coleman, & Cross, 2010). Some argue that the concept of giftedness is ripe with dogma and misconceptions linked to intelligence and implicit beliefs about *what giftedness is* (Sak, 2011). Dai (2009) describes the concept of giftedness as *unique in history*, noting that the concept's meaning needs to be deciphered in a proper cultural context and understood by the language used to describe it. Further, he describes how giftedness has developed from essentialism to developmentalism: While earlier

(IQ-based) definitions portrayed a sort of conceptual *essence*, the modern field leans more towards multi-dimensional definitions. The term 'gifted' can be used both explanatorily and descriptively (Dai, 2009), meaning that we encounter research focusing on the characteristics of giftedness and research describing the problems faced by gifted students, often without clearly defining the study-specific meaning of giftedness. Dai (2005) suggests that reductionism (intelligence) and emergentism (multi-dimensional) in the concept of giftedness represent different ways of carving out the 'nature' of giftedness. Perhaps we are observing behavior that can be explained by a smaller and simpler range of explanations? In other words, might there be one or a few variables that predict the complex characteristics we observe among gifted students?

Renzulli and Delcourt (1986) argue that the conceptual issue of gifted education stems from what they call the *criterion problem*. The criterion problem acknowledges that there is a lack of social agreement about what external norms can be used as a benchmark for comparing giftedness, making it difficult to establish any objective and verifiable measure of *what* giftedness is (Renzulli & Delcourt, 1986). However, an understanding of what giftedness is varies from the micro level (practice) to overarching theoretical and philosophical perspectives (theory) (Ambrose, VanTassel-Baska, Coleman, & Cross, 2010). Several studies suggest that an understanding of the concept varies from teachers to researchers (Laine, Kuusisto, & Tirri, 2016; Moon & Brighton, 2008) and that teachers associate giftedness with more traditional and fixed constructs and characteristics (Cramond, 2004; Kaufman & Sternberg, 2008; Laine, Kussisto, & Tirri, 2016; Mattsson, 2010) than those identified as important by researchers (Ambrose et al., 2010). Creativity seems to be an important factor, at least in domain-specific giftedness (Mann, 2006).

Definitions used in gifted education reflect the diverse development of the concept, ranging from conservative to liberal (Renzulli, 2002), where IQ views are understood as conservative and multifactorial views are understood as liberal (inclusive). Renzulli (2002) suggests that multifaceted definitions are more in line with present-day theory and practice. In the newer era, definitions have moved from a more innate understandings of giftedness to a focus on characteristics and/or individuals and their connections to the environment (Renzulli, 2002; Sternberg, 2006). These seemingly contradictory views on giftedness as a single test score or a cluster of abilities (Sternberg, & Sriraman, 2013) have created uncertainty among scholars. The disconnection between practice and theory in gifted education raises concerns about the future of the field; however, it might also represent the natural development of a field keyed into social and cultural practice. Gifted education and giftedness are social constructs (Dai & Chen, 2013); therefore, it is natural that variation in definitions of these concepts reflect the social diversity in which they are applied. As Dai and Chen (2013) note, "[s]ocially speaking, the concept of giftedness is fundamentally value-laden. A person gifted in one culture may not be seen as gifted in another" (p. 151).

On the other hand, the perspective that using intelligence as an assessment in gifted education requires definitions of giftedness that rely explicitly on high IQ is simply not

true (Warne, 2016). Nevertheless, the essentialist definition of giftedness as dependent on only one variable is inherently prototypical (Dai & Chen, 2013). The latter is prototypical because the only variable the group shares is (IQ), and personality traits like; motivation, task commitment or interests is not important in the way we understand the group. Thus, there is an inherent difference between describing exceptional performance as stemming from inherent characteristics or developing through several (possibly coincidental) variables that affect development. The latter seems the logical choice. However, if every gifted individual shares the same trait(s), one could suggest the possibility for a 'baseline' for giftedness, such as high IQ. As we continue our discussion of definitions in gifted education, we ask whether giftedness is an inherently vague concept. If giftedness can be understood as a vague concept, this can clarify why there are so many different definitions of the concept.

Giftedness as a Vague Concept

As demonstrated in the introduction to this article, there are many definitions of giftedness based on different understandings of the concept. Therefore, giftedness seems to be a vague concept, with numerous and different definitions attempting to explain what giftedness is or what leads to it. One of the main reasons we seek to define objects or concepts in the social sciences is to clarify what we mean by a statement or concept to enable measurement and identification. On the one hand, if we are not clear about what we are describing, we risk describing something else. On the other hand, if we are too specific, we risk eliminating important variables, creating vagueness.

