

A review of the research on gifted education curriculum

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Abstract

This review of some recent papers revealed the importance of early identification of giftedness and development of their talents from early childhood. Some country differences in conceptualising and implementing gifted education programmes were noted. Discriminations of various types leading to inequities and clear rural-urban divide are widespread among different countries. There is no evidence of the offered solutions being attempted at practical levels. Only some theoretical frameworks were available in the reviewed papers. How the actual content of a gifted education curriculum will look like, is still to be clear. Not many practical testing and validation of the theoretical models are available.

Keywords: Gifted education, curriculum, research review

Introduction

National Association of Gifted Children (NAGC) defines giftedness as, “students with gifts and talents perform—or have the capability to perform—at higher levels compared to others of the same age, experience, and environment in one or more domains. They require modification(s) to their educational experience(s) to learn and realize their potential.” They may come from any ethnic group, race, gender, culture or socio-economic status. To reach their full potential, they need to be provided with appropriate learning opportunities (NAGC, Undated) different from those of other children. This may be contradictory to inclusive education. No global or country-wise estimate of gifted children is available, as the measurement of giftedness may vary between contexts. When dealing with the topic of curriculum for the gifted, the population of primary concern is the children in the school-going age.

So, the question arises: what type of curriculum is most suitable for gifted students?

There had been a lot of research on this topic. This paper will review the more recent ones of them and try to answer this question.

What is giftedness?

Giftedness was defined by US Federal government as a trait-based (rather than as state-based) quality, manifested in six areas: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual and performing arts and psychomotor ability (Marland Jr, 1971) (p 8). Creativity was linked to giftedness in the Gagné (1985)’s Differentiated Model of Giftedness and Talent (DMGT) (p 87). In this theory, giftedness was conceptualised as the innate abilities (or aptitudes) in at least one domain area among intellectual, creative, socio-affective, and sensorimotor and differentiated it from “talents” defined as demonstration of mastery of these gifts. The three-ring conception of Renzulli (2016) regards giftedness as the effect of interactions among well-above-average ability, creativity and task commitment, each playing a critical role in the development of gifted behaviour. According to the (Sternberg, 2003)’s model, giftedness is a synthesis of wisdom, intelligence, and creativity (WICS). Different methods of assessing giftedness have followed different definitions as outlined above.

The design of Giftedness Rating Scales (GRS) were aimed at being user friendly screening instrument, requiring minimal training to score and interpret, psychometrically reliable and valid and using a standardized sample which reflects the demographic pattern. Most commonly used Wechsler Intelligence Scale for Children–Fourth Edition (WISC-IV) and Wechsler Preschool and Primary Scale of Intelligence–Third Edition (WPPSI-III; (Pfeiffer & Jarosewich, 2007)) were meant for preschool (GRS-P: ages 4.0-6.11) and school-aged children (GRS-S: ages 6.0-13.11). Out of these, GRS-S correlated well with IQ scores of WISC-IV and differentiate between intellectually gifted and not gifted. For selection of students for gifted and talented programs in Grades K to 12, the Scales for Rating Behavioural Characteristics of Superior Students (SRBCSS) are the ones used widely. In this test, 14 scales are used for identifying abilities in learning, motivation, creativity, leadership, art, music, drama, planning, communication (precision), communication (expression), math, reading, science, and technology (Kaufman, Plucker, & Russell, 2012).

Considering creativity, Plucker et al. (2004) proposed a definition of the term as “the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context.” (p. 90). Guilford’s (1967) model of creativity has 120 items of mental abilities, to which, divergent thinking (ability to answer open-ended questions) was added later. Testing for divergent thinking has become a common practice to measure creativity. Guilford’s model itself has 24 items of divergent thinking, one type for each combination of the four types of content (Figural, Symbolic, Semantic, Behavioural) and six types of product (Units, Classes, Relations, Systems, Transformations, Implications). But The Torrance Tests of Creative Thinking (TTCT; Torrance, 1974, 2008) is the most commonly used method of assessing creativity through divergent thinking. Creativity can also be assessed using Consensual Assessment Technique (CAT). Creative persons (instead of focus on products of creativity) are assessed by parents, peers and teachers in many instances (Kaufman, Plucker, & Russell, 2012).

