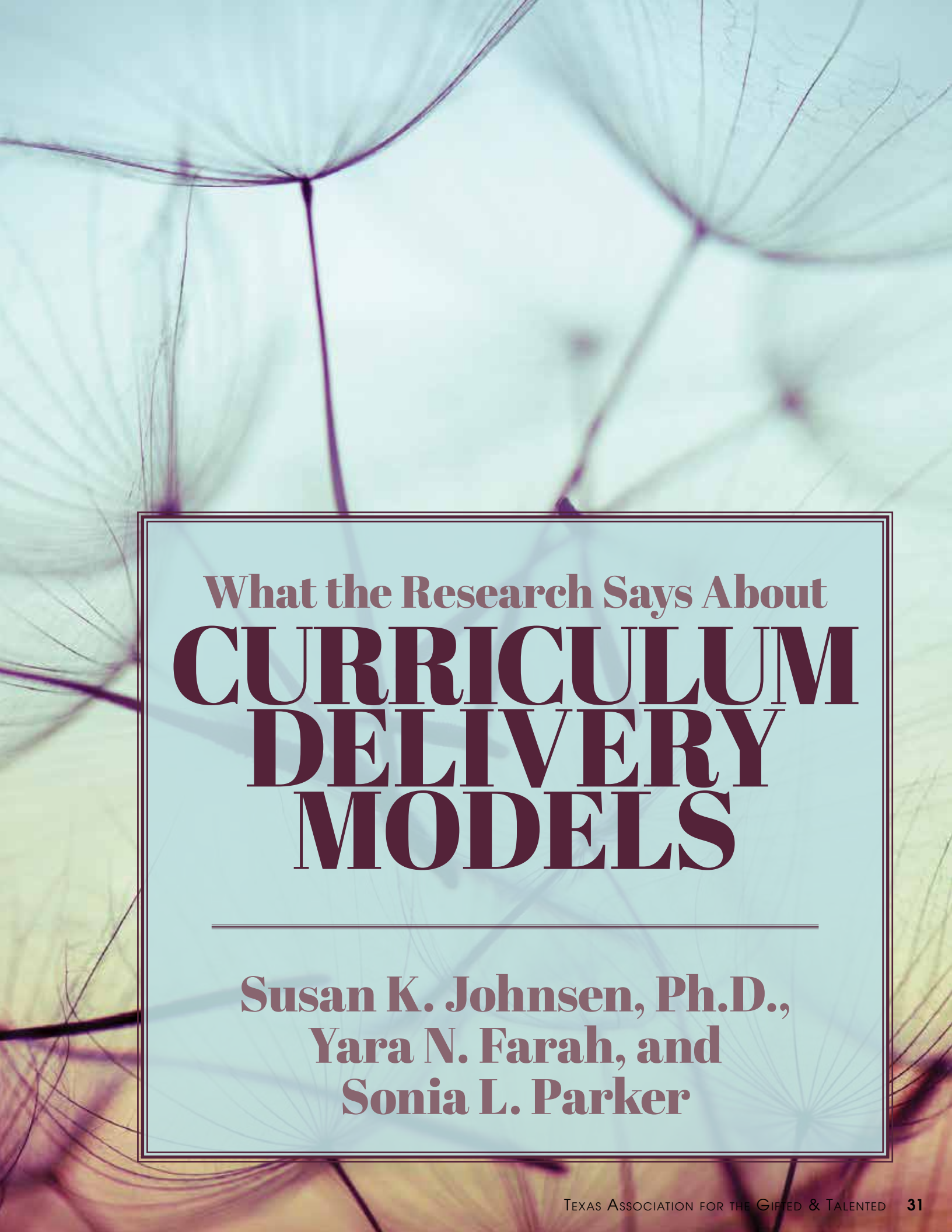

What the Research Says About

CURRICULUM DELIVERY MODELS

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Curriculum for gifted and talented students emphasizes advanced content, depth, complexity through abstract concepts, direct study of higher order thinking processes, interdisciplinary themes, and student research that culminates in products for real audiences (Davis, Rimm, & Siegle, 2011). Curriculum needs to be responsive to gifted learners and address their differences through the overlapping dimensions of concepts, issues, and themes; process-product; and advanced content (VanTassel-Baska, 2003). These definitions describe important characteristics that are often associated with exemplary curriculum models in gifted education. Educators need to understand not only these curricular characteristics but also know which curriculum models are effective with gifted and talented learners. They need to apply theoretically- and research-based models of curriculum to ensure specific student outcomes (NAGC, 2010).

To assist educators in selecting research-based models, this review included articles that had been published since 2004 in *Gifted Child Today, Gifted Child Quarterly, Journal for the Education of the Gifted, Journal of Advanced Academics,* and *Roeper Review* that focused on the implementation and/or the effects of curricula specifically designed for gifted and talented students. We also included articles that examined the effects of distance learning and Advanced Placement courses since these types of curriculum delivery are frequently used in gifted education. We did not include articles that focused primarily on instructional strategies or activities. Using these criteria, we found 23 articles.

