

A systemic literature review: educational programming models for gifted students in Indonesia

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Abstrak: Kajian ini menyajikan tinjauan literatur sistemik yang membahas tentang model program pendidikan untuk siswa berbakat di Indonesia. Studi ini bertujuan untuk memberikan gambaran model program pendidikan yang ada untuk siswa berbakat di semua jenjang sekolah dan untuk menggambarkan siswa yang memenuhi syarat untuk model program pendidikan tersebut. Kajian ini menggunakan pedoman proses tinjauan sistemik oleh Newman & Gough yang terdiri dari beberapa tahapan dengan melakukan publikasi peer-review terkait pendidikan gifted di Indonesia dan diterbitkan antara tahun 2012 dan 2022. Temuan kajian ini menginformasikan bahwa (1) sebagian besar publikasi memiliki pemahaman yang sama tentang siswa berbakat yang didefinisikan memiliki skor tes IQ di atas 130 dan memenuhi syarat untuk program berbakat, dan (2) model pemrograman pendidikan utama untuk siswa berbakat adalah akselerasi.

Kata Kunci: model program pendidikan, siswa berbakat.

Abstract: This study presents a systemic literature review that discusses the state of educational programming models for gifted students in Indonesia. The study aims to provide an overview of the existing educational programming models for gifted students in all school levels and to depict students who are eligible for educational programming models. This study uses the guideline of systemic review process by Newman & Gough that consists of several stages by carrying out peer-reviewed publications related to gifted education in Indonesia and published between 2012 and 2022. The findings of this review inform that (1) the most publications have the same understanding of gifted students who are defined as having IQ testing score above 130 and are eligible for gifted programs, and (2) the main educational programming models for gifted students is acceleration.

Keywords: *educational programming models, gifted students*

INTRODUCTION

The paradigm regarding students with special needs, including gifted students as assets for the progress of a country in the future (Nashori, 2016), is growing in a better direction, and this is supported by policies that have been established globally and nationally, (Kismawiyati, 2018). Referring to international policies, Article 26 of the Universal Declaration on Human Rights clearly and concisely explains that education should be free, compulsory, and available to all under equal conditions, (Ninkov, 2020). Nationally, the Indonesian government regulates in law no. 20 of 2003 concerning the National Education System by mandating the need for special education for gifted children, namely in article 5 paragraph 4 which reads "citizens who have potential intelligence and special talents are entitled to special education". In addition, Article 12 paragraph 1b states that "every student in each education unit has the right to receive educational services according to their talents, interests and abilities".

The presence of gifted students in schools is common and spread across various levels of education, but identifying and providing an educational service for gifted students in a school population is challenging (Clark, 2012). Statistical data from the BPS Statistics for Education (2021) shows that the number of students in 2020-2021 is 45,215,000 students spread across the elementary, middle, high school, and vocational levels. Based on the prevalence of gifted children explained by Hallahan & Kauffman (2006), gifted children are around 2.1% of the total population of school-age children which indicates that there are 949,515 gifted children in Indonesian schools.

Table 1. The total amount of students in 2019 to 2021 from the Ministry of Education and Culture, Indonesia

School levels	The total amount of students	
	2019/2020	2020/2021
(1)	(2)	(3)
Elementary school	25.203,4	24.848,6
Middle school	10.112,0	10.090,5
High school	4.976,1	5.017,3
Vocational school	5.249,2	5.258,6

U.S. Department of Education in Smith (2017) and Joyce Vantassel-Basca (2021) explain that gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular school program to realize their contributions to self and society. Children capable of high performance include those with demonstrated achievement and/or potential in any of the following areas: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual or performing arts, psychomotor ability. Furthermore, the meaning of gifted students is based on Renzulli's three-ring conception of giftedness, which considers three gifted traits: above average ability, creativity, and task commitment (Davis et al., 2014).

