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# **Embracing diversity: Empowering preservice teachers for teaching gifted and talented students**

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## **Abstract**

This study investigated preservice teachers' perceptions for teaching and sustaining gifted and talented students while developing, modifying and implementing activities to cater for the diverse learner. Participants were surveyed at the end of a gifted and talented education program on their perceptions to differentiate the curriculum for meeting the needs of the student ( $n=22$ ). SPSS data analysis with the five-part Likert scale indicated these preservice teachers agreed or strongly agreed they had developed skills in curriculum planning (91%) with well-designed activities (96%), and lesson preparation skills (96%). They also claimed they were enthusiastic for teaching (91%) and understanding of school practices and policies (96%). However, 46% agreed they had knowledge of syllabus documents with 50% claiming an ability to provide written feedback on student's learning. Furthermore, nearly two-thirds suggested they had educational language from the syllabus and effective student management strategies. Preservice teachers require more direction on how to cater for diversity and begin creating sustainable societies by building knowledge from direct GAT experiences. Designing diagnostic surveys associated with university coursework can be used to determine further development for specific preservice teacher development in GAT education.

Preservice teachers need to create opportunities for students to realise their potential by involving cognitive challenges through a differentiated curriculum. Differentiation requires modification of four primary areas of curriculum development (Maker, 1975) content (what we teach), process (how we teach), product (what we expect the students to do or show) and learning environment (where we teach/our class culture). Ashman and Elkins (2009) and Glasson (2008) emphasise the need for preservice teachers, teachers and other professionals to be able to identify what gifted and talented (GAT) students know and how they learn in relation to effective teaching. Glasson (2008) recommends that educators keep up to date with practices in pedagogy, support, monitoring and profiling of GAT students to create an environment conducive to achieving. Oral feedback is one method to communicate to learners about their progress but has advantages and disadvantages for some students. Oral feedback provides immediate information to the student on progress and performance (Ashman & Elkins, 2009). However, preservice teachers must have clear understandings of key concepts to assist the GAT student.

Implementing teaching strategies to engage innovate and extend students is valuable to the preservice teacher in focusing on GAT student learning in the classroom (Killen, 2007). Practical teaching strategies (Harris & Hemming, 2008; Tomlinson et al., 1994) facilitate diverse ways for assisting GAT students to achieve learning outcomes. Such strategies include activities to enhance creativity, co-operative learning and problem-solving activities (Chessman, 2005; NSW Department of Education and Training, 2004; Taylor & Milton, 2006) for GAT students to develop a sense of identity, belonging and self esteem towards becoming an autonomous learner. Preservice teachers need to understand that GAT students learn in a different way and therefore should be assessed differently. Assessment can be through diverse options to demonstrate the student's competence, demonstrate their understanding of the material in a way that highlights their natural abilities (Glasson, 2008; Mack, 2008). Preservice teachers often are unprepared to assess students

understanding but this may be overcome with teacher education training promoting effective communication and collaboration in the classroom, including the provision of a variety of assessment strategies to improve teaching and learning (Callahan et al., 2003; Tomlinson et al., 1994). It is also critical that preservice teachers have enthusiasm for teaching to demonstrate inclusion, involvement and the excitement to communicate to GAT students in the learning process (Baum, 2002).

Evaluating and reflecting on teaching practices must be part of a preservice teacher's repertoire for GAT education. Evaluating teaching practices can assist to further enhance student learning (Mayer, 2008). Evaluation gauges the success or otherwise of specific activities and teaching in general (Mayer, 2008), and ensures that preservice teachers and teachers are well prepared and maintain their commitment to their students and the community. Long and Harris (1999) advocate that reflective practices assist teachers in creating improvements in educational practices. Reflective practices help preservice teachers and teachers to improve their ability to pursue improved learning outcomes and professional growth (Long & Harris, 1999).

### *Context*

This study is set at a small regional campus of a large university in Queensland. As a way to address departmental policies and the need to prepare preservice teachers for engaging a diverse range of learners (see Queensland College of Teachers, Professional Standards for Teachers, 2006), preservice teachers at this campus completed four elective units within their Bachelor of Education (primary) degree. The electives include:

1. Middle years students and schools
2. Teaching strategies for engaging learners
3. Teaching students with learning difficulties, and
4. Middle-years curriculum, pedagogy and assessment.

