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Identifying and Serving Gifted and Talented Students: Are Identification and Services Connected?

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Abstract

The importance of alignment between identification processes and program design is widely noted in gifted and talented education literature. We analyzed publicly available district gifted program plans (Grades 3-5) from two states to examine the extent to which district identification practices matched intervention strategies. Our team developed a coding scheme matrix with 133 items for State 1 (n = 115) and State 2 (n = 178). The results of this study indicated that, at least in terms of planning, districts in the two states we examined appeared to be aligning identification and programming practices to meet the needs of gifted students identified in mathematics and/or reading/English language arts. In State 1, at least 60% of the districts reported the following intervention strategies in mathematics and reading/English language arts: faster pace of coverage, regular grade-level standards, in-depth coverage, preassessment, above grade-level standards, and expanded grade-level standards. In contrast, State 2 districts reported faster pace of coverage; however, with less commonly utilized interventions, subject-matter identification significantly influenced their usage. Differentiation was the primary learning environment strategy utilized by districts in both states.

Keywords

academically gifted, content analysis, elementary, gifted identification, programming, qualitative analyses of district program plans

Designing and implementing programs for gifted and talented students requires careful thought and planning about four key programming elements (a) identification and placement, (b) intervention, (c) infrastructure and resources, and (d) program and student outcomes (Eckert & Robins, 2017; Reis, 2006; Reis & Gubbins, 2017). Within each of these elements, basic focus questions include the following: Who are the students in our school district who exhibit gifts and talents? How do we find them? What intervention approaches, including curricular, instructional, and service delivery strategies, are most appropriate to meet their academic needs? What human and material resources will support the implementation of programming plans? And, finally, what program and student outcomes are expected based on program design elements?

These questions are equally important, and decisions about one question affect others. Districts and schools must address the interdependence and interconnectedness among these questions forming the foundation for creating challenging academic opportunities for students with identified and potential gifts and talents. The questions also maintain the focus on the ultimate objectives of designing, developing, and implementing programs for gifted and talented students (a) to develop a defensible identification system reflecting students' academic needs and (b) to match student learning needs with appropriate interventions (e.g., curricular, instructional, and service delivery strategies).

Alignment of Identification and Programming

The importance of alignment between identification and programming is widely noted in gifted and talented education literature, and we would hope to find this to be the norm in

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practice. At least three decades of literature have referenced this fundamental connection.[1] Treffinger (1988) emphasized the focus on student needs to facilitate appropriate instruction rather than categorizing and labeling students. Callahan (1996) addressed the disconnect between identification and programming by urging us to ask whether enough time is spent on matching services to student needs or simply identifying needed services. Matthews (1997) concurred by emphasizing the importance of matching identification to program delivery on an ongoing basis appropriate to the individual. Because general education classrooms serve many gifted and talented students, Schroth and Helfer (2008) encouraged general education teachers to both identify student needs and develop appropriate instruction to meet them. Finally, Callahan et al. (2014) drew a clear connection between the need for a definition of giftedness and an identification plan to guide services, curriculum, instruction, and resources.

Although many states define giftedness and how to identify gifted and talented students, the link between identification and programming is less obvious (Adams, 2006; Brown, 2016; Shaunessy, 2003). Reis (2006) and Reis and Gubbins (2017) identified consistency as one of the traits of high-quality programming for high-ability learners. One minimum test for consistency is alignment between a district's identification procedures (which in effect operationalize the definition of giftedness) and programming through curriculum and instruction. As Callahan et al. (2013) asserted, "Congruence between identification and programming is so important it might be viewed as 'the golden rule' of gifted education" (p. 88).

Consistency across identification and programming options becomes even more important when considering students from culturally, linguistically, and economically diverse populations. Peters and Engerrand (2016) emphasized the importance of matching identification systems with programming to increase equity in gifted and talented education. The researchers recommended domain-specific identification and intervention. For example, longitudinal data from Project EXCITE (a collaboration between Northwestern University and Evanston/Skokie School District, Evanston, IL) with an emphasis on identification and programming in mathematics reported 70% of student participants begin high school having already completed 1 to 2 years of high school mathematics coursework (S.-Y. Lee et al., 2009). Students were eligible for Project EXCITE as of Grade 3 if they were from underrepresented groups and

> have the potential to achieve at high levels as demonstrated by their ability to think critically and engage in problem solving, demonstrate the ability to work beyond their current grade level, and demonstrate a high level of interest, curiosity, and enthusiasm for learning mathematics and science. (p. 141)

Providing services in specific areas of talent requires a deliberate connection between identification and programming. Peters et al. (2014) called for linking justifiable identification to programming for students to be successful. However, this connection has not been documented as occurring in practice in the gifted and talented literature. According to Callahan et al. (2017), program survey data indicated only one fourth of elementary schools designated curriculum-directed learning in the program. In a study conducted by the National Center for Research on Gifted Education (Hamilton et al., 2018), 69% of districts in three states identified students as advanced in reading/English language arts (ELA), and 66% identified students as advanced in mathematics, yet fewer than 11% of districts in those states designated specific reading/ELA or math curriculum designed for gifted and talented students.

The same survey data indicated most teachers of gifted and talented students have wide latitude in determining the content of the gifted and talented program. This instructional freedom may contribute to the mismatch between identification and services and result in a shotgun approach with no alignment among identification practices, curriculum, instruction, and/or service practices.

> The misalignment of identification, services, and outcome measures hinders the evaluation of gifted program effectiveness, and ultimately undermines arguments justifying services for gifted and talented students. This situation limits the field's ability to measure the benefits of gifted services, let alone justify them. (Siegle, 2020-2025, p. 1)

Identification and placement, intervention (including curriculum and instruction), and program service options (grouping) are interconnected. Identification and placement are multistep procedures often guided by state and local policies including definitions of giftedness. According to Gubbins (2006), defensible identification systems answer the following questions:

> Who are the gifted and talented students? Why are we striving to identify them? How do we find them? What are the most appropriate tools for identifying students' gifts and talents? How are data from various tools analyzed and interpreted? Who is responsible for identifying students' gifts and talents? (pp. 50-51)

Answers to these questions are important guidelines for appropriate placement decisions. Data gathered in the identification process should lead to the decisions guided by the identified students' areas of talent and advanced achievement through direct interventions, such as pullout classes or push-in services in general education classes. These interventions need to be accompanied by curriculum extensions in the area of giftedness or special accelerated content classes in areas of academic strength.

