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Leading Differentiated Learning for the Gifted

Manoj Chandra Handa

This study examined similarities and differences in the perceptions of principals and teachers about the use of differentiated strategies for gifted learners and studied principals' perceptions about schoolwide differentiation. Comparisons of these perceptions have been undocumented to date. Participants included 867 teachers and 120 principals from government schools in Sydney, Australia. A mixed methods approach was used, including online questionnaires and case studies of principals. Results revealed significant differences between the perceptions of principals and teachers about differentiated practices. The case studies demonstrate that exemplary principals continually enhance their understanding of differentiated learning and build their teachers' collective capacity for educating gifted learners. The findings indicate the need for stronger pedagogical congruence between principals and teachers in educating the gifted, ongoing professional education of principals and teachers in gifted education, and effective leadership actions for schoolwide differentiated learning.

Keywords: differentiated learning, differentiation, leadership actions, perceptions of principals, perceptions of teachers, schoolwide differentiation

Differentiation of curriculum and practices for gifted learners is crucial for meeting the learning needs of gifted students (VanTassel-Baska & Stambaugh, 2005). Though teachers are directly responsible for designing differentiated learning opportunities for students, the school principal's leadership support is essential for enabling this differentiation to occur (Tomlinson & Allan, 2000; VanTassel-Baska & Little, 2011). There is, however, little research directly examining principals' perceptions about teachers' pedagogical practices for educating gifted learners. It is not known whether such perceptions are similar to or different from those of teachers and, if differences are detected, what factors might drive these differences. I address these gaps in the literature by investigating the perceptions of principals and teachers about differentiated strategies for gifted learners and by studying principals' perceptions of schoolwide differentiation.

Conceptualizing Learner-Centered Differentiated Learning

This study advocates a learner-centered paradigm that signifies an explicit shift from instruction to construction, from

control to connection, and from “what teachers teach” to “what students learn” (McCombs, 2003, p. 96). In learner-centered systems, teachers coconstruct meaning with their students as learning partners (McCombs & Miller, 2007). In this study, *differentiated learning* is conceptualized as a learner-centered approach to addressing gifted learners' needs, readiness, and interests. This construct builds on the established concepts of *differentiated instruction* (Tomlinson, 2014) and *curriculum differentiation* (Kaplan, 2009; Maker, 1982; Maker & Schiever, 2010) for gifted learners. Tomlinson (2014) defined *differentiated instruction* as

adaptations in content, process, product, affect, and learning environment in response to student readiness (proximity to learning goals), interests, and learning profile (preferences for taking in, processing, and presenting ideas) to ensure appropriate challenge and support for the full range of learners in a classroom. (p. 198)

Maker (1982, 2010) suggested that *curriculum differentiation* can be made through modifications in four areas: content, process, product, and learning environment. Similarly, the Kaplan model (2009) examines the differentiation of curriculum in these four areas. VanTassel-Baska and Little (2011) define differentiated curriculum for the gifted as “tailored to the needs of groups of gifted learners and/or individual students, that provides experiences sufficiently different from the norm to justify specialized intervention” (p. 10).

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Address correspondence to Manoj Chandra Handa, School Services Directorate, New South Wales Department of Education, Level 2, 75 Talavera Road, Macquarie Park, NSW 2113, Australia. E-mail: manoj.chandrahanda@det.nsw.edu.au

These conceptions of *differentiated instruction* and *curriculum differentiation* are highly regarded among scholars and educators of gifted learners (e.g., Hertberg-Davis & Callahan, 2013; Kanevsky, 2011). However, these conceptions tend to rely on *student-centered* approaches to differentiation. Student-centered approaches, among others, may arguably include educators deciding *for the learner* what is needed, such as student-centered curriculum, instruction, assessment, and other learning support. Learner-centered approaches, on the other hand, may examine *with the learner* what learning means and how it can be enhanced when drawing on the learner's unique perspectives, talents, and capacities (McCombs & Whisler, 1997). Learner-centered teachers know the subject matter they teach but they also understand that they are colearners along with their students. The learner-centered paradigm is rooted in an understanding of the Learner-Centered Psychological Principles (APA Work Group of the Board of Educational Affairs, 1997). In this paradigm, students are involved in meaningful decision making, and teachers "share the ownership of learning with their students as appropriate" (McCombs, 2003, p. 96).

In this study, an argument is made for the use of the term *differentiated learning*, which is based on learner-centered approaches to differentiation for gifted learners. The term *learner-centered* denotes a relationship to the learner-centered paradigm discussed earlier and makes the collaborative learning partnership between students and teachers strongly explicit. Research underlying the learner-centered principles adopted by the American Psychological Association (Alexander & Murphy, 2000) showed that learning is enhanced in contexts in which learners have supportive, interpersonal relationships; individual differences are acknowledged and addressed; and learners have personal control and choice over the learning process. The construct *differentiated learning* is defined and operationalized in this article as follows:

Learner-centered differentiated learning is about honoring gifted learners' needs, readiness, and interests by engaging in collaborative learning partnership between teachers and gifted learners; and by differentiating the learning outcomes, content, learning strategies, products, and learning environment to maximize each gifted learner's achievement outcomes.

Further, all related terms such as *differentiated pedagogical strategies* in this article are resonant with this overarching construct and employ the lens of learner-centered approaches to differentiation for gifted students.

REVIEW OF THE LITERATURE

Teachers' Perceptions and Attitudes

Although differentiated learning for gifted students has a positive impact on student achievement (e.g., Gavin,

Casa, Firmender, & Carroll, 2013), Tomlinson (1995) suggested that teachers' approaches to differentiation are more likely to be reactive than proactive or preplanned. Teachers seem hesitant to change learning material, lesson plans, or evaluation procedures (Callahan, Tomlinson, Moon, Brighton, & Herbert, 2003) and, therefore, the use of differentiation for gifted learners is limited in classrooms (VanTassel-Baska & Stambaugh, 2005). Based on gifted learners' readiness and interest (Tomlinson, 2014), I review the literature about teachers' perceptions and attitudes toward acceleration, ability grouping, and pacing as illustrative examples of differentiated practices for gifted learners.

Acceleration is a strategy that allows a student to progress through school at a faster than usual rate and/or younger than typical age through, for example, subject acceleration, grade skipping, and early entry. Despite strong empirical support for acceleration as an academic intervention for gifted learners (e.g., Assouline, Marron, & Colangelo, 2014; Colangelo, Assouline, & Marron, 2013), it continues to be underused (Missett, Brunner, Callahan, Moon, & Azano, 2014). Researchers have found that teachers' negative attitudes may result in nonimplementation of acceleration (Szymanski, Croft, & Godor, 2018).

The academic benefits of ability grouping for gifted students are also well documented (Adams-Byers, Whitsell, & Moon, 2004; Chessor & Whitton, 2008; Gross, 2006). Cluster grouping (i.e., three to eight students with similar gifts and talents intentionally placed in the same mixed-ability classroom), when combined with high teacher expectations and differentiated curriculum, has been shown to have positive outcomes for gifted learners (Gentry, 2014). Flexible ability-grouped classes have also been found to nurture more high achievers and lead to fewer underachievers (Clark, 2013). Despite the evidence, teachers may have negative perceptions and are reluctant to use ability grouping for gifted learners (Lewis & Milton, 2005).

