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Enrichment Theory, Research, and Practice

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Key Terms Used in the Research on Enrichment

Defining the term *enrichment*, as used in gifted education literature, is challenging, as it has several interpretations. The most popular generalized definition summarizes enrichment as experiences and activities that are not a part of the regular curriculum but rather enhance the regular curriculum. This definition of enrichment, however, does not provide guidance about the content and process modifications that can be made to deliver enrichment services or the challenge level that should characterize enriched learning experiences as qualitatively different from the regular curriculum. When considering how to define enrichment, the subtle but important difference between enrichment and acceleration must also be noted. Acceleration implies a quantitative difference in learning achieved through mastering the regular curricular content at a faster or more advanced rate, usually providing that content at a more advanced level. Enrichment, on the other hand, suggests broad and distinct qualitative differences in learning. The theories of enrichment summarized in this chapter (i.e., Betts, 2004; Renzulli & Reis, 1997, 2014) suggest several attributes of learning activities that broadly define enrichment in gifted education: a foundation in student interest; integration of advanced content, processes, and products; broad interdisciplinary themes; encouragement of effective independent and autonomous learning; individualized and differentiated curriculum and instruction; emphasis on creative problem solving; and integration of the tools of practicing professionals in the development of products.

Major Questions Addressed in the Research on Enrichment

Four critical domains should be considered when examining enrichment: why and to whom (its value), what (the content), how (pedagogy or teaching strategies), and to what end (outcomes) enrichment should be integrated into learning experiences.

The first, and perhaps most important, consideration relates to why and to whom enrichment activities are being provided. Is enrichment primarily intended to achieve traditional educational objectives, which are to inform or develop new skills? Or is enrichment designed to promote enjoyment, creativity, increased engagement, the use of investigative learning skills, and a greater enthusiasm for learning? Is it designed to stimulate new interests and potential for follow-up learning for all students, or should enrichment activities target students who have expressed a particular interest or

motivation to explore a particular topic or issue? Should enrichment be provided to students who do their academic work in a creative or innovative way, or only to those who desire to work in a different learning environment?

A second consideration relates to the choice of content. Is the content different from the units or topics that are part of the prescribed standards and textbook coverage? And if so, is it simply additional material on a given topic to be memorized and stored for possible future use, or should enrichment provoke creativity and/or critical thinking, such as point/counter-point discussions and debate? Or is enrichment simply the action-oriented application of students' learning to a real-world problem in which they express an interest?

A third consideration relates to the pedagogy or teaching strategies used in enrichment learning and teaching situations. Is the teacher's role mainly one of providing information that falls at the deductive, didactic, and prescriptive end of the continuum of learning theories, or should enrichment teaching strategies include the use of an inductive, investigative, and inquiry-oriented approach to learning? Is the enrichment learning environment different from the standard teacher-at-the-front-of-the classroom arrangement, or are other instructional options (including out-of-the-classroom places) characteristic of enrichment learning situations? Finally, should a particular enrichment activity be provided for all students, or should enrichment be more personalized based on a student's strengths, interests, learning styles, and preferred modes of expression?

Finally, how should educators evaluate the intended outcomes of enrichment activities; how can the intended outcomes provide guidance for research on enrichment? Attention to "big data" has resulted in large-scale assessments of student progress primarily on national or state education standards. Although these measures are and will continue to be a focus of most research and evaluation endeavors, there is also considerable evidence that noncognitive or co-cognitive attributes of individuals are as important as gains on achievement test scores. These four domains illustrate the complexity of decisions surrounding enrichment experiences in programs for gifted students, as well as the difficulty in assessing the impact of the various ways that enrichment is organized and delivered.

Defensible Conclusions From the Empirical Research on Enrichment Practices

Definitions of key enrichment terms and important related questions are helpful, but only strong empirical evidence will convince educators and policy-makers to prioritize talent development using enrichment practices, particularly in schools with limited resources and competing priorities. A meta-analysis conducted almost 3 decades ago by Vaughn et al. (1991) reported that various types of enrichment programs had positive effects on gifted students' achievement, critical thinking, and creativity. Similarly, as a result of a meta-analysis of studies of enrichment, Kim (2016) concluded that overall enrichment programs had significant and positive effects on gifted students' academic achievement, as well as their social and emotional development. Implementation of enrichment programming, however, varies widely in

form and substance, and we summarize empirical studies across a variety of the enrichment delivery modes and approaches, including pull-out enrichment programs; out-of-school programs such as Saturday, summer, and afterschool programs; enrichment clusters; and enriched curricular units.