Participants in the studies ranged from kindergarten through college-bound seniors with the majority of articles focused on elementary students. Almost half of these studies (48%) involved samples from schools in urban areas and/or students from low socioeconomic backgrounds. One study described a culturally-responsive curriculum (Jones & Hébert, 2012), two were reviews of different curriculum models (Hockett, 2009; VanTassel-Baska & Brown, 2007), four used qualitative methods (Briggs, Reis, & Sullivan, 2008; Hallett & Venegas, 2011; Hertzog, 2005; Kylburg, Hertberg-Davis, & Callahan, 2007), nine used quantitative approaches (Gavin, Casa, Adelson, Carroll, & Sheffield, 2009; Gavin, Casa, Firmender, & Carroll, 2013; Kitano & Lewis, 2007; Little, Feng, VanTassel-Baska, Rogers, & Avery, 2007; Newman, 2005; Pierce, Cassady, Adams, Speirs Neumeister, Dixon, & Cross, 2011; VanTassel-Baska, Bracken, Feng, & Brown, 2009; VanTassel-Baska et al., 2008; Wallace, 2009), and seven used both qualitative and quantitative methods (Azano et al., 2011; Feng, VanTassel-Baska, Quek, Bai, & O'Neill, 2005; Olszewski-Kubilius & Lee, 2004; Peterson & Lorimer, 2011, 2012; Reis & Boeve, 2009; Swanson, 2006). Eight of these studies were also longitudinal occurring over a period of 3–6 years (Feng et al., 2005; Gavin et al., 2009; Little et al., 2007; Peterson & Lorimer, 2011; Pierce et al., 2011; Swanson, 2006; VanTassel-Baska et al., 2008).

The qualities and effects of these specific curriculum delivery models were examined in the studies: Advanced Placement (Kylburg et al., 2007; Olszewski-Kubilius & Lee, 2004; Wallace, 2009); Challenge Leading to Engagement, Achievement, and Results Model (CLEAR; Azano et al., 2011), Ford-Harris Model (Jones & Hébert, 2012); Integrated Curriculum Model (Feng et al., 2005; Hockett, 2009; Little et al., 2007; Swanson, 2006; VanTassel-Baska et al., 2008; VanTassel-Baska et al., 2009); International Baccalaureate (Kylburg et al., 2007); Kaplan's curriculum framework (Briggs et al., 2008); Multiple Menu Model (Hockett, 2009); Parallel Curriculum Model (Hockett, 2009); Purdue Model (Briggs et al., 2008); Project M^2 (Gavin et al., 2013); Project M^3 (Gavin et al., 2009); Schoolwide Enrichment Model (Briggs et al., 2008); and Talents Unlimited (Newman, 2005). Other studies examined the effects of affective curriculum (Peterson & Lorimer, 2011, 2012), alternative math units (Pierce et al., 2011), reading enrichment and seminars (Kitano & Lewis, 2007; Reis & Boeve, 2009), a writing course (Hallett & Venegas, 2011), and a curriculum designed around projects (Hertzog, 2005).

Twelve of the studies examined achievement gains using different curriculum models with all showing the model's effectiveness with one or more groups. In several studies the curriculum model was successful with both general education and gifted students. For example, the treatment group who used the Integrated Curriculum Model made significant gains in language arts, science, and social studies when compared to all students who did not use the model (Feng et al., 2005; Little et al., 2007; Swanson, 2006). Significant student improvements included these areas: literary analysis, persuasive writing, grammar, and scientific research skills (Feng et al., 2005); deeper comprehension of measurement and geometry concepts (Gavin et al., 2013); critical thinking, conceptual reasoning, and content learning in social studies (Little et al., 2007); the completion of creative products (Newman, 2005); reading fluency (Reis & Boeve, 2009); and critical

thinking and reading comprehension (VanTassel-Baska et al., 2009).

Some of the models focused on students from poverty and attempted to improve their performance in gifted programs (Briggs et al., 2008; Kitano & Lewis, 2007; Kylburg et al., 2007; Reis & Boeve, 2009) and the likelihood that they might be identified for gifted education services (Briggs et al., 2008; Hertzog, 2005; Swanson, 2006). Hallett and Venegas (2011) noticed that even though more AP courses were being offered in low-income urban high schools, they found that the students' sense of their own preparation and their performance on AP exams did not indicate quality or preparation for college. On the other hand, when Talent Search students took AP courses with teachers proficient in their respective subject areas in a by-mail or an online format, the majority made 5s and 4s on their AP exams (Olszewski-Kubilius & Lee, 2004).

Attitudes of both teachers and students were examined in the studies as well. Changes in students' attitudes were noted when they were involved in more challenging curriculum, with students becoming more confident (Reis & Boeve, 2009) and interested in course subjects (Wallace, 2009). Teachers' attitudes and practices were also affected by the implementation of the curriculum models. For example, teachers' perspectives were altered toward the students and the total classroom environment in Project Approach (Hertzog, 2005). Their comfort and confidence with group work and in discussing social and emotional development improved in delivering an affective curriculum (Peterson & Lorimer, 2012), they noticed the importance of high expectations and a challenging curriculum for improving student achievement (Swanson, 2006), and they enhanced their instructional practices when implementing the Integrated Curriculum Model (VanTassel-Baska et al., 2008).

