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Program Evaluation Models in Gifted Education: A Survey

Tyrone O. Gil Jr.

University of the Philippines, Philippines
Correspondence: E-mail: togil@up.edu.ph

ABSTRACT

The purpose of this study is to evaluate major program evaluation models in gifted education to determine their effectiveness in improving student outcomes. Using a comparative review approach, the paper examines Callahan's guide, the REDSIL Model, and Rimm's comprehensive model. Each model was analyzed based on its emphasis on stakeholder involvement, scope of evaluation, and integration of both process- and product-oriented measures. Findings indicate that Callahan's guide offers strong stakeholder engagement but limited depth in methodological rigor, while the REDSIL Model provides a flexible qualitative framework with challenges in generalizability. Rimm's model demonstrates the most holistic approach, capturing goals, processes, and outcomes, yet it requires significant resources for implementation. The discussion emphasizes that no single model is universally applicable; rather, effectiveness depends on alignment with program goals, available resources, and contextual needs. In conclusion, the study underscores the importance of selecting evaluation models strategically to enhance both academic and socio-emotional outcomes for gifted students. This contributes to evidence-based decision-making and improved educational practices in gifted education.

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1. INTRODUCTION

Program evaluation is commonly defined as a systematic process of collecting and analyzing information to assess the worth, merit, or significance of a program (Renzulli, 1984). This multifaceted process involves several essential stages, beginning with the clear articulation of program goals and objectives, which provide the foundation for subsequent evaluation efforts. A comprehensive evaluation further requires the selection or development of appropriate metrics and methodologies, the systematic collection of relevant data, and the rigorous analysis and interpretation of findings within the context of the program's aims. Many evaluation models incorporate key components such as needs assessment, formative and summative evaluation, and follow-up studies. The outcomes of these assessments inform programmatic adjustments, guide resource allocation, and, when necessary, support advocacy for program improvement or continuation.

Program evaluation serves several key functions. The formative function refers to ongoing assessments conducted during program implementation to enhance and improve effectiveness (Rallis & Bolland, 2004). The summative function focuses on evaluating overall program efficacy and addressing major concerns regarding outcomes and impact. In the context of gifted education, evaluations help determine whether program components are achieving their intended goals. The psychological function assesses the extent to which a program addresses students' emotional and social needs, including self-esteem, motivation, and well-being. Finally, the socio-political function examines how a program influences broader social and political contexts, particularly issues of equity, access, and community relations (Carter & Hamilton, 1985).

Program evaluation fulfills several critical functions. The formative function involves continuous assessments during implementation, aimed at refining and improving program effectiveness (Rallis & Bolland, 2004). The summative function evaluates overall efficacy by addressing broader questions of outcomes and impact. Within gifted education, such evaluations determine whether program components achieve their intended objectives. The psychological function examines the degree to which a program supports students' social and emotional development, including self-esteem, motivation, and well-being. Finally, the socio-political function considers how a program influences broader contexts, particularly in relation to equity, access, and community relations (Carter & Hamilton, 1985).

Evaluating gifted programs presents several challenges. Chief among them are the difficulties of measuring complex outcomes such as creative problem-solving and higher-order thinking, the absence of standardized instruments tailored to gifted populations, and the need to account for the diverse characteristics and learning profiles of gifted students (Archambault, 1984; Chen & Chen, 2020). Research further indicates that the development of original projects is closely linked to students' evaluations of educational programs, underscoring the importance of assessing outcomes from the learner's perspective (Özbek & Dağyar, 2022). These challenges highlight the necessity of employing evaluation models that are responsive to the specific goals and contextual demands of gifted education within individual schools or districts.

Program evaluation is often treated as a secondary concern, as many programs operate with limited budgets that barely sustain instructional costs and leave little room for activities such as evaluation (Callahan, 1983). In the context of gifted education, the careful selection of instruments to assess outcomes is frequently overlooked, despite its critical importance. The validity of any evaluative judgment depends heavily on the quality of the information upon which it is based, and choosing instruments is a central consideration in program

evaluation (Aylesworth, 1984). Addressing this issue requires not only a comprehensive understanding of evaluation methodologies but also the capacity to adapt these approaches to the unique context of gifted education. Accordingly, this paper reviews the literature on program evaluation models in gifted education, drawing on a comparative analysis of established frameworks. The study aims to identify their theoretical underpinnings, methodological orientations, and practical applications, while highlighting the novelty of situating these models within the current demands of evidence-based and equity-driven gifted education.