In this study, pacing is operationalized as adjustments in the pace of classroom instruction and delivery, based on students' readiness or skill level. This strategy is one of the most important process modifications for gifted students (Maker & Nielson, 1996), resulting in strong gains in student achievement (Gentry & Fugate, 2013). Like acceleration and ability grouping, however, teachers often do not hold positive attitudes toward the use of this strategy. Often the whole class level of content instruction is set to address mid- or high-achieving students, and the pace of progress is set to address the needs of low-achieving learners (Tomlinson et al., 2003).

Given a range of barriers and challenges to teachers' use of differentiated pedagogical strategies, numerous studies have revealed a positive relationship between professional learning in gifted and talented education (GATE) and positive teachers' attitudes (Kronborg & Plunkett, 2012; Lassig, 2009). Studies show that GATE training results in greater

understanding of the nature of giftedness and curriculum differentiation (e.g., Kronborg & Plunkett, 2012).

School Principals' Understanding of, and Leadership Actions for, Schoolwide Differentiation

The limited research that does exist shows that principals' understandings of differentiated learning for gifted learners are essential for implementing effective schoolwide differentiation. Principals with a deep understanding of differentiation actively promote teachers' differentiation in classrooms and are more effective in bringing substantive changes in teachers' practices (Brighton, Hertberg, Callahan, Tomlinson, & Moon, 2005). They understand the need for school improvement and actively engage in initiating, implementing, and sustaining the change process (Tomlinson & Allan, 2000). Effective principals understand that learners differ in their abilities and that differentiation simply takes into account those differences (Tomlinson, 2014).

Though principals' own knowledge of educating gifted learners and differentiation is important (Tomlinson, Brimjoin, & Narvaez, 2008), the limited research shows that leadership programs designed for principals often contain little training in the education of gifted learners (McHatton, Boyer, Shaunessy, Terry, & Farmer, 2010). Leadership research in mainstream education, however, identifies several key actions that principals can take to promote differentiation. Effective principals form a guiding coalition of teacher leaders (Bryk & Schneider, 2002), develop a shared vision (Zepeda, 2013), and communicate the change vision to all members of the school community (Marzano, Waters, & McNulty, 2005). Further, effective principals enable student voice (Gentile, 2015), foster collective capacity of teachers (Fullan, 2006), empower teachers to act on the vision for change (Tomlinson & Allan, 2000), and embed new practices into the school culture (Fullan, 2006). However, it is unclear whether these actions are undertaken in differentiation for gifted learners specifically. In this study, principals' perceptions of differentiated learning are investigated and are compared with those of teachers.

Context

This study was conducted in government schools in Sydney, New South Wales (NSW), Australia. The three main education providers in NSW are the state government (67%), Catholic education (18%) and the independent schools sector (15%). Government schools are often called state schools or public schools; nongovernment schools are called private schools. The NSW government schools system is the largest education network in Australia. There are over 2,200 primary and secondary high schools in NSW with about 790,000 students enrolled in public schools. Children in NSW have 13 years of schooling—7

years in primary school, beginning in kindergarten at age 4 or 5 and progressing from Years 1 to 6, and 6 years in secondary school from Years 7 to 12. Selective high schools (Years 7–12) and Opportunity Classes in primary schools for Years 5 and 6 in NSW cater to academically gifted students, teach them in specialized ways, and provide educational materials at the appropriate level. To gain entry into these schools, students are tested in reading, writing, mathematics, and general ability. The participants in this study—teachers and principals—were recruited from government schools in the Northern Sydney Region (NSR) of the state of NSW in Australia.

Research Questions

Three research questions were posed:

1. What were the similarities and differences in the perceptions of principals and teachers about the use of differentiated learning in schools?
2. What was the principals' understanding of differentiated learning for gifted students?
3. What was the principals' understanding of their self-reported leadership actions in implementing and sustaining schoolwide differentiated learning for gifted students?

METHOD

A mixed-method explanatory sequential design (Creswell, 2009) was used to address the research questions. It involved the collection and analysis of quantitative data in the first phase and qualitative data in the second phase of the study. The rationale for using the mixed-methods explanatory sequential design was to interpret how qualitative data explains quantitative results.

Phase 1: Quantitative Surveys

In the first phase, identical surveys were administered to teachers and principals to investigate their perceptions of differentiated pedagogical strategies.

Participants

The participants in Phase 1 of this study—teachers and principals from 163 government schools in the NSR of NSW—were invited to participate anonymously in online surveys. The respondents included 867 teachers (460 primary and 407 secondary teachers) and 120 principals (92 primary and 28 secondary principals), as shown in Table 1. The participants represented 72% of teachers and 74% of principals in the NSR.

TABLE 1
Number of Participants in NSR Government Schools

School Type	Total Number of Schools in NSR	Number of Participants ^a	
		Teachers	Principals
Primary without opportunity classes	107	387	84
Primary with opportunity classes	10	73	8
Nonselective secondary	30	276	22
Selective secondary	7	131	6
Schools for specific purposes	9	—	—
Total	163	867	120

Note. NSR = Northern Sydney Region.

^aAll principals and teachers in 163 NSR government schools were invited to participate in the identical principal and teacher online surveys, including schools for specific purposes.

Materials and Procedure

Phase 1 included a teacher survey and a principal survey, with each survey asking participants about their perceptions of differentiated learning for the gifted.

Teacher Survey. Teachers in all 163 schools in the NSR were sent an email inviting them to participate in the survey, with a link to the online survey itself. Teachers from 117 schools responded to the electronic survey. Teachers' perceptions of differentiated practices were assessed with a newly developed scale, Differentiated Learning for Gifted and Talented Education (DiL_GATE). The scale was based on the review of evidence-based literature about the education of gifted learners (e.g., Chan, 2001; Kanevsky, 2011; Kanevsky & Keighley, 2003; Matsko & Thomas, 2014; Rogers, 2007; Tomlinson, 1995; VanTassel-Baska, 2004; VanTassel-Baska, Avery, Little, & Hughes, 2000). In the development of the scale, 36 items (Likert scale type) relating to teachers' practices were included. These pedagogical practices addressed five dimensions of differentiated learning; that is, differentiation of (a) outcomes, (b) content, (c) process, (d) product, and (e) learning environment. For example, "I extend and/or modify syllabus outcomes to meet the learning needs of gifted students" (outcomes differentiation); "I eliminate curriculum content of students who have already mastered it" (content differentiation); "I vary the pace of my lesson to cater for individual learning needs" (process differentiation); "I encourage students to undertake independent extended research projects" (product differentiation); and "I foster a challenging thinking climate" (learning environment differentiation). A 5-point Likert-type scale was used for each question from 1 (*never*) to 5 (*almost always*; see Appendix A). The Cronbach's alpha value for the DiL_GATE scale is .89, which indicates very good internal consistency reliability for the scale with the study's sample ($N = 867$).

