IDENTIFYING ADDITIONAL SELECTION CRITERIA FOR TRAINING TEACHERS OF THE GIFTED

Marilyn Mayling Quah and Chua Tee Teo

Abstract

This study seeks to identify personality characteristics including intellectual inclination, personality and creative-thinking ability of a group of graduate student teachers who, on their own volition, opted to take an initialisation course in Gifted Education as one of the electives leading to a Postgraduate Diploma in Education-Secondary (PGDE-S) at the National Institute of Education, Singapore. The control group consisted of PGDE-S student teachers who chose another elective. Personality attributes of the subjects, like extraversion-introversion, sensing-thinking, thinking-feeling and judgment-perception, were captured using the "Myers-Briggs Type Indicator (Form G)", while the degree of creative thinking was assessed using the "How Do You Think?" inventory. Results of two independent t-tests indicated that the mean creative thinking score and the mean overall results for the experimental group were significantly higher than the controls. Also, more subjects in the experimental group were extraverted, intuitive and thinking. This study serves as a prototype for the systematic identification of graduate student teachers to teach the academically gifted in Singapore.

Introduction

Teaching is a skill, and like other skills such as playing tennis or writing, it is attributable partly to natural ability and partly to training. Natural ability without proper training usually results in someone who is good but not great at the craft. Training without natural ability results in a technically correct but "good", but "great" teachers. This is perhaps the single most important reason why teacher education institutions have come into being.

In Singapore, the responsibility to train teachers for all pupils has always been with the National Institute of Education (NIE) which is the only teacher education institution in the island republic. Preservice teachers attending these programs can, in addition to core modules which are compulsory to all students, choose electives in their area(s) of special interest. Some of these preservice teachers choose electives in the area of gifted education. Qualified teachers, who eventually teach gifted and talented pupils, are provided with in-service courses on various aspects of gifted and talented education by the Gifted Education Unit (GEU) of the Ministry of Education.

Teachers of the Gifted in Singapore

Teachers in the Gifted Education Programme (GEP) are jointly selected by the GEU and the principals of the GEP schools. Potential teachers are assessed on their attitude towards gifted education, interest and willingness to join the GEP, together with prerequisite qualities including strength in subject content, confidence, flexibility, creativity, intellectual curiosity, enthusiasm and ability in teaching (Gifted Education Programme Handbook, 1991, p. 23) before they are observed in the classroom. Only teachers who are interested in and feel confident enough to teach the gifted are recruited into the program. Training of new GEP teachers first takes place in an "Orientation Programme" conducted by officers at the GEU. At the end of the year, all GEP teachers are required to attend an annual conference conducted by overseas consultants or specialists in gifted education. Subsequent training takes place on-the-job under the mentorship and supervision of subject specialists from the GEU.

Brief Review of Literature

Impact of Training in Gifted Education

The positive effects of training teachers in gifted education are well documented in several studies (Hansen & Feldhusen, 1994; Weiner & O'Shea, 1968). Teachers who have had in-service training or special preparatory programs in teaching the gifted appear to be more supportive of gifted pupils and gifted education while teachers without training tend to be apathetic or hostile towards the gifted (Weiner & O'Shea, 1968), or have misconceptions concerning giftedness. In the study by Hansen & Feldhusen (1994), teachers trained in gifted education were found to demonstrate "greater teaching skills" than teachers who had no training in gifted education. It has also been observed that veteran teachers without training in teaching diverse learners tend to prefer to process students with lower IQ and higher ratings on...
training in teaching gifted and other academically diverse learners tended to be less tolerant of these pupils (Sachs, 1990; Cop-enhaver & McIntyre, 1992).

Attitudes of Preservice and Experienced Teachers toward Gifted Pupils

The favourable attitude of teachers toward gifted pupils, innate or inducted by a training program, is a contributing factor for the success of any gifted education program (Shore & Kaizer, 1989). Buttery (1979) found preservice teachers to have more positive attitudes toward the gifted than veteran teachers. Others (Crammond & Martin, 1987; Guskin, Peng & Majd-Jabbari, 1988) reported little significant difference in the attitudes of preservice and experienced teachers toward gifted pupils. Experienced teachers, however, appeared to prefer working with students of average or above-average ability (Leyser & Abrams, 1982) whereas preservice teachers tended to believe that pupils genuinely differed in their learning needs and that these needs should be addressed in meaningful ways (Tomlinson et al., 1994; McDiamid, 1990; Veenman, 1984).