The programming standards established by the National Association for Gifted Children (2010) summarize the evidence and best practice in the field in relating identification practices to programming services. Evidence-based practices include the following [emphasis added]: Educators use

evidence-based instructional and grouping practices to allow students with *similar* gifts, talents, abilities, and strengths to learn together (1.3.1). Educators use universal screening and multiple indicators of potential and achievement at various grade levels from preK through Grade 12 to provide multiple entry points to services designed *to meet demonstrated needs* (2.1.3). Educators use and interpret quantitative and qualitative assessment information *to develop a profile of the interests, strengths and needs* of each student with gifts and talents (2.4.3). Educators use models of inquiry to engage students in critical thinking, creative thinking, and problem-solving strategies, *particularly in their domain(s) of talent*, both to reveal and address the needs of students with gifts and talents (3.4.3). Educators develop a preK through Grade 12 continuum of programming and services *relevant to student talent areas* that is responsive to students' different levels of need for intervention (5.2.2).

These guidelines confirm the identification process as a vehicle for identifying students who have characteristics warranting adjustment to the curriculum and instruction these students receive and the setting in which the instruction is delivered. This position serves as the analytic lens through which our data collection and analysis proceeded (Caelli et al., 2003). We posed the general research question:

> Is the recommendation of a clear relationship between the domain of talent identified and programming response played out in practice?

Our specific research questions about potential connections between identifying and serving students with gifts and talents included

(a) What are the reported practices in identifying and modifying programming in reading/ELA and mathematics by districts in two states with gifted and talented identification and programming mandates, as documented in district gifted program plans?
(b) To what extent do reported identification practices align with interventions (e.g., curricular, instructional, and service delivery strategies), as recommended in the gifted and talented education literature and documented in district gifted program plans?

The focus on mathematics and reading/ELA reflects the dominance of these two areas of identification and services from among academic content areas reviewed in surveys of gifted and talented programs (e.g., Callahan et al., 2017).

Theoretical Framework

Our theoretical framework is a talent development model proactively addressing the importance of recognizing and nurturing students' gifts and talents through an aligned series of steps (Siegle et al., 2016). The five major components of the model include the following:

1. Preidentification: Identify students who would benefit from talent emergent experiences
2. Preparation: Opportunities for students to enhance knowledge and skills to develop talents and abilities
3. Identification: Systematic procedures to identify and select students who need services beyond those available in general education classrooms
4. Intervention: Services commensurate with identified talent areas
    a. Curriculum and instruction: "address the pace and depth of learning commensurate with the learning differences of identified gifted students . . ." (p. 117)
    b. Service delivery: "grouping arrangements under which curriculum and instruction are delivered" (p. 117)
5. Outcomes: Cognitive and affective outcomes based on codified program and student goals and objectives.

Each component is designed to move students toward clearly defined cognitive and affective program and student outcomes. The extent to which these outcomes will be achieved through federal or state policy initiatives is variable. In this study, we examine the alignment between the third and fourth components of the model (i.e., identification and intervention).

Literature Review

Gallagher (2002) stated, "Social policy sets the rules and standards by which we provide special education experiences for gifted students" (p. vii). Policies evolve from federal or state legislation, regulations, and guidelines. Such information influences program elements:

> (a) Who receives the special resources?—the eligibility question, (b) Who delivers the resources?—the teacher qualification issue, (c) What are the resources to be delivered?—the nature of a special program, and (d) What are the conditions under which the resources are delivered?—service delivery parameters. (Gallagher, 2002, p. vii)

Because there is no federal mandate in the United States for the identification of and programming for students with identified or potential gifts and talents, states determine whether to promulgate identification and programming mandates and create corresponding laws, regulations, and guidelines for districts.

Stephens (2008) completed an historical overview of federal legislation affecting the education of gifted and talented students and described the attention "as a pendulum which swings from interest to disinterest depending on the degree to which the nation feels vulnerable. . ." (p. 388). She posed the following questions: "Why are the academic development and social-emotional nurturance of our nation's brightest students continuing to be neglected? Why has interest in the

special population been so sporadic?" (p. 387). Without federal legislation, states may or may not choose to consider or enact legislation focusing on identifying and serving students with gifts and talents.

The National Association for Gifted Children and The Council of State Directors of Programs for the Gifted (NAGC & CSDPG, 2014-2015) reported 32 of the 40 responding states have state mandates related to gifted and talented education. Of the states, 28 require identification and services and four states require only identification. With such inconsistencies from state to state, students who need access to challenging learning opportunities may be limited because of their geographic location. When four states commit legally only to identification, data collected for decision-making purposes may indicate programs and services that do not exist in practice. Plucker et al. (2013) recommended we pay attention: "When any new education policies are created policymakers should ask themselves two questions: How will the proposed policy impact our highest achieving students? How will the proposed policy help more students achieve at the highest levels?" (p. 24). They continued with a warning: "Each state should quickly examine its policies that may help or hinder the promotion of high achievement in its K-12 schools" (p. 25).

Identification

Multiple researchers recommend a multifaceted approach to identification including portfolios; dynamic assessment; curriculum-based performance; observations; nonverbal assessments; teacher checklists; and peer, parent, teacher, and self-nominations; in addition to cognitive assessments and achievement tests (Borland, 2014; Borland et al., 2000; Callahan et al., 2013; Frasier et al., 1995; Gallagher & Gallagher, 2013; McBee, 2006; Plucker & Callahan, 2014; Wiley & Brunner, 2013). Furthermore, according to best practices in identification, as identified in the literature, well-defined selection criteria should be included in the process, accompanied by professional development, to ensure implementation fidelity (Callahan et al., 2013; Little & Paul, 2011). All phases of program design should include an emphasis on program evaluation to determine the what, why, how, and where of decision making (Robinson et al., 2014). Callahan and Hertberg-Davis (2013) emphasized the importance of utilizing measurable goals assessing identification, curriculum development and implementation, program administration, and staff selection processes during the program evaluation process.

Intervention: Curriculum and Instruction

For curriculum and instruction, the literature in gifted and talented education supports including domain-specific curriculum; process skills development (Purcell & Eckert, 2006; Rogers, 2007; VanTassel-Baska, 2006; VanTassel-Baska & Little, 2011, 2017); greater depth, breadth, and complexity of curriculum (Kaplan, 2013); enrichment (Gubbins, 2014; Renzulli & Reis, 2014); adherence to standards; assessment and curriculum compacting (Reis et al., 2016; VanTassel-Baska, 2013); and culturally responsive practices (Worrell, 2013). Such a long list of approaches to curriculum and instruction is more like a menu rather than a coordinated set of opportunities responsive to students' needs informed by a defensible, research-based identification system. This results in multiple service delivery options. It can also lead to a misalignment between the identification criteria used to locate students who need additional services and the types of services those students receive.

