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Differentiation for Gifted and Talented Elementary Students: What Teachers Know and Implement

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DIFFERENTIATION FOR GIFTED AND TALENTED ELEMENTARY STUDENTS: WHAT TEACHERS KNOW AND IMPLEMENT

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The purpose of this research was to measure the ways elementary school teachers are differentiating instruction for their gifted and talented students and to gauge their awareness of the need for implementing appropriate differentiation strategies they use in their classrooms. The study surveyed elementary teachers currently teaching in one large school district in Kentucky. Teachers responded to 38 survey items, indicating how often they use specific practices with their gifted students versus with their average-achieving students.

The results indicated that there is much work to be done to increase teacher awareness of the importance of differentiated instruction for gifted and talented students. Professional learning in gifted education is essential to ensure that these talented students have the opportunity to reach their full potential in their educational lives.

INTRODUCTION

The field of teaching is constantly evolving. Educators search for effective ways to reach all students and to find what works best to allow each student to learn and succeed. One of the most prominent concepts related to this phenomenon is that of differentiation (Tomlinson, 2015). The Kentucky Department of Education (KDE) Gifted and Talented Coordinator Manual (2020) defines differentiation as "a method through which educators shall establish a specific, well thought-out match between learner characteristics in terms of abilities, interests and needs, and curriculum opportunities in terms of enrichment and acceleration options which maximize learning experiences" (p. 3). When educators differentiate, they alter their lessons and style of teaching to fit the needs of the individual student. It is common practice to differentiate for special education students (e.g., those with learning disabilities, physical disabilities, etc.); however, what is being done for students at the opposite end of the spectrum whose needs should be considered as well? What strategies are teachers using in their classrooms to differentiate instruction and help to ensure continuous progress in learning for students who are gifted? Although differentiation in the regular classroom does not replace the need for dedicated gifted services and programming (Hertberg-Davis, 2009), it is still an important contributor to a gifted child's educational process and development.

This study examines the following research questions:

Research Question 1: What are elementary school teachers doing in their classrooms to vary the lessons they teach so they can best address the needs of gifted and talented students, and what is their understanding of what these children need most to learn and succeed?

Research Question 2: What are the major classroom strategy differences that these teachers are implementing for their gifted students versus their average students**?**

Literature Review

Conception of Giftedness and the Results of Not Being Challenged

Giftedness can be a difficult concept to define. Some of the most prominent researchers in the field have presented their own theories and definitions that are widely accepted. Renzulli (1999) said that giftedness occurs in an individual when three characteristics are present: (a) higher than average ability, (b) high level of task commitment, and (c) high levels of creativity. Similarly, the National Association for Gifted Children (NAGC, n.d.) states that gifted children “perform—or have the capability to perform—at higher levels compared to others of the same age, experience, and environment in one or more domains” (p. 1). In addition, Catron and Wingenbach (1986) pointed out that it is important to distinguish between a child who is a hard worker and a child who is gifted. Persson (2014) emphasized the need for educators to reach a consensus on understanding what constitutes giftedness in individuals so that there can be consistency in identification. Gifted children use their own prior knowledge and experiences in their interpretation of text, are able to apply higher level thinking skills to interpret what they read and learn, and are capable of communicating this information to others.

In Kentucky, primary students are screened for potential, and students in grades 4-12 may be formally identified as gifted in one or more of five areas; (a) general intellectual aptitude, (b) specific academic aptitude, (c) creative or divergent thinking, (d) psychosocial or leadership skills, and (e) visual or performing arts. Students are measured and identified through a combination of academic or creativity aptitude tests, observation, work samples, behavior checklists, and recommendations (Kentucky Association for Gifted Education [KAGE], 2011).

Gifted programming varies widely among schools and districts, and discrepancies in how gifted students are identified and services available for students can look very different (Callahan et al., 2017). A study of gifted urban children found that waiting until the students are older to present them with challenges in their area of talent often results in resistance to the challenge and unwillingness to leave their comfort zones (Reis & Boeve, 2009). For example, by upper elementary school, gifted readers who have gone without appropriate reading instruction may have developed a familiarity with a specific genre, author, or series, and may be very hesitant to engage in new material (Reis et al., 2004).

Underachievement is a very common issue among gifted individuals, making it even more important for them to receive appropriate instruction and challenges from the beginning of school (Rubenstein et al., 2012). When a young child realizes that they can achieve high grades with little effort, it is easy for them to become underachievers if they are not properly challenged and engaged in their learning (Roberts & Inman, p. 20). Research has shown that underachievement can be even more prevalent in rural schools, where appropriate materials may be more difficult to obtain and enrichment opportunities may be more limited (El-Abd et al., 2019). Rural schools also tend to have fewer gifted education specialists and services to enrich their high ability students (Azano et al., 2017). These students may be less likely to have access to books or other learning materials at home or to experiences that enhance their learning and curiosity. VanTassel-Baska (2017) stated that "school should be the place for intellectual challenge, even if the home is not" (p. 104). Quality literature and educational experiences have the power to take students beyond today's world of ubiquitous technological devices and stimulate their imaginations on a new level. Teachers must make an effort to provide these students with quality literature, materials, and experiences that will allow them the opportunity to develop their cognitive skills and broaden their knowledge. If highly capable students are not provided with the opportunity to read challenging, interesting literature at school and to grow in their areas of strength, they run the risk of not having access at all or of losing faith in the school as a source of learning material that stimulates their interests (Weber & Cavanaugh, 2006).

Differentiation for the Gifted

According to Roberts and Inman (2015), the purpose of differentiation in a classroom is to "facilitate ongoing continuous progress for all students" and in the long-term to "develop lifelong learners" (p. 5). Rinn et al. (2020) surveyed state officials and found that differentiation was the most frequently offered service for gifted children; however, instruction and differentiation for gifted children are highly inconsistent from state to state, district to district, and even among schools in the same district. Callahan et al. (2017) found that less than half of the school districts surveyed used the current NAGC standards, and in some cases were not aware of them at all. VanTassell-Baska (2019) found that differentiation is very much underutilized in most classrooms with gifted students. If gifted children are to receive the most appropriate education, schools and teachers must be aware of and follow these standards and guidelines (Roberts, in press).