Vagueness is an issue that arises through the use of one word or concept to clarify a second concept, as in the traditional use of intelligence to define giftedness. Inherently, both intelligence and giftedness need to be defined to clarify the concepts, because each is the subject of several theories. In the philosophy of linguistics, different understandings, usages, or definitions of the same concept are referred to as vagueness, which "is standardly defined as the possession of borderline cases" (Sorensen, 2016). Borderline cases are those in which a question of inquiry is impossible to answer clearly because clarification would raise more questions than it answers and, thus, create more confusion than explanation. For example, in gifted education, we encounter terms such as *highly intelligent*, *profoundly gifted*, *gifted*, and *exceptionally gifted*, *high learning potential*, *extraordinary learning potential*, *twice exception etc.*, each of which represents a categorical definition, raising concerns regarding where the borders between these concepts lie. When should we designate someone as profoundly gifted instead of gifted, or as intelligent instead of normally intelligent; alternatively, where do we draw the line between *gifted* and *not gifted*? We can illustrate this challenge using cut-scores on an intelligence test. For example, a person with an IQ of 120 is not clearly either highly intelligent or normally intelligent, but theories employing IQ as a definition of giftedness and using a cut-off point of 130 or more would classify this person as *normally intelligent*. In reality, no amount of empirical data can settle whether a person with an

IQ of 125 is normally intelligent or highly intelligent, because it is impossible to draw a sharp line between these two concepts.

There is a distinction between vagueness and ambiguity (Sorensen, 2016), which is obscured by the fact that most words are simultaneously vague and ambiguous. Vagueness cannot simply be explained away; therefore, vagueness can be described as explaining the different interpreted meanings of words and definitions in a field, for example education (Sorensen, 2016). In this way, vagueness can be understood as how, in social science, we often try to describe objects and phenomena using words. Words can be more or less accurate in their descriptions of objects or the characteristics of phenomena. Essentially, our understanding of objects and phenomena change over time, and definitions should, ideally, change accordingly. The object itself cannot be vague; that is, the essence of the object remains the same. However, our descriptions of the object can be general, specific, ambiguous, or vague. These boundaries are not always clear. Varzi (2015) argues that even though the vagueness of boundaries clearly applies to material substances, such as water, air, atoms, and tree boundaries, it also illustrates issues by defining abstract entities of social concepts, such as giftedness. Definitions that rely on a score of 130 or more in general intelligence tests seem to represent a clear boundary (Winner, 2000). However, as mentioned earlier, despite being communicated as clear and essentialist, these boundaries are not clear. These types of boundary problems are not special for the field of giftedness, and are often described using the example of *Sorites Paradox*. The puzzle of Sorites paradox is described in the following way: one grain of sand does not make a heap. If one grain does not make a heap, then two grains do not make a heap. If two grains do not make a heap then three do not make a heap, and so forth until you reach 999 grains do not make a heap; therefore 1000 grains do not make a heap (Hyde, & Raffman, 2018)¹. The point here is that there is no clear line between these two concepts, even though we make these distinctions all the time in everyday language.

One of the main issues in social science is that we adapt the use of methodological essentialism when describing or defining such phenomena as giftedness. Often, we construct language and use essentialist methods to define social phenomena (Scheffler, 1974). In Popper's (2006) view, this notion is backwards. Social phenomena change over time due to the impacts of development and social change. Therefore, the essence of social phenomena cannot be accurately identified or argued for in the same way as phenomena in the natural sciences; essentially, the social sciences address phenomena impacted by historical and social change (Popper, 2006), which can impact our conceptualizations of how giftedness develops. As we discuss above, there are trends in how we have defined giftedness over time (e.g. intelligence, multifactorial, talent development, etc.), and some authors discuss the possibility of dogmatic beliefs. Popper does not neglect the existence of scientific trends (Popper, 2006; Thornton, 2018). However, in his opinion, they are indistinguishable from scientific truth in social science. Thus, in the natural sciences, though our understanding of the atom has

1 <https://plato.stanford.edu/entries/sorites-paradox/#pagetopright>

changed over time, some scholars would argue that its essence is inherent and unchanging. The latter stems from the idea of *methodological essentialism* and is rooted in the idea that an object has at least one essential property (Robertson, & Atkins, 2018). In contrast, in the social sciences, the essence of social phenomena can change over time because our social environment changes. In the next section of the article, I will use the work of Israel Scheffler (1974) to discuss definitions of giftedness in the social sciences. As there is no single way definitions are used in the social sciences or education, Scheffler's extensive work is relevant to our understanding of how the way in which we communicate definitions can influence how the definitions are understood. Scheffler addresses definitions in education explicitly, which is rare in definition theory. He also adds a third component (programmatic definitions) connected to educational contexts.

Definitions of Giftedness in the Social Sciences

The definition of giftedness in the social sciences is not only theory-laden; it is also laden with cultural values, individual values, and practical usage, as well as interpretations by schools, legislation, teachers, and gifted individuals (Scheffler, 1974). The precision and success of such a definition depends not only on the goal of the research, but also on the degree to which the definition reflects its purpose and context. Scheffler (1974) categorizes general definitions into three types: *stipulative*, *descriptive*, and *programmatic*. These categories serve different purposes in the social and educational sciences when exploring or trying to understand the concept of giftedness. The two first categories (*stipulative* and *descriptive*) are also discussed in general definition theory (see. Gupta, 2015); the third category (programmatic) has been added for educational discourse.

