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# Differentiation in Key Learning Areas for Gifted Students in Regular Classes: A Project for Primary School Teachers in Hong Kong

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### **Abstract**

Gifted students usually require much less time spent in practising and revising basic skills; and instead they benefit greatly from opportunities to work through the curriculum at a faster pace (acceleration). Teachers currently working with mixed-ability classes do not always find it easy to differentiate their teaching approach in this way, so there is a need to facilitate in-service professional development to provide teachers with practical strategies for implementing effective differentiation for gifted learners. In response, a project for primary school teachers was organized by a university in Hong Kong. The purposes of the project were: (a) to enhance the confidence of teachers in planning and delivering differentiated lessons in specific Key Learning Areas (KLA) with particular reference to gifted students; (b) to empower teachers with knowledge and strategies necessary for designing and implementing a differentiated curriculum in KLA domains; and (c) to establish a professional development practice that connects local academics with schools and teachers. The project was implemented by inviting curriculum leaders, panel chairpersons and subject teachers from primary schools to attend a 3-hour lecture and a 6-hour workshop in which differentiation practices were explored. The project was later evaluated based on feedback from participants and university consultants. Overall, the feedback was positive, but suggestions are provided here for enhancing future projects of a similar nature.

(217 words)

## **Key words**

Differentiated Teaching, Gifted Students, Teachers, Teacher Development

#### Introduction

The aim of differentiated instruction is to cater to a wide spectrum of learners, including gifted students, students who are less able, and students with learning disabilities (George, 2005). In a differentiated classroom learners are able to access the curriculum in various ways and at their own ability level (Betts, 2004; Sisk, 2009). In classes where there are students of varying capabilities and talents, differentiated instruction is crucial for addressing individual needs. As Tomlinson and Allan (2000) have observed:

In the context of education, we define differentiation as a teachers' reacting responsively to a learner's needs. . . . Differentiation is simply attending to the learning needs of a particular student or small group of students rather than the more typical pattern of teaching the class as though all individuals in it were basically alike. (p.4)

Differentiation for gifted learners is extremely important. In this era of inclusive schooling, most gifted and talented students now find themselves in regular school settings rather than special groups or classes. But for them the prescribed mainstream curriculum in regular schools often tends to lack sufficient depth and complexity (Betts, 2004). Gifted students need an appropriate level of challenge to keep them fully engaged and to prevent them from feeling bored and unmotivated in class. These students may fail to achieve their potential if appropriate curriculum content and learning opportunities are not provided. However, if learners are able to personalize and take ownership of their learning, they will be able to reach their full potentials (Wallace, Bernardelli, Molyneux, & Farrell, 2012). Unfortunately, it often seems that educators may not be fully aware of the social, emotional and cognitive needs of these students when they are placed in the mainstream, or perhaps teachers do not have the pedagogical expertise to provide the types of learning activities that high achievers require.

Authors have suggested that it is more desirable for teachers to be focused on enhancing student competence through "the development of skills, insights, knowledge and learning dispositions" (Hymer, Watkins, Dawson, & Buxton, p.7). In other words, a teacher needs to be aware of significant differences among the students in a heterogeneous class, and to respond to them by using a wide variety of teaching strategies applicable at whole-class, small group, and individual

levels (Tomlinson, 1999). In order to achieve this, modifications can be made to curriculum content, learning processes, and the products from students' efforts (Tomlinson & Allan 2000).

## Teacher development for differentiated instruction

The teaching knowledge and skills required for differentiation include: knowledge about different models of teaching and learning (and how best to implement and adapt them for specific purposes), good subject matter knowledge, effective pedagogical skills, and efficient classroom management (VanTassel-Baska & Brown, 2007; VanTassel-Baska & Stambaugh, 2005). These are all areas that require attention in pre-service and in-service teacher education programmes.

While teachers urgently need this knowledge and skills for differentiation, school administrators also need to know how best to support their teachers who are implementing differentiation practices in the classroom (Tomlinson, 1999; VanTassel-Baska & Brown, 2007). The 'practical' aspect of how to adapt teaching to differences among students is now a very high priority in the professional development of teachers. This type of professional development is essential to enhance the competencies of teachers working with gifted students, as well as students with learning difficulties. In a study of Singaporean and American teachers, VanTassel-Baska et al. (2008) found that systematic professional development in differentiation appeared to have a positive impact on teachers' later use of an array of differentiation strategies in their classroom instruction.