In the university-based component of this unit, preservice teachers engaged in learning about middle years students and schools, and gained knowledge of government policies pertaining to GAT students. Further explored within in this unit was the importance of: collaboration between teachers, parents/carers and school personnel in supporting middle years GAT students; incorporating challenging learning experiences that promoted higher order thinking and problem solving skills; real world learning experiences for students and; the alignment and design of curriculum, pedagogy and assessment that is relevant to the students development, interests and needs. The participants were third-year Bachelor of Education (primary) preservice teachers who were completing an elective unit as part of the middle years of schooling learning with a focus on GAT students. They were assigned one student from a local school. In the six subsequent ninety minute weekly lessons, the preservice teachers were responsible for designing learning activities that would engage and extend the GAT students. Furthermore, preservice teachers made decisions about suitable pedagogical approaches and designed the assessment task to align with the curriculum and the developmental needs of their middle years GAT student. This research aims to describe preservice teachers' perceptions of their education for teaching gifted and talented students.

### **Data collection and analysis**

The research design was a small-scale quantitative study. Specifically, this study employs an evaluation survey based on participants' attitudes, beliefs, and self-classification (Neuman, 2006). Survey items were constructed based on the literature, for example, Item 1 states, "During my school-based experiences in this unit, I felt I developed... my understanding of creating a safe learning environment", which aligned with a study by Diezmann and Watters (2000) and advocated by Education Queensland (2008) as an education system's provider. The 34 survey items were placed into categories in common agreement between the authors and in line with literature

considerations. Items were then randomly placed in the survey to ensure each item could be addressed individually (Hittleman & Simon, 2006). Each item was analysed to avoid jargon, ambiguity and bias questions (Neuman, 2006).

A five-point Likert scale was used that catered for the full range of possible responses. Survey data were analysed using descriptive statistics. Raw data from the five-point Likert scale were entered into SPSS16 (a statistical analysis software package), that is, strongly disagree=1, disagree=2, uncertain=3, agree=4, and strongly agree=5. Using the analysis function of the SPSS package, percentages, mean scores (*M*) and standard deviations (*SD*) were generated (Hittleman & Simon, 2006). Data were collated into five categories for reporting purposes, namely: school practices and policies; curriculum and planning; motivating students; teaching practices; and personal attributes. Percentages of agreed and strongly agreed responses (i.e., from raw data responses 4 and 5) were tabled in rank order for comparative analysis. “Means and variances for items scored on a continuum (such as a five-point Likert-type scale) are calculated simply the way other means and variances are calculated” (Kline, 2005, p. 95).

The school-based unit allowed preservice teachers one-on-one contact with an identified GAT student at a local school. This provided preservice teachers the opportunity to relate acquired GAT content knowledge with practice in a school environment. Twenty-four percent of participants were male and 76% percent female. Participant ages varied (i.e., 36% under 21 years, 46% between 22-29 years and 18% 30-49 years). The survey identified that preservice teachers planned to teach a number of lessons, for example, 4% of preservice teachers planned 1-4 lessons, 91 % planned 5-10 lessons and 5% planned more than 10 lessons. Sixty-four percent of preservice teachers agreed that they learnt from the program, 32% strongly agreed, however, 4% felt they did not learn from the unit. GAT students were selected from years 4 to 7 (i.e., 4% of primary students taught were in year 4, 18% in year 5, 46% in year 6, and 32% in year 7).

## Results and discussion

Preservice teachers believed they had a good understanding of creating a safe and supportive learning environment (91%) and valued the school’s policies (96%, Table 1). They recognised the need for a differentiated program, this included risk taking and engaging students with appropriate activities targeting their developmental needs. Creating a safe learning environment to challenge and inspire them to pursue excellence and encouraged lifelong learning. Preservice teachers agreed that they developed an understanding of school policies and procedures. Sixty four percent claimed they were not knowledgeable about new viewpoints for teaching gifted and talented students (Table 1).

Table 1: *School Policies/Practices*

Item No. & Item	%*	<i>M</i>	<i>SD</i>
4. Policies	96	3.41	0.96
1. Safe environment	91	4.18	0.91
25. Aims	73	3.73	0.94
30. Viewpoints	64	3.73	1.03

\*% = strongly agree and agree

These preservice teachers responded about their knowledge of curriculum documents and planning. They believed they had developed their lesson preparation skills (91%) and planning for teaching (91%) as a result of this six-week program (Table 2). The preservice teachers structured the lessons on the school curriculum and lessons were planned to help structure the learning for the individual student. Seventy three percent of preservice teachers identified that they had the content knowledge required for teaching their lessons. However, only 46% claimed they had knowledge of the syllabus documents for teaching GAT students.