Educational programs for students with giftedness can take many different forms, but they generally aim to provide opportunities for these students to reach their full potential and challenge them academically. There are some examples of programs that are commonly used and accessed by the gifted students referred to Davis et al. (2014), Clark (2012), and Semiawan (1997) in which programs may differ such as in the categories of students served, program goals, the general program models(s) followed, acceleration plans, enrichment plans, grouping and organizational arrangements, instructional or delivery strategy used, community professionals and resources involved, and program level (classroom, school, district, state, or national) that are explained below:

1. **Enrichment programs:** These programs offer gifted students opportunities to explore subjects in greater depth and breadth than regular coursework. They may involve advanced or specialized classes, independent projects, or opportunities to work with experts in the field.
2. **Acceleration:** Acceleration involves moving students through the curriculum at a faster pace than their peers. For example, a gifted student may skip a grade level or take advanced classes earlier than usual.
3. **Mentorship programs:** Mentorship programs pair gifted students with mentors who are experts in their areas of interest. The mentors may provide guidance, support, and opportunities for the students to pursue their passions.
4. **Summer programs:** Many universities and organizations offer summer programs designed specifically for gifted students. These programs provide opportunities for intensive study in a variety of subjects and often involve living on a college campus.
5. **Online learning:** Online learning provides flexible and personalized opportunities for gifted students to pursue their interests and challenge themselves academically.
6. **Gifted schools:** Some school districts have specialized schools for gifted students that provide a challenging and stimulating educational environment designed specifically for these students.

It is important to note that educational programs for gifted students should be tailored to the individual needs and interests of each student. A one-size-fits-all approach is unlikely to be effective for these students, who often have unique strengths, weaknesses, and interests. In addition, Indonesia as a diverse and populous nation recognizes the importance of catering to the needs of its gifted population. Hence, by conducting a systematic literature review on educational programming models for gifted students in Indonesia, this study can provide an overview of the existing educational programming models implemented for gifted students in Indonesia and those who are eligible for educational programming models.

METHOD

This study uses a literature review approach which provides an overview of current knowledge about a topic and will typically include substantive findings, as well as theoretical and methodological contributions to a particular topic (Hart, 2018). The literature review method is used to review, interpret and identify all available research with various topic areas selected according to interesting and recent phenomena with various research questions addressed in a relevant manner (Triandini et al., 2019). This study used the systemic review process by Newman & Gough (2020) as the guideline that consists of several stages as below.

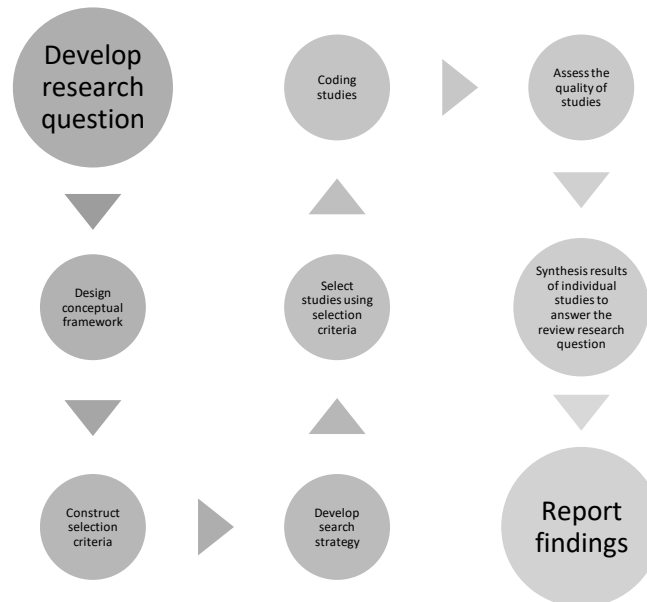


Figure 1. The systemic review process (Newman & Gough, 2020)

Systemic Review Questions and the Conceptual Framework

Based on the guidelines, the first stage in conducting a systematic literature review is to specify the research questions. The Research Questions (RQ) were formulated as (RQ1) “How do the Indonesian schools define gifted students who are eligible for educational programming models?” and (RQ2) “What educational programming models are used by Indonesian schools to support gifted students?”. Therefore, this study reviews the existing literature on gifted education with the aim of providing an overview of the educational programming models implemented for gifted students in Indonesia, and those who are eligible for educational programming models.