Differentiation in the classroom is primarily intended to address the diverse needs of individual students, and gifted students are no different. Their interests, backgrounds, life experiences, and levels of maturity can vary widely from person to person, regardless of chronological age. The strategies teachers use must be diverse and tailored to the individual student, just as they would tailor learning to the needs of their struggling students to help them succeed and progress (Wood, 2008). The need for personalized learning strategies and activities may especially be strong in schools that have high numbers of minorities and/or students of low socioeconomic status (Wright et al., 2017). Teachers must be educated to be aware of cultural differences that may make it more challenging for them to recognize a student's areas of talent.

One of the most common areas for teachers to differentiate for gifted learners is in reading. Gifted children may often excel and/or show great interest in reading, and they may focus on specific genres, formats, or authors (Catron & Wingenbach, 1986). For students gifted in reading, some specific book genres may be better suited than others for inspiring and challenging advanced readers. Gifted readers may focus on a specific genre, with fantasy and science fiction being among the most common. Churchill (2020) suggested that the depth of content and themes of these two genres can contribute to their appeal among gifted readers. Common themes in these two genres often focus on self-discovery and self-determination; and they may feature recurring quests or trials for friendship, freedom, or survival, often helping characters to come to a "deeper understanding of themselves and others" (p. 28). Themes such as these help to provide gifted readers with deep content and descriptive settings that may appeal to a gifted child's imagination.

It can be difficult for teachers to provide high-quality instructional material that is sufficiently challenging for their gifted students (Weber & Cavanaugh, 2006). One possible solution to this problem is for the teacher to provide access to ebooks. Ebooks provide easy access to a wide variety of reading material that includes various genres and subjects, fiction, and nonfiction, and they are readily available from a variety of sources, many of which are free or low cost. They can provide gifted students access to challenging topics and vocabulary and a wide range of interest areas, regardless of their area(s) of giftedness.

Gifted students often excel when they are given some measure of choice and freedom in their learning (Garn & Jolly, 2013). Gifted and talented readers, in particular, should have the freedom of choice in selecting reading materials; however, giving them complete control of selecting such materials is not the best practice for ensuring that they continue to develop and grow in their reading skills (Vosslamber, 2002). These high ability readers may not necessarily choose quality literature on their own and reading high quality literature is imperative for them to enhance their cognitive skills in reading, so they must be given teacher guidance. Research has shown that teacher guidance is necessary in helping gifted students to broaden their reading repertoires, along with exposure to varied genres, styles, and topics in literature (Wood, 2008). It is not enough for a gifted reader to be given an advanced text to read while the teacher works with their struggling students. Gifted readers must be provided with appropriately challenging learning activities to supplement their reading if the teacher is committed to meeting that student's needs for advancement in their reading ability (Moore, 2005). Students who are gifted can easily become frustrated with commonly assigned activities such as book reports, simple reporting of learned facts, or written summaries that they deem superficial or unnecessary and that do not put their advanced skills to good use (Catron & Wingenbach, 1986). Gifted learners in all areas must be given challenges and learning opportunities that are appropriate to their levels of ability if those students are to succeed and grow (Roberts & Inman, 2015).

Reis et al. (2004) presented a series of case studies showing common themes among teachers who were interviewed and observed throughout the course of their research. Teacher A said:

> I try to get them [my gifted students] at least once a week, but I am not always able to do that. You see, so many of my other students read below grade level that it is hard to justify not working with them. Many of these lower readers will be retained in this grade if they do not improve. The top group already reads at grade level, so I rarely have any instructional time to give to them. (p. 323)

Some teachers are of the mindset that even their high ability students will somehow miss out on content if they do not participate in the same fundamental activities as those who are beginning or struggling learners. Lamb and Feldhausen (1992) found that very few kindergarten teachers and less than half of first grade teachers were willing to allow their high-ability students to bypass fundamental readiness activities designed for their beginning and struggling learners. Those teachers reported that they felt compelled to use beginning learning activities with even their highest achieving students for fear that they were somehow missing out, or that the children's parents had somehow falsely inflated their abilities, so they appeared to be more intellectually developed than they actually were. All these concerns contribute to teachers' hesitancy to provide their gifted learners with more challenging lessons before personally teaching them what they consider to be the basics, even if the child has already mastered those basics and appears to be ready for more challenging material.

Differentiation practices in a typical general education classroom are usually very common with struggling students; but modifications for advanced, and sometimes even average, learners are often much less common (Reis et al., 2004). Some teachers make the effort to assign challenging and enriching work to their advanced students, but they may fail to realize fully that those students still need to be taught *how* to understand and interpret challenging literature and activities (Wood, 2008). It is important for teachers to realize that effective classroom differentiation practices must allow that all children, including the gifted, are learning at levels that are appropriately challenging and are helping them to make continuous progress in their learning (Roberts & Boggess, 2012).

The use of learning centers in classrooms can be one of the easiest differentiation strategies for teachers to implement. In designing centers, it is necessary for teachers to keep in mind that each child may have very different learning styles and needs. Students are diverse individuals with different learning needs and learning centers must be modified to address those needs, particularly for gifted learners (Roberts & Boggess, 2012).

Teachers often feel overwhelmed and in need of additional knowledge when it comes to providing for their gifted students. They need professional learning and resources to help them accurately determine a gifted reader's strengths and level of mastery. Teachers need adequate training to help them choose appropriate materials to supplement a gifted child's learning curriculum when that child has mastered or even surpassed the existing curriculum (Reis et al., 2004). For teachers to ensure that their gifted students make continuous progress in their learning, they must have the proper professional learning to nurture these gifts. This nurturing "must begin early and be maintained over time if it is to flourish" (Wood, p. 22). The younger students are when they first experience challenging material and the more continuous the challenges are, the less likely those students will be to resist higher-level work encounters later in their educational experiences.