Researchers often commented on the difficulty of treatment fidelity (i.e., the teachers implementing the protocol model of the curriculum). Azano et al. (2011) found that the teachers' experiences and beliefs impacted their implementation of the curriculum with teachers changing the curricular model if they believed the concept or skill was easy or too difficult for the students. Similarly, Pierce et al. (2011) reported that teacher intentionality was a significant factor that contributed to the success of the curricular intervention. From several studies, it appeared that a longer time period was helpful in not only implementing the protocol model but also in yielding better increases in achievement and support for the model (Feng et al., 2005; Peterson & Lorimer, 2011). In addition, veteran teachers were more likely to show a consistent and high level of instructional practices when implementing the curriculum model (VanTassel-Baska et al., 2008).

Finally, two reviews provided criteria for evaluating different curriculum models. Hockett (2009) identified these characteristics as indicative of a high-quality curriculum for both general and gifted educators: authentic to the discipline; focused on real problems, processes, and products; personally relevant; integrated; meaningful outcomes; flexible to account for individual differences; and challenging. She found three models in gifted education that met these criteria: the Integrated Curriculum Model, the Multiple Menu Model, and the Parallel Curriculum Model. VanTassel-Baska and Brown (2007) reviewed nine curriculum models and found six that were effective with gifted learners. These six met the majority of the following 12 criteria: research evidence to support use (student learning impact), application to actual curriculum (products in use), quality of curriculum products based on the model, teacher receptivity, teacher training component for use of the model, ease of implementation, evidence of application of model in practice, sustainability, systemic (operational in respect to elements, input, output, interactions, and boundaries), alignment or relationship to national standards, relationship to school-based core curricula, and comprehensiveness.

In reviewing these articles, the good news for gifted and general educators is that we do have curriculum models in gifted education that appear to be effective in raising the achievement not only for gifted students but also for all students. We encourage you to contact the authors for more information regarding the models in this article.

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Azano, A., Missett, T. C., Callahan, C. M., Oh, S., Brunner, M., Foster, L. H., & Moon, T. R. (2011). Exploring the relationship between fidelity of implementation and academic achievement in a third-grade gifted curriculum: A mixed-methods study. *Journal of Advanced Academics*, *22*, 693–719. doi:10.1177/1932202X11424878

A sequential mixed-methods design was used in this study in conjunction with the What Works in Gifted Education (WWIGE) study. The Challenge Leading to Engagement, Achievement, and Results (CLEAR) curriculum model was developed. The researchers started with a qualitative component to understand the beliefs and experiences of the participants and whether their adherence to and delivery of the research-based curriculum was impacted. Then, the researchers added a quantitative component to determine the degree to which fidelity of implementation exhibited by the teacher was associated with student assessment outcomes. Fidelity of implementation was described as the degree to which the implementation of the curriculum in the classroom adhered to the protocol model of curriculum and instruction. In this study, interview and observation data were gathered for 55 teachers. Additional quantitative analysis was performed on a subset of 26 teachers, 14 of whom were categorized as low fidelity and 12 as high fidelity. The results of the study indicated that the experiences and beliefs held by the teachers impacted their instructional practices despite all having quality curriculum available. For example, if the teacher expected any struggle with a specific skill or concept in the unit, she would slow the pace of instruction. On the other hand, if the teacher expected that the students would perform well on the skill or concept she would be more apt to follow best practices. Fidelity of instruction and the level of adherence to the facilitators for implementing the curriculum were related to student outcomes.

Briggs, C. J., Reis, S. M., & Sullivan, E. E. (2008). A national view of promising programs and practices for culturally, linguistically, and ethnically diverse gifted and talented students. *Gifted Child Quarterly*, *52*, 131–145.

In this qualitative study, the authors examined methods to increase the participation of culturally, linguistically, and ethnically diverse (CLED) students in gifted education programs. Twenty-five programs were selected and evaluated based on predetermined criteria including written correspondence, informational questionnaires, program documentation, and interviews. Of the 25 programs, 7 were chosen for site visits to investigate the methods used to increase CLED student participation. These seven programs were selected for program design, region of the country, uniqueness of the program, and an increase in CLED student participation. Data sources included questionnaires, document reviews, interviews, observations, program reports, curriculum descriptions, and program handbooks. Based on the data, the researchers developed five axial categories to analyze programs identified as meeting the needs of gifted and potentially gifted CLED students: identification procedures, student preparation prior to identification, curriculum, parent-home connection, and program evaluation. The curriculum changes were broken down into three subcategories: (a) implementation of a continuum of services, (b) adoption of a specific curricular framework, and (c) directly addressing the needs of CLED students. The researchers reported that curricular frameworks were used to guide instruction; specific curriculum models were used such as the Schoolwide Enrichment Model, the Purdue Model, or a differentiation model using Kaplan's interdisciplinary themes based on depth and complexity; and curriculum methods were adapted to meet the needs of CLED students. These adaptations included helping students make connections between the curriculum, specific program opportunities, and students' language and culture. Results indicated that these gifted programs increased the participation of CLED students but that the factors were multifaceted and included recognition of the problem, an increased awareness of cultural impact on student academic performance, and the establishment of program supports to help program directors and teachers make changes, which included the curriculum.

Feng, A. X., VanTassel-Baska, J., Quek, C., Bai, W., & O'Neill, B. (2005). A longitudinal assessment of gifted students' learning using the Integrated Curriculum Model (ICM): Impacts and perceptions of the William and Mary language arts and science curriculum. *Roeper Review*, *27*, 78–83.