The conceptual framework refers to Davis et al. (2014), Clark (2012), and Semiawan (1997) stating the educational programming models such as enrichment programs, acceleration, mentorship programs, summer programs, online learning, and gifted schools, and refers to Davis et al. (2014) Renzulli's three-ring conception of giftedness with three traits namely above average ability, creativity, and task commitment.

Selection Criteria and Developing the Search Strategy

The selection criteria are formulated by the review questions and conceptual framework. To delimit the selection of studies related to the main topic of the review, the keyword of gifted program in Indonesia “gifted education” in English was identified.

The search strategy will detail the sources to be searched and the way in which the sources will be searched. The database was used in this study namely [Google Scholar](#) published peer-reviewed publications between 2012 and 2022. A total of 72 publications were produced after conducting the initial results of the search across the database.

The Study Selection Process and Appraising the Quality of Studies

Publications identified by the search are subject to a process of checking or screening to ensure those studies meet the selection criteria. This was done in two stages whereby titles and abstracts are checked first to determine whether the study is likely to be relevant, and then a full copy of the paper is

acquired to complete the screening exercise. 61 Publications were removed because did not include any empirical evidence, did not emphasize on gifted programs, and/or did not take a place in Indonesia, and the remaining 11 publications were then considered for the next stage.

Coding Studies and Synthesis

In this stage, the 11 publications considered for the systemic review were justified with the eligibility of research question 1 and 2. Based on that consideration, 6 out of 11 were removed and the remaining 5 publications were considered for the systematic review.

Table 2. the publications for the systemic review

References	Title	Year	Eligibility	
			RQ 1	RQ 2
Dimiyati, S., & Said, A.	How to Teach Science for Elementary Gifted Students: A Case Study Done At CGS Cianjur In Indonesia	2014	x (refers to Fakhruddiana & Ardiyanti's article)	✓
Abdillah	The Implementation of Gifted Education through Acceleration Program at Senior Islamic High School (MAN) 1 Medan North Sumatera	2015	✓	✓
Safura, S.	An Analysis of Accelerated Classroom in Indonesia	2017	x	✓
Utami, H. & Ashadi	Direct EFL Instruction for Gifted Students: A Case Study	2018	x (refers to Fakhruddiana & Ardiyanti's article)	✓
Anaguna, N., Suhendra, S., & Rahmadani	Tracking down gifted students' creative thinking in solving mathematics problems	2018	✓	✓
Hartati, S. et al.	Empowerment Gifted Young Scientists (GYS) in Millennial Generation: Impact of Quality Improvement in Education of Gender Perspective	2019	x (undergraduate students)	✓
Liana, Y.R., Linuwih, S., & Sulhadi	Science activity for gifted young scientist: thermodynamics law experiment media based IoT	2020	x	x
Suherman, S., Maryanti, R., & Juhanaini, J.	Teaching Science Courses For Gifted Students In Inclusive School	2021	✓	✓
Eva, N., Tairas, MMW., & Alsa, A.	Gifted students' achievement in Natural Sciences: a modeling study	2022	✓	✓
Wahyuni, A.S.	Literature Review: Pendekatan Berdiferensiasi Dalam Pembelajaran IPA	2022	x	✓
Fakhruddiana, F. & Ardiyanti, D.	Studi Komparatif Sekolah Khusus Anak Gifted/ Berbakat di Indonesia dan di Malaysia	2022	✓	✓

RESULT AND DISCUSSION

Tabel 3. *Summary of the reviewed educational programming models for gifted students*