Methods

For this study, elementary school teachers working with students in grades K-5 in a relatively large school system in Kentucky were asked to respond to 38 survey items on a six-point Likert scale regarding their current classroom practices in differentiation for their gifted students and average ability students. On the Likert scale, teachers indicated how often they used specific practices in their classrooms with gifted learners and with average learners (never, once a month, a few times a month, a few times a week, daily, or more than once a day). The survey used was the Classroom Practices Survey by professors in the Department of Educational Studies at Purdue University (Pereira et al., 2019), revised from the original Classroom Practices Survey (Archambault et al., 1993). Question 39 "[How often do your students] use computers" was removed. In light of the ongoing pandemic and prevalence of remote learning in public schools, it seemed unnecessary to ask teachers if and how often their students used computers in the classroom. Teachers were asked to respond to each item on the survey and optionally to elaborate on their thoughts about differentiation regarding gifted learners and methods for ensuring gifted students are adequately served. Teachers were also asked to provide demographic information regarding gender, race, years of teaching, grades currently teaching, highest degree earned, and their knowledge of and professional learning experiences in gifted and talented education. The survey was distributed with permission from the district superintendent and assistant superintendent via Google Forms email invitation to all elementary school teachers in the district serving grades K-5, including those teaching in special education or special area/related arts classroom settings. Reminders were sent approximately three days after the initial invitation and one day prior to closing the survey. In addition, some individual principals sent reminders to their faculty members.

Population demographics and participants

The school district used for this study has a dedicated gifted department consisting of a central office-based coordinator, four itinerant teachers who provide services primarily for elementary students, and several acceleration or enrichment options for students in middle and high school, including a separate learning venue for those gifted in math and/or science. Options for high school students include early graduation, Advanced Placement classes, and dual credit courses. Middle school students who do not choose to apply to and attend the math and science academy have several different extracurricular activities available and limited options for advanced level classes. For primary students in grades K-3, the district offers the opportunity to participate in the Primary Talent Pool. The Kentucky Association for Gifted Education Gifted and Talented Coordinator Handbook (2020) defines the Primary Talent Pool as a “group of primary students informally selected as having characteristics and behaviors of a high potential learner and further diagnosed using a series of informal and formal measures to determine differentiated services during the primary program" (p. 5). Elementary Primary Talent Pool students attend a pullout program with a certified gifted resource teacher once each week. Fourth and fifth grade students who have been identified as gifted have the opportunity to attend a full-day gifted and talented class once each week for one school semester in addition to their once per week resource time. During this learning time, gifted and talented students can spend the entire day with other students who are on a similar academic level, learning from teachers trained and certified in gifted and talented education.

The school district services nearly 13,000 students, employs over 900 certified and over 700 classified personnel, and is in a geographically diverse area in north central Kentucky. Student to teacher ratio was 17.1% as of 2018 (Kentucky Legislative Research Commission [KLRC], p. 58) The district comprises 23 schools, 13 of which are elementary level serving grades K-5. The district is predominantly Caucasian, with students making up more than 90% of the student body and more than 98% of teachers reporting as Caucasian (KLRC, p. 58), but it is very socioeconomically diverse. The 2019-2020 Kentucky Department of Education School Report Card (KSRC) reports that 48.3% of the student population is considered to be socioeconomically disadvantaged (2020). Neighborhoods range from upper middle-class suburban to extremely rural and low income across the county, and school populations are generally a mix of students and families representing a very wide range of incomes and living conditions. As of 2019, an estimated 7.8% of county residents were living in poverty, while the median household income was $63,348 (US Census Bureau, 2019). Teachers in the district identify as 98.5% Caucasian (KSRC, 2020).

Results

In total, 46 teachers out of a possible 285 responded to the survey, 42 (91.3%) of whom were female, which is in alignment with the district's male to female teacher, especially at the elementary level. All respondents identified themselves as White/Caucasian, which is in alignment with the district racial and ethnic makeup. More than three-quarters of respondents (76.1%) have earned a master's degree or higher, and the number of years of teaching and grade levels taught were well balanced among the sample.

Nearly 85% of the respondents reported that they were regular classroom teachers, with the remainder teaching in a related arts, special area, or special education setting. Most teacher respondents (84.8%) reported having one or zero students possessing limited English proficiency (LEP) in their classrooms. This small number of LEP students was to be expected, given the school district's lack of diversity in its overall student population.

Numbers of formally identified or suspected gifted or primary talent pool students per classroom varied widely, with 30.4% of respondents reporting that they had no students enrolled in their classrooms who have been formally identified as gifted or who participate in the district primary talent pool. In addition, 39.1% reported that they do not have any students who they suspect may be gifted or primary talent pool candidates. Table 1 shows the percentage of respondents who reported specific numbers of identified or suspected gifted students in their classrooms.

Table 1

Percentage of respondents reporting formally identified or suspected gifted or PTP students in their classrooms

Number of Students	Identified as Gifted or PTP Participant	Suspected of Giftedness or PTP Candidate
1	30.40	39.10
2	13.00	28.30
3	15.20	13.00
4	17.40	8.70
5	2.20	6.50
6	6.50	2.20
7	4.30	0.00
8	2.20	0.00
9	0.00	0.00
10+	6.50	2.20

More than half of the respondents (58.6%) reported that the extent of their gifted education training consisted of a professional development session at a school, their own or a different school. Only eight respondents reported that they had had further enrichment including taking graduate courses or attending a conference that focused on the education needs of gifted students. The remainder of the respondents (43.5%) reported that they had participated in no gifted education professional learning opportunities at all.

Awareness of the district policies and procedures for identifying gifted children varied. Only 41.3% of respondents indicated that they know the district has adopted and implemented a formal definition of giftedness, and less than half (45.7%) indicated that they are certain that they know the steps to refer their students to the gifted or primary talent pool programs.