Pull-Out Enrichment Programs

Pull-out programs, in which high-ability and/or identified gifted students are homogeneously grouped together outside their heterogeneous classroom to engage in enriching curricular extensions with peers of similar high ability, is a common method of serving students identified as gifted and talented (Borland, 2013; Callahan et al., 2014). Organizational benefits that enhance the popularity of the pull-out program include ease of implementation and cost effectiveness. The pull-out model enables one teacher to serve many gifted students, often across multiple schools or classrooms. Researchers have identified positive effects of participation in enrichment pull-out programs for students with gifts and talents, including increased levels of interest, greater challenge, and added enjoyment of learning (Yang et al., 2012), higher levels of academic achievement (Dimitriadis, 2012; Kim, 2016; Vaughn et al., 1991), increased cognitive ability (Welter et al., 2018), and positive attitudes (Dimitriadis, 2012). Successful enrichment programs are grounded in evidence-based practices and have teachers trained in gifted education pedagogy and practice (Brigandi et al., 2019; Dimitriadis, 2016; National Association for Gifted Children [NAGC], 2019).

Despite these positive findings, Borland (2013) and Dimitriadis (2016) criticized pull-out programs for lack of structure, coherence, and challenge, and some enrichment programs may lack rigor, particularly for highly capable students. Additional disadvantages may include limited time for students to engage in enrichment and disruption of the regular classroom instruction.

Saturday, Afterschool, and Summer Programs

Saturday and summer programs are also a popular method of providing enrichment opportunities for students with high academic ability, including ethnic minorities and students who live in low-income and low education households. Common components of Saturday and summer programs that can be characterized as enrichment include: student exposure to a wide variety of disciplines, topics, occupations, persons, places, and events not commonly covered in the regular curriculum (e.g., Project Stream [Clasen, 2006], Project Excite [Lee et al., 2009], Project Promise [Kaul et al., 2016], the summer youth programs hosted by the Gifted Education Research and Resource Institute [GER2I; Jen et al., 2017], and the Young Scholars Program [YSP; Jones, 1998; Newman & Newman, 1999]); opportunities for career exploration (e.g., YSP); courses and content based on student interest (e.g., Project Stream, Project Promise, GER2I); evidence-based curricular units of instruction (e.g., Gavin et al., 2009; Little et al., 2018); and opportunities to apply knowledge to a self-selected problem or area of study and present findings to an authentic audience (i.e., Type III Enrichment [Renzulli & Reis, 2014], Project Stream). Research on Saturday and summer program effectiveness has increased in recent years, with results

demonstrating that academically talented students who attend these enrichment programs are more likely to graduate high school, attend college, and demonstrate increased knowledge and skills (Lee et al., 2009). Other academic benefits include increased academic performance as measured by test scores (Lee et al., 2009; Little et al., 2018; Olszewski-Kubilius & Clarenbach, 2012). Co-cognitive benefits include more positive attitudes and behaviors; growth in academic self-confidence; increased openness to people; expanded interest leading to broadened career options and increased work ethic, self-regulation and perseverance; and higher levels of intrapersonal understanding and interpersonal capability (Jen et al., 2017; Kaul et al., 2016; Lee et al., 2009; Tay et al., 2018). Saturday and summer enrichment program participants identified challenge and a supportive learning environment with choice that supported their autonomy and competence as factors that contributed to these programs' success (Cross et al., 2018). Supportive enrichment environments in these out-of-school programs also created positive social networks with peers who encouraged achievement, interactions with peers from diverse cultural backgrounds, access to mentors, and increased parental interest in students' academic success (Kaul et al., 2016; Lee et al., 2009, 2015; Wu & Gentry, 2014).

Saturday and summer programs also have a positive family impact, as parents of program participants generally have increased academic expectations for their children and the siblings of program participants are more likely to aspire to pursue higher education. The location of Saturday and summer programs on a college campus exposes students to university life (Clasen, 2006) and encourages their motivation to attend and succeed in college after enrollment (Olszewski-Kubilius & Limburg-Weber, 1999). This is especially critical for students who are African American, Hispanic, and Native American; are from low-income backgrounds; are first generation; and may not have had opportunities to acquire tacit knowledge of higher education within their family environments (Newman & Newman, 1999; Olszewksi-Kubilius & Limburg-Weber, 1999; Wu & Gentry, 2014).

Enrichment Clusters

Enrichment clusters, a component of Renzulli and Reis's (1985, 1997, 2014) Schoolwide Enrichment Model (SEM) can also be used to provide enrichment to groups of students with a common interest who come together during or after the school day or on weekends to work with an adult mentor who has knowledge and expertise in that area. Research on enrichment clusters documents that teachers who facilitate clusters use authentic and advanced methodologies in the clusters and then transfer those methodologies into the regular classroom teaching (Reis et al., 1995, 1998). Other research on enrichment clusters found positive parental, student, teacher, and specialist perceptions of this form of enrichment (Morgan, 2007), resulting in a positive learning experience for both educators and students (Fiddyment, 2014).