The purpose of this mixed-methods longitudinal study was to evaluate the effects of the William and Mary language arts and science curriculum, designed around the Integrated Curriculum Model (ICM), in a northeastern suburban school district. The authors sought to answer two main research questions: (a) To what extent is there evidence of gifted students' growth as a result of the use of ICM-based curriculum? (b) To what extent is this curriculum meeting the needs of identified students as perceived by relevant stakeholders? The sample consisted of 973 students in grades

3–5. Most of the students had been exposed to the William and Mary language arts and science units prior to the start of this study. The language arts units that had been used were *Journeys and Destinations*, *Literary Reflections*, and *Autobiographies*. The previously used science units were *What a Find*, *Electricity City*, and *Acid, Acid Everywhere*. The researchers used performance-based assessments, such as The Diet Cola Test, to evaluate student learning. Other instruments included student surveys, which measured student perceptions and perceived cognitive and affective growth. Additionally, there were 732 students, 110 educators, and 367 parents who comprised the stakeholder groups and returned surveys regarding their views about the curriculum. These surveys collected information regarding staff development, personnel qualifications, communication concerns, curriculum implementation, and curriculum satisfaction. Along with the surveys, focus groups were created to gain more information about the stakeholders' views of the curriculum. The data were analyzed using both qualitative and quantitative strategies. The findings suggested that student learning had been enhanced by the curriculum, both at the time of the curriculum delivery and over the full 6-year period. Student growth was determined to be statistically significant in literary analysis, persuasive writing, grammar, and scientific research skills. The effect size ranged from .52 to 1.38, and the overall academic growth increased in all of the assessed domains. The results also suggested that repeated usage of the William and Mary units yielded an increase in achievement in the areas of literary analysis, persuasive writing, grammar, and scientific research skills. The challenging nature of the curriculum, the organization, the scope and sequence, and the opportunities for peer communication were cited as the most beneficial across stakeholder groups. The authors proposed that their study be used as a model for school districts in monitoring student progress over time.

Teachers should hold all learners to high expectations and develop their critical thinking to become socially active members of the society.

Gavin, M. K., Casa, T. M., Adelson, J. L., Carroll, S. R., & Sheffield, L. J. (2009). The impact of advanced curriculum on the achievement of mathematically promising elementary students. *Gifted Child Quarterly, 53*, 188–202. doi:10.1177/0016986209334964

This quasi-experimental design study focused on determining the efficacy of Project M^3 units by looking at the gain in students' mathematical achievement. Project M^3 consists of 12 units addressing important mathematical ideas from one of the NCTM content strands and are designed primarily for students in grades 3, 4 and 5. The study included third- and fourth-grade students in 11 schools from Connecticut and Kentucky. All student participants were identified as gifted following the NCTM definition. Experimental Group 1 included 193 gifted students who were identified the first year and Experimental Group 2 included 177 gifted students who were identified the second year. The comparison group included 211 gifted students. All teacher participants attended a 2-week professional development summer institute. They learned about the philosophy, teaching strategies, and content of the units. Students were assessed using the Concepts and Estimation Test of the Iowa Tests of Basic Skills (ITBS) and on open-response questions. Results of the study showed positive gain in student mathematical achievement. Students in the experimental group showed significant gains on the standardized test as well as the open-response questions. The authors suggest that concept-based curriculum units such as the Project M^3 contribute to better mathematical achievement.

Gavin, M. K., Casa, T. M., Firmender, J. M., & Carroll, S. R. (2013). The impact of advanced geometry and measurement curriculum units on the mathematics achievement of first-grade students. *Gifted Child Quarterly, 57*, 71–84.

This study reported achievement results for first-grade students at 12 different sites using curriculum from the Project M^2. Project M^2 involved creating and testing challenging measurement and geometry units for K–2 students. The two research questions examined the increases in mathematics achievement after exposure to Project M^2 units and differences between students exposed to Project M^2 units and those not exposed to the curriculum. Mathematics achievement was measured by the Iowa Tests of Basic Skills (ITBS) mathematics subtest and an open-response assessment. There were 186 students in the intervention group and 174 students in the comparison group. No significant differences were found on the ITBS between the two groups; however, significant differences were discovered on the open-response assessment favoring the experimental group. Thus, the researchers concluded that students from the experimental group performed as well as their peers on the traditional method of assessment but showed deeper comprehension of measurement and geometry concepts.

Hallett, R. E., & Venegas, K. M. (2011). Is increased access enough? Advanced Placement courses, quality, and success in low-income urban schools. *Journal for the Education of the Gifted, 34*, 468–487.

The authors were interested in the connection between increased access and academic quality of Advanced Placement courses in low-income urban high schools. Participants included 48 college-bound students who participated in a summer writing program that prepared them for selective and highly-selective colleges and universities. All of the students met federal requirements for the Free/Reduced Lunch Program and more than 60% were female. The authors conducted a semi-structured 30-minute interview with each student as well as informal observations during the 5-week summer bridge program. The constant comparative method enabled data to be collected and analyzed simultaneously. They found that although more opportunities to take AP courses exist than in previous years, students' sense of their own preparation and their performance on AP exams did not indicate quality or preparation for college.

Hertzog, N. B. (2005). Equity and access: Creating general education classrooms responsive to potential giftedness. *Journal for the Education of the Gifted, 29*, 213–257.