So, once a child has been identified as gifted, the topic question given above arises: What is the most suitable curriculum for gifted students?

Methodology

The first five pages of Google Scholar were searched with the topic phrase, 'gifted education curriculum' as the search term setting the period of search as 2017-2021. This search yielded 22 usable papers, of which 8 were used above and the balance 14 are discussed under various sections below.

Results

Gifted education curriculum methods

Enquiry learning was proposed as a suitable education curriculum for gifted children by (Buerk, 2021). In enquiry learning, active investigations and application of knowledge aligned to student interests are used along with fluid protocols and multiple resources for learning. Using key compatible elements from Tomlinson’s Differentiated Instruction Model (2001), Renzulli and Reis’ Schoolwide Enrichment Model (SEM) (1985), and Kaplan’s Depth and Complexity Model (2005), an integrated curricular model called the CLEAR (Challenge Leading to Engagement, Achievement and Results) curriculum served as a framework for studies on gifted education by (Azano, Callahan, Brodersen, & Caughey, 2017). Positive results were obtained from the 3-year

nation-wide study in USA. The merits of CLEAR curriculum were discussed by (Missett, Callahan, & Adams, 2021) pointing out that the curriculum model combines the most compatible elements from three well-accepted models: the differentiated instruction model; the Schoolwide Enrichment Model; and the depth and complexity model. The CLEAR units allow teachers to explore basic principles and key elements of these models in gifted education. These observations of the authors were based on experience with six language arts models developed using CLEAR model.

In an effort to identify gifted children at kindergarten level itself, a project M² was initiated in USA to challenge these students on geometry and measurement concepts, positioning them as mathematicians. Results of the experiment showed that KG students can achieve gifted levels of mathematical abilities if they are presented with challenging curriculum (Casa, Firmender, Gavin, & Carroll, 2017).

Fourth grade Black girls receiving gifted instruction performed significantly better than the Black girls both in maths and science. White girls, with or without receiving gifted instruction outperformed Black girls in science. The US data of NAEP for maths and science were used for this analysis (Young, Young, & Ford, 2017). These findings were interpreted by the authors based on the double discrimination of both racial and gender nature for Black girls in education leading to less opportunities for Black girls to learn and achieve the level of STEM giftedness.

The merits of affective curriculum were highlighted by (Peterson, 2021). Affective curriculum is proactive, prevention-oriented. It is possible to use affective curriculum either as a stand-alone or as an embedded programme in regular curriculum. Stand-alone affective curriculum can be used as a pull-out program to include the whole child and increase participation of gifted students, who are not capable to participate in gifted education programmes. The rationale for this curriculum is based on development of expressive language, affirmation of personal strengths, nurturing of identity development, normalisation of feelings and developmental challenges and making social connections. The concept seems to be more abstract and philosophical rather than related to the practical aspect of gifted education curriculum.

Gifted education curriculum planning and implementation

The effectiveness of a Jockey Club programme, “Giftedness into Flourishing Talents” Project (Project GIFT), in Hong Kong was evaluated by (Cheung, Hui, & Cheung, 2020). Through close cooperation with 20 project schools, diversity support enabled by Project GIFT was assessed on six developmental areas: school development, curriculum development, teachers’ professional development, parent empowerment, student development, and financial support. The project was implemented at both Level 1 (whole school) and at Level 2 (pull out) of the three-tiered policy followed by Hong Kong Educational Bureau. The study revealed significant enhancements in diversity in learning, school development, professional development, curriculum development, student development, parent empowerment, and financial support.