## Differentiated instruction in Hong Kong schools

It is clear that differentiation of curriculum content and learning processes for gifted learners may not always be a teaching strategy used in Hong Kong schools. Studies have found that local teachers generally lack knowledge about gifted students (Cheung & Hui, 2011), and they do not often make adaptations in their instruction to accommodate the needs of different learners (Chan, Chang, Westwood, & Yuen, 2002; Wan, 2015; Yuen, Westwood, & Wong, 2005). A study by Pang (2000) in four Hong Kong secondary schools found that only one school used a differentiated curriculum for gifted students. However, all four schools reported using minor on-

the-spot adaptations, such as varying the difficulty level of questioning during lessons, to cover a wider ability range.

In Hong Kong, Wan (2015) found that there were positive changes in pre-service teachers' beliefs about differentiation after taking a course on differentiated instruction. In another study, Cheung and Hui (2011) compared in-service teachers who had no specific professional development in gifted education with those who had undergone such training. The trained teachers rated themselves higher than the untrained in competencies and skills in teaching gifted students. In addition, two studies found that teachers' direct involvement in gifted education activities was also important, as this had a positive correlation with the teachers' employment of innovative and adaptive teaching strategies in the classroom (Chan & Yuen, 2014). Furthermore, these teachers were flexible in using different classroom management and grouping strategies to facilitate learning (Chan & Yuen, 2015),

## The KLA project in Hong Kong

The need to provide professional development for Hong Kong teachers in differentiation for gifted students resulted in a project titled *KLA-based differentiation for gifted students in regular class*. The project was organized by the Centre for Advancement in Inclusive and Special Education (CAISE) of the University of Hong Kong and commissioned by the Gifted Education Section of the Education Bureau. Participants were in-service curriculum leaders, panel chairpersons, and subject teachers in primary schools.

## The project aims were:

- To enhance the professional knowledge and confidence of teachers in adopting differentiation strategies to plan and deliver lessons in specific Key Learning Areas (KLAs) for gifted students;
- 2. To empower teachers with the concepts for designing and implementing school-based differentiated curriculum through the exploration of different KLA-based practices;
- 3. To pilot a practicum-driven project connecting local academic(s) and school teachers.

The project included a 3-hour lecture and a series of interactive workshops. Participants were required to attend the lecture and one workshop of their choice to qualify for full attendance. The

aim of the lecture was to clarify various models, concepts, and strategies for differentiated lesson planning applicable in the regular classroom. It included practical exemplars of differentiated instruction that suit the local school context. In addition, two guest speakers from a local primary school shared their practices in differentiation. The lecture paved the way for the workshops by providing the necessary prerequisite knowledge and skills. For the learning objectives and content of the lecture, please refer to Table 1.

#### <Table 1>

There were five interactive workshops, which were based on the Key Learning Areas (KLAs) of Chinese Language, English Language, Mathematics, Social Studies, and Science. Each interactive workshop was 6-hours long, led by consultants who were faculty members of the university. The workshop consultants presented key components and steps for planning effective differentiated instruction and appropriate assessment designs. Authentic lesson exemplars were used to demonstrate and guide teachers in the design of differentiated lesson plans. At the end of the workshop, participants completed their own lesson plans demonstrating effective differentiation principles and practices. The lesson plans were submitted to the consultants, who provided feedback to the teachers. For the learning objectives and content of the workshops, please refer to Table 2.

<Table 2>

#### Method

This study reported here evaluated the teacher development components offered in the project, and addressed the following questions:

- 1. To what extent do participants find the lecture helpful in enhancing their professional knowledge of differentiated teaching?
- 2. To what extent do participants find the interactive workshops useful in designing and implementing differentiated teaching strategies?
- 3. To what extent do the consultants think the workshop objectives were met?

## **Participants**

The total numbers of participants for the lecture and various workshops can be seen in Table 3, with details of actual attendance and the attendance rate. The lecture and all workshops were well attended, having an attendance rate higher than 80% in all cases.

<Table 3>

#### Data collection

The project was evaluated by the participants and by the workshop consultants. The participants were asked to complete a questionnaire after the lecture, and another questionnaire after the relevant workshop. The former questionnaire included four open-ended questions and six questions on a four-point Likert-type response scale, ranging from strongly agree (4) to strongly disagree (1). The latter questionnaire included four open-ended questions, two closed-ended (i.e. yes/no) questions, and five questions on a four-point Likert-type response scale, ranging from strongly agree (4) to strongly disagree (1). Workshop consultants were also invited to give feedback after their session on a questionnaire with 9 questions three open-ended questions and six using a four-point Likert-type response scale, ranging from strongly agree (4) to strongly disagree (1).