Table 2: *Curriculum and Planning*

Item No. & Item	%*	<i>M</i>	<i>SD</i>
3. Preparation skills	96	4.27	0.88
24. Planning	91	4.09	0.87
15. Understanding lesson structure	78	3.86	1.21
5. Educationally challenging	78	4.09	1.11
28. Lesson plans	77	3.86	1.13
10. Timetable	73	3.86	0.94
21. Content knowledge	73	3.73	1.03
2. Language	64	3.77	1.07
11. Knowledge of syllabus	46	3.41	1.01

\*% = strongly agree and agree

Designing activities that challenged and motivated students for a positive outcome was acknowledged by preservice teachers (Table 3). Preservice teachers recognised that well designed activities (96%) interrelated with positive attitudes and good rapport (86%) in student learning. Conversely, 60% acknowledged they were equipped to provide oral feedback to the GAT student.

Table 3: *Motivating Students*

Item No. & Item	%*	<i>M</i>	<i>SD</i>
29. Well-designed activities	96	4.18	0.85
22. Positive attitude	86	4.05	0.90
7. Rapport	86	4.05	0.90
6. Motivate	78	3.91	0.92
16. Oral Feedback	60	3.59	0.96

\*% = strongly agree and agree

The data in Table 4 suggest that Preservice Teachers demonstrated effective teaching practices (91%) and effective hands-on ideas (91%) for GAT students learning during the school based experience. The data suggested that preservice teachers were able to create and implement different strategies (78%) and ideas (91%) to accommodate the different learning abilities of the GAT student. Equally, 50% accepted they were not confident to provide written feedback to the GAT student.

Table 4: *Teaching Practices*

Item No. & Item	%*	<i>M</i>	<i>SD</i>
14. Effective teaching	91	4.05	0.84
19. Hands-on ideas	91	4.32	0.95
8. Strategies	78	3.86	0.99
32. Assessing students	78	3.77	0.92
18. Questioning skills	78	3.95	1.05
13. Evaluate teaching	77	3.86	0.89
27. Problem solving	68	3.86	0.99
34. Monitoring students	68	3.64	1.05
12. Student management	64	3.55	0.96
20. Written feedback	50	3.50	1.14

\*% = strongly agree and agree

Preservice teachers identified they have the skills and abilities to effectively communicate (91%) and demonstrated enthusiasm (91%) for teaching GAT students (Table 5). Evaluations of teaching and reflective practices were measured reasonably well (77%). Seventy-eight percent of preservice teachers considered they had active listening skills to assist in establishing ways of improving their

teaching. However, 68% of preservice teachers agreed they needed to cultivate more confidence as a teacher for teaching GAT students.

Table 5: *Personal Attributes*

Item No. & Item	%*	<i>M</i>	<i>SD</i>
9. Enthusiasm	91	4.18	0.73
17. Communication skills	91	4.18	0.91
31. Listening skills	78	3.73	0.77
33. Improve my teaching	78	3.77	0.92
23. Reflective practices	77	3.82	0.96
26. Confidence	68	3.64	1.14

## Conclusion

This paper explored and described preservice teachers' perceptions of their experiences for teaching GAT students. The majority of preservice teachers claimed that the six-week program provided skills and strategies to modify the curriculum, which included understanding teaching practices that meet the educational needs of the GAT student. Preservice teachers confirmed the importance of developing a rapport with the GAT student for increasing learning opportunities. This self-assessment mechanism in the form a literature-based survey also indicated areas for improvement for these preservice teachers such as gaining more knowledge of the syllabus and syllabus language appropriate to the GAT student. Indeed, there were several preservice teachers who required more strategies to manage and monitor GAT students, and develop more skills on providing feedback to the GAT student. These preservice teachers highlighted the need to enhance their reflective practices for improving the teaching of GAT students. Developing a personal and professional relationship can also require scaffolding and support from the GAT student's classroom teacher and the school system. This support can provide the preservice teacher with contextual knowledge and teaching strategies to address the GAT student's specific needs.

The survey used in this study presented a way to understand preservice teachers' perceptions of their practices for teaching GAT students. Future research could examine how feedback can have an influence on the educational advancement and social attitudes of GAT students. Other research can include mixed methods with qualitative responses, examining the socio-cultural contexts of GAT student's education, and determining how preservice teachers' skills for teaching a GAT student may translate into a classroom full of students. The surveys in this study were anonymous; self-reporting on teaching practices may be a constraint to this study. Therefore, establishing both preservice teachers and GAT students' perceptions and evaluating the two viewpoints can aim to further provide effective approaches to GAT practices. Results indicated the program was noteworthy, productive and highlighted a need in the education of preservice teacher training to provide instruction on GAT. Future teacher training programs could implement authentic GAT education for preservice teachers by connecting theoretical practices from the university with practical applications in the school.

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