Almost all aspects of talent development in gifted children were dealt in a recent book by (Olszewski-Kubillus, Subotnik, & Worrell, 2021) The topics covered included the framework of talent development and its policy and practical implications; talent development in K-12 students; programming for talent development inside and outside school; curriculum and instructions within talent development framework; removing inequity in identification and development of talents among low income and under-represented communities; performance skills; talent development model from visual arts in and out of schools; mentoring and

developing productive environment for talent development; creativity development in talent development; motivation, evaluation of effectiveness of talent development programmes and addressing some misconceptions about talent development framework. Of these, talent development framework is related to curriculum development for gifted students. The earlier differentiation between giftedness and talent needs to be remembered here: giftedness was conceptualised as the innate abilities (or aptitudes) in one or more areas and talent is demonstration of mastery of these gifts. Thus, talent becomes practical application of giftedness. The framework proposed by (Subotnik, Olszewski-Kubillus, & Worrell, 2021) is based on the following principles: abilities are domain-specific and malleable; talent domains have different trajectories; mental skills and social skills are important and need for long range thinking and planning. The framework is as shown in Fig 1. Some psychological limiting factors listed are low motivation, unproductive modes of thinking, low level of psychological strength and poor social skills. Similarly, some External and random factors of late access to the domain, mismatch between interests and opportunities are listed. Some psycho-social enhancers of talent development are optimal motivation, receiving opportunities, productive mindsets, good psychological strength and social skills. Some external and random factors like opportunities offered in and out of school and financial resources and social and cultural capital also enhance talent development.