2. METHODS

This study employed a systematic review of the literature on program evaluation models in gifted education. The review analyzed and synthesized existing research to identify theoretical foundations, methodological approaches, and practical applications of these models. A comprehensive search was conducted across academic databases, including ERIC, PsycINFO, and Web of Science, to locate relevant articles, book chapters, and reports. Keywords such as program evaluation, gifted education, evaluation models, assessment, and outcomes were used in various combinations to maximize retrieval. Only models that demonstrate adaptability to the goals and characteristics of gifted education programs were included in the review.

3. RESULTS AND DISCUSSION

3.1. Discrepancy Evaluation Model

One of the earliest formalized approaches to program assessment is the Discrepancy Evaluation Model (DEM), which compares program performance against established standards (Carter, 1992). According to this model, evaluation should focus on identifying gaps between intended outcomes and actual results. The DEM proceeds through several steps: defining standards, collecting performance data, comparing actual performance with benchmarks, identifying discrepancies, analyzing underlying causes, and recommending corrective actions. This structured process provides a comprehensive framework for assessing educational initiatives by examining alignment with predetermined standards, resource allocation, and procedural implementation.

In gifted education, the DEM is frequently employed to evaluate the degree of alignment between program goals and outcomes. Evaluation begins with a clear articulation of objectives, often expressed in terms of expected student performance, curricular benchmarks, or instructional strategies. The model's primary strength lies in its ability to pinpoint specific areas where programs fall short of expectations, thereby equipping decision-makers with actionable insights for targeted improvement and resource allocation (Moon, 1996). Successful application, however, requires explicitly stated objectives and measurable performance indicators to ensure meaningful comparisons.

Despite its utility, the DEM has notable limitations. Its strong emphasis on compliance with predetermined standards may fail to capture the complexity and nuance of gifted education programs. Moreover, its reliance on quantitative data risks overlooking valuable qualitative perspectives from students, teachers, and parents (House & Lapan, 1994). For this reason, evaluators applying the DEM in gifted education are encouraged to supplement quantitative findings with qualitative evidence to achieve a more holistic understanding of program outcomes and impacts.

3.2. Value-based Evaluation Model

The value-based evaluation model positions stakeholder values and perspectives at the center of the evaluation process, in contrast to conventional models that primarily emphasize objective standards and quantifiable outcomes. This model highlights the importance of identifying and incorporating the values of diverse stakeholders, including students, parents, teachers, administrators, and community members, to provide a comprehensive and contextually relevant assessment of program quality (Vo, 2018). It is particularly well-suited to gifted education, where programs often pursue multifaceted goals and address the wide-ranging needs and aspirations of students (Renzulli, 1999).

The process begins by eliciting stakeholders' values and priorities with respect to the gifted program, rather than relying on predetermined standards or objectives. Evaluators then collect data on the extent to which the program reflects and fulfills these values, employing both quantitative and qualitative methods. The findings are subsequently used to guide decision-making and support program refinement, with the dual aim of enhancing stakeholder satisfaction and improving overall program effectiveness. By recognizing the diversity of goals within gifted education communities, this approach acknowledges that definitions of success vary among stakeholders and must therefore be meaningfully incorporated into evaluation practices (VanTassel-Baska, 1984).

3.3. Differential Evaluation Model

The differential evaluation model underscores the importance of tailoring evaluation approaches to the unique characteristics, goals, and contexts of individual gifted education programs. Instead of applying a uniform strategy across all settings, this model calls for the design of evaluation frameworks that are responsive to the specific needs and priorities of each program (Carter & Hamilton, 1985; Dettmer, 1985). It is particularly oriented toward differentiating program performance across various stages of development and implementation. This approach recognizes that gifted education programs may differ considerably in objectives, target populations, resources, and instructional strategies, and therefore, a one-size-fits-all evaluation design may yield limited or misleading insights.