Competencies of Teachers Teaching Gifted Pupils

Besides having positive attitudes toward gifted pupils and all essential competencies of good teachers, teachers of the gifted are expected to possess knowledge of the gifted, skills in promoting higher level cognitive thinking, ability to develop creative problem solving, ability to develop appropriate materials for teaching the gifted, knowledge of the affective needs of the gifted and ability to facilitate independent research skills (Nelson & Prindle, 1992). Personal characteristics required of teachers of the gifted include openness, curiosity, enthusiasm, empathy, emotional stability and maturity, creativity and imagination, and eagerness to be with bright children (Whitlock & DuCette, 1989; NAGC, 1994).

Personal preference of the gifted student for teachers of particular personality types appears to be an expression of needs. Chiang (1992), in a study of gifted adolescents (n = 610) and their teachers (n = 28), found gifted subjects to have preferences for teachers who were 'extraverted', 'thinking' and 'judging' in their personalities - as accounted for in the Myers-Briggs Type Indicator (MBTI) (Myers, 1976, 1977). 'Sensing' teachers, or teachers who preferred to process information via sense perception, received higher ratings on teaching skill and classroom management while intuitive teachers had higher ratings on rapport.

In Myers' (1962) terminology, gifted students have been found to possess characteristics of 'extraversion', 'intuition', 'thinking' and 'perception' (Myers and McCaulley, 1985; Chiang, 1992) in addition to their well-known intellectual ability and creativity (Terman and Oden, 1947; Torrance, 1963, 1966; Walberg 1982; Walberg and Herbig, 1991). By logical deduction, teachers of the gifted should possess high intelligence, creativity and personality traits similar to those of the gifted young.

Purpose of the Study

This study was undertaken to assist the GEU in screening for potential GEP teachers among preservice teachers. At present, the GEU selects teachers to teach in the GEP without requiring these teachers to have any training in gifted education. Potential teachers are selected mainly on the recommendations of 'good teaching' performance of pupils in regular classes. This study documented the attitudes and profiles of preservice teachers who had undertaken an elective in gifted education at the NIE. Results of the study would hopefully enable teacher educators and administrators to gain better insights into the relationship between teaching competencies and innate characteristics of beginning teachers who might be suited to teach academically gifted pupils and hence help the GEU to use the additional selection criteria to identify suitable teachers to teach in the GEP.

Hypotheses

I Graduate student-teachers who are interested in teaching the gifted do not differ in their academic and teaching performance, as measured by their overall results for the Postgraduate Diploma in Education from their counter-parts who are not interested in gifted education.

II Graduate student-teachers who are interested in teaching gifted students do not differ in their level of creative-thinking ability from those graduate student-teachers who have no interest in teaching the gifted.

III The creative-thinking ability of graduate student-teachers may be predicted in terms of their MBTI personality attributes, especially their intuitive and sensing tendencies. That is,

\[
CT = a_0 + a_1N - a_2S
\]
where CT is the predicted level of creative thinking ability; N the "intuition" score and S the sensing score; \(a_0\), \(a_1\) and \(a_2\) constants.

**Method**

**Subjects**

Subjects were a sample of 56 graduate preservice teachers attending a one-year Postgraduate Diploma in Education-Secondary (PDGE-S) program at the National Institute of Education, Nanyang Technological University, in Singapore. The PDGE-S program prepares teachers for secondary schools and junior colleges. It comprises three main component courses, namely, Educational Studies (Foundations in Education, Special Areas in Education and Instructional Technology), Curriculum Studies (English, Mathematics and one of -Science/Social Studies/Art/Music), and Practicum, when preservice teachers are posted to teach in a secondary school or junior college for ten weeks, supervised and graded for their teaching performance. Within the component 'Special Areas in Education', preservice teachers could choose two out of a list of twelve elective modules for greater in-depth study. The experimental group consisted of 25 subjects who opted for the elective, 'Understanding and helping gifted and talented students', while the remaining thirty-one made up the control group. All had at least a first degree in a specific discipline area.

**Design**

Two t-tests were utilised to compare the creative-thinking scores and the PDGE results of the two groups of student teachers. A multiple regression procedure was employed to explain the creative-thinking ability of subjects. Personality profiles of subjects were documented and compared using descriptive statistics.

**Instruments**

The *How Do You Think* (HDYT) (Davis, 1977) Form E, a paper-pencil test of 96 items on a five point Likert scale, was used to assess the creative-thinking ability of all subjects in the study and the *Myers-Briggs Type Indicator* (MBTI) (Myers, 1976, 1977) Form G, a forced choice self-report inventory of 126 items, was used to capture the preferential psychological functions or personality attributes of subjects.

**Procedure**

Graduate student-teachers in the study were asked to complete the MBTI (Form G) and the HDYT inventory. All answers were hand-scored. Together with results of the PDGE course (overall performance reflecting a combination of results of assignments, practicum and written examinations), all data were processed using SAS procedures.