Intervention: Service Delivery

Recommended service delivery options include general and domain-specific pullout programs (Gubbins, 2013), in-class programming, ability grouping (Steenbergen-Hu et al., 2016), cluster grouping (Gentry, 2014; Gentry et al., 2014), differentiated instruction (Tomlinson, 2013), acceleration (Assouline et al., 2013, 2014; Colangelo et al., 2013; Subotnik et al., 2015), and homogeneous grouping (Schroth, 2014).

NAGC and CSDPG (2014-2015) prepared an analysis of state survey policy and practice data. Of the respondents, the following service delivery models were frequently used in early Elementary Grades 1 to 3: cluster classrooms, resource room, and regular classroom. Cluster classrooms and resource rooms were also frequently used in Grades 4 to 6; additional models included subject acceleration and self-contained classroom. In a more recent study, Hodges and Lamb (2019) analyzed service delivery models in Washington State from 2006 to 2012. The following models were prevalent among districts: part-time grouping (also known as pullout programs, 39%), advanced subject placement (type of acceleration, 28%), and differentiated instruction in regular classrooms (27%). As noted earlier (NAGC & CSDPG, 2014-2015), these models are also used in elementary schools.

Method

Selection of States for In-Depth Review

In this study, we examined reported practice in 293 district gifted program plans from two of three states in the larger study (Siegle et al., 2017). Because this study was part of a larger federally funded study in which we promised anonymity to the participating states, we cannot disclose the states' identities. Initially, we sent an email survey to state coordinators of gifted and talented programs and screened their responses using the following criteria:

- Mandated services for gifted and talented students
- Available data sets allowing identification of important student-level outcomes for gifted and talented students in general and traditionally underserved gifted and talented students in particular. To be considered for inclusion, the state's data set comprised student achievement scores over time on standardized assessments, indicated whether a student was identified as gifted and talented, the school the student attended, and student demographics (e.g., date of birth)
- Required districts to submit written plans describing how they serve gifted and talented students to the state department of education (hereafter referred to as district gifted program plans)

Of the states responding to the email survey, 11 met all criteria. To arrive at purposive sample of states to include wherein the characteristics of the selected sample could be contextualized and described (Patton, 2002), we used several steps. We identified the final set of state partners as those meeting both criteria above and being reasonable candidates for the second and third stages of the study. These stages included a comprehensive survey of district- and local-level practices and site visits to examine practices. We further examined the public documents on each state with these guiding criteria:

- A state director with advanced training in gifted and talented education who was familiar and actively involved with schools around the state
- A commitment to historically underserved populations of gifted and talented students, evidenced by the presence of a notable number of students from these groups in gifted and talented programs and evidence in policy or practices of efforts to identify students from those populations
- Easily accessible information about state laws and policies on gifted and talented education
- Vertically scaled student achievement data
- Diversity of allowable and recommended service delivery options
- A reputation for educational innovation and reform and for using applied research to guide and support the innovation

Three states appeared to meet all these criteria. Members of the research team contacted gifted and talented education specialists in those states to confirm whether our interpretation of the collected data appeared to be consistent with their experiences. These three states appeared to meet the criteria and were invited to participate.[2] These states implemented gifted and talented identification and programming mandates, required districts to submit a district gifted program plan for identifying and serving gifted and talented students, and maintained publicly available district gifted program plans on the Internet. The district gifted program plans for Grades 3 to 5 represented current and future plans for multiple years. Unfortunately, on downloading the district gifted program plans, we discovered the district plans from one state were incomplete. Therefore, our results reflect district gifted program plans from two of the three states originally selected.

Each district gifted program plan followed specific reporting framework categories, such as addressing communication, definition identification, programming, program accountability, student accountability, personnel, and budget. The framework categories of interest were identification and programming. All district gifted program plans were downloaded from the state or district website at the same point in time and were the district gifted program plans guiding programs. The district gifted program plans included both current operations and plans for future changes.

For the remainder of this article, we refer to the states as State 1 and State 2. As part of the university and other institutional review boards, as well as data collection agreements, we committed to the nondisclosure of specific states and districts. The combination of publicly available data, state achievement test data, survey data, observation data, and interview data allowed us to create a data corpus with permission at multiple levels of departments of education and districts. Therefore, only general demographics are provided for State 1 and State 2.

State 1 is located in the Southeast, and State 2 is located in the Midwest. In each state, the districts comprise urban, rural, and suburban communities with widely varied population sizes, racial/ethnic makeup, and socioeconomic conditions.

Identification procedures related to gifted and talented students are similar in State 1 and State 2 as districts use multiple criteria (e.g., achievement data, cognitive ability tests, teacher and parent nominations/referrals, performance data, including student work samples). State 1 allows the identification procedures to be designed and implemented by local education agencies. In contrast, State 2, among other criteria, includes guidance about a specific criterion for the designation of students as gifted and talented. In State 2, students must achieve the 95th percentile or above on a nationally normed test, observation instrument, or performance assessment. In both states, one purpose of the identification procedures is to identify gifted and talented students from traditionally underrepresented groups (e.g., students from culturally, linguistically, and economically diverse communities and students who are twice exceptional) who require differentiated educational opportunities.

Document Analysis

Our research team completed a document analysis of each district gifted program plan for students in Grades 3 to 5. To guard against potential bias of the researchers in creation of

the coding scheme (Caelli et al., 2003), we examined texts and journal articles representing a broad base of views in the field and the position of the most prestigious professional associations in the field (e.g., Callahan, 2013; McBee, 2006; NAGC, 2010; Rogers, 2007; Siegle et al., 2016; Steenbergen-Hu & Olszewski-Kubilius, 2016; VanTassel-Baska, 2006). This review process helped us focus on best practices in identification and programming. From the texts and journal articles, we documented relevant components of gifted and talented programs to establish the credibility of the coding scheme.

Recognizing that document analysis represents a subset of the general field of qualitative analysis, we proceeded deductively (Frey, 2018) with the first step of developing a coding scheme. To ensure the trustworthiness and credibility of the deductive coding scheme (Frey, 2018; Peterson, 2019), we started with a theoretical framework of two of the principal components of gifted and talented programming described above (Siegle et al., 2016). We were addressing identification of gifted students and services that are provided. Accordingly, we built on the model and established key components of identification and programming from the literature. According to Frey, once a codebook is established, with codes organized by categories and subcategories, the researcher should test the codebook using a subsample of the documents to assess its appropriateness and completeness. We conducted an initial analysis of a subset of three district gifted program plans in each state and compared the codebook to the district gifted program plan categories and content. We then submitted the coding scheme to two experts in qualitative data analysis outside gifted and talented education for review. We asked them to review consistency between the theoretical framework and the categories and subcategories on the matrix and to assess the appropriateness of applying the matrix to the plans as required by state guidelines. We modified the matrix according to their feedback. The resulting matrix consisted of 139 topics with definitions and descriptions, as needed, to clarify possible exclusion criteria for the topic with a rating scale of 0 = *practice is not present* and 1 = *practice is present*.[3] From the original 139 categories of ratings across all dimensions of program planning and operation, we identified those relating only to identification of giftedness in the domain of mathematics or reading/ELA, curriculum in the domain of mathematics or reading/ELA, other identification, and learning environment.