Stipulative Definitions

Stipulative definitions describe a definition as a statement explaining some other statement within a certain context (Scheffler, 1974). This type of definition describes a phenomenon in a certain way or within a certain context. For example, a definition of giftedness might not serve a practical purpose or be easily recognizable in practical settings, or it might be derived from practice in one particular setting and, thus, not transferable to other specific contexts. Stipulative definitions can be categorized into two subgroups based on whether they reflect a previously accepted usage, which Scheffler (1974) describes as a pre-definitional usage. On the one hand, a definition that reflects no prior usage and uses a term in a new way can be called an *inventive* stipulation. On the other hand, *non-inventive stipulative definitions* possess prior usage and are often explained through a series of qualitative terms. Stipulative definitions serve a local purpose by describing a concept within a specific context; therefore, they cannot be *transformed* or *connected* to other specific contexts. When transferring such embodied statements to other areas of expertise, they must be judged by the contexts in which they originally appeared.

For example, the *three-ring concept of giftedness* defines giftedness as (a) above-average ability, (b) creativity, and (c) task commitment (Reis & Renzulli, 1982;

Renzulli, 2002, 2012), arguing that gifted behavior occurs somewhere between these variables or through their combination. This definition consists of the following qualitative terms, which must be clarified: *Above-average ability* refers to high levels of abstract thought; adaptability to new situations; and the capacity to apply general abilities to specific areas, retrieve information quickly and accurately, distinguish relevant from irrelevant information, and troubleshoot while solving a problem using advanced strategies (Renzulli, 2002, 2012). *Creativity* refers to such traits as curiosity, originality, ingenuity, and a willingness to challenge conventions and tradition. Such traits make high-potential students willing to take risks and solve problems in original ways (Brevik, Gunnulfson, & Renzulli, 2018; Renzulli, 2002, 2012). *Task commitment* is linked to motivation (e.g., perseverance and determination), suggesting traits that can be developed. Typically, high-potential students exhibiting task commitment immerse themselves in a problem for an extended period and persevere even when they encounter obstacles that would inhibit others (Renzulli, 2002, 2012). My argument is that this understanding of giftedness also becomes vague in the sense that all its variables can have multiple meanings depending on the contextual framework, exemplified by; *when*, in *what context*, using *which measures*, and *to what degree*. Although the three-ring concept of giftedness does not necessarily seek to answer these questions, it makes room for different interpretations of the categories. In other words, stipulative definitions provide useful labels with which to refer to concepts that would otherwise require repeated and complicated descriptions. Such definitions serve powerful practical purposes and often have familiar practical usage in education. The other sort of general definition we encounter in education is referred to as *descriptive*.

Descriptive Definitions

Unlike stipulative definitions, descriptive definitions are judged by how successfully they reflect pre-definitional usage. Which means that they also purport to explain the defined term in use. This type of general definition may also embody conventions governing discussion. Typically, such definitions try to clarify and explain a term and to account for what the term really means, and thus are often presented as an answer to a question (Scheffler, 1974). The goal of a descriptive definition is to clarify a term and create a general rule from the term's prior usage, often by relating it to other familiar terms. For example, a relatively standard definition encountered in research on gifted education is: "children are usually defined as gifted if their global IQ score rises above some arbitrary cut-off point of 130" (Winner, 2000, p. 164). Unlike the previously mentioned definition of "above-average ability" (Renzulli, 2002), this definition clarifies what is meant by 'above-average' by implementing IQ as a measurement for giftedness. However, the definition could be considered both descriptive and essentialist, as it views IQ as the essence of gifted behavior. A descriptive definition should provide explanatory accounts of meaning and, if possible, close gaps in the understanding of a term or concept. Unlike a stipulative definition, a descriptive definition is not free from judgement based on prior usage. Descriptive definitions are not a matter of arbitrary

choice, but, rather, are judged by how successfully they describe a term's prior usage. With this in mind, if a descriptive definition clearly violates the term's prior usage, it is not successful in describing the concept through familiar usage. Moreover, ordinary terms that are simplified through descriptive definitions need some sort of context base so that they do not become misleading, as context can change over time. This definition of giftedness can be understood as communicating an essentialist understanding, as high IQ is the answer to what giftedness 'is'. However, this definition represents a paradox: How can we know that we are accurately describing the phenomenon of giftedness? This understanding of giftedness tries to define the concept by its essence, specified as a cutoff point, which presents the consequence that a student is either gifted or not based on a given score on a specific test. As we discussed earlier in this text, such boundaries might seem clear, however, in philosophical terms they might not be clear. Furthermore, when such definitions are taken out of the context of professional research activity where they evolved and are addressed to for example, teachers, they must be judged in this role (Scheffler, 1974). According to such a descriptive definition, the answer to 'giftedness' is a global IQ score above 130. However, this definition raises several issues in practice. For example, if a person is categorized as gifted, can the person later become *non-gifted*? The definition does not clarify any term other than high IQ and, therefore, has little usefulness outside a researcher's textbook or lab. Wittek and Kvernbekk (2011) explain such terms of condition by stating that a term can serve as either *continuous* or *binary*. A binary term is categorical and eliminates other terms, suggesting that one is either gifted or not, while a continuous term has degrees. The descriptive definition presented above seems to define a binary term, considering all persons above the cutoff point to be gifted. The definition makes no effort to clarify or explain how the specific phenomenon of giftedness behaves in practice; it merely defines the minimum required to be categorized as gifted. We have now separated two broad categories of general definitions. In summary, the stipulative type do not purport to account for prior usage; they only facilitate discourse. The descriptive type purport to explain terms by providing an account for their prior meaning (Gutpa, 2015; Scheffler, 1974). As we move to the third category, we encounter definitions (programmatic) that are closely linked to social practice.