**Results**

The group of student-teachers who were interested in teaching the gifted was found to consist of greater percentages of extraverts (64%), intuitors (72%), thinkers (64%) and judgers (64%). The control group, on the other hand, had greater percentages of introverts (77.4%), sensors (74.2%), feelers (71.0%) and judgers (74.2%).

Table 1 gives a distribution of performance of the two groups of subjects in the PDGE course. It needs to be noted that 16% of the group of graduate student-teachers interested in teaching the gifted obtained distinctions in Practicum (teaching practice) while the control group had none. Also, 4% of the former group obtained 'distinction' and 56% had 'credit' passes in the overall performance. The latter group, however, had no distinctions; and only 44.1% had 'credit' passes. Both groups were homogeneous in the variance \([F = 1.25, df = (21, 29); p = .573]\) of their weighted aggregate means, a measure of their overall results in the PDGE course. Results of an independent t-test on the weighted aggregate indicated that the group of subjects under study had a significantly higher mean \((t = 2.45, df = 50; p < .017)\) than the control.

<table>
<thead>
<tr>
<th>Table 1 : PDGE-</th>
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<tbody>
<tr>
<td>Number N</td>
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<tr>
<td>Practicum Grade</td>
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<td>Overall Grade</td>
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<th>Table 2 : Table 2</th>
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<tr>
<td>N</td>
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<td>Standard deviation</td>
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The result of the creative-thinking ability test of the HDYT scores of the two groups of subjects was also subjected to an independent t-test; the means were found to be significantly different \((t = 2.45, df = 50; p < .017)\) from each other.
Table 1: PDGE-S Results of Graduate Student Teachers in the Study.

<table>
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<tr>
<th></th>
<th>Gifted graduate teacher candidates</th>
<th>General graduate teacher candidates</th>
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<tbody>
<tr>
<td>Number ( N )</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>Practicum</td>
<td>'A' 16.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Grade</td>
<td>'B' 56.0%</td>
<td>55.9%</td>
</tr>
<tr>
<td></td>
<td>'C' 28.0%</td>
<td>41.1%</td>
</tr>
<tr>
<td></td>
<td>'F' (fail) 0.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Overall</td>
<td>'distinction' 4.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Grade</td>
<td>'credit' 56.0%</td>
<td>44.1%</td>
</tr>
<tr>
<td></td>
<td>'pass' 28.0%</td>
<td>44.1%</td>
</tr>
<tr>
<td></td>
<td>'supp' 12.0%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Mean weighted aggregate</td>
<td>75.82</td>
<td>72.27</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.168</td>
<td>0.896</td>
</tr>
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</table>

Table 2 depicts the mean creative-thinking scores of the two groups of subjects as measured by the HDYT inventory. Results of the F-test \( [F = 1.16, \text{df} = (17, 21); p = .733] \) indicated that the variances of the means were equal. The execution of an independent t-test with pooled variance estimate showed that the two groups of graduate student-teachers were significantly different \( (t = 4.46, \text{df} = 38; p < .0001) \) in their mean creative-thinking ability, with the gifted teacher candidates exhibiting a relatively higher mean.

Table 2: Table of Means of the Creative-Thinking Ability of Gifted Graduate Teacher Candidates and General Graduate Teacher Candidates.

<table>
<thead>
<tr>
<th></th>
<th>Gifted graduate teacher candidates</th>
<th>General graduate teacher candidates</th>
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<tbody>
<tr>
<td>( N )</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Mean HDYT scores</td>
<td>314.33</td>
<td>252.5</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>45.40</td>
<td>42.09</td>
</tr>
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</table>

The result of a multiple regression with creative-thinking ability as the dependent variable, and intuition and sensing as independent variables yielded a significant model, the regression weights of which were given in Table 3. Approximately, 47% of the level of creativity of the graduate student-teachers could be explained by their preferences or their reliance on their senses in the processing of information. It must be noted, however, that this association is a negative one. The creative-thinking ability of graduate student-teachers could therefore be predicted via the following equation:

\[
\text{Creative-thinking} = 338.461 - 4.772 \times \text{Sensing}
\]
were reported to have personality characteristics of 'extraversion', 'intuition', 'thinking' and 'judging' whereas the control group was found to have more 'feeling'. Table 3 - 'extraversion', 'intuition', 'thinking' and 'judging'. Except for the introversion/extraversion polarity, findings on the MBTI profile of teacher candidates - both gifted and general school teachers, were very similar to those documented in the literature. The discrepancy in the introversion/extraversion polarity could perhaps be explained in terms of a difference in culture. Subjects in previous studies, including Chiang's (1992), reside in the United States. It would appear that a greater proportion of school teachers in the Western culture have extraversion tendencies while teachers of the gifted (Chiang, 1992), constituting a minority, tend to have opposing personalities from the norm - they tend to be introverts. Singapore, though a multi-racial society, is basically Asian and more Eastern in its culture. Any random sample of its school teachers is likely to comprise a greater percentage of the introverted, conservative Singaporeans. Like the Western counter-parts, teacher candidates of the gifted in Singapore tend to comprise the minority personality - the extraverts.