Principal Survey. Principals in all 163 schools in the NSR were sent an email inviting them to participate in the survey, with a link to the online survey itself. Principals from 120 schools responded to the electronic survey. The principal survey, Differentiated Learning for Gifted and Talented Education: Principals (DiL_GATE P), closely replicated the teacher survey. To compare principals' and teachers' perceptions of differentiated practices, principals were asked about their teachers' practices and not their own. For example, whereas the teachers were asked, "As a classroom practitioner, I: eliminate curriculum content for students who have already mastered it," the principals were asked to respond to the item: "In my school, my teachers: eliminate curriculum content for students who have already mastered it." The Cronbach's alpha value for the DiL_GATE P scale is .87, which indicates very good internal consistency reliability for the scale with the study's sample ($N = 120$).

Phase 2: Case Study Interviews

As a qualitative researcher in the mixed-methods study, I conducted case study interviews with four exemplary principals, three of whom had qualifications and expertise in gifted education. The interviews in phase 2 enabled possible explanations for the phase 1 quantitative results.

Participants

The regional director and the school education directors of northern Sydney schools recommended principals who had experienced (a) success in implementing learner-centered differentiated learning, (b) achieved strong academic results, and (c) built a cohesive culture in schools. The demographic details of four selected principals and their schools (two primary and two high schools) along with their qualifications and expertise in gifted education are outlined in Table 2.

Materials and Procedures

The four principals were provided with a set of 15 questions one week in advance of the scheduled interview (Appendix B). The questionnaire asked the principals about their understanding of differentiated learning for gifted students and about their leadership actions for implementing schoolwide differentiation. The interviews were semistructured and sufficient flexibility was exercised for the conversation to flow with related follow-up questions to clarify their responses. Themes were identified using the synthesis of literature review on leaders' understandings of differentiated learning and leadership actions for enacting schoolwide differentiated learning for gifted learners. As the identification of themes progressed, new themes were added to ensure that all of the

TABLE 2
Participating School Principals' Characteristics

Principal's Name and Code	Age Range	Qualifications	Qualifications in Educating the Gifted	Experience Teaching the Gifted (Years)	Teaching Experience (Years)	Experience	School Type	School Population (2012)
						as Principal (Years)		
Stephanie	40+	Master's degree, PhD student	Postgraduate degree	1	18	3	Primary, comprehensive, coeducational	276
Sharon	50+	Master's degree	Postgraduate degree	35	35	10	Secondary, comprehensive, girls only	1,200
Jessica ^a	40+	Bachelor's degree (2)	Personal reading only	Nil	7	3	Primary, comprehensive, coeducational	709
James	50+	Bachelor's degree, postgraduate diploma	Certificate in gifted education	30	37	5	Secondary, selective, boys only	725

Note. The principals' names have been changed to maintain confidentiality.

^aOne principal, who had initially nominated student "co-researchers" for the study, could not be interviewed due to an extended leave from the school. Therefore, a principal from a different school (Jessica) was interviewed. Thus, three principals (Stephanie, Sharon, and James) and the student co-researchers in the study belonged to the same school.

interview data were analyzed. Throughout the process of the identification of themes, sense of the text was made by checking for redundancy and by collapsing statements into concepts and categories (Creswell, 2012).

RESULTS

Research Question 1: Comparing Principals' and Teachers' Perceptions of the Differentiated Pedagogical Strategies Being Used by Teachers

To test for differences between the principals' ($N = 120$) and the teachers' ($N = 867$) perceptions, a series of analyses of variance were performed (Table 3). Because 36 separate tests were performed simultaneously on the single data set, thus risking the inflation of Type 1 error, a Bonferroni-adjusted alpha of .001 per test (.05/36) was used. Levene's test showed that the assumption of equality of variances was violated for 15 cases (e.g., peer evaluation, problem finding, and project-based learning), and in these cases equal variances were not assumed and Brown-Forsythe tests were used instead.

A significant difference was found for 25 out of 36 differentiated pedagogical strategies (see Table 3 for descriptive statistics). For strategies related to concept-based learning for the gifted, there was a significant difference between principal and teacher ratings. Principals reported significantly fewer tasks being used for concept-based learning than did teachers, Brown-Forsythe (1, 152) = 16.25, $p < .001$, $\eta_p^2 = 0.017$; significantly fewer activities focused on *whole to part learning*, Brown-Forsythe (1, 148) = 43.86, $p < .001$, $\eta_p^2 = 0.049$; and significantly fewer *challenging tasks*, $F(1, 970) = 64.20$, $p < .001$, $\eta_p^2 = 0.062$, with medium effect size.

For strategies related to differentiated learning for gifted students, there was also a significant difference between principal and teacher ratings. Principals reported significantly fewer learning tasks that *modify outcomes* than did teachers, $F(1, 975) = 24.04$, $p < .001$, $\eta_p^2 = 0.024$; significantly fewer opportunities to *adjust individual practice*, $F(1, 972) = 35.94$, $p < .001$, $\eta_p^2 = 0.036$; significantly fewer tasks that *vary pace* for gifted learners, $F(1, 965) = 24.56$, $p < .001$, $\eta_p^2 = 0.025$; significantly fewer tasks that *link to existing knowledge*, $F(1, 971) = 71.88$, $p < .001$, $\eta_p^2 = 0.069$, with medium effect size; and significantly fewer opportunities to identify *background knowledge*, $F(1, 975) = 34.13$, $p < .001$, $\eta_p^2 = 0.034$.

Similarly, for fostering collaborative learning among gifted students, there was a significant difference between principal and teacher ratings. Principals reported significantly fewer opportunities for *questioning* than did teachers, Brown-Forsythe (1, 161) = 35.99, $p < .001$, $\eta_p^2 = 0.032$; significantly fewer opportunities for *student collaboration*, Brown-Forsythe (1, 142) = 82.45, $p < .001$, $\eta_p^2 = 0.106$, with medium effect size; and significantly fewer *variety of experiences* for gifted learners, Brown-Forsythe (1, 139) = 13.53, $p < .001$, $\eta_p^2 = 0.020$.

For strategies related to evaluation and reflection, there also was a significant difference between principal and teacher ratings. Principals reported significantly fewer opportunities for gifted learners to engage in *self-evaluation* than did teachers, $F(1, 965) = 60.67$, $p < .001$, $\eta_p^2 = 0.059$; significantly fewer tasks that provided *feedback*, $F(1, 965) = 194.49$, $p < .001$, $\eta_p^2 = 0.168$, with large effect size; and significantly fewer tasks that promoted *student reflection*, $F(1, 966) = 29.23$, $p < .001$, $\eta_p^2 = 0.029$. The principals, however, reported significantly more opportunities for *peer evaluation* than did teachers, Brown-Forsythe (1, 965) = 27.76, $p < .001$, $\eta_p^2 = 0.028$.

