

ABBREVIATED FORM OF TORRANCE TESTS OF CREATIVE THINKING: A RESEARCH REPORT ON THE REVISED EDITION FOR JUNIOR COLLEGE STUDENTS

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Contents of the famous Torrance Tests of Creative Thinking (TTCT) has been abbreviated by its original author for the purpose of assessing creativity within a rather shorter time. This newly developed form has six subtests: product improvement, asking questions, just suppose, unusual uses (above verbal), incomplete figures, and triangles (above nonverbal). It can be finished within 30 minutes, including administration and explanation.

Researchers collected responses from 389 junior college students as samples to establish norms for rating standard scores on fluency, flexibility and originality. Interrater reliability reached .001 level of significance ($r = .95-.99$). Test-retest reliability also reached .01 significant level ($r = .87-.94$). Further tests on its reliability and validity are in process.

THREE WISHES OF GIFTED AND NONGIFTED ADOLESCENTS

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Three wishes of 69 gifted and 66 nongifted American adolescents were solicited in a group situation. The findings indicated that personal wishes were of the most concern for both gifted and nongifted adolescents, and that males of both groups tended to value material possessions more often than did females. A significant between groups difference revealed that gifted subjects expressed more altruistic and less goal wishes than their nongifted peers. It is suggested that this kind of data may assist teachers in getting a general picture of students' psychological as well as social orientations.

Though research on the wishes of children and adolescents has suggested that the three-wishes technique may generate both psychologically and educationally meaningful data, the number of reported studies is quite small. In a recent survey of the previously published reports, Chiu and Nevius (Chiu, 1983) revealed that from 1925 to 1982, there were fewer than 30 available wish studies in the major journals of America and most of these studies were focused on investigating the wishes of normal or problem children.

Basically, the research shows that children's wishes consistently vary as a function of age and sex. The wishes for material objects and possessions decrease with age and are replaced by wishes for more inclusive and abstract concerns (Ables, 1972; Horrock & Mussman, 1973; Milgram & Riedel, 1969; Schaefer, 1975). Boys tend to have a higher interest in individual accomplishments and material possessions (Cobb, 1954; Guarancia & Vane, 1979), while girls tend to have a higher interest in personal concerns as well as social and family relations (Kokonis, 1974; Vandewiele, 1981). The findings in age trend are usually explained as indication of overall maturity and the findings in sex difference are interpreted as reflection of sex-role orientations or stereotypes.

The general findings drawn from the data of normal and problem children as applied to gifted children was questioned by Karnes and Wherry (1981). Consequently, they conducted an investigation on the wishes of 155 gifted children, grades four through seven. They reported that, like other groups, i. e., normal and problem subjects, gifted boys wished for material

possessions more often than did gifted girls; whereas gifted girls expressed more personally related wishes than did gifted boys. But, unlike normal and problem children, no sex difference existed in the wishes for individual accomplishments. Thus, their study suggests that gifted females are as goal oriented as gifted males. Karnes and Wherry further indicated that gifted children wished most frequently for altruistic concerns. They attributed this occurrence to the intellectual characteristics of gifted children and suggested that higher mental ability might heighten the awareness and concern for other people.

Despite these intriguing findings on the wishes of gifted children, several research problems existed in Karnes and Wherry's study. First, as pointed out by Cobb (1954), the phrasing of the question, if too suggestive, might influence children's responses. The statement Karnes and Wherry used in their data collecting procedure was "Imagine that you have been magically granted the power that three of your wishes will come true. You are the only person with this power and you may make only three wishes." The phrasing "You are the only person with this power..." may suggestively impose some responsibilities for the wishers, which, consequently, may result in the making of more altruistic wishes.

Second, some of the 13 wish categories used in their analysis, such as pets, travel, and activities, may be classified as subcategories in either materialistically or personally oriented wishes. Logically, if the specific objects or events, such as pets or travel, are treated as separate categories, the gross term of altruism should also be divided into several subcategories. Put in another way, if the gross term is employed as a single category, the specific items should also be properly combined in order to achieve a logically consistent categorical construct. So, it is possible that the altruistic wishes may not be the most frequent wish category mentioned by gifted children. For a detailed methodological discussion readers may refer to Chiu and Nevius (Chiu, 1982).

Finally, because Karnes and Wherry's study dealt only with gifted children, their suggestion that the intellectual characteristics of gifted children may account for more altruistic wishes needs substantiation by direct comparative data. Thus, the present investigation refined Karnes and Wherry's methodology and studied the wishes of gifted and nongifted adolescents.