#### Data analysis

The quantitative data from the questionnaire was analyzed using statistical analysis software (i.e. SPSS 23). Descriptive statistics were used to analyze the quantitative data, including percentages, frequencies, means, and standard deviations. The responses from the open-ended questions were summarized and the more salient responses presented here.

## Ethical considerations

Before the commencement of the project, ethical approval had been successfully obtained from the Faculty Research Ethics Committee of the Faculty of Education, the University of Hong Kong. Participants in the lecture and workshops were also asked to sign an informed consent indicating whether or not they agreed to participate in the evaluation study.

## Findings and discussion

Response rate and participants

The response rate for the questionnaires is presented in Table 4. There was a response rate of 76% for the lecture, and a response rate of 89% or more for the workshops.

#### <Table 4>

## Evaluation by the participants

The means and standard deviations of the lecture questionnaire items are presented in Table 5. Individual mean items ranged from 2.96 to 3.06, showing that the participants generally agreed with the items. The highest mean obtained was for item 1, "The lecture has motivated me to think more about the needs of gifted students in curriculum and lesson design."

From the open-ended questions, the participants expressed the view that they were able to acquire practical skills and strategies for differentiation. They also learned about differentiation models, and how to modify the curriculum. The two guest speakers were from a local primary school, and participants felt that the school sharing complemented the educational theories presented in the first part of the lecture. Many of the participants also expressed their appreciation for the guest speakers who shared their experiences.

#### <Table 5>

The means and standard deviations of the workshop questionnaire items are presented in Table 6. The results from each of the workshops can be compared. The means for the Mathematics workshop ranged from 2.79 to 3.00, while the means for the other workshops were all above 3.00.

#### <Table 6>

From the open-ended questions, the participants reflected views that they were able to learn about strategies for catering to learning needs of gifted students. Also, they were able to acquire skills in designing a differentiated lesson plan. It was good for them to have a chance for coplanning, presentation of lesson plans, and sharing of experiences with colleagues from other schools. Many of the participants said they would implement the teaching principles and strategies in their own classrooms.

## Evaluation by the consultants

Overall, the consultants were very positive about the workshops. The mean ratings on the questionnaire items ranged from 3.40 to 4.00, indicating a high level of agreement. They felt that the objectives of the workshop were met, as seen in the high mean score of 3.80 for item A4. They also found that the teachers were highly engaged and responded well to the activities during the workshops. The small group format was also valued because it allowed participants to work on lesson plans that could be used in their schools.

<Table 7>

#### Recommendations

In addition to feedback on the lecture and the workshop, the participants and consultants made some recommendations for any future versions of the project. The main suggestion was for more sharing of differentiation experiences by schools, together with more practical strategies to complement the theories presented. In addition, it was suggested by one of the consultants that each workshop be extended to 1.5 or 2 days to provide enough time for participants to 'digest' the content of the workshop, and then write their lesson plans. Future projects of this type could also address the needs of teachers in early childhood settings and in secondary schools in Hong Kong.

#### **Conclusion**

Overall it can be seen that the lecture and workshops were well received. This project fills a gap in in-service offerings designed to enhance Hong Kong teachers' repertoire for catering to gifted students in heterogeneous classrooms. VanTassel-Baska (2005) regards differentiated instruction as absolutely essential for gifted students, so projects of a similar kind would be useful for inservice teachers, and also school administrators. It is hoped that ideas presented in the lecture and workshops will transfer and that the teacher participants will implement the strategies in their classrooms.

#### Limitations and future research directions

There are two limitations in this study. First, the participants were all in-service primary school teachers, so the findings may not represent reactions from other teacher populations (e.g, secondary school teachers) if exposed to the same professional development sessions. Second,

more detailed statistical analyses could not be performed due to the relatively small sample size in the workshop sub-groups.

If this project were to be conducted again, suggestions from the participants and the consultants can be taken into account to improve the lecture and workshop components. It would also be useful if there could be classroom follow-up on the teachers who participated, to see to what extent they are applying what they have learned about differentiated instruction in the classroom.

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Table 1.