Programmatic Definitions

In education, definitions are often keyed into social practices and habits of mind (Wittek & Kvernbekk, 2011). In this third category, we encounter definitions that act like expressions of a practical program. Programmatic definitions involve some sort of practical description and/or direct practical usage. Unlike descriptive and stipulative definitions, programmatic definitions are not recognizable by their linguistic form alone. Like descriptive definitions, however, they must involve a reference to context.

A programmatic definition may convey a practical implication without being programmatic. For example, if the context is clarified, then a definition is not programmatic. Wittek and Kvernbekk (2011) explain programmatic definitions as concepts of

moral and social significance. This means that these definitions have social consequences in practical usage. The definitions themselves have no intention of bringing about social consequence; that is, merely defining a social issue, problem or diagnosis does not necessarily cause social stigma. On the other hand, being categorized as matching a given definition might have social consequences for a specific person. For example, if a school recruits a child to a special program based on a performance cut-off or their IQ scores being above 130, and if the recruited child receives some sort of scholarship, then the given definition has a social impact on this child, especially in societies where students do not have the same opportunities in public schools as in private schools. A definition of giftedness with social impact can be intelligence-based (as with Winner's (2000) descriptive definition of an IQ of 130 or above) or based on above-average performance, with the same goal of recruiting to a special program. The same social impact also applies to those multidimensional definitions that employ several indications of giftedness (as with above-average ability as an aspect of giftedness in Renzulli's (2002) model). Third, the systematic approach to giftedness can also fall under this category; theory is used to recruit for talent programs in school. Still, intelligence-based definitions can be described as descriptive and programmatic because they simplify the concept into a single variable with no prior usage and have significant practical implications, such as categorizing children as 'gifted' and recruiting them into special programs. Conversely, a stipulative definition of giftedness is represented by cultural and context-based understandings that imply a direct connection to a context and explain why some definitions are culture-laden. We summarize in Scheffler's own words:

The interest of stipulative definitions communicatory, that is to say they are offered in the hope of facilitating discourse; the interest of descriptive definitions in explanatory, that is, they purport to clarify the normal application of terms; the interest of programmatic definitions is moral, that is, they are intended to embody programs of action.

(Scheffler, 1974, p. 22)

It is important to add that in general it is a mistake to suppose that the distinction between the three definitions are formal. The same definition can be stipulative, descriptive or programmatic, depending on the context in which it is offered (Scheffler, 1974). Before we move to a general discussion of the paper we shall explore the min-max strategy of concept formation in relation to the concept of giftedness.

The Min–Max Strategy of Concept Formation

Gerring (2002) and Gerring and Barresi (2003) suggest a specific strategy for defining concepts in the social sciences: the min–max strategy of concept formation. They propose that this strategy is reliable for all social sciences concepts intended for general usage. The min–max strategy relies on the combined use of minimal and ideal-type definitions. A minimal definition identifies the essentials of a concept with definitional

traits sufficient to delimit it extensionally while maintaining all associated individual meanings (Gerring, 2002; Gerring & Barressi, 2003). In contrast, an ideal-type definition includes all attributes that together define the concept in its purest and most ideal form. While minimal definitions are minimal in their concept formation—that is, minimal in terms of the attributes forming the concept—they become maximal in their conceptual range. Maximal definitions (ideal-type) are maximal in their conceptual formation, but minimal in their range of phenomena. The strategy of concept formation binds these concepts in a semantic and referential space, yielding the most satisfactory general definition (Gerring, 2002).

The concept of 'giftedness' is one area of research in which concept formation has relied heavily on the researcher's choices and not on general concept formation followed by the strategies of choice. To construct the two different types of general approaches to giftedness (minimum and maximum definitions), we must first deconstruct the concept of giftedness. Gerring (2002) suggests the following three strategies for constructing a general definition of a broad concept (e.g., giftedness): 1. sampling usage, 2. typologizing attributes, and 3. constructing minimal and ideal-type definitions, which can also be understood as specific versus general concept formation. A general definition is specific in its criteria, but has few criteria; therefore, it becomes general. In contrast, a specific definition is general in its criteria, but has more criteria; therefore, it becomes specific.

Sampling usage

Sampling a concept involves obtaining a representative sample of formal definitions and general usages of a chosen term from natural language and relevant fields or sub-fields. In this case, we can agree that, in general, across contexts and cultural influences, giftedness refers to something *above normal*: something that is special in a positive way, such as an attitude, a high level of performance, or a potential for performance at the individual level. As discussed, the areas of expertise we value can be culturally laden and context-dependent. In the Western world, we value academic achievement and seek to define academically gifted students, though the areas of academic performance we value the most might differ.

Typologizing attributes

The second step in developing a definition involves arranging non-idiosyncratic terms within a single typology. This arrangement enables us to sort out the most important variable(s) for defining the concept. In gifted education, intelligence is the one criterion often used as both an identification method and a definition of gifted children and adolescents.