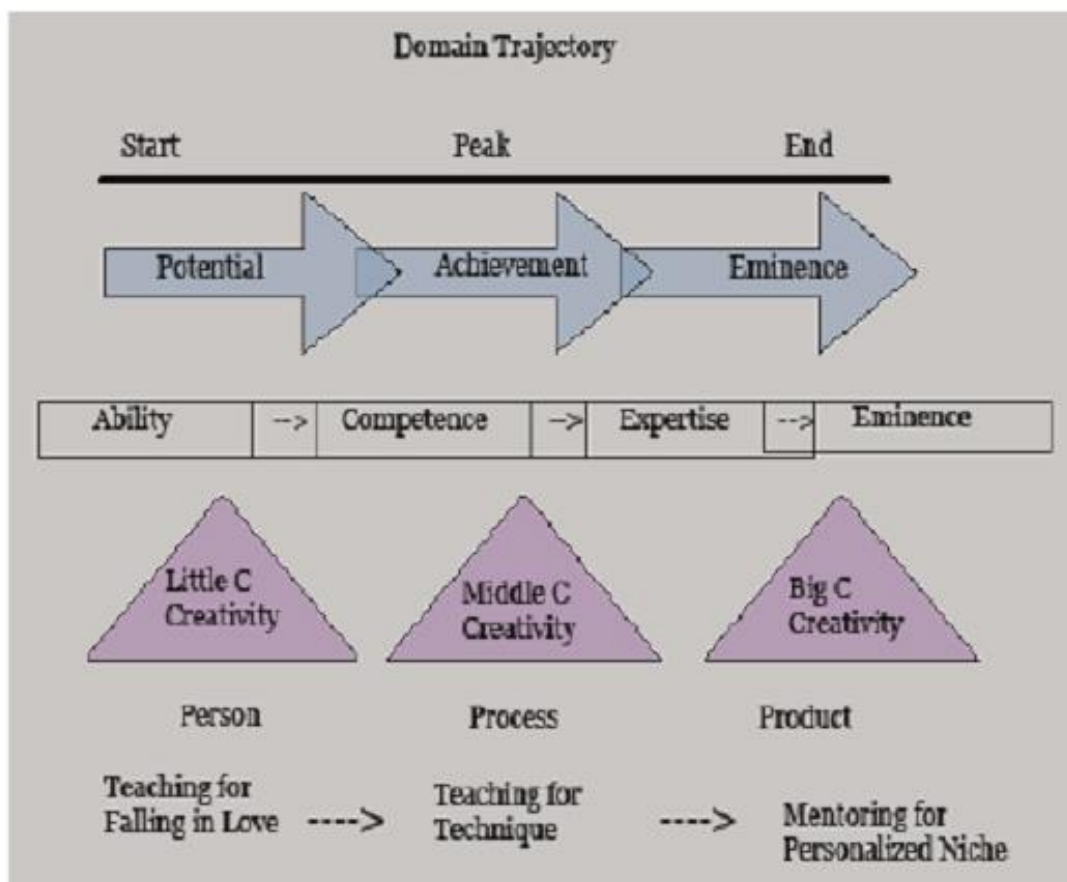


Figure 1 Mega-model of talent development framework, cf. (Olszewski-Kubillus, Subotnik, & Worrell, 2021).

Gifted education in Australia has no federal mandate or funding support. So, states are responsible for gifted education programmes. Acceleration of education for gifted students, focus on gifted girls and attitudes of teachers on gifted education had been the main themes of Australian research on gifted education. Policies, models and barriers of Australian gifted education were discussed by (Walsh & Jolly, 2018). Australian Association for the Education of the Gifted and Talented (AAEGT) is the national advocacy association for gifted students in the whole country. State associations are affiliated to this national organisation. Neither the commonwealth nor states have any dedicated units for gifted students. Only a few states have units to allocate students to selected government schools. Policies for gifted education of all states are based on the (Gagné, 1985)'s Differentiated Model of Giftedness and Talent as their definition of giftedness, but there is high degree of arbitrariness and variations at states and school levels. Commonalities exist only with respect to use of IQ instruments (e.g., Wechsler Intelligence Scale for Children–III and Stanford–Binet Intelligence Scales), teacher nominations, and measures of school achievement. Under achievement, learning disabilities and inequities in inclusions are common problems. The state policies have delegated all aspects of gifted education to individual schools. But due to absence of state support, schools are imperfect in implementing them to achieve any sizable targets. Withdrawal programmes at primary levels are outside and not connected to the regular curriculum. Some good models are opportunity classes at primary levels in NSW and selective high schools exclusively for gifted children in Victoria and NSW and virtual schools in NSW for increasing access to remote locations. Professional learning of teachers is poorly organised with wrong timing. But with the introduction of online training and teacher accreditation standards, situation has improved in some states. Apart from tall pappy syndrome of peers lowering gifted students, apathy and opposition also exist as barriers to gifted education. The new National Curriculum has no mention of curriculum for gifted students. The Australian Professional Standards for Teachers (Australian Institute for Teaching and School Leadership) do not mention about teacher standards for gifted education. Schools consider gifted education as an optional extra. Declining performance of Australian students in TIMSS and PISA international tests has forced the commonwealth to introduce National Assessment Program–Literacy and Numeracy (NAPLAN) introduced in 2008, for which, there are very few takers among students, parents and schools. It has been observed that the top 10% of students in this test are 5 to 6 years ahead of the bottom 10% of the performers. Recent attempts to convert NAPLAN into tailored testing can be helpful to identify gifted students using a nation-wide uniform testing standards. In Australia, girls outperform boys in final year examinations and enter university at a greater rate than boys. But interest in girls' education has been a main research focus, but not related with giftedness substantially. Negative attitude of teachers on gifted education can be changed by training as some research results show. However, the survey results obtained by (Peters & Jolly, 2018) did not show that higher levels of professional development leads to better teacher practices for gifted students in Australia. On the other hand, (Kronborg, 2018) reported about a sustained growth of knowledge and understanding of the diverse educational needs of gifted and talented students, increasing positive attitudes among teachers, increase in the number of gifted educators and academics working with ministries of education in Australia and New Zealand to raise the awareness of gifted and talented students' needs, and to create relevant policies with local departments of education, albeit with varying results.