Enrichment Curriculum Enhancements

Structured enriched curricular models provide opportunities for educators to challenge and enrich student learning in regular and gifted education classrooms and

programs through differentiated units of instruction. Integrated curricular units usually address student readiness and learning strengths and incorporate more advanced, complex, and abstract concepts than those offered in the regular curriculum for students in the general education. One element of enrichment found to be missing from some of these approaches is interest and choice-based differentiation (Brigandi et al., 2019). These researchers also found that teacher use of premade interdisciplinary units of instruction sometimes reinforced a traditional, whole-group, and collective approach to instruction.

The broad array of curricular models in gifted education that integrate enrichment and have shown promise in effectively merging integrated curricular units of instruction with academic enrichment are beyond the scope of this brief chapter. We will provide information on those which have been subject to research studies. These research studies demonstrate that curriculum enhancement and advanced units have resulted in higher achievement for gifted and talented learners as well as other students when both gifted and other lower achieving students are provided instruction based on these units. Enriched curriculum with published research efficacy include, but are not limited to, the following.

Project M^3: Mentoring Mathematical Minds. Project M^3 (Gavin et al., 2007) is a series of units designed to enrich, motivate, and challenge mathematically talented students at the elementary school level. Students instructed using Project M^3 curriculum showed significant gains in understanding of mathematical concepts (Gavin et al., 2007) and outperformed comparison students on standardized achievement tests and open-response items from various nationally standardized assessments (Gavin et al., 2009). Mathematically promising English language learners who engaged in Project M^3 also had significantly higher gains in mathematics achievement than comparison students (Cho et al., 2015).

The Schoolwide Enrichment Model Reading (SEM-R). Based on the original Schoolwide Enrichment Model (Renzulli & Reis, 1985, 1997, 2014), Reis and her colleagues (Reis et al., 2005, 2011; Reis & Fogarty, 2006) developed an enriched reading approach based on student choice of advanced reading selections, differentiated instruction in reading, and choice of reading projects. Applying a cluster-randomized design to investigate the SEM-R as a curricular framework in a reading intervention for elementary students of all ability levels, including advanced learners, over multiple research studies, these researchers reported higher scores in reading achievement, reading fluency, and students' attitudes toward reading for the experimental group over the control group (Reis et al., 2007, 2008, 2011).

Renzulli Learning (RL). Students engaged in the RL curriculum, an online enrichment program based on the SEM (Renzulli & Reis, 1985, 1997, 2014) in both an urban and suburban school with both gifted and nongifted students. Researchers found that students who used it for 2–3 hours each week for a semester demonstrated significantly greater growth in reading comprehension than control group students who did not participate in the program, and also demonstrated significantly greater growth in

oral reading fluency and in social studies achievement than those students who did not participate (Field, 2009).

The Integrated Curriculum Model (ICM). VanTassel-Baska and colleagues (2002) developed the ICM by to teach advanced content knowledge, higher order thinking skills, and interdisciplinary content to high ability and gifted students. The ICM features three components—overarching concepts, advance content, and process-product—and combines both enrichment and acceleration, as does the SEM-R. Using quasi-experimental methods in intact classrooms, VanTassel-Baska et al. (2002) found significant differences for students using the ICM in the outcomes measuring language arts, critical reading, persuasive writing, and scientific research design skills. Little et al. (2007) also used quasi-experimental methods to examine whether ICM curriculum units challenge high-ability students in social studies, finding significant differences between treatment and comparison groups, favoring the treatment group.

Challenge Leading to Engagement, Achievement, and Results (CLEAR) Curriculum Model

Curricular units in poetry and language arts were developed and studied by Callahan et al. (2017), Azano et al. (2016), and Missett et al. (2016). These researchers found that students who were provided instruction using CLEAR curriculum poetry and research units earned significantly higher achievement test scores in language arts than students who did not use the CLEAR curriculum units. These positive results occurred across program settings, including heterogeneous classrooms, self-contained gifted classrooms, and pull-out programs (Callahan et al., 2015).

Defensible Conclusions From Empirical Research on Enrichment Programming Models

Renzulli et al. (2009) included overviews of enrichment programming models, such as Betts and Kercher's (2009) Autonomous Learner Model and Kaplan's Depth and Complexity Model in *Systems and Models for Developing Programs for the Gifted and Talented*. These chapters provide comprehensive summaries of the models, but few include published research. Only the chapter on the SEM (Renzulli & Reis, 1985, 1997, 2014) includes published research results. The SEM is an organizational plan for delivering enrichment and accelerated opportunities through an integrated continuum of services. The research on the SEM suggests that the model is effective at serving high-ability students in a variety of educational settings and works well in schools that serve diverse ethnic and socioeconomic populations (Reis & Renzulli, 2003; Renzulli & Reis, 1994). Additionally, research has also supported the effectiveness of the SEM on increasing student creative productivity, student personal and social development, and student self-efficacy (Reis & Renzulli, 2003; Renzulli & Reis, 1994). Baum and colleagues (2014) found that when educators implement strength-based programs to identify and develop individual gifts and talents, 2e students can thrive academically.