Specific versus general

The third step in the min-max strategy is developing two types of concept definitions. In the same way that Scheffler (1974) distinguishes between definitions based on context

and definitions that are context-free, Gerring (2002) distinguishes between general and contextual definitions. The variety of definitions of giftedness can be explained by their usage and purpose. For example, a general definition is often developed for research purposes and, as such, defines a concept within a general context of usage or within no context at all. In gifted education, the most useful definition for both purposes (research and generalizability) defines giftedness with specific criteria and, therefore, a general range. An example of such a definition could be an intelligence- or performance-based definition. These types of definitions of giftedness are general in terms of concept formation, yet specific enough to be measurable in research.

A contextual definition, in contrast, asks what a term means or should mean within a narrower contextual framework. This type of definition is linked to the stipulative definitions described in this article. Such definitions are useful for exploring a specific research topic or research problem and its practical usage in a focal context. Specific definitions may vary more than general definitions because they involve a narrower context and because the challenge is contextualized, meaning that the 'scope' of the definition reveals greater complexity. For example, as discussed in the stipulative definition section above, task commitment and creativity are emphasized as additional criteria for giftedness (e.g., Renzulli, 2002, 2012). Such criteria evolve through the specification of a general definition. Furthermore, such an understanding of concept formation explains the variety of definitions used in gifted research.

Discussion

In a way, the trivial distinction of intelligence-based definitions of giftedness on the one side and multifactor definitions on the other makes little sense. Let us illustrate this point using the Norwegian definition (NOU, 2016: 14). As discussed earlier, they employ the definition *children with extraordinary potential*, and communicate a multifactorial understanding of giftedness (e.g., motivation, task commitment, interest, etc.). However, when discussing the prevalence of giftedness, an IQ measure is employed and refers to the (top 2–5 %). I would argue that most multifactorial definitions employ some sort of measurement for giftedness, and thus communicate an essentialist definition as emergentist. It would be surprising if the top 2–5 %, also share the same motivation, interests and task commitment. It would be even more surprising the other way around; if all children that demonstrate academic interest, high motivation and high levels of task commitment are highly intelligent. When using the ideas discussed in this article, instead of employing dogmatic ideologies, defending our positions, and seeing the many definitions of giftedness as a weakness in the field, we could understand them as signs of richness and a concept in bloom. A question that arises is whether we can treat the concept of giftedness as a descriptive, binary term, as in programmatic definitions, or whether we should argue that there are degrees of giftedness, in line with stipulative definitions. As discussed earlier, IQ definitions with cut-off scores employ a binary or dichotomous measurement (either you are gifted or not). However, talent development models understand giftedness from a development

perspective, where “gifts” develop in interaction with the environment, and are therefore not static. If one or more factors from, for example, the Munich model of giftedness (MMG) is employed for recruitment to a talent-program; students who demonstrate high motivation for a subject and display high levels of performance would be selected. Then, those two categories become essential for whether you are recruited to the program or not, and are probably binary, because you need some sort of measure of comparison (high, middle or low). By extension, an understanding of giftedness becomes inherently dichotomous (either you reach the cut-off scores or not), and it does not matter if the definition you communicate is based on more variables. In this example, once these choices are made, an understanding of giftedness is limited to these categories. The challenge is not that practitioners make these choices, it is how we communicate the definition.

Carman (2013) argues that the validity and reliability of research employing similar definitions of giftedness will increase if giftedness involves a cross-cultural essence, and this might be true. However, prior usage of the term often refers to a broad spectrum of abilities and characteristics linked to different contexts. As Popper (2006) argues, the context of a term and, thus, its prior usage might change over time, making it impossible to consider all prior usage. In this way, any given definition will serve a local purpose to some extent. A descriptive definition must, therefore, be supplemented by context or at least refer to the context in which the definition is applicable. One can never fully consider all ambiguous prior understandings; rather, some can be eliminated when simplifying or explaining a definition. If one oversimplifies a concept, one risks eliminating important prior usages: a failing for which IQ definitions are often criticized. Such oversimplification can be problematic if a researcher uses a descriptive definition of one phenomenon in one specific context and the reader of the research understands it as an essentialist definition; in other words, if the researcher defines giftedness as ‘how’, but the reader understands the description as ‘what is’. For example, many gifted students exhibit characteristics like creativity; however, so do other groups of students. Many would agree that not all creative students are gifted, and not all gifted students are creative. Furthermore, if a person is creative, there are many domains outside academia, music, and art in which one can employ new ideas. Should all the creative criminals in the world, for example, be considered highly gifted?

Describing giftedness as high intelligence can, in some contexts, be useful for clarifying the term and facilitating comparisons between gifted students and other groups of students. One of the strengths of IQ-based definitions is that they may compensate for underachievement, as they measure giftedness using factors beyond performance in school. On the other hand, in contexts in which giftedness has no association with intelligence, a descriptive definition clearly violates the prior usage requirement because of the long tradition of employing IQ-based measurements in gifted education. According to Popper (2006), asking for the essence of a concept in social science implies asking the wrong question. In Popper’s (2006) view, the ‘what is’ question

is the wrongdoing of social science because phenomena change over time and across paradigms. In other words, different definitions serve different purposes, and some definitions are communicated as essentialist even though they are not. Consequently, vagueness is a problem for definitions of giftedness, especially if such definitions are understood as defining the essence of the concept when, in reality, they describe giftedness as a phenomenon within a special context.