By employing a differential evaluation strategy, evaluators can more effectively identify a program's particular strengths and weaknesses, highlight areas for improvement, and ensure that findings are both relevant and contextually meaningful. The process begins with a detailed examination of program goals, target populations, available resources, and contextual factors, which then informs the development of customized evaluation questions, indicators, and data collection methods. A distinctive feature of this model is the inclusion of program stabilization as an evaluative dimension, which examines the extent to which the program has established sustainable practices and whether its outcomes demonstrate consistency over time (George *et al*., 1990).

3.4. DESDEG Model

The Diagnostic and Evaluative Scales for Differential Education for the Gifted (DESDEG) is a specialized evaluation instrument developed by Joseph S. Renzulli and Virgil S. Ward to assess the quality and effectiveness of programs designed for gifted learners. It offers a comprehensive framework for evaluating gifted education initiatives across multiple dimensions (Moller, 1986) and provides a detailed analysis of the components that characterize high-quality gifted programs.

The DESDEG was created to address the lack of instruments specifically designed for evaluating gifted education. Several researchers (Renzulli & Ward,1969) identified the need for a more nuanced and targeted approach to program assessment, one that could account for the unique characteristics and outcomes associated with gifted education (Hernández & Saranlı, 2014). Through a panel judgment process, essential program features were ranked by importance and subsequently used to construct the model's core scales (Moon, 1996). The framework emphasizes excellence in several domains, including curriculum and instruction, student assessment, professional development, program administration, and resource allocation.

The model is supported by five published documents: Part I, the instrument and user's manual; Part II, the handbook for administrators and supervisors; Part III, the handbook for teachers; Part IV, case studies; and Part V, the technical supplement (Bolton, 1977; Moon, 1996). These resources provide evaluators and practitioners with practical guidance, case-based insights, and technical information to strengthen program assessment and development. By adhering to the principles outlined in the DESDEG, schools and districts can systematically evaluate and enhance the effectiveness of gifted education programs, thereby optimizing student outcomes (Hunsaker & Callahan, 1993).

What distinguishes the DESDEG from other models is its explicit focus on gifted education rather than general curriculum evaluation. In addition to its specialization, it offers a flexible framework that can be adapted to the specific goals and contexts of individual programs (Ronksley-Pavia, 2010). As such, the DESDEG remains a valuable tool for educators, administrators, and policymakers seeking to improve the quality, responsiveness, and long-term impact of gifted education.

3.5. Borland's Model for Evaluating Gifted Programs

James Borland's approach to evaluating gifted programs is best understood as a process-oriented framework rather than a prescriptive model. Borland conceptualizes program evaluation through five interrelated perspectives: judgment, description, program improvement, utilization-focused practice, and postpositivism (Borland, 1996).

As a judgment, evaluation represents a systematic, evidence-based appraisal of a program's merit, significance, or worth. This entails collecting and analyzing data to determine the extent to which the program achieves its stated objectives, addresses the needs of its target population, and delivers intended outcomes. As a description, evaluation involves the detailed portrayal of a program's components, activities, and processes, thereby providing stakeholders with a clear understanding of its structure, implementation, and resource use.

Program evaluation also functions as a means of program improvement, catalyzing and enhancing the quality, effectiveness, and efficiency of gifted education initiatives. In its utilization-focused dimension, evaluation emphasizes the practical application of findings to guide decision-making, inform policy, and promote meaningful programmatic change. Finally, Borland underscores the postpositivist orientation of evaluation, which seeks a balanced approach by integrating both quantitative and qualitative methods to capture the complexity of gifted education (Borland, 1990). Some researchers (Borland, 1990) outlined a sequence of steps for conducting program evaluation. Step 1 involves defining or clarifying program goals, in which the objectives and intended outcomes of the gifted program are explicitly articulated. Step 2 requires selecting the specific goals to be addressed in the current evaluation, based on their relevance, importance, and feasibility. Step 3 focuses on identifying

program activities, outcomes, and evaluation criteria aligned with the chosen goals. Finally, Step 4 entails recording and analyzing student performance through the systematic collection and interpretation of performance data to determine the program's impact on student learning and development in relation to the established criteria (Chyung *et al*., 2013; Rallis & Bolland, 2004).