TABLE 3
Means and Standard Deviations for Principals' and Teachers' Perceptions of Teachers' Differentiated Pedagogical Strategies

Item	Pedagogical Strategies (T) In my classes, I: (P) In my school, my teachers:	Teachers		Principals	
		Mean	SD	Mean	SD
		35	Motivate and promote well-being of my students by building their self-confidence and publicly recognizing their achievements	4.56	0.59
8	Plan curriculum to provide a variety of learning experiences	4.51	0.62	4.23	0.80
36	Liaise with parents/caregivers in order to foster home-school partnerships	4.07	0.91	4.15	0.83
2	Teach by using examples and illustrations of concepts	4.34	0.67	4.08	0.69
22	Embed learning technologies into learning and teaching activities	4.14	0.76	4.04	0.80
9	Link new material to students' existing knowledge	4.52	0.59	4.01	0.78
12	Use flexible within-class ability grouping to maximize student learning	4.16	0.79	3.96	0.92
28	Encourage student-student collaboration and discussion	4.24	0.69	3.95	0.73
3	Show how parts of the subject are interrelated	4.37	0.64	3.92	0.71
7	Set challenging tasks for all learners	4.41	0.63	3.91	0.70
11	Vary the pace of my lesson to cater to individual learning needs	4.22	0.68	3.89	0.72
14	Incorporate higher-order thinking into learning tasks	4.32	0.69	3.89	0.72
13	Use questions including analysis, synthesis, and evaluation to stimulate whole-class discussion as well as individual reflection	4.26	0.73	3.86	0.68
1	Extend and/or modify syllabus outcomes to meet the learning needs of gifted students	4.21	0.76	3.85	0.81
6	Adjust the amount of individual practice that students need to master content	4.20	0.71	3.78	0.77
5	Incorporate students' background understandings including cultural knowledge in teaching and learning	4.18	0.75	3.75	0.77
25	Have students reflect on what they have learned and how they think	4.04	0.76	3.72	0.74
26	Provide meaningful, positive feedback linked to explicit criteria	4.30	0.68	3.72	0.83
34	Foster a challenging thinking climate	4.17	0.74	3.72	0.77
23	Encourage students to find solutions to real-life and authentic problems	4.01	0.76	3.71	0.79
17	Encourage students to explore diverse points of view to think about ideas in a different manner	4.12	0.76	3.69	0.78
18	Encourage students to offer imaginative solutions to problems	4.20	0.72	3.65	0.72
24	Make use of exemplars/model answers for analysis in whole-class discussion	4.03	0.82	3.64	0.75
31	Make use of project-based learning approach	3.65	0.93	3.62	0.76
15	Provide opportunities for students to select, implement, and evaluate solutions to problems or issues	4.01	0.75	3.60	0.68
30	Encourage students to gather evidence from multiple sources through research-based techniques (e.g., print, surveys, interviews)	3.81	0.96	3.51	0.87
29	Encourage students to learn methods of inquiry, investigation, and research used by experts in different disciplines	3.69	0.95	3.50	0.85
4	Eliminate curriculum content for students who have already mastered it	3.60	0.94	3.47	0.81
32	Encourage students to undertake independent extended research project(s)	3.64	0.98	3.46	0.77
20	Get students to evaluate their own work	3.85	0.81	3.45	0.79
33	Actively teach study skills	3.69	0.97	3.41	0.84
27	Encourage students to pose their own problems or questions on a topic	3.73	0.84	3.37	0.74
19	Directly teach creative thinking skills	3.73	0.97	3.34	0.82
16	Provide students freedom of choice in a range of ways such as selection of topics and tasks, opportunities for self-directed learning	3.68	0.89	3.26	0.76
21	Encourage students to evaluate each other's work	3.65	0.86	3.24	0.78
10	Bring experts/specialists to the classroom to share their knowledge with the students	3.10	1.02	3.14	0.85

Note. T = Teachers ($n = 867$); P = Principals ($n = 120$). The teachers and principals were given identical surveys. Means of responses to 36 items are arranged in descending order for the principal survey.

For strategies related to divergent thinking, there was also a significant difference between principal and teacher ratings. Principals reported fewer opportunities for gifted learners to express *diverse views* than did teachers, $F(1, 962) = 42.03$, $p < .001$, $\eta_p^2 = 0.042$; significantly fewer tasks that promoted *imaginative solutions*, $F(1, 964) = 176.69$, $p < .001$, $\eta_p^2 = 0.155$, with large effect size; significantly fewer opportunities to embed *learning technologies*, $F(1, 968) = 32.89$, $p < .001$, $\eta_p^2 = 0.033$; and significantly fewer tasks that fostered

creative thinking skills among gifted learners, Brown-Forsythe ($1, 174$) = 12.76, $p < .001$, $\eta_p^2 = 0.010$.

Similarly, for fostering higher-order thinking and challenging learning, there was a significant difference between principal and teacher ratings. Principals reported fewer learning tasks that foster *higher-order thinking* among the gifted than did teachers, $F(1, 967) = 39.50$, $p < .001$, $\eta_p^2 = 0.039$; significantly fewer opportunities to *evaluate solutions*, $F(1, 965) = 31.78$, $p < .001$, $\eta_p^2 = 0.032$; significantly fewer tasks

that address *real-life problems* for the gifted, $F(1, 970) = 15.91, p < .001, \eta_p^2 = 0.016$; significantly fewer use of *exemplars*, $F(1, 965) = 15.31, p < .001, \eta_p^2 = 0.016$; significantly fewer opportunities to learn *study skills*, Brown-Forsythe (1, 171) = 18.03, $p < .001, \eta_p^2 = 0.014$; and significantly fewer opportunities to engage with a *challenging environment*, $F(1, 965) = 39.21, p < .001, \eta_p^2 = 0.039$.

Based on a Bonferroni-adjusted alpha level of .001 per test (.05/36), the differences in the perceptions between the principals and the teachers were found to be nonsignificant for the following pedagogical strategies: *flexible grouping, compacting, use experts/specialists, topic choices, inquiry and research, gather evidence, problem finding, project-based learning, independent projects, motivation, and liaison with parents*.

Thus, for more than two thirds of differentiated pedagogical strategies (25 out of 36 strategies), the principals reported them being employed less often than did the teachers. To better understand the lack of congruence between the principals' and teachers' perceptions of the use of differentiated strategies, interviews with four exemplary principals were undertaken.

Research Question 2: Principals' Understandings of Differentiated Learning for Gifted Students

Using content analysis, five themes for the category *principals' understandings* were identified. To ensure the reliability of the coding scheme, interrater reliability was determined. An independent rater (a principal of a selective secondary school), who was blind to the identified ratings, coded all of the four interview transcripts independently. Cohen's kappa (Cohen, 1988) reflected a high level of interrater agreement ($\kappa = 0.84$).

Understanding of the Need for Schoolwide Differentiation

The four principals expressed a shared view that for effective differentiation across the school *all* teaching programs should be differentiated to meet the individual learning needs of gifted students. The principals reported that identifying a student's giftedness was a significant first step in ensuring that the student's cognitive and socioemotional needs were met. All four principals reported that identification processes were already in place at their schools. Furthermore, James (selective secondary school) and Stephanie (primary school) pointed out that differentiated learning should not be viewed as a narrow construct (i.e., in academic terms only). Stephanie wanted her school community to "nurture the whole child." James similarly advocated a holistic approach to differentiated learning by providing "enormous opportunities for extracurricular involvement that sits alongside the traditional patterns within the school ... such as drama, public speaking, debating and competitions."