Results of t-tests in this study confirmed theorized beliefs that teachers of the gifted, or rather potential teachers of the gifted in this case, tended to be significantly more intellectually able and more creative as a group. In addition, they appeared to possess good if not better pedagogical knowledge and teaching skills than those in the control group. Having chosen to enrol in the gifted education elective module on their own volition, student-teachers in the experimental group had favourable interests in educating the gifted and would probably make good teachers of the gifted given the opportunity.

It is interesting to note, however, that all teachers, whether Americans or Singaporeans, interested in teaching the gifted or not, are comprised of greater proportions of those with the 'judging' attitude. This means that most teachers are organized, decisive, responsible and conscientious people (Myers and McCaulley, 1985). Alternatively, it means that fewer teachers are 'non-judging', and that the chance of locating one who is perceptive, open-minded, adaptive and creative is relatively not high.

The identification of teacher candidates with the creative personality is indeed an important task - for it is none other than the more creative teacher who dares to be unconventional in his or her teaching approach, to disregard outmoded philosophies and practices, and to use the most effective methods to achieve educational objectives, making each lesson an adventure and a learning challenge for the academically gifted.

Fortunately, with a reliable instrument like the HDYT, it is possible to identify teacher candidates with the creative potential. The finding that the degree of creativity, or creative-thinking ability, of graduate student-teachers in the study is significantly, but negatively, associated with their sense perception enables teacher educators to have the knowledge that the lesser the teacher candidates' preferences for 'sensing', the more creative they tend to be. By identifying those who are both highly creative in their thinking and less sensing, one is able to screen for the creative teacher candidate with greater confidence. It needs to be noted, however, that 'sense perception' on the MBTI is reported to have a significant but negative correlation with 'intuition'. If the regression model in this study could be replicated with a number of 'intuitive' positive association of evidenced in the literature.

Discussion

Most gifted teacher candidates in this study were reported to have personality characteristics of 'extraversion', 'intuition', 'thinking' and 'judging' whereas the control group was found to have more 'feeling'. Table 3 - 'extraversion', 'intuition', 'thinking' and 'judging'. Except for the introversion/extraversion polarity, findings on the MBTI profile of teacher candidates - both gifted and general school teachers, were very similar to those documented in the literature. The discrepancy in the introversion/extraversion polarity could perhaps be explained in terms of a difference in culture. Subjects in previous studies, including Chiang's (1992), reside in the United States. It would appear that a greater proportion of school teachers in the Western culture have extraversion tendencies while teachers of the gifted (Chiang, 1992), constituting a minority, tend to have opposing personalities from the norm - they tend to be introverts. Singapore, though a multi-racial society, is basically Asian and more Eastern in its culture. Any random sample of its school teachers is likely to comprise a greater percentage of the introverted, conservative Singaporeans. Like the Western counter-parts, teacher candidates of the gifted in Singapore tend to comprise the minority personality - the extraverts.

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Then, the selection of gifted could possibly be added predictor variable.

Armed with current personal attributes of intellectual capacity, teacher educators should be more precise in selecting the respective groups of students. It is hoped that results of this study would give more insight into identifying teachers for the gifted - those who are significantly more into thinking, less sensing, and interested in gifted education. As excellent teachers of the gifted, having the desire to be leaders in teacher education, teachers of the gifted, the young, all prospective need to be ready to do so.

human potential.

References


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be replicated with a sample containing an equal number of 'intuitive' and 'sensing' subjects, the positive association of creativity with intuition as evidenced in the literature could perhaps be verified. Then, the selection procedures for teachers of the gifted could possibly be fortified with 'intuition' as an added predictor variable.

Armed with current knowledge of the essential personal attributes of teacher candidates like intellectual capacity, personality and creativity, teacher educators should be able to identify with precision, respective teacher candidates for the respective groups of students - gifted or otherwise. It is hoped that results of this study will strengthen the conviction of those involved in the selection of teachers for the gifted: that graduate teachers who are significantly more intellectual, more creative in their thinking, less sensing in their personality and are interested in gifted education, make good if not excellent teachers of the gifted. Coupled with proper teacher education, teaching conscience and love for the young, all prospective teachers of the gifted should be ready to discover, release and develop human potential.

References


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