Borland's model underscores that program evaluation is not simply the mechanical application of standardized procedures but rather a dynamic and iterative process of inquiry, reflection, and action. It is inherently multidimensional, encompassing judgment of worth or merit, detailed description, and purposeful improvement. By adopting these principles, educators and administrators can utilize program evaluation not only as an accountability mechanism but also as a strategic tool for advancing excellence and equity in gifted education.

3.6. William and Mary Eclectic Model of Gifted Program Evaluation

The William and Mary Eclectic Model of Gifted Program Evaluation integrates multiple evaluation methodologies and frameworks to provide a comprehensive approach to assessing gifted education programs (Ford *et al*., 2020). Central to this model is the alignment of program goals, evaluation questions, and data collection strategies, ensuring that evaluations are relevant, meaningful, and practically useful. The model draws upon diverse frameworks, including the Context, Input, Process, and Product (CIPP) Model; utilization-focused and knowledge-focused evaluation; client-centered evaluation; and accreditation or certification approaches (Tassel-Baska *et al*., 2000).

By adopting an eclectic orientation, evaluators are encouraged to select and apply the most suitable elements from various approaches, tailoring the evaluation design to the needs of a particular school district or program (Tassel-Baska *et al*., 2000). This versatility allows the William and Mary model to address multiple critical domains of gifted programming, including program philosophy and definitions of giftedness, identification processes, goals and objectives, curriculum design and delivery, grouping practices, socio-emotional development, professional learning, evaluation practices, and resource allocation (Shek *et al*., 2022).

In essence, the William and Mary Eclectic Model offers a flexible yet structured framework that attends to both program processes and outcomes. Its holistic scope makes it particularly well-suited to capturing the complexities inherent in gifted education, while simultaneously providing actionable insights to guide program improvement and ensure accountability.

3.7. Callahan's Practitioner's Guide to Program Evaluation

Callahan's Practitioner's Guide to Program Evaluation provides a practical framework for educators and administrators to conduct meaningful evaluations of gifted programs. It outlines specific guidelines for evaluating gifted programs, particularly those focusing on disadvantaged gifted students. The guide emphasizes the importance of aligning evaluation goals with program objectives, identifying relevant data sources, and utilizing appropriate evaluation methods to gather credible evidence.

This model includes guidelines such as using procedures to identify particular student types, providing adequate descriptions of program components, establishing appropriate outcomes for gifted students, employing multiple measures for examination, considering possible negative side effects, recognizing unanticipated effects on students, teachers, parents, and the community, incorporating culturally relevant material, and demonstrating sensitivity. The guide balances theory and application by combining research-based theory

with practical evaluation models and instruments that educators can implement in diverse gifted program contexts.

Callahan stresses the importance of both ongoing formative evaluation and summative evaluation to assess program effectiveness and inform decision-making. This dual approach is critical for ensuring continuous improvement and accountability in gifted education. She also highlights the use of diverse quantitative and qualitative data sources to comprehensively assess program outcomes, including standardized test scores, student work samples, teacher observations, and stakeholder interviews. Callahan's guide underscores the importance of involving multiple stakeholders: teachers, students, parents, and administrators in the evaluation process to ensure that diverse perspectives are represented.

The guide offers a pragmatic approach to program evaluation, making it an invaluable tool for educators and administrators seeking to enhance the quality and impact of gifted programs (Landvogt *et al*., 2000; Moon, 1996). In addition, Callahan's model emphasizes social-emotional outcomes, culturally relevant materials, and potential unanticipated effects on students, teachers, parents, and the broader community. Overall, this model provides a highly engaged approach to program evaluation that captures multiple dimensions of the impact of gifted programs in schools.