In research, the context should be reflected in the empirical range of the given research project. For example, a research project exploring high performance in math should define giftedness in the contexts of math and math performance. At the same time, such a narrow definition fails to account for all the variety among gifted students; therefore, such a study should not be communicated as such. Studies that explore twice exceptionality among gifted students must in some way integrate inclusion/exclusion criteria that raise the probability that the students in the study are identified twice exceptional.

In general, the abovementioned definitions in education differ because they serve different purposes and convey different meanings. For example, it makes little sense to define giftedness through intelligence if one does not have access to intelligence tests. Even when these are available, they might still evoke vagueness concerning which aspects of giftedness are captured by the IQ score. However, employing similar definitions can make comparison studies much more valid.

General vs. Specific Concepts

In gifted education, there is still a quantitative trend in the body of research (Dai, Swanson, & Chen, 2011), though this tradition has been critiqued for oversimplifying giftedness. As an example, correlation studies can evoke artificial differences between groups of performances (Dai, Swanson, & Chen, 2011), especially when they treat information about IQ as a dichotomous variable (grouping variable) by inherently (or indirectly) defining giftedness using a cutoff score. This cutoff does not need to be set at 130 (two standard deviations). However, it can create artificial group differences, especially if one group is compared to a group significantly lower on the same scale. To address some of these possible threats to validity, future studies should instead treat IQ as a continuous variable.

In line with the min–max strategy of concept formation in the social sciences (Gerring, 2002; Gerring & Barressi, 2003), the contexts in which giftedness arises cannot be operationalized to serve the general purpose the multifactorial definitions wish to predetermine, as contexts change over time. The inherent categories in these definitions need to be addressed within the cultural frames within which they are measured/defined. Furthermore, intelligence-based definitions are broader in their conceptual range than multidimensional definitions because they comprise fewer pre-determined measures of the concept. The more ‘boxes’ that need to be checked for someone to be identified as gifted, the fewer individuals included in this category. Thus, we could argue that intelligence creates a more general conceptual framework for gifted education and

that the specific definitions are suited to explain the concept's variations across cultures. Nevertheless, this discussion is tentative, as few schools in Norway have access to such measures and must rely on other sources to identify gifted students.

Should We Agree on Defining the Concept of Giftedness?

Several studies address misconceptions about gifted education (see: Sak, 2011; Winner, 1996). Some focus on teachers' beliefs and attitudes concerning giftedness (see: McCoach & Siegle, 2007; Moon & Brighton, 2008; Laine, Kuusisto, & Tirri, 2016; Plunkett & Kronborg, 2011), while others focus on students' implicit beliefs about giftedness (see: Makel et al., 2015; Snyder et al., 2014). Research on misconceptions, misbeliefs, and attitudes about giftedness implies that there is some consensus about *what giftedness is* and how these terms are generally understood by teachers, students, and policy makers. Though existing studies communicate a broad conceptual range, and there are several ways of understanding and defining giftedness, research should have some sort of conceptual framework for comparing these misconceptions. If not, one cannot argue that one understanding of giftedness implies a misunderstanding of the concept; rather, the conversation devolves into individual interpretations of ideas about giftedness, not an existing definition. Thus, communication of the research becomes essentialist because it indirectly implies that there is an essence to giftedness that someone misunderstands. This perspective implies that the different understandings of giftedness in gifted education are not merely a symptom of teachers' lack of conceptual knowledge; they are also a symptom of researchers' failure to share the teachers' frame of reference. The range of definitions shows that giftedness is a social construct with multiple meanings.

Conclusion

In this article, I have argued that different definitions serve different purposes and that we cannot organize the definitions of gifted education in a hierarchy. The reason we have so many different definitions of giftedness is because the concept is inherently vague. In this article, I have argued that giftedness cannot be adequately defined through single or multiple definitions. The issue is not that we have many definitions of giftedness, but, rather, that researchers apply a certain definition within a specific context or communicate a descriptive definition as a stipulative one. If we establish a 'gold standard' for research on giftedness, we are likely to eliminate important variables predicting giftedness or characteristics of gifted students. The multiple concepts of giftedness discussed in this article serve an important role in explaining variations in gifted behavior, while definitions based on potential validate measurements of intellectual giftedness and help identify gifted underachievers (see, e.g., Colangelo et al., 1993; McCoach & Siegle, 2003).

Researchers who state that we need a common definition might, arguably, voice an essentialist view of giftedness as something vital in nature that we can measure the sum of or reduce to a specific variable. If a common definition were based on an intelligence

quotient, we would need research validating intelligence as something more than a psychological construct. Although we might establish valid measures, their validity would be based on descriptive definitions of giftedness employed to serve specific or general purposes or linked to specific contexts. Sternberg and Davidson (1986) describe giftedness as something we invent in a social context; therefore, it is impossible to develop definitions that incorporate all pre-existing and future inventions in gifted education. Instead, we should be honest about how we communicate our definitional creations.