Principals' Expectations of Teachers

When asked what they expected teachers of gifted learners to "know, understand, and do," all four principals expressed the view that teachers need to have extensive knowledge of gifted students' needs to develop responsive programs. For example, Stephanie (primary school) noted that at the commencement of a teaching unit the teachers in her school "know what the child knows so you can see where the gap is that they need to know, not just teach the lesson because that's what you planned." Both Jessica and Stephanie (primary schools) reported that the teachers sought feedback from their peers about the impact of their teaching on student learning. Sharon (nonselective secondary school) looked for genuine differentiation in all teachers' programs so that gifted students were not disadvantaged by any teacher who taught them. Sharon remarked, "To me, that's equity."

Understanding of Effective Differentiated Practice

In response to the question "How do you know when a teacher is effectively differentiating for gifted learners in the classroom?" all four principals noted that to be effective educational leaders they needed to have an understanding of their teachers' practices. Both Jessica and Stephanie (primary schools) deliberated that regular discourse with teachers about their classroom practices provided insights into how teachers were meeting the needs of gifted learners. To Stephanie, "It's around the questions that [teachers] ask. They're open ended, higher order. [Teachers] focus on the learning journey." James (selective secondary school) observed that the review of teachers' programs provided a glimpse into teachers' intended differentiated practices in classrooms: "We look for the evidence there—that not every student is going to be taught the same way, that the teachers are looking at a range of opportunities for differentiation through assessment."

The principals expressed a shared view that effective differentiated practice involved using pre-assessments for gaining prior knowledge of gifted learners, integrating learner-centered approaches into teaching, planning concept-based differentiated units, having flexible classroom routines, providing opportunities for acceleration, and engaging in collaborative practices.

Understanding of the Relationship Between Differentiated Learning and Assessment

When asked about how syllabus outcomes, instruction, and assessment were aligned for gifted learners, the principals pointed out the need for a clear connection between the learning goals of a unit or a lesson (outcomes), how students would learn to attain the desired goals (instruction), and how students would demonstrate their achievement of particular goals (assessment). Sharon (nonselective

secondary school), however, pointed out the dichotomous tension between ongoing teacher practice (which is differentiated in her school) and annual school testing (which is not). James (selective secondary school), too, cautioned about the perceived nexus between assessment and reporting centered on narrow measures, “We have to get away from the notion that whatever you assess, you then report these in terms of marks and grades.” Indeed, all principals expressed the view that assessment should not just be used as assessment of learning (summative assessment) but also to promote learning (formative assessment) of gifted learners.

Alignment of Perceptions About Differentiated Pedagogical Knowledge and Practice

The case study principals noted that the dissonance between principals’ and teachers’ perceptions about differentiated pedagogical strategies might be stronger in cases where teachers and/or principals did not have sufficient background and experience in teaching gifted students. James (selective school principal) reflected:

I think the teachers believe they’re doing it (differentiating curriculum). But there are also some misconceptions in what they’re making reference to. There needs to be more professional development that enables them to make those judgements more accurately.

Sharon (nonselective secondary school) and James (selective secondary school) highlighted the importance of professional learning in GATE for gaining deep knowledge of giftedness and differentiation. Stephanie (primary school) commented on different perspectives of principals and teachers: “The principals are focused on the output (i.e., value-added teaching and its validation); whereas the teachers pay attention to the input (i.e., their day-to-day experiences of teaching in the classroom).”

When asked how to develop a sense of alignment between the principals’ and teachers’ perceptions about teacher practice, Jessica (primary school) spoke about the need for “developing a shared understanding between the principal and the teachers about what giftedness is, what a higher order activity looks like, [and] ... what differentiation [is], so people can all be talking the same language.” James (selective secondary school) emphasized the need for teachers to focus on schoolwide, interdisciplinary approaches to learning.

In sum, the case study principals suggested that the dissonance in the perceptions could be due to disparities between principals’ and teachers’ understandings and experiences about educating the gifted. They expressed the need for deep understanding of differentiated learning for gifted students.

Research Question 3: Principals’ Understandings of Self-Reported Leadership Actions for Schoolwide Differentiated Learning

Using content analysis, 10 themes related to the category “leadership actions” were identified. To ensure the reliability of the coding scheme, interrater reliability was determined using data from four principals (100%). A second independent rater (a principal of a selective secondary school), who was blind to the identified ratings, coded the data independently. Cohen’s kappa reflected a high level of interrater agreement ($\kappa = 0.85$).

Identifying and Communicating a Visible Reason for Change

The principals acknowledged that identifying a visible reason for change and communicating the goal clearly to teachers was most desirable for building a shared sense of purpose. Stephanie (primary school) emphasized the value of identifying differentiated learning as a strategic target in the school plan so that all staff members knew about their responsibility to achieve specified goals. James (selective secondary school) also conveyed the importance of articulating a clear reason for undertaking a major initiative to the whole school staff “so that we channel resources, time and professional learning into that particular area.” All four principals reported the importance of having clarity of communication about “the why” of change in the school community.

Setting Up a Guiding Coalition

The exemplary principals’ responses indicated the need to build a guiding coalition for supporting teachers in differentiated learning across the school. For example, Jessica spoke about developing people by providing individualized support, offering intellectual stimulation, and modeling appropriate practices: “[It’s] knowing that part of the role of leadership is to help [teachers] build on their strengths and help them get to the next step in their learning.” James (selective secondary school) similarly reported that the guiding team members help develop a shared sense of purpose among teachers so that “individual teachers stop thinking of my students in my classroom and start thinking of our children in this school.”

Developing a Shared Vision and Strategy

In response to the question, “What role do you see teachers playing in creating the vision?” the principals shared the view that the guiding vision for the future must be a shared mental image of what a school or classroom might look like in a changed and improved state. For Jessica (primary school), “The vision can only be a vision if the whole school is brought into it.” James (selective

secondary school) noted that differentiation was not a schoolwide phenomenon yet but hoped to attain consistency across the school, “For me, if I could walk into any classroom in any faculty area at any time and see evidence that there was differentiation happening, that would be a wonderful moment for me.”

Building and Sharing Knowledge and Information

When asked how they continue to enrich their understanding of differentiated learning for gifted learners, the principals reported using a variety of avenues such as professional reading, attending professional learning workshops, and discussions with experts. Sharon (nonselective secondary school) highlighted the value of having an academic mentor from a university, for example, and Jessica (primary school) stressed the importance of modeling to her staff in building new knowledge, “I can only help my staff in moving forward with student learning if I’m actively engaged with them in the process.” Despite having busy daily schedules, the exemplary principals acted as lead learners in their schools and created the time to learn from and grow with their colleagues.