Several curricular programmes for the education of gifted students governed by Department of Education in Philippines, were discussed by (Pawilen & Manuel, 2018). However, absence of a

national, Filipino model of curriculum, instruction methods, assessment methods, training of teachers for gifted education and identification of potentially gifted students were some challenges to be addressed. Other issues include the need to ensure quality by regular monitoring and review, greater access to the programmes to ensure equity, government and other supports to sustain the programmes and autonomy for gifted schools to develop their own curriculum independent of the government prescription. The last issue may create problems in standardisation and ensuring quality across all schools. The authors proposed a curriculum development model, as given in Fig 2.

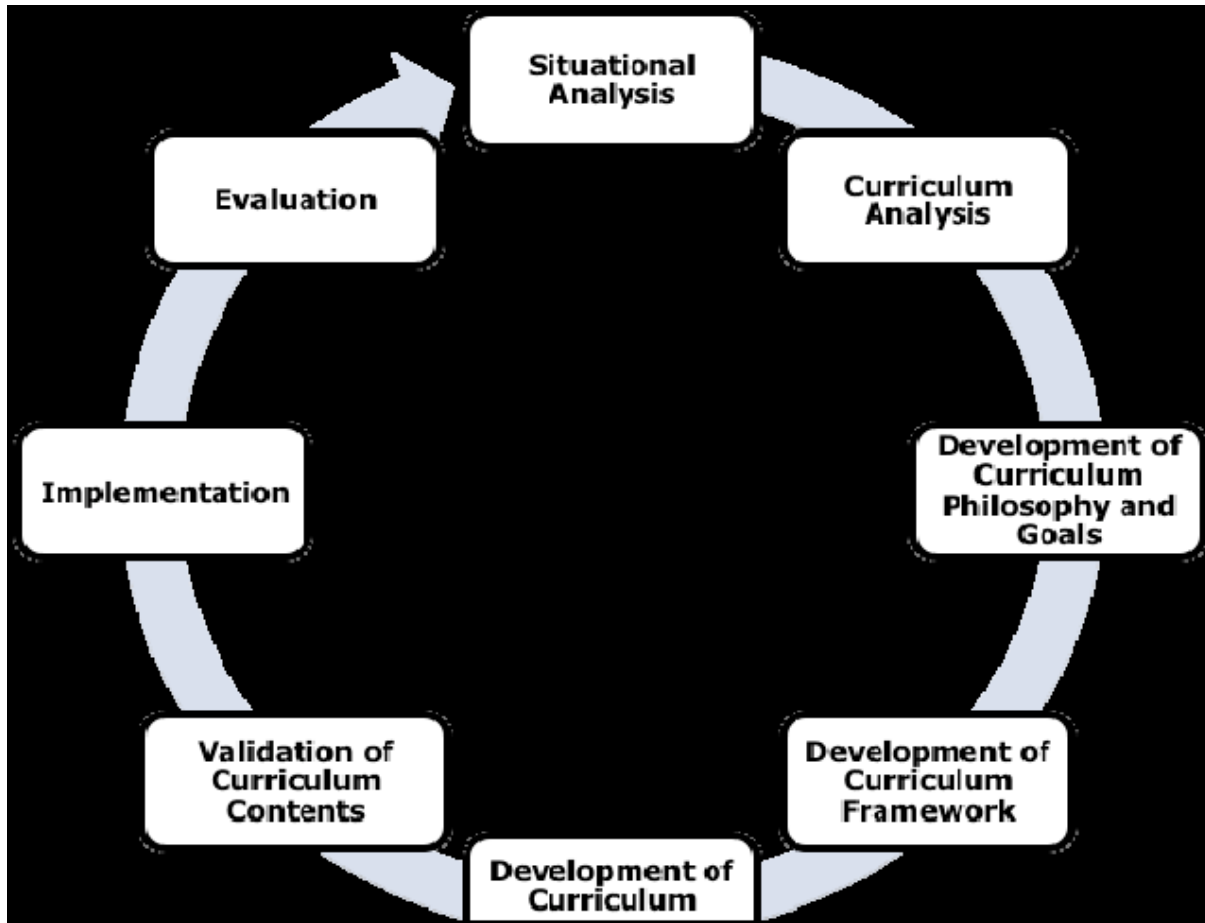


Figure 2 Curriculum development model for gifted education in Philippines (Pawilen & Manuel, 2018).