The individuals who rated the district gifted program plans were either senior faculty in gifted and talented education at institutions offering doctoral programs in gifted and talented education or doctoral students at those institutions. Each doctoral student's curriculum vitae documented background and experience in teaching in and/or gifted and talented program administration and the completion of core courses in gifted and talented education. Additionally, the doctoral students completed at least one course in the collection and analysis of qualitative data.

Our nine-member research team met for 8 hours on each of 2 days to test the coding scheme matrix by rating district gifted program plans, calculating interrater agreement, and revising the matrix, as needed. Each coder rated a selected district gifted program plan independently. For each matrix item, we divided the sum of ratings by the number of raters and multiplied by 100 to calculate the mean percentage. Then we determined the mode distribution to establish whether the agreed rating would be "0" or "1." If the mode among raters was "1," the results would immediately yield the percentage of agreement among raters. However, if the mode among raters was "0," the inverse percentage agreement was calculated by subtracting the calculated percentage mean rating from 100. An overall percentage agreement of 100% indicated the same rating across all raters, 88.9% indicated one rating was different among raters, 77.8% indicated two ratings were different among raters, 66.7% indicated three ratings were different among raters, and 55.6% indicated four ratings were different among raters. We calculated the overall percentage for inter-rater agreement for all items by finding the average of the percentage agreement among raters for all items (Gisev et al., 2013).

Prior to analyzing all district gifted program plans, we conducted another review of the coding scheme matrix and deleted six items not representative of new or critical topics. Then we assigned individuals to review subsets of the 293 district gifted program plans using the reduced set of 133 coding scheme matrix items based on the group consensus process described above and the interrater agreement process (see Figure 1).

To ensure continued agreement, all coders on both teams individually rated every 10th plan, and we then calculated the interrater agreement. The criterion for continuing the rating process was set at 80% interrater agreement for each item of the 133 items reviewed on the sample of every 10th plan. Additionally, the entire team of nine members analyzed 15 of the 115 district gifted program plans for State 1. For State 2, four team members analyzed 23 of the 178 district gifted program plans and nine team members analyzed two district gifted program plans.

The average interrater agreement across all plans and all items evaluated by more than one rater was 87.8% for State 1 and 91.9% for State 2. The resulting data from the analysis of district gifted program plans serve as the basis for our study of the match between identification and intervention strategies.

For the purpose of this study, we selected two specific identification items from the coding scheme matrix ("Identify students in reading/ELA, e.g., a student is identified as gifted in reading/ELA, but not necessarily gifted in other areas" and "Identify students in mathematics, e.g., a student is identified as gifted in mathematics, but not necessarily gifted in

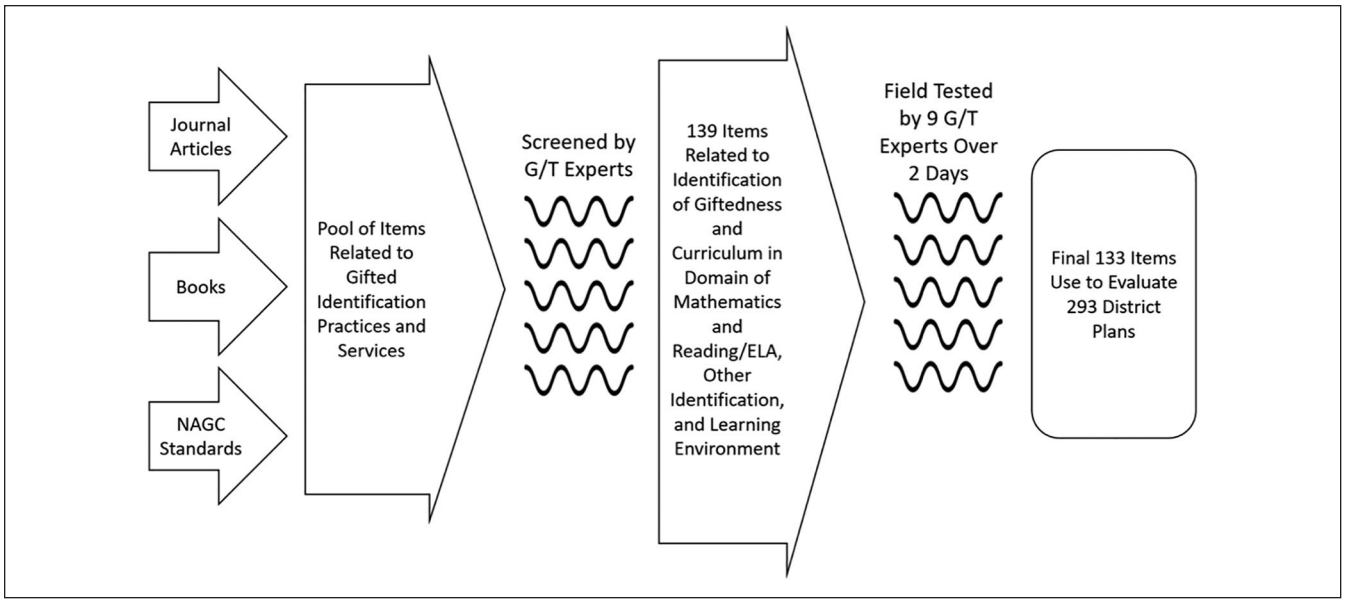

Figure 1. Development of the coding scheme matrix.
Note. NAGC = National Association for Gifted Children; G/T = gifted/talented; ELA = English language arts.

other areas"). In particular, we examined the degree to which districts identified students as gifted and talented in mathematics or reading/ELA and provided specific services in those domains. The eight intervention strategies we examined were faster pace, more in-depth or greater breath of coverage, use of regular education standards, preassessment of content knowledge, above grade-level content, expanded grade-level standards, separate curriculum, and culturally responsive curriculum. We also used both identification items to check the match to learning environments provided for subject area giftedness. We examined the five learning environments of differentiation, cluster grouping, tiered instruction, push-in services, and pullout classes based on survey data from NAGC and CSDPG (2014-2015) and works by Borland (2005), Coleman and Hughes (2009), and Tomlinson (2013).