Responses to the items in the Classroom Practices Survey showed little difference in teachers' modification of lessons for different levels of achievement. Table 2 highlights the summary statistics for each item. The survey item that showed the largest difference between gifted and average students was "Repeat instructions on the coverage of the difficult concepts for some students." Most respondents (80.4%) indicated that they did this daily or more than once per day for their average students, versus only 32.6% did so for their gifted learners. Items having to do with student choice indicated a slight edge for gifted students over average students; however, teachers indicated little difference between student abilities in the frequency of allowing for self-selected writing topics. Allowing students independent time to research and pursue their own interests was another area in which there was little difference between dedicated time allowed for gifted versus average students. In this study, gifted students were allowed to pursue their self-selected interest or teacher directed "passion projects" with only slightly more frequency than average learners, as well as being allowed slightly more frequent opportunities to work on independent study projects.

Approximately 80% of respondents indicated that they use pretests at least a few times a month to determine if students have mastered the material covered in a particular unit or content area, but there was little indication of how teachers implement the results of those pretests. Responses indicated some application of altering assignments or curriculum as a result of these pretests; however, there was minimal difference between gifted and average learners in the occurrences of teachers indicating that they regularly alter or eliminate curriculum or assignments for students, regardless of their level of mastery.

Table 2

Classroom Practices Survey Items

	Classroom Practices Items	Gifted		Average		Mean Difference
		M	*SD*	*M*	*SD*	
1	Use basic skills worksheets	3.15	1.23	3.43	0.98	-0.28
2	Use enrichment skills worksheets	2.92	1.11	2.65	0.83	0.27
3	Assign advanced level reading	3.41	1.33	2.35	1.35	1.06
4	Use self-instructional kit	2.41	1.31	2.33	1.27	0.08
5	Assign reports	1.67	0.70	1.70	0.72	-0.03
6	Assign projects	2.21	0.83	1.83	0.75	0.39
7	Assign book reports	1.56	0.88	1.53	0.60	0.04
8	Use puzzles or word searches	2.23	0.93	2.43	0.93	-0.20
9	Creative writing: teacher's topic	2.69	0.95	2.73	0.78	-0.04
10	Creative writing: student's topic	2.31	1.08	2.13	0.97	0.19
11	Time for self-selected interests	2.21	1.08	2.08	1.12	0.14
12	Pretests to determine mastery	3.21	1.17	3.43	1.22	-0.22
13	Eliminate material students master	2.82	1.10	2.58	1.06	0.25
14	Repeat difficult concepts	4.13	1.47	5.33	1.19	-1.20
15	Different work for students mastering	3.44	1.25	3.20	1.22	0.24
16	Alternative instructional formats	3.72	1.23	3.65	1.25	0.07
17	Various locations around classroom	3.28	1.78	3.33	1.62	-0.05
18	Work in location other than class	1.85	1.33	1.58	1.26	0.00
19	Different homework based on ability	2.82	1.32	2.65	1.25	0.28
20	Use learning centers for basic skills	4.31	1.67	4.45	1.58	-0.14
21	Use enrichment centers	3.49	1.41	3.30	1.18	0.19
22	Thinking skills in regular curriculum	4.44	1.29	4.58	1.20	-0.14
23	Teach unit on thinking skills	2.46	1.35	2.40	1.37	0.06
24	Competitive thinking skills program	1.21	0.73	1.23	0.89	-0.02
25	Contracts for independent study	1.59	0.82	1.60	1.03	-0.01
26	Time for independent study projects	1.97	1.27	1.70	1.04	0.27
27	Work from higher grade textbook	1.92	1.58	1.60	1.37	0.32
28	More advanced curriculum unit	2.13	1.30	1.75	1.39	0.38
29	Group by ability across classrooms	2.26	1.65	1.90	1.71	0.36

	Classroom Practices Items	Gifted		Average		Mean Difference
		M	*SD*	*M*	*SD*	
30	Higher grade for specific instruction	1.59	1.35	1.40	1.22	0.19
31	Establish interest groups	1.72	1.28	1.78	1.42	-0.05
32	Students' opinion in allocating time	2.46	1.37	2.28	1.38	0.19
33	Programmed materials	3.28	1.61	2.98	1.48	0.31
34	Encourage long-range projects	2.21	1.44	1.90	1.28	0.31
35	Questions to encourage reasoning	4.18	1.23	4.05	1.41	0.13
36	Ask open-ended questions	4.79	1.21	4.68	1.29	0.12
37	Encourage higher-level questions	4.82	1.25	4.70	1.24	0.12
38	Encourage discussion	5.15	1.18	5.15	1.17	0.00

Note. $N = 46$. Based on classroom teachers reporting having either formally identified gifted students and/or suspected gifted students. Mean difference was calculated by subtracting mean responses regarding average students from mean responses regarding gifted students.

Respondents' answers to the optional open-response questions varied greatly in terms of seeming to support or understand the specific needs of gifted children. Several seem to have a general idea that these students need different educational opportunities than average or below average students, but there were very few comments that indicated teachers are implementing these strategies.

Overall, the results show that while teachers are using some differentiation strategies in their classrooms, there is little difference in the strategies they are using for their gifted students versus with their average students or in the frequency of those strategies. This is in spite of the fact that the majority of respondents indicated that they have students who are gifted, or who they suspect to be gifted, in their classrooms. In addition, teacher awareness of district and state policies regarding gifted education is lacking, along with a need for more professional learning on the subject.

Discussion

The results from this study provided valuable information in helping to understand answers to the research questions a) What are elementary school teachers doing in their classrooms to vary the lessons they teach so they can best address the needs of gifted and talented students, and what is their understanding of what these children need most to learn and succeed? and b) What are the major classroom strategy differences that these teachers are implementing for their gifted students versus their average students**?** Results from the survey showed little difference in the top differentiation strategies teachers are using for gifted students versus average students. Table 3 summarizes the top results. For both groups, the use of questioning appeared in the top five highest scoring responses. The use of quality high-level questioning and inquiry-based learning is a good practice for all students (VanTassel-Baska, 2014), but in this study it did not appear that the respondents used this strategy more often with some groups of students than with others.