3.8. REDSIL Model

Several researchers (Silky & Readling, 1992) developed a program evaluation model called the Fourth Generation Evaluation Model for Gifted Education Programs (REDSIL Model, based on their names). This model introduces a qualitative, multi-phase approach that acknowledges the complexity of gifted education programs and incorporates diverse stakeholder perspectives, thereby offering a comprehensive framework (Silky & Readling, 1992). The model is organized into three sequential phases: identification of critical content, data collection on critical questions, and data analysis, validation, and report writing.

The first phase, identification of critical content, involves selecting the content, standards, and program goals most relevant and valuable for evaluation. Stakeholders are actively engaged in identifying what matters most to program success and challenges. The second phase, data collection on critical questions, entails gathering information from multiple sources to address specific questions regarding program effectiveness and impact, aiming to capture multiple dimensions of program quality. The final phase, data analysis, validation, and report writing, involves interpreting the collected data, ensuring its accuracy and reliability, and preparing a report that effectively communicates findings to stakeholders. Recognizing that gifted education programs are complex systems with diverse stakeholders (including students, teachers, parents, administrators, and community members), the model emphasizes stakeholder involvement to promote ownership, transparency, and collaboration in program improvement efforts.

The primary strength of this model is its stakeholder-centered orientation. It ensures that evaluations are relevant, meaningful, and useful for those most invested in the program's success. Stakeholders such as teachers, students, administrators, and parents are treated as agents of change, with their perspectives placed at the center of the evaluation process. This approach also enhances the utilization of evaluation results, as stakeholders who are involved from beginning to end are more likely to support and act upon the findings to foster positive program change (Silky & Readling, 1992).

3.9. Rimm's Model of Program Evaluation

Comprehensive model for evaluating gifted programs that incorporates program goals, student outcomes, and program processes. This framework offers a systematic approach to assessing the effectiveness of gifted programs and their impact on student achievement and development. It emphasizes the importance of establishing clear and measurable program goals that align with the needs and characteristics of gifted learners. The model focuses on several key dimensions, including goals, resources, activities, and outcomes, while also providing insights into program weaknesses that can inform evaluators and program staff.

Rimm identified four steps for evaluators to examine in a gifted program. The first step is input, referring to the specific resources required, such as trained staff, appropriate identification tests, curriculum materials, budget support, administrative backing, and parental involvement. The second step is the process, which examines how resources are applied in student identification, teacher selection, staff training, curriculum implementation, affective guidance, and parent engagement. The third step is outcome, encompassing the program's direct results for gifted students, such as higher achievement, improved test scores and grades, student products, and increased interest. The final step is evaluation, which involves continuously reviewing the other three steps to identify strengths, weaknesses, and areas in need of improvement.

This model integrates both process-oriented and product-oriented evaluation dimensions. Process-oriented evaluation examines questions such as: How is the program implemented? What instructional methods are used? What teacher skills are needed? How do students engage? What resources are utilized? Product-oriented evaluation, in turn, addresses questions such as: What educational outcomes are achieved? Are students learning more effectively? Are they developing critical thinking and leadership skills? How do they perform on standardized assessments? This dual orientation provides a holistic perspective on program effectiveness and informs improvement across multiple dimensions (Carter & Hamilton, 1985).

The model further supports ongoing formative and summative evaluation. Formative evaluation involves gathering data regularly to enable continuous program improvement, while summative evaluation collects data at the end of the year to make overall judgments about program merit (Callahan, 1998). Taken together, Rimm's model provides practical guidelines for designing, implementing, and evaluating gifted programs to maximize their impact on student learning and development.

4. CONCLUSION

Evaluating gifted education programs is essential to ensuring their effectiveness and maximizing their impact on students' learning and development. The various program evaluation models provide structured frameworks for assessing program quality, identifying areas for improvement, and making informed decisions to enhance outcomes. When selecting a model, it is imperative to consider the specific needs, goals, and context of the program being evaluated. Each model has its own strengths and limitations, and the most appropriate choice depends on the evaluation's purpose, available resources, and intended outcomes. Equally important is the use of multiple data sources in the evaluation process. By systematically gathering and analyzing data on program inputs, processes, and outcomes, educators can obtain valuable insights into program effectiveness and shortcomings, ultimately supporting the development of more impactful gifted education programs.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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