No.	Author	Result			
		Educational Programming Models	School Levels (state/private)	Gifted students	Findings
1	Abdillah	Acceleration	High school (state)	25 students with IQ scores above 130, grades in science more than 7.0, physically health, and parents' support.	The accelerated classes use the National Curriculum with some adjustments such as additional hours lessons on the science subjects, and vice versa. It's supported by teacher's mastery in gifted programs and school facilities.
2	Anaguna, N., Suhendra, S., & Rahmadani	Enrichment	Junior high school (private)	Two students with high ability in solving math problems	The students think creatively in searching for a way delivering answer, study the mathematics pattern, also find and generalize mathematics solution.
3	Suherman, S., Maryanti, R., & Juhanaini, J.	Acceleration	Elementary school (not available)	15 students whose intelligence above average and high learning outcomes compared to peers.	Student's learning outcomes has improved after receiving intense treatment.
4	Eva, N., Tairas, MMW., & Alsa, A.	Acceleration	Junior high school (state)	45 students with IQ scores above 130.	The students' achievement in natural science is influenced by teacher-student interaction and peer support, but parents' involvement.
5	Fakhruddiana, F. & Ardiyanti, D.	Gifted school	Elementary school Junior high school Senior high school (private)	All students that meet the criteria of having IQ scores above 130, commitment, verbal quotients, autonomy for daily life, and lower-income family.	The school applies acceleration, enrichment, project-based activities, and competition.

Research Question 1: How do the Indonesian schools define gifted students who are eligible for educational programming models?

Given the summary of the reviewed publications related to gifted education, there are five authors identifying students who eligible for gifted educational programming models. Abdillah (2015) states the gifted students should meet IQ scores above 130, have grades in science at least 7.0, be in the state of physical health, and have parents' support to join with the gifted program. This study shows that parents play a vital role to underpin and succeed the gifted students' educational program (Mun, et al., 2021; Nilles et al., 2019). Anaguna et al. (2018) define that the students with high ability in solving math problems are eligible for the enrichment program. The eligibility of receiving gifted programs in this study refers to specific high ability in science, technology, engineering, and mathematics (STEM), and students with interests in STEM (Ulger & Çepni, 2020).

Suherman et al. (2021) include acceleration program is designed for students whose intelligence above average and high learning outcomes compared to peers. The high learning outcomes are used for additional criteria as these outcomes could portray the students' profile and preventing underachievement and disengagement before students take in gifted program (Ronksley-Pavia & Neumann, 2020). Eva et al. (2022) state the students with only IQ scores above 130 are eligible for acceleration program. The common definition of highly gifted individuals predicts gifted behavior in children exceeding a point of 130 or more in IQ testing (Winner, 2000), and however, the IQ testing is only valid if it measures what it is intended to measure what extent the tests used to identify giftedness offer different levels of validity in identifying gifted students (Boreland in Smedsrud, 2020). Fakhruddiana & Ardiyanti (2022) announce the gifted school is designed for students that meet the criteria of having IQ scores above 130, have strong commitment, hold verbal quotients, have autonomy for daily life, and come from lower-income family.

Most authors have the same basic understanding of gifted students as having IQ scores above average range or 130. Although that basic understanding has not yet met the Renzulli's three-ring conception of giftedness with three traits namely above average ability, creativity, and task commitment (Davis et al., 2014), some claim that having high IQ scores is not guaranteed students to receive and eligible for educational programming models, but they must hold additional criteria specified by the schools that might vary such as having good grades or high ability in specific subjects, being in a good condition physically, being supported by parents, possessing strong commitment, having proficient verbal quotients, owning autonomy for daily life, and deriving from lower-income family.

Research Question 2: What educational programming models are used by Indonesian schools to support gifted students?

Based on the summary of the reviewed publications related to gifted education, five authors apply educational programming models to support gifted students in schools.