Table 3

Top five survey items used with gifted and average students

Gifted Top 5	Mean	Average Top 5	Mean
Encourage student participation in discussions	5.15	Repeat instructions on the coverage of difficult concepts for some students	5.33
Encourage students to ask higher-level questions	4.82	Encourage student participation in discussions	5.15
Ask open-ended questions	4.79	Encourage students to ask higher-level questions	4.7
Teach thinking skills in regular curriculum	4.44	Ask open-ended questions	4.68

Use learning centers to reinforce basic skills	4.31	Teach thinking skills in regular curriculum	4.58

The study also showed minimal differences in the least used differentiation strategies for gifted versus average students. These results are summarized in Table 4. The reported lack of participation in competitive thinking skills programs such as Future Problem Solving or Odyssey of the Mind could possibly be due to these programs being offered as extracurricular activities rather than classroom programs.

Table 4

Bottom five survey items used with gifted and average students

Gifted Bottom 5	Mean	Average Bottom 5	Mean
Participate in a competitive program focusing on thinking skills/problem solving	1.21	Participate in a competitive program focusing on thinking skills/problem solving	1.23
Assign book reports	1.56	Send students to a higher grade level for specific subject area instruction	1.4
Send students to a higher grade level for specific subject area instruction	1.59	Assign book reports	1.53
Use contracts or management plans to help students organize their independent study projects	1.59	Allow students to leave the classroom to work in another location, such as the media center or computer lab	1.58
Assign reports	1.67	Use contracts or management plans to help students organize their independent study projects	1.6

The survey items that showed the largest differences in teacher use for gifted versus average students were generally not concepts that encourage or allow for student choice, as is recommended for holding students' interest and giving them a feeling of ownership of their learning (Powers, 2008). Table 5 shows a summary of the five survey items that showed the largest differences in teacher use between gifted students and average students. Teachers' higher use of programmed or self-instructional materials may possibly be influenced by convenience and ease of using some materials such as self-paced computer programs.

Table 5

Largest differences in teacher use for gifted versus average students

Survey item/Strategy	Difference	Higher group
Repeat instructions on the coverage of the difficult concepts for some students	-1.20	Average
Assign reading of more advanced level work	1.06	Gifted
Provide a different curricular experience by using a more advanced curriculum unit on a teacher-selected topic	0.38	Gifted
Provide opportunities for students to use programmed or self-instructional materials at their own pace	0.31	Gifted
Assign projects or other work requiring extended time for students to complete	0.31	Gifted

Above all, it is evident that teachers need professional learning and increased awareness in serving their gifted and talented students. In general, the responses to the survey question "What do you think are the most effective methods of differentiating instruction for gifted learners?" also highlighted the need for more professional learning for teachers. Many responses included words like "enrichment" or "challenge," but the teachers who used these words rarely expanded on how they intended to implement those strategies with their students. Teacher B said, “Giving them [gifted students] challenging enrichment activities that help them learn” while another commented that “giving them [gifted students] work that challenges them” would be effective. Such statements are vague, indicating that the teachers who made them may not be sure how to proceed with applying these strategies for their students. Several others mentioned pairing up high-achieving students with struggling students rather than ability grouping students with peers of similar abilities. Chandra Handa (2019) indicated that gifted students perform much better when they are paired with students of similar abilities, rather than when they are paired to assist or balance struggling students. Teacher C’s suggestion for an effective method of differentiation for their gifted students was to “have them teach the material to others.” Comments such as these highlight the need for professional learning for teachers in gifted education best practices.

The results of the TELL Kentucky survey (2017) also demonstrated the need for more professional learning. The survey was given to all education professional throughout the state of Kentucky and asks questions relating to many aspects of their perceptions and needs concerning education in the state. In the most recent survey, 53% of respondents indicated that they needed additional information and education in differentiating instruction, while 43% indicated the need for professional learning dealing specifically with gifted and talented students. Only 11% of participants reported that they had taken part in ten or more clock hours over the previous two years of professional learning that dealt with gifted and talented education. Gifted education was the lowest area of professional learning reported.

Nearly three quarters of the Classroom Practices Survey respondents (69.6%) reported that they do have students in their classroom who are identified as gifted or who participate in the primary talent pool. Only 17.4% indicated that they have neither students who are identified as gifted, nor who participate in the primary talent pool. The prevalence of these students lends support to the indication that more pre-service teacher education in this area is necessary. If nearly 80% of teachers had identified or suspected gifted students in their classrooms, then they absolutely need to be prepared to implement best practices for serving those students. Several respondents in the open-response section of the survey indicated that they realize the pullout program is not enough to challenge their gifted students, but that they have neither the expertise nor the time to provide those students with the enrichment and challenge that they require. Comments such as “I wish I knew more about how to identify and challenge them” and “I wish I had access to higher level materials for them to challenge them more” add weight to the argument that there is a need for more professional learning in this area. Lack of resources or lack of knowledge about where to find appropriate resources was also evident in the open responses, with comments such as “I don’t know what to give them” and “I don’t feel that I have enough training or time.” Emphasis is so often put on bringing low-achieving students up to proficiency that it is, unfortunately, those who are already at the proficiency level or higher who are neglected.

Several respondents expressed frustration over not having enough time or resources to personalize each student’s educational experience, and there was much support for smaller class sizes. Many indicated that they were aware of the need for challenge and enrichment for gifted students, but the survey responses indicated only small differences in implementation of these for gifted versus average learners.