Data Analysis

Our data analyses were descriptive in nature. We examined whether districts reporting the use of mathematics or reading/ELA domain-specific identification were more likely to provide advanced content and/or differentiated learning experiences for those students *in those respective subject areas*. We calculated effect sizes for each 2×2 contingency table using the phi coefficient. Generally, phi coefficients less than .10 are considered negligible ($\phi = 0.00\text{-}0.10$); phi coefficients between 0.10 and 0.20 are small, phi coefficients between 0.20 and 0.40 are considered moderate, phi coefficients between 0.40 and 0.60 are relatively strong, and phi coefficients above 0.60 are considered strong (D. K. Lee, 2016). We also report the odds ratios (*OR*s) for each of these comparisons. The *OR* representing the odds of endorsing a given strategy for districts using domain-specific identification divided by the odds of endorsing the strategy for districts not using domain-specific identification (see Table 1). *OR*s greater than 1 indicate districts using domain-specific identification were more likely to report using the technique; *OR*s less than 1 indicate schools not using domain-specific identification were more likely to report using the technique, and *OR*s of 1.0 indicate the two groups were equally likely to report using the technique. If the confidence interval of the *OR* contains 1, then the difference in the *OR* would not be statistically significant, setting the Type I error rate (alpha) to .05, the conventional criterion for statistical significance. However, given the descriptive nature of our data and because we have information for the entire population of districts within each of the two states, we have elected not to engage in statistical hypothesis testing.

Results

Most districts in the two states reported using domain-specific identification. Domain-specific identification may include any or all the following types of assessments: (a) state standardized testing, (b) norm-referenced achievement tests, (c) teacher nominations/referrals, (d) parent nominations/referrals, (e) teacher rating scales, (f) student work samples, and (g) dynamic assessment. Furthermore, with only one exception across the two states, districts identifying students in one domain also identified students in the other domain. In State 1, of the 115 districts, 90 districts (78.3%) identified students specifically in mathematics and 89 of those 90 (77.3% overall) identified students

Table 1. Odds Ratios Represent the Odds of Endorsing a Strategy in Districts With Domain-Specific Identification Versus the Odds of Endorsing a Strategy in Districts Without Domain-Specific Identification.

	State 1		State 2	
Strategy	Math *OR* [CI]	ELA *OR* [CI]	MATH *OR* [CI]	ELA *OR* [CI]
Faster pace of coverage in the gifted curriculum	3.51 [1.06, 11.61]	2.96 [0.85, 10.32]	11.40 [4.22, 30.80]	14.63 [4.94, 43.29]
Regular education standards for gifted students	3.86 [0.89, 16.69]	3.95 [0.75, 20.95]	0.81 [0.38, 1.72]	4.25 [1.43, 12.68]
More in-depth or greater breadth of coverage in grade-level content in curriculum for gifted students	3.63 [1.43, 9.25]	3.37 [1.31, 8.72]	1.45 [0.69, 3.02]	4.61 [1.71, 12.48]
Preassessment of content knowledge and skills in curriculum for gifted students	1.53 [0.63, 3.70]	2.06 [0.84, 5.06]	0.77 [0.38, 1.54]	0.77 [0.38, 1.54]
Above grade-level standards for gifted students	1.08 [0.45, 2.62]	1.00 [0.40, 2.47]	12.52 [1.66, 94.69]	12.00 [1.59, 90.85]
Extended or expanded grade-level standards for gifted students	3.21 [1.28, 8.01]	3.22 [1.28, 8.12]	0.71 [0.31, 1.64]	—
Separate curriculum (purposely designed for gifted students)	1.24 [0.38, 4.09]	1.49 [0.56, 3.94]	1.95 [0.23, 16.69]	6.05 [0.78, 46.88]
Culturally responsive curriculum	0.42 [0.07, 2.65]	0.53 [0.09, 3.10]	—	—
Differentiation	—	—	1.72 [0.82, 3.62]	1.72 [0.82, 3.62)
Cluster grouping	2.85 [1.09, 7.43]	3.08 [1.17, 8.10]	2.57 [1.11, 5.98]	2.57 [1.11, 5.98]
Tiered instruction	1.27 [0.53, 3.08]	1.43 [0.58, 3.53]	1.67 [0.46, 6.06]	1.67 [0.46, 6.06]
Push-in	1.78 [0.65, 4.90]	1.66 [0.60, 4.59]	3.99 [0.90, 17.73)	3.99 [0.90, 17.73)
Pullout (subject area)	3.56 [1.13, 11.23]	3.50 [1.11, 11.05]	3.15 [0.70, 14.19]	3.36 [0.75, 15.05]

Note. Odds ratios greater than 1 indicate districts engage in domain-specific identification in the area are more likely to use the strategy than districts that do not. Odds ratios of 1.0 indicate two types of districts are equally likely to use the specified strategy. Odds ratios less than 1.0 indicate districts do not identify specifically in the domain are more likely to use the strategy. Any confidence interval containing 1.0 would not be statistically significant at $\alpha = .05$. Missing odds ratios are undefined because they have a denominator of 0 within the odds ratio. ELA = English language arts.

specifically in reading/ELA. In State 2, of the 178 districts, 75.8% ($n = 135$) identified students in both mathematics and reading/ELA.

Separate Curriculum

Even though most districts identified students as gifted and talented in mathematics and/or reading/ELA, very few districts reported using separate curricula for gifted and talented students in mathematics or reading/ELA. In State 1, only 19.1% of districts identifying students as gifted and talented in mathematics (and 16% of the districts not identifying students specifically in mathematics) reported offering a separate mathematics curriculum for gifted and talented students. In State 2, the percentages were even lower: only 4.4% of districts identifying students in mathematics (and 2.3% that did not) reported using a separate mathematics curriculum for gifted and talented students. In reading/ELA, the same trend emerged. In State 1, 36.7% of districts identifying students as gifted and talented in reading/ELA (and 28% of districts that did not) reported using a separate reading/ELA curriculum for those students. In State 2, 12.6% of districts identifying students as gifted and talented in reading/ELA (and 2.3% that did not) reported using a separate reading/ELA curriculum for those students. Across the two states, very few of the districts reported using culturally responsive curriculum in reading/ELA or mathematics. Only six of the 115 districts in State 1 and none of the districts in State 2 reported using culturally responsive curriculum in either mathematics or reading/ELA (see Tables 2, 3, 4, and 5 for these results).

Classroom Learning Environments/Service Delivery Models

We also investigated what types of classroom learning environments districts planned to serve students identified as gifted and talented and whether they differed across districts utilizing/not utilizing domain-specific identification. Across the two states, differentiation was by far the most commonly used learning strategy: The majority of districts across the two states reported using differentiation. In State 1, virtually all districts mentioned differentiation (100% of those with domain identification and 92% of those without). In State 2, 76.3% of the districts identifying in a domain and 65.1% of the districts not reporting utilizing differentiation (see Tables 6 and 7).