Learning Objectives and Content of the Lecture

Learning Objectives and Content of the Lecture	
Learning objective	Content of lecture
To clarify various models, concepts and strategies for differentiated lesson	Principles of differentiated instruction
planning applicable in regular class.	<ul> <li>Key elements of differentiated instruction</li> </ul>
<ol><li>To discuss common problems and practices in differentiated instruction.</li></ol>	Strategies of differentiated instruction
3. To demonstrate exemplars of differentiated instruction that suit the local school context.	Models of differentiated curriculum (Layering differentiated curriculum, Autonomous Learning Model,  Thinking Actively in a Social Context)
4. To present necessary pre-requisite knowledge and skills for participants to participate in the workshops.	<ul><li>Thinking Actively in a Social Context)</li><li>Characteristics of gifted students</li></ul>

Table 2. *Learning Objectives and Content of the Workshops* 

## Learning objective

- 1. To present key components and steps for planning effective differentiated instruction and appropriate assessment designs.
- 2. To demonstrate and guide teachers in the design of differentiated lesson plans through authentic lesson exemplars.

# Content of workshop

- Presentation of differentiated lesson plan exemplars
- Strategies of differentiated curriculum (tired assignments, grouping strategies, questioning for higher-order thinking, creativity, problems solving, and concept-based learning, etc.)
- Collaborative planning and designing of differentiated lesson plans by participants
- Sharing of differentiated lesson plans by participants
- Feedback on differentiated lesson plans by participants by consultants

Table 3. *Numbers and attendance rate* 

	Enrollment	Actual attendance	Attendance rate
Lecture	106	88	83%
Workshop (Mathematics)	19	18	95%
Workshop (Social Studies)	22	18	82%
Workshop (English Language)	27	24	89%
Workshop (Science)	18	16	89%
Workshop (Chinese Language)	27	26	96%

Table 4.

Response rate of the questionnaires

	Attendance	Questionnaires completed	Response rate
Lecture	88	67	76%
Workshop (Mathematics)	18	19*	100%
Workshop (Social Studies)	18	16	89%
Workshop (English Language)	24	23	96%
Workshop (Science)	16	16	100%
Workshop (Chinese Language)	26	26	100%

<sup>\*</sup> The extra questionnaire for the Mathematics workshop was completed by a member of the Education Bureau who came to observe the workshop.

Table 5.  $\label{eq:meanscores} \textit{Mean scores for the lecture questionnaire items} \ (N=67)$ 

Item	Mean	SD
A1. The lecture has motivated me to think more about the needs of	3.06	.385
gifted students in curriculum and lesson design.		
A2. After the lecture, I will adapt and adopt differentiation	2.97	.521
strategies to enhance the learning and teaching for gifted students.		
A3. The ideas from the sharing of the guest speaker(s) were useful	3.01	.476
to me.		
A4. Overall, the objectives of the lecture were achieved.	2.96	.442
A5. Overall, the facilitator(s) delivered the lecture effectively.	3.04	.406
A6. Overall, I was satisfied with today's lecture.	2.96	.442

Table 6.

Mean scores for the workshop questionnaire items

Item	Mathematics $(N = 19)$ Mean (SD)	Social Studies (N = 16) Mean (SD)	English $(N = 23)$ Mean (SD)	Science (N = 16) Mean (SD)	Chinese (N = 26) Mean (SD)
A1. The workshop has motivated me to think more about the needs of gifted students in curriculum and lesson design.	3.00 (.333)	3.44 (.512)	3.65 (.487)	3.50 (.516)	3.12 (.326)
A2. The workshop has enhanced my understanding of differentiation strategies.	2.79 (.535)	3.44 (.512)	3.74 (.449)	3.50 (.516)	3.15 (.464)
A3. Overall, the objectives of the workshop were achieved.	2.79 (.535)	3.44 (.512)	3.61 (.499)	3.50 (.516)	3.15 (.368)
A4. Overall, the facilitator(s) delivered the workshop effectively.	2.95 (.405)	3.38 (.500)	3.83 (.388)	3.69 (.479)	3.15 (.368)
A5. Overall, I was satisfied with today's workshop.	2.84 (.501)	3.44 (.512)	3.74 (.449)	3.56 (.512)	3.19 (.402)

Table 7  $\label{eq:meanscores} \textit{Mean scores for the consultant questionnaire items } (N=5)$ 

Item	Mean	SD
A1. The length of the session was appropriate.	4.00	.000
A2. The date and time of the session was appropriate.	4.00	.000
A3. The venue was appropriate.	4.00	.000
A4. Overall, the objectives of the workshop were met.	3.80	.447
A5. Participants were able to draft a differentiated lesson plan	3.40	.548
after the workshop.		
A6. I would be happy to teach a workshop like this in the future.	3.75	.500