Some predictions were advanced under the following considerations. First, as an expression of personal feelings or attitudes or desires (Guaraccia & Vane, 1979), wishes may range from self-oriented interests to concerns for society or humankind as a whole. Hence, if higher mental ability might heighten the awareness and concern for other people, gifted

adolescents should make more altruistic wishes than nongifted adolescents. Second, because the adolescent period is especially critical in establishing sex-appropriate roles (Adams and Looft, 1977), sex difference should reflect in the wish choices of adolescents, i. e., males will make more materialistic and goal wishes, while females will make more altruistic and personal wishes. However, if gifted females and males are equally goal-oriented, sex difference with regard to goal wishes should not appear in the gifted group. Third, because the content of a wish must be valued relatively high by the wisher (Milgram & Riedel, 1969), the frequencies of wishes classified in each category should reflect to a certain degree the primary concerns of different sex and mental groups.

Method

Subjects

The sample consisted of 135 adolescents, 69 gifted (34 males and 35 females) and 66 nongifted (31 males and 35 females). The 69 gifted subjects were randomly selected from a pool of 108, 12 through 14-year-old gifted students attending a special summer gifted program at a southwestern university. Each gifted student enrolled in this program was required to meet at least two of the following criteria: (a) be accelerated one or more grade levels above the average age/grade placement, (b) have achievement test scores at least two grades higher than the student's present grade, (c) have demonstrated leadership ability, (d) have unusual creative or productive thinking ability, (e) be measured, above-average intelligence, and (f) have exceptional skill in the visual or performing arts.

The 69 selected gifted subjects aged from 12.2 to 13.9 years old, with a mean of 12.8 and a standard deviation of .52. The 66 nongifted subjects, in contrast, were randomly selected from a southwestern public junior high school. The age range of the nongifted sample was 12.2 to 14 years old, with a mean of 13 and a standard deviation of .41.

Procedure

The wishes of gifted adolescents were obtained in a group meeting situation by the program counselors, while the wishes of nongifted adolescents were collected in a classroom situation by the school teachers. The counselors/teachers first informed the subjects that they were selected as respondents to a university research project studying the wishes of children and adolescents, and that the information they provided would be confidential. Then, each student was issued a "My Three Wishes" questionnaire,

which consisted of a number of questions on one side concerning the subject's birthday, sex, grade, parents occupations, and so on. The other side of the questionnaire was divided into three columns, A, B, and C.

After subjects completed the background information section, they were asked to write their three wishes in column A following this statement: "If you could have three wishes, any three wishes in the whole world, what would you wish for?" When the subjects finished recording their wishes, they were asked to respond in column B to the following: "If all of your three wishes could come true, which wish would you like to happen first, which one second, and which one third? Use numbers one, two, and three to indicate the order-number one for the first wish, number two for the second wish, and number three for the third wish." Finally, the subjects were asked to respond in column C to the following: "Give a true reason for each of your wishes. If you do not have a reason you can leave the space blank."

Categories of Wishes

Following Chiu and Nevius (Chiu, 1982), the predetermined wish categories in the present study were:

(I) Materialistic Wishes-wishes that express personal desire to have or to possess specific material objects, pleasant activities, and tangible inclusive material gains.

(II) Altruistic Wishes-wishes that express concerns for specific individuals or for other people, society, and humankind as a whole.

(III) Personal wishes-wishes that express personal desires or needs for general intangible happiness, for change of personal physical or psychological characteristics, and for improvement of personal social relations or family relations.

(IV) Goal Wishes-wishes that reflect personal goals and aspirations for educational or vocational careers, or that express needs for opportunities to accomplish something.

Data Analysis

In order to obtain the reliability of wish categorization, two independent raters were employed. Both raters were graduate students and did not know the purpose of the present study. They separately categorized each wish into one of the four categories according to the central idea of the wish. The raters disagreed on 16 out of 399 (4%) wishes. These 16 wishes were reanalyzed using both the wish content and the reasons for the wishes as provided by the subjects. After the reanalysis of the 16 wishes, two wishes remained uncategorized. Consequently, a third rater (the first author) analyzed the wishes. The category of the final two wishes was then

mutually agreed on by the three raters.

The categorical and nominal data of this study required analysis by nonparametric means. Therefore, chi-square was the chosen statistics of measurement. Frequencies of the first, second, and third wishes were tabulated separately, using the four wish categories. One-sample chisquare values were computed to determine the nature of the distribution. Two by four (two groups by four categories) contingency tables were calculated to detect the difference between sexes and between mental groups.

Results

Table 1 presents gifted-nongifted by sex by category frequencies and their corresponding percentages for each of the three wishes as well as total wishes.

An inspection of the total wishes revealed that personal wishes accounted for the largest percentage of wishes for both gifted (38%) and nongifted (33%) adolescents. The gifted group mentioned altruistic (24% vs. 13%) and personal wishes more often than did the nongifted group; whereas the nongifted group expressed materialistic (28% vs. 23%) and goal (26% vs. 15%) desires more often than did the gifted group. This tendency held true when the same sex between groups was compared.