This qualitative case study examined the implementation of the Project Approach in a K–5 school where approximately 90% of the students received free or reduced lunch. The Project Approach includes inquiry-based activities such as brainstorming, webbing, field studies, and class discussions. Out of a staff of 15 teachers, one music and two kindergarten teachers gave the researcher permission to observe and document the implementation of the Project Approach. Data were collected from interviews with teachers and administrators, observations of students, field notes from whole-staff meetings, project-based learning meetings and workshops, and other public forums where the initiatives were discussed. The instructional changes altered the teachers' perspectives of their students (e.g., greater engagement, enthusiasm, understanding of concepts) and their total classroom environment (e.g., climate in school, classroom literacy environments). Implementation barriers included time and compatibility.

Hockett, J. A. (2009). Curriculum for highly able learners that conforms to general education and gifted education quality indicators. *Journal for the Education of the Gifted, 32*, 394–440.

This review synthesis provided guidelines from general and gifted education regarding high-quality curriculum, evaluated three gifted education curriculum models using these guidelines, and offered suggestions for how general education and gifted education can create curricular conditions conducive to educating highly able learners. The author suggested that general educators and gifted educators view these characteristics as indicative of high-quality curriculum: authentic to the discipline; focused on real problems, processes, and products; personally relevant; integrated; meaningful outcomes; flexible to account for individual differences; and challenging. She reported that three models in gifted education—the Integrated Curriculum Model, the Multiple Menu Model, and the Parallel Curriculum Model—would be able to contribute to general education curriculum design and address the needs of highly able learners with most of the effectiveness research conducted with the Integrated Curriculum Model. The author concluded that general educators need to be explicit about what challenge is and what it looks like in the curriculum, emphasize teacher content knowledge/training in the discipline as requisite to teaching all students, and distinguish standards from the curriculum. Gifted educators need to provide clarity about which attributes of high-quality curriculum are specific only to highly able learners, promote research-based approaches, and demonstrate the effectiveness of curricular units for use with a variety of gifted learners and all learners.

Jones, J. K., & Hébert, T. P. (2012). Engaging diverse gifted learners in U.S. history classrooms. *Gifted Child Today*, *35*, 252–261. doi:10.1177/1076217512455476

In this article, the authors started with a scenario representing the importance of focusing on the strengths and talents of gifted students through culturally responsive classrooms. They then described the need to create classroom environments in which teaching methods are sensitive to students' needs and diversity. Teachers should hold all learners to high expectations and develop their critical thinking to become socially active members of society. To meet the needs of diverse gifted students, Ford and Harris developed a curriculum model. The authors explained how the model offers teachers a framework for delivering culturally responsive curriculum. This model can be used to develop understanding in social science education to provide students with an enriched intellectually challenging experience of the U.S. history. To engage diverse gifted students in the immigration experience of the U.S., the authors identified and discussed seven different teaching strategies: photojournalism, ethnographic research or infusing of multicultural literature and poetry, service learning, role playing, examining primary documents, and discussion. Finally, they related these instructional strategies to the traits, characteristics, and needs of gifted students.

Kitano, M. K., & Lewis, R. B. (2007). Examining the relationships

between reading achievement and tutoring duration and content for gifted culturally and linguistically diverse students from low-income backgrounds. *Journal for the Education of the Gifted, 30*, 295–325.

This study investigated the effects of a tutoring intervention incorporating literature-supported features on the reading achievement of gifted students from low-income backgrounds. The program focused on gifted children from very low-income families in grades 4–5. Gifted students who were on free or reduced-price lunch were identified using the Raven Progressive Matrices, scoring between the 99.6th and 99.8th percentile. A total of 57 children (34 males and 23 females, 12 of whom were English learners) were enrolled in the reading seminars, which consisted of teaching six basic comprehension strategies (making connections, questioning, visualizing and imagining, inferring, determining importance, synthesizing) within increasingly levels of complexity. Students received an average of 65 hours of tutoring during the academic year, of which 43 were focused on decoding and reading comprehension. Results indicated that the participating students showed significant gains over one academic year in reading on both the state standardized test and on a classroom fluency measure.

Kylburg, R. M., Hertberg-Davis, H., & Callahan, C. M. (2007). Advanced Placement and International Baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics, 18*, 172–215.

This qualitative study investigated ways in which teacher and administrator behavior and the school environment contributed to the successes or frustrations of minority students in AP and IB courses. Three urban high schools located in high-poverty areas from two Mid-Atlantic states were selected. Researchers visited each school at least twice during the course of an academic year. During each visit, the researchers observed participating teachers' classrooms, interviewed 43 participating teachers, 4 counselors, 43 teachers, and 75 students. Interactions among superintendent, central office, building administrator, and teacher-student classroom levels dynamically influenced one another and the classroom environment. Inhibitors to involvement in AP or IB included major assignments due at the same time, inappropriate level of curricular challenge, and variation in culturally-sensitive teaching and lack of support for learners deficient in cultural capital. "Two key factors seemed to be integral to creating environments that nurture the growth of academic talent among students of diverse backgrounds: (a) a pervasive and consistent belief that these students could succeed, which resulted in instructional and group support; and (b) scaffolding to support and challenge able students (e.g., extracurricular help, lunchtime discussion forms, subsidized college visits). Teachers found ways to flexibly tailor their support and expectations to individual student needs in terms of product and performance expectations and the kind of help that was provided" (p. 173).