In State 1, cluster grouping was a common service delivery option, and it was more prevalent in districts using

Table 2. State 1: Prevalence of Services in Districts Not Using Domain-Specific Identification in Math ($n = 26$) and Using Domain-Specific Identification in Math ($n = 89$).

	No math identification		Math identification		
Mathematics curricular content	*n*	%	*n*	%	ϕ
Faster pace of coverage in the gifted mathematics curriculum (acceleration, advanced content in shorter time frame, above grade-level curriculum)	20	76.9	82	92.1	.20
Regular education mathematics standards for gifted students (e.g., district standards, Common Core Standards, unless they specify acceleration or use of an above grade level use of standard, assume they are using the regular education standards)	22	84.6	85	95.5	.18
More in-depth or greater breadth of coverage in grade-level content in mathematics curriculum for gifted students (digging deeper into the content, extended mathematics activities, not covered in the standards)	14	53.9	72	80.9	.26
Preassessment of content knowledge and skills in mathematics curriculum for gifted students (use informal or formal assessment techniques, the use of curriculum compacting, may be inferred as using preassessment)	14	57.7	57	64.0	.09
Above grade-level mathematics standards for gifted students (choose standards/topics at higher grade level as the mathematics focus)	15	57.7	53	59.6	.02
Extended or expanded grade-level mathematics standards for gifted students (going beyond typical grade-level standards)	9	34.6	56	62.9	.24
Separate mathematics curriculum (purposely designed curriculum for gifted students)	4	16.0	17	19.1	.03
Culturally responsive curriculum in mathematics (responsive to students' culture, language, expectations, experiences)	2	7.7	3	3.4	.09

Table 3. State 1: Prevalence of Services in Districts Not Using Domain-Specific Identification in Reading/ELA ($n = 25$) and Using Domain-Specific Identification in Reading/ELA ($n = 90$).

	No identification in ELA		Identification in ELA		
Reading/ELA curricular content	*n*	%	*n*	%	ϕ
Faster pace of coverage in the gifted reading/ELA curriculum (acceleration, advanced content in shorter time frame, above grade-level curriculum)	20	80.0	83	92.2	.16
Regular education reading/ELA standards for gifted students (e.g., district standards, Common Core Standards; unless they specify acceleration or use of an above grade level use of standard, assume they are using the regular education standards)	22	88.0	87	96.7	.16
More in-depth or greater breadth of coverage in grade-level content in reading/ELA curriculum for gifted students (digging deeper into the content, extended reading/ELA activities, not covered in the standards)	14	56.0	73	81.1	.24
Preassessment of content knowledge and skills in reading/ELA curriculum for gifted students (use informal or formal assessment techniques, the use of curriculum compacting, may be inferred as using preassessment)	12	48.0	59	65.6	.15
Above grade-level reading/ELA standards for gifted students (choose standards/topics at higher grade level as the reading/ELA focus)	15	60.0	54	60.0	.00
Extended or expanded grade-level reading/ELA standards for gifted students (going beyond typical grade-level standards)	9	36.0	58	64.4	.24
Separate reading/ELA curriculum (purposely designed curriculum for gifted students)	7	28.0	33	36.7	.08
Culturally responsive curriculum in reading/ELA (responsive to students' culture, language, expectations, experiences)	2	8.0	4	4.4	.07

Note. ELA = English language arts.

Table 4. State 2: Prevalence of Services in Districts Not Using Domain-Specific Identification in Math ($n = 43$) and Using Domain-Specific Identification in Math ($n = 135$).

	No identification in math		Identification in math		
Mathematics curricular content	*n*	%	*n*	%	ϕ
Faster pace of coverage in the gifted mathematics curriculum (acceleration, advanced content in shorter time frame, above grade-level curriculum)	5	11.6	81	60.0	.41
Regular education mathematics standards for gifted students (e.g., district standards, Common Core Standards; unless they specify acceleration or use of an above grade level use of standard, assume they are using the regular education standards)	13	30.2	35	25.9	.04
More in-depth or greater breadth of coverage in grade-level content in mathematics curriculum for gifted students (digging deeper into the content, extended mathematics activities, not covered in the standards)	13	30.2	52	38.5	.07
Preassessment of content knowledge and skills in mathematics curriculum for gifted students (use informal or formal assessment techniques; the use of curriculum compacting, may be inferred as using preassessment)	19	44.2	51	37.8	.06
Above grade-level mathematics standards for gifted students (choose standards/topics at higher grade level as the mathematics focus)	1	2.3	31	23.0	.23
Extended or expanded grade-level mathematics standards for gifted students (going beyond typical grade-level standards)	10	23.3	24	17.8	.06
Separate mathematics curriculum (purposely designed curriculum for gifted students)	1	2.3	6	4.4	.05
Culturally responsive curriculum in mathematics (responsive to students' culture, language, expectations, experiences)	0	0.0	0	0.0	

domain-specific identification (82.2%) than those that did not (60%; ϕ = .22; see Table 6). However, in State 2, cluster grouping was far less common: Only 37% of the districts using domain-specific identification, and 18.6% of those not using domain-specific identification, reported using cluster grouping (ϕ = .17; see Table 7).

Push-in services and tiered instruction were less commonly used, especially in State 2. In State 1, under 50% of the districts in each group reported using tiered instruction, and 34.4% of districts with domain-specific identification and 24% of districts without reported using push-in services, in which gifted and talented specialists serve gifted and talented students in their classrooms rather than pulling them out (see Table 6). In State 2, less than 20% of districts with domain-specific identification and less than 10% of districts without used either push-in services (16.3% vs. 4.7%) or tiered (11.1% vs. 7%; see Table 7).

Pullout Instruction

State 1. In State 1, 71.1% of districts with math-specific identification and 60% of districts without report using some form of pullout programming for their gifted and talented students. However, only 39.3% of districts identifying students in mathematics used pullout programs in math and 40% of districts identifying students in reading/ELA used pullout programs in reading/ELA. Over 32% of districts with domain-specific identification delivered content other than reading/ELA or mathematics during part or all of their pullout instruction. In other words, only 56% of the districts identifying students as gifted and talented in a domain and using pullout programming actually offer pullout programming in the domain. In districts without domain-specific identification, 15.4% reported using pullout instruction in mathematics and 40% covered content other than reading/ELA or mathematics during the pullout instruction.