Further, a curriculum framework for gifted students developed by the authors is given in Fig 3. Descriptions of the contents in the two models have been given in the paper. Benchmarking the Philippines model with those of other countries is an important aspect of curriculum analysis. As a sequential process, the results of situational and curriculum analysis, philosophy and goals are to be prepared; these are important for the governance of a centrally administered system. However, it is not clear whether the authors support a highly centralised at the national level or a decentralised governance at school level giving them complete autonomy. Once the philosophy and goals are clear, curricular framework, content and their validation should follow, as has been specified in the model.

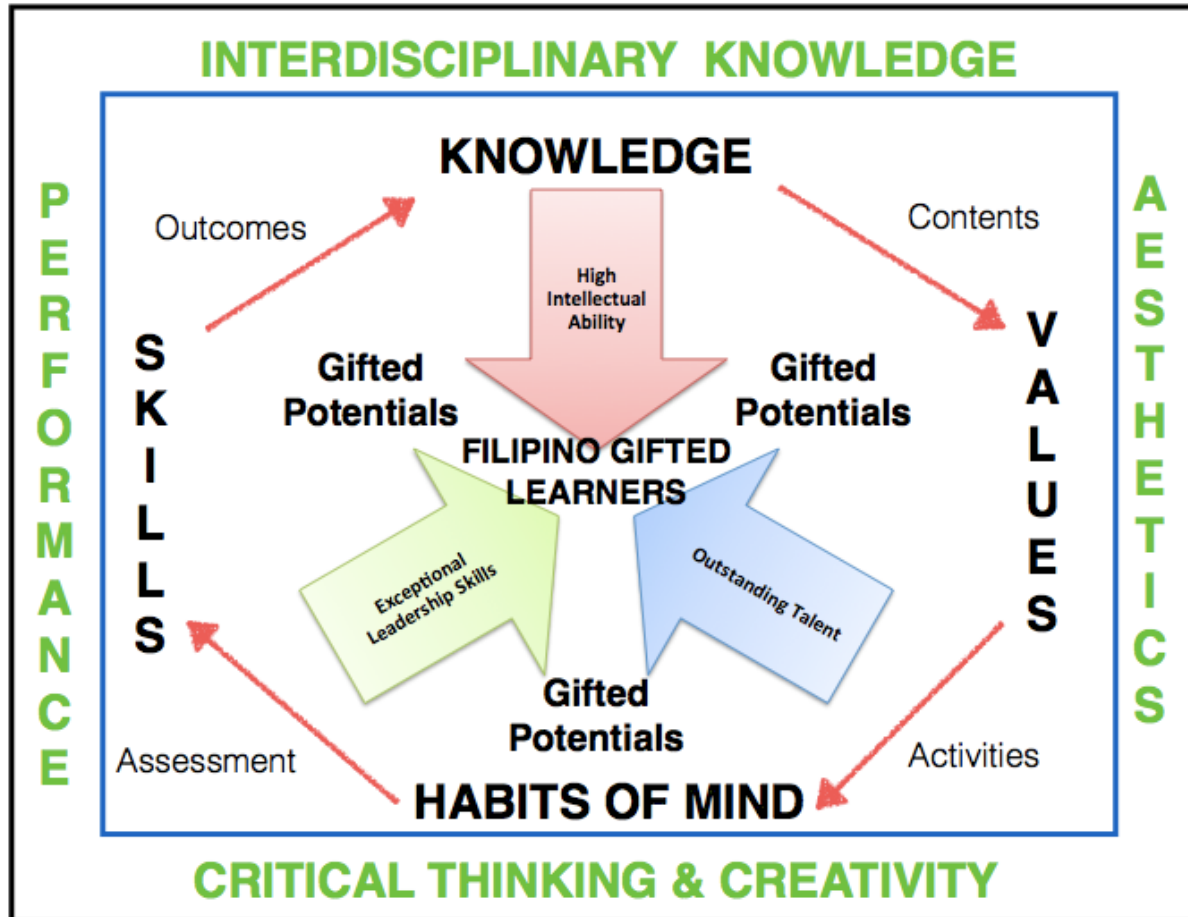


Figure 3 Curriculum framework for Filipino gifted students (Pawilen & Manuel, 2018).

In this framework, the word Filipino is important, as the framework is developed for Filipino gifted students only. However, it can be argued that other elements are common to any gifted students of any country and hence, the word Filipino need not be stressed. The model has been described briefly. Both models given in Fig 2 and 3 need testing and validation.

The Mexican experience of gifted education was reported by (Sánchez-Escobedo, Camelo-Lavadores, & Valdés-Cuervo, 2021). The authors differentiated the concepts of gifted, talented and high achievers for Mexican context. Based on the examination of various aspects related to gifted education in Mexico, it was argued that gifted education should be separated from special education. There should be adequate investment in and implementation of programs and provisions for gifted students to facilitate economic development and security of the country.

Rural gifted education

In a systematic review, the concepts of rural education and gifted education were separately reviewed and the scope for the combined into rural gifted education was assessed by (Rasheed, 2020) in terms of rurality as a context for gifted education, rural-specific questions about curricula content, specific place-based curricula in gifted education, successes, challenges and gaps in rural gifted education. The wide disparity between rural and urban schools on many aspects exert a push-pull effect on the rural students: push from rural settings due to dissatisfaction and pull by urban schools. Lack of equity in identification of gifted students and