REFERENCES

- Achter, J., Lubinski, D., & Benbow, C. (1996). Multipotentiality among the intellectually gifted: "It was never there in the first place, and already it's vanishing." *Journal of Counseling Psychology, 43*, 65–76.
- Ackerman, C. M. (1997). Identifying gifted adolescents using personality characteristics: Dabrowski's overexcitabilities. *Roeper Review, 19*(4), 229–236.
- Ambrose, D., Sternberg, R. J., & Sriraman, B. (2013). Considering the effects of dogmatism on giftedness and talent development. In Ambrose, D., Sternberg, R., & Sriraman, B. (Eds.), *Confronting dogmatism in gifted education* (ss. 1–13). London: Routledge.
- Ambrose, D., Van Tassel-Baska, J., Coleman, L. J., & Cross, T. L. (2010). Unified, insular, firmly policed, or fractured, porous, contested, gifted education? *Journal for the Education of the Gifted, 33*(4), 453–478.
- Brevik, L. M., Gunnulfsen, A. E., & Renzulli, J. S. (2018). Student teachers' practice and experience with differentiated instruction for students with higher learning potential. *Teaching and Teacher Education, 71*, 34–45.
- Carman, C. A. (2013). Comparing apples and oranges: Fifteen years of definitions of giftedness in research. *Journal of Advanced Academics, 24*(1), 52–70.
- Coleman L. J. (2004). Is consensus on a definition in the field possible, desirable, necessary? *Roeper Review, 27*, 10–11.
- Colom, R., Escorial, S., Shih, P. C., & Privado, J. (2007). Fluid intelligence, memory span, and temperament difficulties predict academic performance of young adolescents. *Personality and Individual Differences, 42*, 1503–1514. doi:10.1016/j.paid.2006.10.023
- Cramond, B. (2004). Can we, should we, need we agree on a definition of giftedness? *Roeper Review, 27*(1), 15–16. doi:10.1080/02783190409554282
- Dai, D. Y. (2005). Reductionism versus emergentism: A framework for understanding conceptions of giftedness. *Roeper Review, 27*(3), 144–151.
- Dai, D. Y. (2009). Essential tensions surrounding the concept of giftedness. In *International handbook on giftedness* (pp. 39–80). Dordrecht: Springer.
- Dai, D. Y., & Chen, F. (2013). Three paradigms of gifted education: In search of conceptual clarity in research and practice. *Gifted Child Quarterly, 57*(3), 151–168.
- Dai, D. Y., Swanson, J. A., & Cheng, H. (2011). State of research on giftedness and gifted education: A survey of empirical studies published during 1998–2010 (April). *Gifted Child Quarterly, 55*(2), 126–138.
- Deary, I. J., Strand, S., Smith, P., & Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence, 35*, 13–21. doi:10.1016/j.intell.2006.02.001
- Gupta, Anil, «Definitions», *The Stanford Encyclopedia of Philosophy* (Summer 2015 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2015/entries/definitions/>
- Gagné, F. (1985). Giftedness and talent: Reexamining a reexamination of the definitions. *Gifted Child Quarterly, 29*, 103–112. doi:10.1177/001698628502900302

- Gagné, F. (2004). Transforming gifts into talents: The DMGT as a developmental theory. *High Ability Studies*, 15, 119–147. doi:10.1080/1359813042000314682
- Gerring, J. (2002). *Putting ordinary language to work: A min–max strategy of concept formation in the social sciences*. Manchester, NH: Southern New Hampshire University.
- Gerring, J., & Barresi, P. A. (2003). Putting ordinary language to work: A min–max strategy of concept formation in the social sciences. *Journal of Theoretical Politics*, 15, 201–232. doi:10.1177/0951629803015002647
- Heller, K., Perleth, C., & Lim, T. K. (2005). The Munich model of giftedness designed to identify and promote gifted students. In J. R. Sternber & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 147–171). New York: Cambridge University Press.
- Heller, K. A., & Hany, E. A. (1986). Identification, development and achievement analysis of talented and gifted children in West Germany. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.651.6222&rep=rep1&type=pdf>
- Kaufman, S. B., & Sternberg, R. J. (2008). Conceptions of giftedness. In *Handbook of giftedness in children* (pp. 71–91). Boston, MA: Springer.
- Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2004). Academic performance, career potential, creativity, and job performance: Can one construct predict them all? *Journal of Personality and Social Psychology*, 86, 148–161. doi:10.1037/0022-3514.86.1.148
- Laine, S., Kuusisto, E., & Tirri, K. (2016). Finnish teachers' conceptions of giftedness. *Journal for the Education of the Gifted*, 39(2), 151–167.
- Makel, M. C., Snyder, K. E., Thomas, C., Malone, P. S., & Putallaz, M. (2015). Gifted students' implicit beliefs about intelligence and giftedness. *Gifted Child Quarterly*, 59(4), 203–212.
- Mann, E. L. (2006). Creativity: The essence of mathematics. *Journal for the Education of the Gifted*, 30(2), 236–260.
- McCoach, D. B., & Siegle, D. (2007). What predicts teachers' attitudes toward the gifted? *Gifted Child Quarterly*, 51(3), 246–254.
- Mönks, F. J. (1992). Development of gifted children: The issue of identification and programming. In F. J. Mönks & W. A. M. Peters (Eds.), *Talent for the future. Proceedings of the ninth world conference on gifted and talented children* (pp. 191–202). Assen: Van Gorcum.
- Moon, T. R., & Brighton, C. M. (2008). Primary teachers' conceptions of giftedness. *Journal for the Education of the Gifted*, 31(4), 447–480.
- Official Norwegian Report (NOU). (2016). More to gain, better learning for students with higher learning potential. Oslo: Kunnskapsdepartementet.
- Phillips, N., & Lindsay, G. (2006). Motivation in gifted students. *High Ability Studies*, 17(1), 57–73. doi:10.1080/13598130600947119
- Plunkett, M., & Kronborg, L. (2011). Learning to be a teacher of the gifted: The importance of examining opinions and challenging misconceptions. *Gifted and Talented International*, 26(1–2), 31–46.
- Popper, K. R. (2006). *The open society and its enemies*. London, UK: Routledge.
- Renzulli, J. S. (1985). Are teachers of the gifted specialists? A landmark decision on employment practices in special education for the gifted. *Gifted Child Quarterly*, 29, 24–28. doi:10.1177/001698628502900105
- Renzulli, J. S. (2002). Emerging conceptions of giftedness: Building a bridge to the new century. *Exceptionality*, 10, 67–75. doi:10.1207/S15327035EX1002_2
- Renzulli, J. S. (2002). Emerging conceptions of giftedness: Building a bridge to the new century. *Exceptionality*, 10(2), 67–75.
- Renzulli, J. S. (2012). Reexamining the role of gifted education and talent development for the 21st century: A four-part theoretical approach. *Gifted Child Quarterly*, 56(3), 150–159. doi:10.1177/0016986212444901