Abdillah (2015) shows that the implementation of accelerated classes in a high school uses the National Curriculum with some adjustments such as additional hours lessons on the science subjects, and vice versa, reduced hours for non-science subjects. In addition, the program is supported by teachers whose mastery in gifted understandings and programs, and the school is responsible for providing necessary facilities. Suherman et al. (2021) adds that gifted students in elementary school have showed an improvement on student's learning outcomes after receiving acceleration program. Moreover, Eva et al. (2022) state that acceleration program in junior high school was conducted with the result of the students' achievement in natural science influenced by teacher-student interaction and peer support. Based on the theoretical framework provided by Davis et al. (2014), Clark (2012), and Semiawan (1997), acceleration is one of gifted program models that entails accelerating the pace at which students complete the curriculum relative to their peers. A gifted student might, for instance, skip a grade level or enroll in advanced programs earlier than typical.

Anaguna et al. (2018) shows the application of enrichment model in junior high school. The finding shows students think creatively in searching for a way delivering answer, study the mathematics pattern, also find, and generalize mathematics solution. This research complies with the general outline of the enrichment program, which provides gifted students with chances to investigate topics in more depth and breadth than in the standard curriculum. Students may take part in advanced or specialized classes, individual projects, or chances to collaborate with subject-matter specialists (Davis et al., 2014; Clark, 2012; and Semiawan, 1997).

Fakhruddiana & Ardiyanti (2022) explain that the implementation of gifted school applies acceleration in which includes enrichment, project-based activities, and competition for gifted students. Given the theoretical framework by Davis et al. (2014), Clark (2012), and Semiawan (1997), some specialized schools for gifted students provide a challenging and stimulating educational environment designed specifically for these students.

Based on the result of the systemic review, the most educational program model for gifted students is acceleration, and the implementation of the accelerated program may differ from one to another due to specific reasons such as accelerated program in classes or specific subjects.

CONCLUSION

The term "gifted students" is used loosely to refer to children who need unique educational programs and services above and above what is typically offered by the conventional school curriculum in order to achieve their contributions to themselves and society. This study gives a summary of the gifted kids who qualify for educational programming models and the current educational programming models used for gifted students in Indonesia based on a review of the literature. Numerous publications define gifted students as having IQs above average. Some contend that having a high IQ score does not automatically qualify students for educational programming models. Instead, they must meet additional criteria set forth by the schools, which may vary, such as having good grades or high ability in specific subjects, being in good health, or some combination of these. Then, Acceleration is the most common educational program model for gifted kids, and different accelerated programs may be implemented for different reasons, such as accelerated programs in particular classes or disciplines.

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A BRIEF PROFILE

Adi Suseno was born in Kebumen, Central Java, on January 27, 1992. He earned his bachelor's degree in special education at Universitas Negeri Yogyakarta in 2016 and graduated from master's degree in teaching and curriculum at Syracuse University in 2020. He was a special education teacher both in inclusive and special schools. His roles were to develop, remodel, conduct and evaluate academic and functional curriculum adaptations for students with special needs, and those require collaborations between a school, family, and society. Currently, he has joined the Department of Special Education, Faculty of Education and Psychology, Universitas Negeri Yogyakarta as an academic staff. He takes a charge of (1) developing, transferring, and evaluating updated knowledge and practices based on literature and practice to undergraduate students through teaching and learning, (2) designing and conduct research and grants related to disability issues and education, and follow them into publications nationally and internationally, and (3) organizing and assessing problem-based programs in educational and community service.

Rochmat Wahab was born in Jombang, East Java, on January 10, 1957. He earned his bachelor's degree in special education and graduated from master's degree in counseling and guidance at Universitas Pendidikan Indonesia. He received second master's degree in Curriculum and Instruction for Elementary Education at University of Iowa. Currently, he is a professor specialized in gifted education in the Department of Special Education, Faculty of Education and Psychology, Universitas Negeri Yogyakarta.