Enabling Student Voice

In response to the question about incorporating gifted students’ voices into planning and evaluating teaching practices, the principals generally reported that their schools tended to use student voice more as an opportunity to communicate ideas and opinions rather than as a means for enabling students to influence change or help improve teaching and learning. James (selective secondary school) noted, “It’s an area that I still haven’t explored to the depth that I want to. This is something that I believe we need to look at.” Stephanie (primary school) described current efforts at the school as “almost tokenistic.” Jessica (primary school), on the other hand, had concrete mechanisms in place to foster student voice in her school but noted that more work was needed in promoting student agency.

Committing Resources to Foster the Collective Capacity of Staff

When asked how they enhance professional education of staff in meeting the needs of gifted students, the principals were of the consensus view that collective capacity building impacted strongly on teacher effectiveness, generated commitment among teachers, and led to improved student outcomes. Stephanie (primary school) explained how she continues to promote the collective efficacy of teachers: “We have stage meetings so every fortnight they undertake professional learning. We use an action learning approach, so it’s about mentoring, coaching others.” Investing school resources to maximize teacher learning was acknowledged

by James (selective secondary school) as a significant step toward building school effectiveness.

Empowering Teachers for Schoolwide Differentiation

In response to the question about the most successful strategies for schoolwide differentiation, the principals noted that teachers on their own could not be very effective unless a schoolwide approach was taken. Sharon (nonselective secondary school) encouraged teachers to share their strategies of differentiation for gifted learners on school development days, and Jessica (primary school) employed strategies such as mentoring the staff members and ensured that the focus of peer observation was not the teacher but students in the classroom: “That makes it a little bit less intimidating for a teacher. It also means that we are looking at what actually makes the impact on student learning.”

Acknowledging Teachers

Planning deliberately for short-term wins, highlighting successes as a direct result of an initiative, and recognizing teachers for their meaningful contributions were some of the key measures that the principals reported as significant in achieving the shared school vision and goals. Sharon (nonselective secondary school) reported regular acknowledgment of those teachers who had continued to make a difference:

We have a morning tea every Thursday and the main thing I do is [to] acknowledge people who have done things beyond the call of duty or where kids have had great success. As part of School Development Day, I get these people who have done great differentiation to talk to the whole staff about what they are doing that is actually making a difference.

The principals were of a shared view that acknowledgment of teachers’ successes provided meaningful milestones for achieving the shared school vision.

Embedding Changes Into School Culture

The principals highlighted the need to institute changes into school culture for key initiatives such as schoolwide differentiated learning. They reported that school culture was not something one could change easily, however. The principals emphasized that cultural change always came last: after the teachers’ actions had been successfully altered and after the staff members had seen the connection between the new actions and the improvement in student outcomes. Jessica (primary school) noted that bringing cultural change requires a multifaceted approach:

I don't think you can do it all. It's about distributed leadership. It's about having those discussions with your leadership team and then with your teachers. It's about empowering your teachers and providing them time to observe each other's classrooms and reflect on that.

James (selective secondary school) believed that teachers tend to thrive in a high-performance culture, arguing that "it's about developing in the school a culture of excellence. It's about having high expectations. ... You have to keep setting aspirational targets."

Setting Sustainable Future Directions

When asked about future directions, the principals identified student voice as something that they would wish to develop further at a sustainable level to enhance learning and teaching in their schools. Innovating learning, developing differentiated units, and building learner-centered approaches to student learning were at the core of setting sustainable future directions for James (selective secondary school). The exemplary principals noted that to implement and sustain differentiated learning for gifted students, mere speeches and pronouncements are not sufficient in leading change. They reported that for leading high performance, ongoing schoolwide leadership actions are essential.

DISCUSSION

This study investigated principals' and teachers' perceptions of differentiated pedagogical strategies, principals' understandings of differentiated learning for gifted students, and principals' understandings of leadership actions for schoolwide differentiation. The identified themes are italicized in the discussion below.

Principals' and Teachers' Perceptions of Differentiated Pedagogical Strategies

The case study principals suggested a host of reasons for the lack of alignment between the principals' and the teachers' perceptions. Consistent with past literature on educational leadership (Rowe, 2007), the principals suggested that the school leaders may have a more holistic picture of the school and more rigorous expectations than the teachers. The principals noted that some teachers might hold misconceptions about various concepts related to differentiated learning for the gifted, particularly if they do not have expertise in GATE or sufficient experience in teaching gifted students. They also noted that some principals may not have sufficient expertise in GATE, which might hamper their abilities to recognize any misconception or misinterpretation of differentiation in practice. The principals may therefore not be able to provide specific feedback on

teachers' use of differentiation in the classroom. Indeed, given the lack of alignment between theoretical leadership programs (with a few notable exceptions) and on-the-job practical demands for principals (McHatton et al., 2010), a number of school principals may not have specific knowledge and expertise.

Teachers consistently perceived greater implementation of differentiated practices, whereas principals consistently perceived less implementation. James (selective secondary school) reflected that some teachers' higher levels of perceptions might possibly be rooted in their vision of themselves as agents of ideal practice, rather than in the reality of what happens in a classroom. The case study principals suggested that videotaping of classroom practices played back for self-critique can be used as a strategy to guard against any potential teacher misconceptions in this regard. The principals also noted that teachers' professional learning fosters high student achievement outcomes. This requires that principals have the skills to identify learning needs of teachers; and organizing appropriate development opportunities (Australian Institute for Teaching and School Leadership, 2011).

Although principals are not expected to be experts in every subject, they are expected to recognize effective instruction in different subject areas. However, two of the four case study principals reported that leadership programs in Australia currently do not include modules on gifted education. This finding is supported by researchers who point out that "leadership development programs tend to focus on developing technical management skills" (Jensen, Hunter, Lambert, & Clark, 2015, p. 15). The lack of gifted education content in leadership preparation programs may lead principals to begin their careers without the ability to lead differentiated learning for the gifted (McHatton et al., 2010). These findings highlight the importance of systemic confluence of pedagogical approaches among teachers and principals.

Principals' Understandings of Differentiated Gifted Learning

The study highlighted the importance for principals of having an understanding of schoolwide differentiated learning for gifted students. The exemplary principals demonstrated a perceptive understanding of leading differentiated learning based on individual needs, readiness, and interests. They valued the diversity and unique differences among gifted learners. They considered the identification of a student's giftedness as a crucial step in ensuring that a gifted learner's cognitive and socioemotional needs are addressed. Given the paucity of research about leaders' understandings of differentiation (Brighton et al., 2005), these findings are significant because they demonstrate the centrality of the principals' leadership role in setting priorities for differentiated gifted learning across the school.

As instructional leaders, the exemplary principals understood the significance of *planning* concept-based differentiated units; aligning differentiated outcomes, instruction, and assessment; creating flexible classroom routines such as ability grouping and pacing; and engaging in program evaluation and reflection. These findings highlight the need for principals to ensure challenge and complexity in curriculum for gifted learners (Rogers, 2007). The need for aligning differentiated outcomes, instruction, and assessment was emphasized by all four principals to ensure that learning and teaching are meaningful for gifted learners. Differentiation of learning outcomes for educating gifted students is a significant finding of this study, and the principals acknowledged the importance of extending learning outcomes as a basis to extend and align content, instruction, and assessment for meeting the learning needs of the gifted.