policies on their education and programmes with respect to the disadvantaged sections of rural ethnic, poor and socio-economically backward gifted students in the rural settings were pointed out. Both 'in school' and outside of the schools, especially those located off-site, school size, lower funding and staffing for rural gifted education, were macro-level challenges. There are Achievement-Opportunity gaps between rural due to missing out rural gifted children when traditional identification methods are used. Six emergent themes for gifted curricula are relevant here: supportive learning environments with peers, access to multicultural materials and resources, curriculum that emphasizes critical thinking and problem-solving skills, project- and problem-based learning, access to a range of education opportunities and assessment of learning in a wider context. Methods to teach gifted students in general classroom itself exist. Of course, without extra support, its effectiveness in gifted education is doubtful, although other students may learn better due to the presence of gifted children in the class. Normally, there is rarely any place (rural)-specific gifted education curriculum. Rural gifted students are at risk of not having their specific requirements met and hence their full potential is not achieved.

In the case of Australasia-Pacific rim nations, the effects of the above inequities in rural gifted education is further aggravated by inadequate number of specialists in gifted education, inadequate resources, limited program options, limited research opportunities and field trips. Alternate methods of identifying gifted students in rural areas and adaptation of CLEAR curriculum framework proposed by the authors, were suggested as solutions to these issues (Callahan & Azano, 2021).

Conclusion

This simple review of literature exposes weaknesses in the development of the gifted education curriculum. Early identification of giftedness and development of their talents from early childhood country differences in conceptualising and implementing gifted education programmes, discriminations of various types leading to inequities and clear rural-urban divide are some major observations. Some solutions were offered to address these issues, but there is no evidence that these solutions are attempted at practical levels.

Only some theoretical frameworks were available in the reviewed papers. How the actual content of a gifted education curriculum will look like, is still to be clear. Not many practical testing and validation of the theoretical models are available.

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