State 2. In State 2, over 40% of the districts reported using pullout programming. Regardless of whether they identified students in mathematics or reading/ELA, with very few districts indicating pullout instruction was focused on mathematics or reading/ELA. Over 30% of the districts reported using pullout programming in subject areas other than mathematics or reading/ELA. In fact, of the 60 districts reported using domain-specific identification and pullout programming, only 19 districts (31.7%) reported delivering content in either mathematics or reading/ELA during the pullout instruction.

Table 5. State 2: Prevalence of Services in Districts Not Using Domain-specific Identification in Reading/ELA ($n = 43$) and Using Domain-specific Identification in Reading/ELA ($n = 135$).

	Identification in ELA		No identification in ELA		
Reading/ELA curricular content	*n*	%	*n*	%	ϕ
Faster pace of coverage in the gifted reading/ELA curriculum (acceleration, advanced content in shorter time frame, above grade-level curriculum)	4	9.3	81	60.0	.43
Regular education reading/ELA standards for gifted students (e.g., district standards, Common Core Standards; unless they specify acceleration or use of an above grade level use of standard, assume they are using the regular education standards)	4	9.3	41	30.4	.21
More in-depth or greater breadth of coverage in grade-level content in reading/ELA curriculum for gifted students (digging deeper into the content, extended reading/ELA activities, not covered in the standards)	5	11.6	51	37.8	.24
Preassessment of content knowledge and skills in reading/ELA curriculum for gifted students (use informal or formal assessment techniques; the use of curriculum compacting, may be inferred as using preassessment)	19	44.2	51	37.8	.06
Above grade-level reading/ELA standards for gifted students (choose standards/topics at higher grade level as the reading/ELA focus)	1	2.3	30	22.2	.22
Extended or expanded grade-level reading/ELA standards for gifted students (going beyond typical grade-level standards)	0	0.0	22	16.3	.21
Separate reading/ELA curriculum (purposely designed curriculum for gifted students)	1	2.3	17	12.6	.15
Culturally responsive curriculum in reading/ELA (responsive to students' culture, language, expectations, experiences)	0	0.0	0	0.0	—

Note. ELA = English language arts.

Table 6. State 1: Prevalence of Learning Environments in Districts Not Using Domain-Specific Identification ($n = 25$) and Using Domain-Specific Identification ($n = 90$).

	No identification		Identification		
Learning environments	*n*	%	*n*	%	ϕ
Differentiation	23	92.0	90	100.0	.25
Cluster grouping	15	60.0	74	82.2	.22
Tiered instruction	10	40.0	44	48.9	.07
Push-in services	6	24.0	31	34.4	.09
Pullout (overall)	15	60.0	64	71.1	.10
Pullout services in ELA	4	16.0	36	40.0	.21
Pullout services in math[a]	4	15.4	35	39.3	.21
Pullout services (Other)	10	40.0	29	32.2	.07

Note. ELA = English language arts.
[a]Ninety districts used domain-specific identification in either ELA or mathematics. Of the districts, 89 of the 90 also used domain-specific identification in mathematics. The table above compares districts using any domain-specific identification ($n = 90$) to those not using domain-specific identification ($n = 25$), with the exception of pullout services in mathematics, where only the 89 districts with domain-specific identification in mathematics appear in the identification column for that variable.

Content Standards

State 1. Tables 2 and 3 contain descriptive information on content standards for State 1. Regardless of whether or not they identified students as gifted and talented in mathematics, the majority of districts in State 1 reported using faster pace of coverage in the mathematics curriculum (92.1% vs. 76.9%), preassessments of content knowledge (64% vs. 57.7%), and above grade-level mathematics standards (59.6% vs. 57.7%). However, districts identifying students as gifted and talented in mathematics were more likely to

Table 7. State 2: Prevalence of Learning Environments in Districts Not Using Domain-Specific Identification ($n = 43$) and Using Domain-Specific Identification ($n = 135$).

	No identification in ELA		Identification in ELA		
Learning environments	*n*	%	*n*	%	ϕ
Differentiation	28	65.1	103	76.3	.11
Cluster grouping	8	18.6	50	37.0	.17
Tiered instruction	3	7.0	15	11.1	.06
Push-in services	2	4.7	22	16.3	.15
Pullout (overall)	18	41.9	60	44.4	.02
Pullout services in ELA	2	4.7	19	14.1	.13
Pullout services in math	2	4.7	18	13.3	.12
Pullout services (other)	16	37.2	42	31.1	.06

Note. ELA = English language arts.

report using more in-depth or greater breadth of coverage (80.9% vs. 53.9%), and extended or expanded grade-level standards (62.9% vs. 34.6%, $\phi = .24$).

In State 1, reading/ELA exhibited the same general pattern. The majority of districts in State 1 reported using faster pace of coverage in the reading/ELA curriculum (92.2% vs. 80.0%) and above grade-level reading/ELA standards (60% vs. 60%). However, districts identifying students as gifted and talented in reading/ELA were more likely to report using more in-depth or greater breadth of coverage (81.1% vs. 56%, $\phi = .24$), and extended or expanded grade-level standards (64.4% vs. 36%, $\phi = .24$).

State 2. Tables 4 and 5 contain descriptive information on content standards for State 2. In State 2, districts using domain-specific identification were more likely to report a faster pace of content coverage in both mathematics and reading/ELA. Specifically, in districts using domain-specific identification, 60% reported using faster pacing of mathematics content and 60% reported using faster pacing of reading/ELA content. In contrast, in districts without domain-specific identification, only 11.6% reported using faster pacing of content in mathematics and only 9.3% reported using faster pacing of content in reading/ELA ($\phi = .41$ for mathematics and $\phi = .43$ for reading/ELA). The majority of districts in State 2 did not report using more in-depth coverage of material, above grade-level standards, extended or expanded standards, or preassessment, and there did not appear to be meaningful differences in the usage of these three strategies across districts using domain-specific identification versus those not using domain-specific identification (see Tables 4 and 5). However, districts using domain-specific identification were more likely to endorse the use of above grade-level standards in both mathematics (23% vs. 2.3%, $\phi = .23$) and in reading/ELA (22.2% vs. 2.3%, $\phi = .22$).

Discussion

Although a majority of districts indicated they identified students as gifted in the domains of mathematics and reading/ELA, we found limited use of a separate curriculum in mathematics and reading/ELA for students identified as gifted in those domains. These findings violate the basic tenet of gifted education: Identification of gifted and talented students and services should be connected. Too often, however, detailed screening, nomination, identification, and placement practices are established without considering the question: Identification for what? When state and district policy makers set guidelines for identifying gifted and talented students, they may fail to take into account the ramifications their decisions have for the types of services students identified by those guidelines should receive. Therefore, gifted and talented advocates should carefully consider the services they hope to provide for students identified as gifted and talented before they establish identification criteria, and they should ensure state and district identification recommendations take those services into account when setting identification criteria. In many cases, this may require broader conceptions of giftedness reflecting the variety of services schools can provide.