Teachers may be reluctant to eliminate or alter parts of the curriculum that students have mastered if that curriculum is in a tested area. With so much emphasis on standardized testing scores, teachers may feel that they cannot deviate from their approved curriculum maps, even when a student's knowledge or abilities show that may be the best plan of development for that student. Pre-assessments can provide valuable information about where students are in their learning (Roberts & Boggess, 2012), however the survey results did not indicate that teachers are using pre-assessment information frequently to help determine appropriate curriculum for their gifted students. Several teachers expressed concern with students' being pulled out of class to attend district camps or resource classes for gifted and talented students mainly because they are "missing instruction on tested curriculum" during these times. Others mentioned that they are not aware of what activities their gifted students participate in or what curriculum they learn when they attend gifted resource or primary talent pool classes. A handful of respondents stated that they would benefit from co-teaching or collaboration with certified gifted and talented teachers to help better serve their students.

One respondent indicated that she would like to see something "akin to an IEP" for her gifted students so that she would know their areas of giftedness." According to the KDE Gifted and Talented Coordinators Manual (2020), this document is a Gifted and Talented Student Services Plan (GSSP), defined as "an educational plan that matches a formally identified gifted student's interests, needs and abilities to differentiated service options and serves as the communication vehicle between the parents and school personnel" (p. 4). Since this school district creates a (GSSP) for every gifted student, comments such as this indicate a need for increased awareness of the GSSP, their purpose, and how to use them effectively. Currently, all teachers who work with special education students, including regular classroom and related arts/special area teachers are legally required to read, sign, and comply with a student's IEP, but there are no such provisions for a student with a GSSP. According to Kentucky law, gifted and talented students are included in the category of exceptional children and school districts must operate programs designed for their specific educational needs.

> 704 KAR 3:285. Programs for the gifted and talented.
>
> ….includes within the definition of 'exceptional children' a category of 'exceptional students' who are identified as possessing demonstrated or potential ability to perform at an exceptionally high level in general intellectual aptitude, specific academic aptitude, creative or divergent thinking, psychosocial or leadership skills, or in the visual or performing arts. KRS 157.224(1) commits the state to a comprehensive educational program for its exceptional school-aged children. KRS 157.230 requires all school districts to operate programs for resident exceptional children, primary - grade twelve (12). This administrative regulation establishes the requirements for programs for gifted and talented students (*Kentucky Administrative Regulations* [KAR]. (1999).

Teachers and administrators should be made aware of this regulation, and there needs to be much more attention from school districts in following the characterization of exceptional learners that it defines.

Student motivation to learn could be greatly enhanced with more emphasis on student choice. Allowing time for gifted students to pursue their own interests, along with encouraging this behavior, can have a profound positive effect on a gifted student's motivation to learn (Wu, 2013). Practices such as these are vital to help prevent the underachievement that can be so prevalent among gifted learners who are not appropriately challenged. Independent study can be vital to a gifted student's development and must be encouraged as a way to differentiate learning (Powers, 2008), especially in the regular classroom where time and teacher resources may be limited.

Three teachers mentioned a need for more resources for children gifted in the arts. The arts is definitely an area of concern, as the school district offers few enrichment options for students gifted in these areas. A strong and effective school arts program can be vital for a child gifted in that area, particularly one who may live in a region where arts opportunities in the community are limited. Schroth and Helfer (2020) found that while all parties involved generally agree that a student who shows giftedness in one or more areas of the arts should receive special services, the opportunities for those services are not consistently provided or encouraged (p. 69).

Limitations

This study focused on one school district during an unusual school year that has been disrupted by a global pandemic. The results may certainly have been affected by the current state of education due to the pandemic. Much of the last school year has been online or conducted with limited in-person meetings. Teachers have been overwhelmed with rapid changes to the way they facilitate their classrooms and deliver lessons and uncertainty about how best to provide their students with quality instruction and learning opportunities. In the survey, few respondents indicated that they encourage their students to move around the classroom, leave the room to work in other locations such as the media center or computer lab, or go to a higher grade level classroom for specific subject instruction. The lack of student movement during learning was undoubtedly affected by district social distancing and contact tracing guidelines implemented during the pandemic. Teacher responses may possibly have been different had they occurred during a more traditional school year.

Another limitation is the small sample size, along with the fact that the respondents all come from a single school district, albeit a large district. It may be beneficial to include more specific data that considers socioeconomic and racial diversity among students and respondents.

Implications for Future Research

Future studies would benefit from including educators from other school districts as a part of the research sample, and from being conducted during a more normal school setting. It is evident that the global pandemic may have affected some teacher responses. A similar study in the same school district during a more traditional school year could possibly yield some more interesting and varied results in comparison. Roberts & Boggess (2012) stated that "Differentiation is the overall strategy that will allow all children to make appropriate continuous progress" (p. 141). If this sentiment and its relation to gifted students were made more clear to educators, it may perhaps increase instances of differentiating instruction for those who most need it.

If this school district were to provide its educators with professional learning experiences dedicated to differentiation and services for gifted students, it would be beneficial to conduct the same or a similar study and compare the results. By doing this, it would be possible to learn more about how effectively these professional learning sessions help to increase teacher awareness and knowledge of the needs of gifted students.

A larger survey sample may also affect the results and help to show a more detailed picture of what teachers are doing differently for their gifted students versus their average students. During a more typical school year that was not disrupted by a pandemic, teachers may have had more time and motivation to reflect on their answers. A more typical school setting may also have led to a larger survey response from teachers.

Conclusion

There needs to be many more professional learning opportunities offered for teachers in the area of gifted and talented education and development. Collaboration between regular classroom teachers and gifted and talented teachers would be valuable in increasing teacher awareness of methods of differentiating their lessons in a manner that best suits their gifted students. Regular classroom teachers need to be made aware of the specific needs of gifted children and provided the tools and professional development to be able to implement ideas effectively for addressing those needs. All educators who work with gifted children should be aware of the National Association for Gifted Children (NAGC) standards, and of each student's GSSP, just as they would sign off on and comply with a special education student's IEP. If gifted and talented students are to have the best chance of success and continuous progress in their educational endeavors, these changes must happen.