Brigandi (2019) documented the fidelity of Type III Enrichment implementation at the classroom level. Other research supports benefits of Type III Enrichment on

students' early and subsequent interests (Westberg, 2010), as well as their postsecondary school plans (Hébert, 1993) and career choices (Delcourt, 1993). Students who engaged in Type III Enrichment had increased goal valuation (Brigandi et al., 2016), self-regulation (Baum, 1988; Brigandi et al., 2018; Hébert, 1993), and more positive perceptions of their learning environment (Brigandi et al., 2018). Students also reversed patterns of underachievement (Baum et al., 1995).

The research summarized in this chapter supports the conclusions that enrichment programs, enrichment pedagogy, and enriched curriculum enhancement have resulted in higher achievement for gifted and talented learners as well as other students. Exposure to enriching experiences encourages all students, especially those from diverse ethnic and high-poverty populations to perceive, engage with, and react differently in academic environments and can enhance achievement and academic success.

Common Conclusions That Are Not Defensible

The research literature is generally fair about enrichment. Perhaps the only nondefensible claim is that little research exists that demonstrates academic benefits. Borland (2005) summarized this claim most succinctly, stating that there is remarkably little evidence that this type of programming for gifted students is effective, a claim, thankfully, that appears no longer accurate. An increasing body of research demonstrates increased achievement and engagement when students are exposed to challenging enrichment opportunities. However, much of the extent research has been conducted by the developers of these approaches and models, and therefore, research-based conclusions of effectiveness of enrichment on increased achievement or engagement in school, based on independent research, is generally unavailable.

Limitations of the Research

In addition to the lack of systemic independent research, limitations of the literature on enrichment include the failure of some researchers to provide a complete descriptions of the enrichment intervention and to provide assessment of implementation fidelity as a component of the study. Failure to document enrichment practices as evidence-based that are informed by theory and empirical evidence contributes to superficiality of gifted education research and programming. Lack of implementation fidelity, the degree to which programs are implemented as intended by the developers (Moncher & Prinz, 1991; Mowbray et al., 2003; Yeaton & Sechrest, 1981), limits the degree to which measured outcomes can be attributed to the intervention (Foster et al., 2011). Additionally, whereas interventions for students with high academic ability were once considered either acceleration or enrichment, they now increasingly include components of both acceleration and enrichment. Whereas this change is positive in terms of appropriately designed gifted education programming, particularly for students from underserved populations who benefit from programs that are multifaceted and flexible (Olszewski-Kubilius & Thompson, 2010), in many cases it also makes it more difficult to attribute findings singularly to the effects of participation in enrichment.

Practical Implications

As programs for gifted students evolve, greater demands should be made for research demonstrating their effectiveness, benefits, and utility. Accordingly, educators in the field need evidence of effectiveness, and more model developers and independent researchers should provide research evidence about the effectiveness of their practices on various outcomes, including achievement, engagement, curiosity, productivity, and other longitudinal benefits. When that happens, the use of enrichment will become more defensible, and those who implement enrichment practices will have more confidence in choosing approaches that will make a positive difference for students.

Considerations for Future Research and Development About Enrichment Practices

The field needs more research that addresses the quality of various enrichment practices and how they relate to verifiable criteria in both advanced academic performance and creative/productive output. Advanced achievement scores without creative/productive output seem to us to be a waste of talent. And with the general acceptance of broadened conceptions of giftedness (Sternberg & Davidson, 2005) and the changing demographics of school populations, it is important to give more opportunities for enrichment and talent development to much larger and more diverse populations of students. When that occurs, the nation will expand the talent pool of people who will contribute to the economic, scientific, cultural, and societal productivity of the country. More enrichment experiences can and should be infused into the general curriculum and provided to all students. Positive reactions to these experiences should be viewed as performance-based assessment and serve as compass points for providing interested individuals and small groups with more advanced enrichment to pursue advanced-level creative and productive challenges. These challenges should be guided by the following four criteria:

1. personalization of interest,
2. use of authentic methodology,
3. no existing or predetermined correct answer, and
4. designed to have an impact on selected audience(s) other than or in addition to the teacher.

The students who excel in these creative and enriching challenges are those who will change the world in both small and big ways.

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