All four case study principals advocated for acceleration of gifted learners where needed and discussed the positive achievement outcomes of accelerated learners. Given the generally negative attitudes toward and nonimplementation of acceleration for gifted learners (Szymanski et al., 2018) and continued underuse of acceleration despite empirical support (Missett et al., 2014), this finding from a leadership perspective is significant. The principals noted that sustaining a systemic focus on differentiated gifted learning is essential for implementing schoolwide differentiation. This finding is consistent with the literature about systems approaches to organizational change (Fullan, 2004; Higham, Hopkins, & Matthews, 2009). The exemplary principals demonstrated that knowledge regarding education of gifted learners enables school principals to provide strong instructional leadership to teachers.

Principals' Understandings of Leadership Actions for Schoolwide Differentiation

The case study principals noted that leaders speak most clearly with their actions in implementing the shared vision (e.g., leading differentiated gifted learning). The principals were of the view that the vision of the future must be developed in collaboration with teachers, students, and the wider community to promote a sense of common ownership and create a unity of purpose. This finding is important because communicating the change vision with clarity, simplicity, and consistency is crucial to the success of the change process in schools. Although research about leadership actions for the education of gifted learners is limited, these findings are consistent with past studies in general and educational leadership literature (Hallinger, 2011).

The principals noted that to implement the shared vision of schoolwide differentiation for gifted learning in schools, setting up a *guiding coalition* of staff members was critical

(Kotter, 1996). According to the principals, finding the right people and developing their expertise by *building and sharing knowledge and information* about differentiated learning helps realize the change vision. These findings are significant because they highlight the need for principals to work with and through staff members to build a professional learning community that is focused on continuous improvement of learning and teaching (Fullan, 2013).

The exemplary principals reported that they *committed resources to foster the collective capacity of staff members* for the education of gifted learners. This finding is consistent with previous research showing that building collective efficacy of team members leads to schoolwide implementation of the change initiative (Fullan, 2016; Robinson, Lloyd, & Rowe, 2008). These findings highlight the centrality of investing in collaborative professional teacher education for educating gifted learners (Tomlinson et al., 2008).

Further, the principals *empowered staff for schoolwide differentiation*, consistent with previous research (Tomlinson & Allan, 2000; Tomlinson et al., 2008; Tomlinson & Imbeau, 2010). They promoted collegial discourse among staff members and developed a culture of learning among peers, especially from those who were further along in implementing new ideas. These findings underscore the need for principals to nurture positive mindsets and build dynamic, engaged learning communities (DuFour, DuFour, Eaker, & Many, 2010). The case study principals *generated short-term wins* deliberately to keep the momentum going and to build a culture of success (Kotter, 1996), highlighting the importance of using the credibility of small wins for the pursuit of the big goal—the organizational mindset of differentiated learning for gifted students as a matter of daily routine.

Significantly, when asked about *enabling student voice* in schools, the case study principals valued embedding gifted students' perspectives in learning and teaching across the school. However, the principals reported that the students were consulted primarily to communicate ideas and opinions (e.g., at the end of a teaching unit). One principal reported initial efforts being made in creating a supportive learning climate to engage students in learning as partners. They were candid in noting that they had not attained these goals yet, but they were committed to engaging gifted students' voices for improving learning and teaching. Given the paucity of research on enabling gifted students' voices in schools (Gentile, 2015), these insights are significant because they highlight the significance of student voice not only in informing differentiated practices but also in shaping schools' decision-making processes.

Finally, *embedding changes into school culture* was regarded as essential by the principals to bring lasting change (Fullan, 2014, 2016; Kotter, 1996). The principals discussed the need for *setting sustainable future directions* in schools to create lasting, meaningful improvements in student learning. The principals spoke about distributing

leadership throughout the professional learning community to create sustainable future directions. Although leadership research in gifted education is limited, these findings are consistent with previous research on educational leadership (DuFour & Fullan, 2013; Hargreaves & Fink, 2006).

This study clearly highlights the important role that school leaders play in enhancing teacher knowledge and expertise in GATE. Supportive attitudes and practices might best be fostered by assisting teachers in gaining qualifications or undertaking targeted professional learning in GATE, encouraging teachers to take leadership opportunities to coordinate provisions for the gifted, maintaining regular contact with gifted learners, and engaging with gifted students' voices in learning and teaching. The study demonstrated the importance of principals having an understanding of differentiated learning for the gifted and undertaking leadership actions for schoolwide differentiation. Further, the principals can act as role models by attending professional learning sessions along with teachers when possible and relevant. These learning experiences can also equip principals to accurately identify effective differentiated practices in classrooms, provide feedback, and plan professional learning opportunities for teachers accordingly.

LIMITATIONS OF THE STUDY AND IMPLICATIONS FOR FUTURE RESEARCH

It is important to note that the study assessed the *self-reported* perceptions of principals and teachers. Future research could examine how these various perceptions of giftedness influence day-to-day learning and teaching in the classroom. The exemplary principals were purposively selected to understand best practice in schoolwide differentiation for gifted learners. Working with four exemplary principals—particularly those who may not be representative—necessarily presents challenges to generalizability. Nonetheless, this design allowed greater depth of analysis than would have been feasible with a larger group of principals. Future research might consider the inclusion of principals from schools where teachers are more resistant in implementing differentiated learning for gifted learners. This investigation will generate further insights into principals' leadership actions for managing resistant teachers to successfully implement schoolwide differentiated learning. In addition, future research might examine why teachers tend to rate their pedagogical practices higher in comparison to principals. This research will shed more light into creating aligned understanding among school leaders and teachers across the school to effectively meet the individual learning needs of gifted learners. Research is also needed about the impact of incongruence in perceptions and practices of principals and teachers on student achievement

outcomes. The results could be useful to policymakers for creating a more effective nexus between policy and practice for educating gifted learners.

CONCLUDING COMMENTS

Leading differentiated learning for the gifted is about creating a confluence of attitudes, perceptions, and practices between principals and teachers; building sustainable future directions for schoolwide differentiation; enabling students and teachers to engage as learning partners; and transforming gifted learners into talented and expert individuals. The exemplary principals in this study indicated that aligned perceptions among school principals and teachers contribute to optimal learning and teaching processes and are conducive to high-learning outcomes for gifted students. In schools wishing to become learner centered, the principals and teachers must be the ones who collectively develop their own culture of learning and change, rather than having the culture imposed from outside. Schools and classrooms that lead and enact differentiated learning for the gifted as a regular, day-to-day experience become places of learning and wonder. They become places of curious delight.

DISCLOSURE STATEMENT

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APPENDIX A:
TEACHER SURVEY

Instructions

This survey is anonymous and your participation is voluntary. Its purpose is to investigate the current educational practices for gifted and talented students in Northern Sydney Region’s schools and classrooms. The Region’s intention is to develop a G&T Toolkit containing practical, evidence-based strategies for effective and routine differentiation in all classrooms to add on to the valuable strategies that are already in place.