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APPENDIX A

IRB APPROVAL

INSTITUTIONAL REVIEW BOARD
OFFICE OF RESEARCH INTEGRITY

DATE:	May 18, 2021
TO:	Karyn Andrews, Ed.S.
FROM:	Western Kentucky University (WKU) IRB
PROJECT TITLE:	[1753671-1] Differentiation in Helping Address the Needs of Gifted and Talented Elementary Students
REFERENCE #:	IRB 21-252
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	May 18, 2021
REVIEW TYPE:	Exempt Review

Thank you for your submission of New Project materials for this project. The Western Kentucky University (WKU) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Exempt Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by an *implied* consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project has been determined to be a MINIMAL RISK project.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Robin Pyles at (270) 745-3360 or irb@wku.edu. Please include your project title and reference number in all correspondence with this committee.

APPENDIX B

IMPLIED CONSENT

IMPLIED CONSENT DOCUMENT

Project Title: Differentiation in Helping Address the Needs of Gifted and Talented Elementary Students

Investigator: Karyn M. Andrews, School of Teacher Education, karyn.andrews@bullitt.kyschools.us

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your agreement to participate in this project.

You must be 18 years old or older to participate in this research study.

A basic explanation of the project is written below. Please read this explanation and email the researcher any questions you may have. If you then decide to participate in the project, please continue to the survey. You should keep a copy of this form for your records.

1. **Nature and Purpose of the Project:** The purpose of this research is to determine the methods that teachers use most in their classrooms to differentiate for students who are gifted and talented.

2. **Explanation of Procedures:** You will be asked to complete a survey to the best of your ability that will ask questions about your classroom practices and general demographics, including demographics of your classroom. It is expected that the survey will take approximately 10-15 minutes of your time

3. **Discomfort and Risks:** There are no foreseeable risks or discomforts to participants as a result of their participation in this study. The risks associated with participation in this research are minimal and no more than that encountered in everyday activities.

4. **Benefits:** By participating in this study, you will help educators gain insight into the practices that elementary school teachers are using to help differentiate instruction for gifted and talented students in their classrooms. The information may be used to help determine which instructional practices are most effective in ensuring that these students are continually progressing in their learning and are reaching their full potential.

5. **Confidentiality:** All survey responses are anonymous. Demographic information will be used in aggregate form only, and will not be shared individually. Records will be viewed, stored, and maintained in private, secure files only accessible by the research team for three years following the study, after which time they will be destroyed. Publications or presentations related to this study will not include identifiable references to subjects' identities.

6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

Your continued cooperation with the following research implies your consent.

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD
Robin Pyles, Human Protections Administrator
TELEPHONE: (270) 745-3360

APPENDIX C

SURVEY

Teacher Information

Please choose the option that best describes you

1. Gender *

Mark only one oval.

- Male
- Female
- Other: ______________________

2. Race/Ethnicity (check all that apply) *

Check all that apply.

- White/Caucasian
- Black/African-American
- Hispanic/Latinx
- Asian/Pacific Islander

Other: ______________________

3. Years of teaching experience *

Mark only one oval.

- 1-5
- 6-10
- 11-15
- 16-20
- 20+

4. Highest Degree Earned *

Mark only one oval.

- BA/BS
- MA/MS
- Ed.S.
- Ph.D./Ed.D.
- Other: ____________________

5. Which of the following professional learning in teaching of gifted/talented have you participated? (check all that apply) *

Check all that apply.

- [ ] Professional development at your school
- [ ] Professional development at another school
- [ ] Attended a conference on gifted education
- [ ] Graduate course(s) in gifted education
- [ ] Earned endorsement in gifted education
- [ ] None

6. Grade(s) you are now teaching *

Check all that apply.

- [ ] K
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5

7. Which of the following best describes your classroom? *

Mark only one oval.

- Regular education classroom
- Special Education classroom
- Special Area/Related Arts classroom

8. Has a formal definition of giftedness been adopted by your district? *

Mark only one oval.

- Yes
- I think so
- Not sure
- No

9. Do you know the steps needed to refer a student for the gifted program? *

Mark only one oval.

- Yes
- I think so
- No, but I know where to look to find out
- No

Classroom Demographics

Please answer the questions below regarding your classroom

10. Please indicate the number of limited English proficient students in your classroom: *

Mark only one oval.

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

11. Please indicate the number of students in your classroom who have been formally IDENTIFIED as gifted, or who participate in the Primary Talent Pool: *

Mark only one oval.

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10+

12. Please indicate the number of students in your class whom you SUSPECT may be academically gifted, but have NOT been formally identified: *

Mark only one oval.

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10+

Classroom Practices

13. Select the description below that best applies to your classroom: *

Mark only one oval.

- ◯ I have students in my class formally identified as gifted by my district, or who are involved in the primary talent pool.
- ◯ I do NOT have students in my class formally identified as gifted by my district, but I have students whom I believe may be gifted, or whom I believe should be included in the Primary Talent Pool
- ◯ I have neither students formally identified as gifted, nor do I have students whom I believe may be gifted or a part of the Primary Talent Pool in my class

Gifted Students:

Please answer according to how often you use the following classroom practices with your GIFTED students (or those you suspect may be gifted) or PRIMARY TALENT POOL students:

14. For my GIFTED/PRIMARY TALENT POOL students (or those I suspect may be gifted or belong in the Primary Talent Pool)

Mark only one oval per row.