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- Renzulli, J. S., & Delcourt, M. A. (1986). The legacy and logic of research on the identification of gifted persons. *Gifted Child Quarterly*, 30(1), 20–23.
- Robertson, Teresa and Atkins, Philip, «Essential vs. Accidental Properties», *The Stanford Encyclopedia of Philosophy* (Spring 2018 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/spr2018/entries/essential-accidental/>.
- Sak, U. (2011). Prevalence of misconceptions, dogmas, and popular views about giftedness and intelligence: A case from Turkey. *High Ability Studies*, 22(2), 179–197.
- Scheffler, I. (1974). *The language of education*. Springfield, IL: Charles C. Thomas Publisher.
- Snyder, K. E., Malin, J. L., Dent, A. L., & Linnenbrink-Garcia, L. (2014). The message matters: The role of implicit beliefs about giftedness and failure experiences in academic self-handicapping. *Journal of Educational Psychology*, 106(1), 230–241.
- Sorensen, R. (2016). Vagueness. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy* (Winter 2016 edn.). The Metaphysics Research Lab, Center for the Study of Language and Information (CSLI), Stanford University.
- Stephens, K. R., & Karnes, F. A. (2000). State definitions for the gifted and talented revisited. *Exceptional Children*, 66, 219–238. doi:10.1177/001440290006600206
- Sternberg, R. J. (1999). The theory of successful intelligence. *Review of General Psychology*, 3(4), 292–316.
- Sternberg, R. J. (2005). The theory of successful intelligence. *Inter-American Journal of Psychology*, 39(2) 190–200.
- Sternberg, R. J. (2007). Cultural concepts of giftedness. *Roeper Review*, 29(3), 160–165.
- Sternberg, R. J., & Grigorenko, E. L. (2002). The theory of successful intelligence as a basis for gifted education. *Gifted Child Quarterly*, 46, 265–277. doi:10.1177/001698620204600403
- Thornton, Stephen, «Karl Popper», *The Stanford Encyclopedia of Philosophy* (Fall 2018 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2018/entries/popper/>.
- Varzi, A. (2015). Boundary. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy* (Winter 2015 edn.). The Metaphysics Research Lab, Center for the Study of Language and Information (CSLI), Stanford University.
- Warne, R. T. (2016). Five reasons to put the g back into giftedness: An argument for applying the Cattell–Horn–Carroll theory of intelligence to gifted education research and practice. *Gifted Child Quarterly*, 60(1), 3–15.
- Watkins, M. W., Lei, P.-W., & Canivez, G. L. (2007). Psychometric intelligence and achievement: A cross-lagged panel analysis. *Intelligence*, 35, 59–68. doi:10.1016/j.intell.2006.04.005
- Wellisch, M., & Brown, J. (2012). An integrated identification and intervention model for intellectually gifted children. *Journal of Advanced Academics*, 23, 145–167. doi:10.1177/1932202X12438877
- Winner, E. (2000). The origins and ends of giftedness. *American Psychologist*, 55, 159–169. doi:10.1037/0003-066X.55.1.159
- Witteck, L., & Kvernbekk, T. (2011). On the problems of asking for a definition of quality in education. *Scandinavian Journal of Educational Research*, 55, 671–684. doi:10.1080/00313831.2011.594618
- Ziegler, A., & Phillipson, S. N. (2012). Towards a systemic theory of gifted education. *High Ability Studies*, 23(1), 3–30.
- Ziegler, A., Vialle, W., & Wimmer, B. (2013). The actiotope model of giftedness: A short introduction to some central theoretical assumptions. In S. N. Phillipson, H. Stoeger, & A. Ziegler (Eds.), *Exceptionality in East Asia* (pp. 1–17). London: Routledge.