Little, C. A., Feng, A. X., VanTassel-Baska, J., Rogers, K. B, & Avery, L. D. (2007). A study of curriculum effectiveness in social studies. *Gifted Child Quarterly, 51*, 272–284. doi: 10.1177/0016986207302722

The purpose of this 3-year quasi-experimental study was to explore the effects of a social studies curriculum

on student performance. The curriculum was based on the Integrated Curriculum Model. The social studies curriculum was designed for the specific needs of high-ability elementary and middle school students and integrated higher level processes that emphasized advanced content and a conceptual orientation. Approximately 1,200 second to eighth graders participated in the study with 949 students participating in the treatment group. A subset of 41 gifted students was identified with 35 in the treatment group. Additionally, six teachers who were involved in all 3 years of the project implementation formed the teacher sample in the study. Student performance in critical thinking, conceptual reasoning, and content learning were measured as were specific teaching behaviors exhibited by the teacher. As part of the study, teachers were required to participate in at least one day of professional development concerning the implementation of the curriculum. Along with collecting data, teachers were required to provide 20 to 25 hours of unit instruction. Assessments were administered both before and after the implementation of the interdisciplinary units. There were no significant differences found for the subsample of gifted students between the treatment and comparison group; however, there were differences in content learning favoring the treatment group among the whole population.

Newman, J. L. (2005). Talents and Type IIIs: The effects of the Talents Unlimited Model on creative productivity in gifted youngsters. *Roeper Review, 27,* 84–90.

The purpose of this quasi-experimental study was to determine the effects of the Talents Unlimited (TU) Model on the completion rate of student products. The TU Model was designed to improve critical thinking skills and creative productivity within the classroom. With this purpose in mind, the researchers selected 147 students in grades 3–6 to participate in Type II enrichment programs in their schools. Type II programs teach higher level thinking skills and procedural knowledge. Sites in Alabama were selected according to socioeconomic status, curriculum, and staff education opportunities. Both the treatment group and the control group, consisting of 59 students and 45 students respectively, were required to complete 27 products during the study. Five teachers, who were trained in the TU model, taught 10 sets of TU lessons that focused on interest finding, record keeping, identifying a problem, researching, developing a real-world product, presenting, and evaluating. Teachers assigned to the control groups also encouraged students to develop sophisticated products using the Schoolwide Enrichment Model (SEM), an alternative model of promoting creative productivity. Using a chi-square analysis, the researchers compared the completion rates of the treatment and control groups. Analysis of Variance (ANOVA) and the Student Product Assessment Form (SPAF) determined the variance and quality of the products. To accumulate qualitative data, the researchers used open-ended questionnaires, which were analyzed by tallying predetermined responses and categorizing common themes. Results indicate that the Talents Unlimited lessons had a positive effect in reducing the number of students who did not complete their creative products. While all of the students in the experimental group finished their Type III products, 21% of students in the control group did not. Ninety percent of the treatment students responded positively to being able to identify an interest area to study, 93% of them reported improvement in focusing on a topic, and 90% reported they were better at identifying a problem related to their chosen topic. Mean scores for the quality of experimental students products were significantly higher than the products from the students in the control group.

Olszewski-Kubilius, P., & Lee, S.-Y. (2004). Gifted adolescents' talent development through distance learning. *Journal for the Education of the Gifted, 28*, 7–35.

This program, LearningLinks, provided honors-level and Advanced Placement courses through distance learning to 186 gifted students in grades 6–12. All of the students were identified through the Talent Search process. The authors investigated how the students used the program, the receptivity of school districts of the program's scores, and its effects on the students' subsequent performance on AP exams. Teachers proficient in their respective subject areas provided courses in either a by-mail or an online format. Survey results indicated that the students were satisfied with the quality of communications with the instructors but were dissatisfied with the lack of face-to-face interactions. About half of the students received high school credit for the course while 20% said that their schools would not give them credit despite their requests. About one third of the students who received credit had their grades factored into their GPAs. The majority of the students made 5s and 4s on the AP exams. One major problem for half of the students was that no further courses were available in the same subject matter at their home schools.

Peterson, J. S., & Lorimer, M. R. (2011). Student response to a small-group affective curriculum in a school for gifted children. *Gifted Child Quarterly, 55*, 167–180. doi: 10.1177/0016986211412770

This 5-year longitudinal study explored small-group affective curriculum and the responses from the gifted students. The affective curriculum was designed

to aid in the development of the students' social/emotional growth. The curriculum included approximately 100 topics over the five-year period and included discussions on feelings, stereotypes, stress, values, change, ethical and moral issues, kindness, bullying, and resilience. The focus in this study was on perspectives from the students (see Peterson & Lorimer, 2012 in this article for teacher-facilitators' perspectives). There were approximately 260 fifth- through eighth-grade gifted students that participated in the study. The response to the weekly small-group discussions on social and emotional development changed over time. Initially the students showed resistance to the discussions but became more receptive over time. The results highlight the fact that the perceived effectiveness of the program may not be a quick process but rather occur slowly over time. Students in grade 5 were most receptive to the affective curriculum. Students in grades 5 and 6 noted that the curriculum had an overall positive effect on the school. Of additional importance was explaining the purpose of the program to the students, providing adequate training for those facilitating the groups, finding time for the meetings that would not eliminate choice activities for students, and choosing appropriate discussion topics.