	Never	Once a month	A few times a month	A few times a week	Daily	More than once a day
Use basic skills worksheets	◯	◯	◯	◯	◯	◯
Use enrichment worksheets	◯	◯	◯	◯	◯	◯
Assign reading of more advanced level work	◯	◯	◯	◯	◯	◯
Use self-directed instructional kits	◯	◯	◯	◯	◯	◯
Assign reports	◯	◯	◯	◯	◯	◯
Assign projects or other work requiring extended time for students to complete	◯	◯	◯	◯	◯	◯
Assign book reports	◯	◯	◯	◯	◯	◯
Use activities such as puzzles or word searches	◯	◯	◯	◯	◯	◯
Give creative or expository writing assignments on topics selected by the teachers	◯	◯	◯	◯	◯	◯
Give creative or expository writing assignments on topics selected by the students	◯	◯	◯	◯	◯	◯
Make time available for students to pursue self-selected interests	◯	◯	◯	◯	◯	◯
Use pretests to determine if students have mastered the material covered in a particular unit or content area	◯	◯	◯	◯	◯	◯
Eliminate curricular material that students have mastered	◯	◯	◯	◯	◯	◯
Repeat instructions on the coverage of the difficult concepts for some students	◯	◯	◯	◯	◯	◯

Substitute different assignments for students who have mastered regular classroom work						
Modify the instructional format for students who learn better using an alternative approach						
Encourage students to move around the classroom to work in						

Allow students to leave the classroom to work in another location, such as the media center or computer lab						
Assign different homework based on student ability						
Use learning centers to reinforce basic skills						
Use enrichment centers						
Teach thinking skills in the regular curriculum						
Teach a unit on thinking skills, such as critical thinking or creative problem solving						
Participate in a competitive program focusing on thinking skills/problem solving, such as Future Problem Solving or Odyssey of the Mind						
Use contracts or management plans to help students organize their independent study projects						
Provide time within the school day for students to work on their independent study projects						
Allow students within your classroom to work from a higher grade level textbook						
Provide a different curricular experience by using a more advanced curriculum unit on a teacher-selected topic						
Group students by ability across classrooms at the same grade level						
Send students to a higher grade level for specific subject area instruction						

Establish interest groups which enable students to pursue individual or small group projects	◯	◯	◯	◯	◯	◯
Consider students' opinion in allocating time for various subjects within your classroom	◯	◯	◯	◯	◯	◯
Provide opportunities for students to use programmed or self-instructional materials at their own pace	◯	◯	◯	◯	◯	◯
Give assignments that encourage students to organize their own work schedule to complete a long range project	◯	◯	◯	◯	◯	◯
Provide questions that encourage reasoning and logical thinking	◯	◯	◯	◯	◯	◯
Ask open-ended questions	◯	◯	◯	◯	◯	◯
Encourage students to ask higher-level questions	◯	◯	◯	◯	◯	◯
Encourage student participation in discussions	◯	◯	◯	◯	◯	◯

Average Students

Please answer according to how often you use the following classroom practices with your AVERAGE students:

15. For my AVERAGE students *

Mark only one oval per row.

	Never	Once a month	A few times a month	A few times a week	Daily	More than once a day
Use basic skills worksheets	⬭	⬭	⬭	⬭	⬭	⬭
Use enrichment worksheets	⬭	⬭	⬭	⬭	⬭	⬭
Assign reading of more advanced level work	⬭	⬭	⬭	⬭	⬭	⬭
Use self-directed instructional kits	⬭	⬭	⬭	⬭	⬭	⬭
Assign reports	⬭	⬭	⬭	⬭	⬭	⬭
Assign projects or other work requiring extended time for students to complete	⬭	⬭	⬭	⬭	⬭	⬭
Assign book reports	⬭	⬭	⬭	⬭	⬭	⬭
Use activities such as puzzles or word searches	⬭	⬭	⬭	⬭	⬭	⬭
Give creative or expository writing assignments on topics selected by the teachers	⬭	⬭	⬭	⬭	⬭	⬭
Give creative or expository writing assignments on topics selected by the students	⬭	⬭	⬭	⬭	⬭	⬭
Make time available for students to pursue self-selected interests	⬭	⬭	⬭	⬭	⬭	⬭
Use pretests to determine if students have mastered the material covered in a particular unit or content area	⬭	⬭	⬭	⬭	⬭	⬭
Eliminate curricular material that students have mastered	⬭	⬭	⬭	⬭	⬭	⬭
Repeat instructions on the coverage of the difficult concepts for some students	⬭	⬭	⬭	⬭	⬭	⬭

Substitute different assignments for students who have mastered regular classroom work						
Modify the instructional format for students who learn better using an alternative approach						
Encourage students to move around the classroom to work in						

Allow students to leave the classroom to work in another location, such as the media center or computer lab						
Assign different homework based on student ability						
Use learning centers to reinforce basic skills						
Use enrichment centers						
Teach thinking skills in the regular curriculum						
Teach a unit on thinking skills, such as critical thinking or creative problem solving						
Participate in a competitive program focusing on thinking skills/problem solving, such as Future Problem Solving or Odyssey of the Mind						
Use contracts or management plans to help students organize their independent study projects						
Provide time within the school day for students to work on their independent study projects						
Allow students within your classroom to work from a higher grade level textbook						
Provide a different curricular experience by using a more advanced curriculum unit on a teacher-selected topic						
Group students by ability across classrooms at the same grade level						
Send students to a higher grade level for specific subject area instruction						

Establish interest groups which enable students to pursue individual or small group projects	⬭	⬭	⬭	⬭	⬭	⬭
Consider students' opinion in allocating time for various subjects within your classroom	⬭	⬭	⬭	⬭	⬭	⬭
Provide opportunities for students to use programmed or self-instructional materials at their own pace	⬭	⬭	⬭	⬭	⬭	⬭
Give assignments that encourage students to organize their own work schedule to complete a long range project	⬭	⬭	⬭	⬭	⬭	⬭
Provide questions that encourage reasoning and logical thinking	⬭	⬭	⬭	⬭	⬭	⬭
Ask open-ended questions	⬭	⬭	⬭	⬭	⬭	⬭
Encourage students to ask higher-level questions	⬭	⬭	⬭	⬭	⬭	⬭
Encourage student participation in discussions	⬭	⬭	⬭	⬭	⬭	⬭

Additional comments (these are optional)

16. Do you think your gifted students need more specialized instruction than they are currently receiving? Why or why not?

17. What do you wish you could change for your gifted students' instruction?

18. What do you think are the most effective methods of differentiating instruction for gifted learners?