At a time when most federally funded education research emphasizes the importance of improving mathematics and reading/ELA achievement, identifying students who would most benefit from advanced content in those subjects is one imperative. The results of this study indicated, at least in terms of planning, that districts in the two states we examined did report they identified gifted and talented students in the areas of mathematics and reading/ELA, and they differentiated or extended the general curriculum in mathematics or reading/ELA for gifted and talented students. Differentiation was the primary learning environment mentioned by districts in both states. However, as we noted, very few districts reported having designated curricula for gifted and talented students in mathematics or reading/ELA. Additionally, when districts reported having designated curricula, we found little difference in the availability of curriculum designed specifically for gifted and talented in mathematics or reading/ELA between districts identifying/not identifying students in mathematics or reading/ELA. These findings beg the questions worthy of additional

research, "How are educators differentiating without dedicated related curricula?" and "When content related curriculum is available, how do educators determine who receives it?" In general, districts identifying in the subject areas proposed utilizing faster pace of coverage as the primary method to meet the instruction needs for students identified in both mathematics and reading/ELA, which might reduce the pattern of not mentioning a designated curriculum in the district gifted program plan.

Substantial differences did exist both between and within states. Districts in State 1 were more likely to report cluster grouping of identified students than districts in State 2. In addition, districts identifying students in mathematics and reading/ELA were more likely to report the use of cluster grouping. Cluster grouping has been shown to be an effective strategy for delivering advanced content to identified students (Gentry, 2014). However, we are still left to wonder what differentiated learning occurs within those clusters. This is also an area that future researchers will wish to explore.

Districts identifying students as gifted and talented in mathematics and reading/ELA in both states reported using faster pacing. However, in State 1, districts not identifying students as gifted and talented in mathematics and reading/ELA, as well as those who identified students as gifted and talented in those subjects, reported using faster pacing. In State 2, districts identifying students in those subjects as gifted and talented were more likely to provide faster pacing than schools not identifying students in those subject areas. Perhaps gifted and talented students in mathematics and reading/ELA in both states are receiving advanced instruction in these subjects, but only students in State 2 carry the gifted and talented label.

Borland (2005) has advocated for gifted and talented education without gifted and talented identification. Given the controversy of determining who is and who is not gifted and talented, and the issues related to the under identification of underserved populations, perhaps alignment between gifted and talented students' academic needs and services to meet those needs might be better driven by identifying students within the districts and schools rather than by a state policy definition of giftedness.

The results from this study also appear to indicate push-in services may be gaining traction. The push-in model, in particular, became popular in special education as a result of the Individuals with Disabilities Education Act's (2004) Least Restrictive Environment requirement (McLeskey et al., 2012). Push-in models favor an emphasis on differentiating academics as gifted and talented services in the classroom, which supports alignment of services for districts identifying students in mathematics and reading/ELA.

As noted earlier, the results of this analysis of the connections between identification practices and intervention strategies have policy implications. If identification data were purposely collected to determine students' domain-specific gifts and talents, the plausible assumption is there should be a match between identification and programming interventions. As Peters et al. (2014) cautioned: "An identification plan or policy cannot be developed in isolation from the programming or curriculum that will be provided to those students who are identified" (p. 22). Although the results of this study are promising in a certain subset of districts (with detailed state-level gifted and talented education policies), a closer look at the match/mismatch between identification and programming in other states with less favorable gifted and talented education policies is warranted.

Limitations and Future Research

While a strength of the study is the availability of documents from all districts in the states examined, thus removing sampling issues (Frey, 2018) within the states, the data analyzed in this study are limited to these two states. These two states are geographically very far apart, represent a small sample, and are states that met very stringent study criteria. Further research is warranted to determine how generalizable the results are to other states by conducting a study of district gifted program plans for other states with identification and programming mandates, even if the state candidates do not meet specific criteria outlined for our research study.

Second, the data represent *reports* of practice as perceived by district personnel (most likely at the central office level); hence, we cannot extend our conclusions to practice. The extent to which district gifted program plans are actually applied in practice cannot be discerned from these data. Future researchers should explore the actual alignment occurring in practice. Because individual schools and teachers vary across districts, implementation of district gifted program plans likely fluctuates significantly across settings. Schools and/or teachers may be implementing services not reported in the district gifted program plans or may not be implementing practices reported. We cannot document whether the alignment between identification and service model was provided. District gifted and talented coordinators and administrators are generally responsible for developing and submitting district gifted program plans, while building level administrators and teachers of gifted and talented students are responsible for implementing practices.

One potential limitation of document analyses, such as those in this study with mandated reporting of practice according to specific state guidelines, is the temptation of the creators of the documents to either copy state guidelines and regulations into the documents to ensure compliance or to copy the products of other districts, which are not representative of their own district gifted program plans (Frey, 2018). In our examination of the district gifted program plans, we did not observe districts simply copying rules and regulations of the state (which were available online) nor did we see any instances of commonality suggesting duplication of others' reports. In these two states, identification of

giftedness in specific academic domains was allowed, but not mandated, and no particular grouping or curricular requirements were included in state law or policy.

Finally, although a district indicates it identifies students as gifted and talented in mathematics or reading/ELA and reports having a special curriculum for advanced students in those subjects, we cannot definitely state the curriculum is being used for those identified students.

Concluding Statement

If one of the goals of gifted and talented education is to increase academic achievement in the core content areas of mathematics and reading/ELA, then gifted and talented programs must identify students with strengths in these areas and provide them with advanced content beyond what students normally receive in their general education classrooms. Our findings indicate districts are cognizant of this need to match identification procedures with gifted and talented services to maximize students' academic growth, and many incorporated this perspective in their district gifted program plans. However, a nonnegligible number of districts do not report using specific curriculum to meet advanced students' needs. Additional research is warranted to determine the extent to which districts actually implement what is reported to the state.

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The data analyzed in this study are not available for purposes of reproducing the results. The protocol used to generate the findings reported in the article is available at https://ncrge.uconn.edu/Program_Plan_Codes/ for purposes of replicating the study. There were no newly created, unique materials used to conduct this research.

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Notes

1. In the interest of ensuring openness in the review of literature and subsequent analysis, our bias in accepting this premise should be noted (Caelli et al., 2003).
2. The third state was not included in this analysis stage because districts reported only their identification process in the documents examined, and those processes were largely identical in wording to the state law governing identification.
3. The actual coding scheme is too long for inclusion in this article. It is posted on our website (https://ncrge.uconn.edu/Program_Plan_Codes/).

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