For the purpose of this survey, the definition of gifted and talented is the one adopted by the Department of Education and Communities (2004) as outlined in the *Policy and implementation strategies for the education of gifted and talented students* (revised 2004). It is based on Gagné’s (1991) differentiated model of giftedness and talent: **Gifted students** are those whose potential is distinctly above average in one or more of the following domains of human ability: intellectual, creative, social and physical. **Talented students** are those whose skills are distinctly above average in one or more areas of human performance.

Section A: General Information

Please provide background information by completing questions 1–5.

1. Name of School: _____

2. Place a cross (X) in the box for the type of school that you teach in:

<i>Selective High School</i>	<i>Comprehensive High School</i>
Primary School	Primary School with Opportunity Classes

3. Place a cross (X) in the box(es) next to any qualification that you hold:

<i>Teaching diploma (2 to 3 years)</i>
Bachelor’s degree [e.g., BA, BSc, BEd, BA (Honors)]
Postgraduate certificate/Diploma in education
Master’s degree [e.g., MA, MS, MEd, MA (Honors)]
EdD or PhD

4. How many years have you been teaching:
 a. in total? _____
 b. at your present school? _____

5. Have you undertaken any of the professional learning in the education of gifted and talented students? If so, please indicate it below.

<i>A preservice component of a degree</i>
Graduate certificate
Graduate diploma
Ongoing/extended professional learning in the school
Action learning project
Conference(s)
Component(s) of a master’s degree
Other qualification. Please indicated type: _____

6. Do you hold or have you ever held any position of specific responsibility for gifted and talented students in your school or at another school? Please describe your role below. _____

7. Do you currently teach gifted and talented students in your school? Put a cross (X) in the appropriate box.

Yes	No
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Section B

In this section, please place a cross (X) in the appropriate box to indicate the extent to which you agree with each statement.

<i>In my classes, I:</i>	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Almost Always</i>
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- 8. extend and/or modify syllabus outcomes to meet the learning needs of gifted students
- 9. teach by using examples and illustrations of *concepts*
- 10. show how parts of the subject are interrelated
- 11. eliminate curriculum content for students who have already mastered it
- 12. incorporate students’ background understandings including cultural knowledge in teaching and learning
- 13. adjust the amount of individual practice that students need to master content

(Continued)

(Continued)

<i>In my classes, I:</i>	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Almost Always</i>
14. set challenging tasks for all learners					
15. plan curriculum to provide a variety of learning experiences					
16. link new material to students' existing knowledge					
17. bring experts/specialists to the classroom to share their knowledge with the students					
18. vary the pace of my lesson to cater for individual learning needs					
19. use flexible within-class ability grouping to maximize student learning					
20. use questions including analysis, synthesis and evaluation to stimulate whole-class discussion as well as individual reflection					
21. incorporate higher order thinking into learning tasks					
22. provide opportunities for students to select, implement and evaluate solutions to problems or issues					
23. encourage students to explore diverse points of view to think about ideas in a different manner					
24. encourage students to offer imaginative solutions to problems					
25. provide students freedom of choice in a range of ways such as selection of topics & products, opportunities for self-directed learning					
26. get students to evaluate their own work					
27. encourage students to evaluate each other's work					
28. embed learning technologies into learning and teaching activities					

(Continued)

<i>In my classes, I:</i>	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Almost Always</i>
29. encourage students to find solutions to real-life and authentic problems					
30. have students reflect on what they have learnt and how they think					
31. provide meaningful, positive feedback linked to explicit criteria					
32. make use of exemplars/ model answers for analysis in whole-class discussion					
33. encourage students to pose their own problems or questions on a topic					
34. encourage student-student collaboration and discussion					
35. encourage students to learn methods of inquiry, investigation, and research used by experts in different disciplines					
36. encourage students to gather evidence from multiple sources through research-based techniques (e.g. print, surveys, interviews)					
37. make use of project-based learning approach					
38. encourage students to undertake independent extended research project (s)					
39. actively teach study skills					
40. directly teach creative thinking skills					
41. foster a challenging thinking climate					
42. motivate and promote wellbeing of my students by building their self-confidence and publicly recognizing their achievements					
43. liaise with parents/ caregivers in order to foster home-school partnerships					
44. How do you know when you are engaged in classroom?					
45. What are the three (3) most important qualities of an effective teacher?					
46. Any other comments.					

APPENDIX B: PRINCIPALS—INTERVIEW QUESTIONS

Part A: Principals' understandings of the characteristics and elements of differentiated learning for gifted and talented students and their perceptions of teacher practice

1. Please describe your understanding of how teachers differentiate learning for gifted and talented students in your school.
2. When planning for gifted learners, what do you expect teachers to know, understand, and do?
3. How do you know when a teacher is effectively differentiating for gifted learners in the classroom?
4. How are syllabus outcomes, instruction, and assessment aligned and differentiated for gifted learners? Please describe the relationship between differentiated learning and assessment.
5. The survey responses have shown that principals' and teachers' perceptions about differentiated practices are significantly different. Why do you think this is the case? What strategies do you suggest for developing greater alignment between principals' and teachers' perceptions?

Part B: Principals' leadership actions in supporting, implementing, and sustaining differentiated learning for gifted and talented students

1. What is your vision for differentiated learning for gifted and talented students in your school? What role do you see teachers playing in creating this vision? How do you communicate that vision to the school community?

2. How do you convey to teachers the necessity to differentiate curriculum for gifted and talented students in your school?
3. How do you continue to enrich your understanding of differentiated learning for gifted learners? How has this understanding been beneficial to you as a school leader?
4. How do you enhance professional education of your staff in meeting the needs of gifted and talented students? What resources have you allocated? How often do teachers collaboratively discuss differentiated learning provisions with each other? What does professional learning look like for your teachers?
5. How are teachers engaged in implementing, evaluating, and sustaining differentiated learning for gifted and talented students?
6. How do you incorporate gifted students' voices into planning and evaluating teaching practices to ensure that their needs are being met?
7. What do you think have been the most successful strategies in implementing schoolwide differentiated high-performance learning?
8. How do you acknowledge those teachers who demonstrate effective differentiated learning practices for gifted students? How do you share these success stories with the entire school community?
9. How do you know and ensure that your expectations of differentiated learning for gifted and talented students are understood and implemented by every teacher in your school to ensure high student achievement outcomes?
10. What are the future directions that need to be undertaken to support and sustain differentiated learning for gifted and talented students in your school?

AUTHOR BIO



Dr. Manoj Chandra Handa is Principal Education Officer—Learning, Teaching and Leading Coordinator in the School Services Directorate, New South Wales Department of Education, Australia. He has formerly served as CEO—School Development Officer in the Department. In 2012, he was recognized as one of the “Top 100 Most Influential People” in Sydney by “The Sydney Magazine” published in *The Sydney Morning Herald*. In 2016, he was recognized for “Excellence in Higher Degree Research” by the Faculty of Human Sciences, Macquarie University, Sydney. He was selected for the “Smart Teachers’ Research Award 2016” by The Teachers’ Guild of New South Wales for his doctoral research. E-mail: manoj.chandrahanda@det.nsw.edu.au