Peterson, J., & Lorimer, M. R. (2012). Small-group affective curriculum for gifted students: A longitudinal study of teacher-facilitators. *Roeper Review*, *34*, 158–169. doi: 10.1080/02783193.2012.686423

In this mixed-methods longitudinal study, the researchers examined the implementation of a small-group affective curriculum. Five main questions explored the comfort and confidence of the teachers over time, the perceptions of student skill development, and the perceived impact of the group program. The focus in this study was on perspectives from the teacher-facilitators (see Peterson & Lorimer, 2011, in this article for student perspectives). The gifted students were comprised of 150–155 fifth through eighth graders in a private, nonsectarian, coeducational school for gifted children. Over the course of the 5-year study, teacher-facilitators' perceptions of the need for an affective curriculum positively changed. Additionally, the perceived impact on the school and the teacher-facilitators' comfort and confidence with group work and in discussing social and emotional development were positively impacted. Some of the positive changes were only experienced after the first full year of implementation. Implementation strategies and logistical challenges may help those who are looking to use an affective curriculum with gifted students. Facilitator comments within the qualitative component of the study may offer direction for program coordinators and others that may be a part of the program implementation.

Pierce, R. L., Cassady, J. C., Adams, C. M., Speirs Neumeister, K. L., Dixon, F. A., & Cross, T. L. (2011). The effects of clustering and curriculum on the development of gifted learners' math achievement. *Journal for the Education of the Gifted, 34*, 569–594.

This study examined the effects of three math replacement units on third-grade students' math achievement. The curriculum focused on algebra and geometry. Participants were students assigned to third-grade cluster teachers' classrooms in a large urban district. The authors found that curriculum, grouping practices, and teacher intentionality were all significant factors that contributed to the success of the curricular intervention. All students who were in classrooms that implemented the curriculum experienced gains. The authors concluded that teachers can promote academic gains over time for gifted and comparison students when the curriculum is designed to support learning at varied ability levels.

The authors found that curriculum, grouping practices, and teacher intentionality were all significant factors that contributed to the success of the curricular intervention.

Reis, S. M., & Boeve, H. (2009). How academically gifted elementary, urban students respond to challenge in an enriched, differentiated reading program. *Journal for the Education of the Gifted*, *33*, 203–240.

In this mixed-methods study, the researchers collected quantitative and qualitative data to determine how gifted students in an urban elementary school responded to an after-school enrichment reading program. The goal of the 6-week project was to encourage multicultural, gifted students to read material that was at their instructional level with the help of trained teachers. Based on the Schoolwide Enrichment Model–Reading Framework (SEM-R), the lessons included three categories of effective reading instruction: (a) exposure to areas of interest, (b) training and methods instruction, and (c) opportunities to pursue areas of interest. The researchers selected five gifted students with a talent in reading to participate in the SEM-R after-school program. Over the course of three implementation phases, the students

participated in structured read-alouds, silent reading of high interest books, discussion groups, and self-choice activities. Each phase was created to help students develop automaticity in reading through differentiated reading strategies. The Elementary Reading Attitude Survey (ERAS), oral reading fluency assessments, the Scales for Rating the Behavioral Characteristics of Superior Students–Reading (SRBCSS-R), the Reading Interest-a-Lyzer questions, and case study methods were used to gather qualitative and quantitative data. The results show that students made significant gains in reading fluency and were increasingly more confident in reading books at their instructional levels. Based on their findings, the researchers composed a list of strategies that encouraged the students to read challenging books. Allowing students to pursue topics of interest was perhaps the most discussed strategy, followed by promoting book ownership.

Teachers ... noticed how challenge, rigor, high standards, and expectations are critical to improved student achievement.

Swanson, J. D. (2006). Breaking through assumptions about low-income, minority gifted students. *Gifted Child Quarterly, 50*, 11–25.

This article describes Project Breakthrough, a demonstration project designed to challenge assumptions and attitudes of teachers in high-poverty, high-minority schools. Project staff worked for 3 years with three South Carolina elementary schools training teachers in the use of The College of William and Mary language arts and science curriculum units with all of their students. This mixed-methods study examined achievement scores, observations, teacher logs, questionnaires, and interviews. Results indicated an increase in students identified as gifted (i.e., four additional students were identified as gifted), student achievement increased in two schools that consistently gathered and reported test data, and many teachers demonstrated attitudinal shifts with some seeking national certification. Teachers increased their understanding of how to provide a rigorous curriculum for their classes and noticed how challenge, rigor, high standards, and expectations are critical to improved student achievement.

VanTassel-Baska, J., Bracken, B., Feng, A., & Brown, E. (2009). A longitudinal study of enhancing critical thinking and reading comprehension in Title I classrooms. *Journal for the Education of the Gifted*, *33*, 7–37.

To measure gains in reading comprehension and critical thinking in Title I schools, the researchers conducted a longitudinal study of William and Mary language arts units over a 3-year period. Using six different school districts, 2,771 students in grades 3–5 participated in the study. Represented districts included urban, rural, and exurban. An average of 74 teachers per year were also included in the sample, with 38 teachers implementing treatment and 36 providing control classrooms. Treatment and control classrooms were created in all but one of the 11 sites. Four pretest instruments (the CogAT, the UNIT, the ITBS, and the TCT) were administered to the entire student sample prior to unit implementation. At the end of the intervention period, the ITBS Reading Comprehension subtest and the TCT were used to evaluate reading gains. Students in the treatment group completed measures of literary analysis and persuasive writing pre- and post-intervention. To monitor treatment fidelity and teacher practices, the researchers used the Classroom Observation Scale–Revised (COS–R). After pretesting, teachers of treatment groups systematically taught 24 William and Mary language arts lessons, designed for high-ability learners, over the course of 6–8 weeks. Teachers of control groups continued to use the district-selected curriculum, which in most cases was the Reading First Program. The results indicated that both the treatment and control groups made statistically significant gains in critical thinking. Although the differences between the two groups were not overwhelming, the scores favored the treatment group.

VanTassel-Baska, J., & Brown, E. F. (2007). Toward best practice: An analysis of the efficacy of curriculum models in gifted education. *Gifted Child Quarterly, 51,* 342–358. doi: 10.1177/0016986207306323

This article reviewed nine program/curriculum models in the field of gifted education. All nine models are K–12 applicable, transferable, and usable in all content areas; applicable across schools and grouping settings; incorporate differentiated features for gifted/talented learners; and serve as framework for curriculum design and development. Each of the models was discussed according to 15 criteria focusing on the effectiveness of students learning, teachers' use, and relation to the context. The article considered Stanley's Model of Talent Identification and Development and Renzulli's Schoolwide Enrichment Triad Model since these two models have strong longevity research evidence. Based on the analysis of the nine models, six showed evidence of effectiveness with gifted learners: The Purdue Three-Stage Enrichment Model for Elementary Gifted Learners, Renzulli's Schoolwide Enrichment Triad Model, Schlichter's Models for Talents Unlimited Inc., Stanley's

Model of Talent Identification and Development, Sternberg's Triarchic Componential Model, and VanTassel-Baska's Integrated Curriculum Model. The analysis of the models also highlighted the importance of grouping gifted students instructionally by subject area for advanced curriculum work. All models focused on inquiry as the central strategy and noted the importance of using student-centered learning opportunities. The remainder of the article discussed the structures supporting and impeding the implementation of differentiated curriculum for gifted students in a variety of settings. Strong professional development programs and fiscal support for curriculum were identified among the supporting factors. The article concluded with a description of three districts effectively implementing the Integrated Curriculum Model.

VanTassel-Baska, J., Feng, A. X., Brown, E., Bracken, B., Stambaugh, T., French, H., McGowan, S., Worley, B., Quek, C., & Bai, W. (2008). A study of differentiated instructional change over 3 years. *Gifted Child Quarterly, 52,* 297–312. doi:10.1177/0016986208321809

This quantitative study examined Title 1 heterogeneous classroom teachers' instructional behavior change over a period of 3 years. Participants were 71 teachers from grades 3, 4, and 5 who implemented a research-based curriculum unit, the Integrated Curriculum Model. The experimental group had 34 teachers who attended regular professional development activities. Teacher attrition occurred at the end of each year due to high turnover rate in Title 1 schools. For the experimental group, teachers who participated the whole 3 years were considered veteran teachers, and non-veteran teachers participated 1 or 2 years. Teachers' instructional practice and student engagement were assessed using the Classroom Observation Scale–Revised (COS–R) and the Student Observation Scale. The results of the study showed that teachers in the experimental group obtained higher ratings than comparison teacher on all behavioral categories of the scale (i.e., curriculum planning and delivery, accommodation for individual differences, problem-solving strategies, research strategies, creative thinking strategies, and critical thinking strategies). In addition, among teachers in the experimental group, veteran teachers demonstrated higher improvement of instructional behavior than non-veteran teachers. By the third year, veteran teachers showed a consistent and high level of instructional practices. The authors of the study highlighted the importance of monitoring and professional development especially over multiple consecutive years.

Wallace, P. (2009). Distance learning for gifted students: Outcomes for elementary, middle, and high school aged students. *Journal for the Education of the Gifted, 32,* 295–320.

In this study, the author studied the effectiveness of distance learning for gifted students. Participants were 690 students ages 5 to 17 who were enrolled in the Johns Hopkins University Center for Talented Youth distance education program and who submitted online course evaluation forms. The students had all taken one of 54 different courses in math, writing, science, language arts, computer science, and Advanced Placement. The courses were all led by instructors who interacted with the students using e-mail, interactive whiteboard, online discussion forums and virtual classrooms, and telephone. Using descriptive statistics, the authors reported that the majority of the students enrolled because they hoped to use the course as a prerequisite for other CTY courses, hoped to get credit/placement, or had no specific plans. The majority of the students also were very or somewhat interested in the subject before taking the course, felt that the course was just about the right length, and was demanding but appropriate for them. Overall, three fourths of the students enjoyed the course and were satisfied with the academic experience. The majority of the students also reported that they were more interested in the subject after they took the course. The authors concluded that distance education can be an effective approach to accelerate or enrich the academic opportunities available to gifted students in grades K–12. They felt that more research was needed to explore individual differences and identify students who possess the level of readiness to thrive in a distance learning environment in terms of their capacities for time management, technological literacy, writing skills, and even keyboard skills.

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