In terms of sex difference for the total wishes, it was found that gifted and nongifted male adolescents alike made more materialistic and less personal wishes than their female counterparts. As for altruistic and goal categories, the data showed that gifted males made more altruistic wishes than gifted females (28% vs. 20%), while gifted females made more goal wishes than gifted males (16% vs. 13%). However, the reverse was true for the nongifted group. Thus, the results of the total wishes occur to support our predictions that (1) gifted adolescents as a whole have higher interest in altruistic concerns than nongifted adolescents, (2) gifted females are as goal-oriented as gifted males, while nongifted females are less goal-oriented than nongifted males, and (3) wish patterns of adolescents vary as a function of sex and mental state.

When each wish choice was examined separately, the computed one-sample chi-square values indicated that the distribution of second and third choice wishes for both gifted and nongifted groups deviated significantly from random expectations. For the second choice wishes, gifted adolescents appeared to mention more personal and altruistic wishes ($\chi^2=8.94$, $df=3$, $p<.05$), whereas nongifted adolescents occurred to make more wishes among personal, materialistic, and goal categories ($\chi^2=11.38$, $p<.01$). For the third choice wishes, gifted ($\chi^2=15.88$, $p<.01$) and nongifted ($\chi^2=13.88$,

Table 1
Gifted-Nongifted by Sex by Category Frequencies and Percentages
for Each of the Three Wishes and Total Wishes*

Wish Category	First Choice Wishes				Second Choice Wishes				Third Choice Wishes				Total Wishes											
	Gifted		Nongifted		Gifted		Nongifted		Gifted		Nongifted		Gifted		Nongifted									
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F								
Materialistic	11 32%	3 9%	14 42%	13 17%	6 29%	19 29%	9 27%	10 30%	4 12%	16 25%	10 30%	10 29%	20 29%	9 30%	11 32%	20 31%	34 37%	21 20%	55 28%					
Altruistic	11 32%	10 29%	21 30%	4 13%	9 26%	13 20%	10 30%	7 20%	17 25%	5 15%	7 11%	4 11%	11 16%	2 7%	3 9%	5 8%	28 28%	21 20%	49 24%	8 9%	17 17%	25 13%		
Personal	7 21%	16 45%	23 33%	4 13%	9 26%	13 20%	9 27%	18 51%	27 40%	13 39%	16 46%	10 29%	16 43%	10 33%	15 44%	25 39%	29 29%	50 48%	79 38%	23 25%	41 40%	64 33%		
Goal	5 15%	6 17%	11 16%	10 32%	11 31%	21 32%	5 15%	6 17%	11 16%	7 23%	8 23%	3 9%	5 14%	8 12%	9 30%	5 15%	14 22%	13 16%	17 15%	30 29%	17 16%	30 23%	26 23%	50 26%
Total	34	35	69	31	35	66	33	35	68	30	34	64	33	35	68	30	34	64	100	105	205	91	103	194

* N=66, Male=31, Female=35

p<.01) adolescents alike tended to express more materialistic and personal concerns than altruistic and goal wishes.

When sex was taken into account, the data revealed that from the first choice wishes to the third choice wishes, it was female gifted adolescents, rather than males, whose wish distributions deviated significantly from random expectations. In these significant cases, the first choice wishes ($\chi^2=14.00$, $p<.01$) were dominated by personal and altruistic concerns. The personal wishes singly outscored any other type of wish in the second choice wishes ($\chi^2=13.57$, $p<.01$). And, the third choice wishes ($\chi^2=10.37$, $p<.05$) were predominantly personal and materialistic. In contrast, the significant distribution deviation found in the first choice wishes of nongifted adolescents was males instead of females ($\chi^2=7.84$, $p<.05$); more materialistic and goal wishes were asked for than altruistic and personal wishes. But, the distribution of the second ($\chi^2=12.68$, $p<.01$) and third choice wishes ($\chi^2=10.71$, $p<.05$) for nongifted females was similar to the distribution fashion of gifted females.

Chi-square tests for independence were performed by analyzing four by two (four categories by two groups) contingency tables. When gifted and nongifted adolescents were compared, the data indicated a significant difference in the first choice wishes ($\chi^2=8.48$, $p<.05$). The gifted sample more often wished for altruistic and personal concerns, while the nongifted sample more often wished for material possessions and goal accomplishments. Further analyses were performed by comparing the same sex between gifted and nongifted groups. The outcomes showed that no significant difference existed in the same sex groups.

Tests for independence conducted for sex and wish category indicated that gifted and nongifted samples alike, both failed to show any significant overall within group sex difference. However, when each category between sexes was compared, the data revealed two cases of significance: the first choice materialistic wishes of gifted group ($\chi^2=3.90$, $p<.05$) and the second choice materialistic wishes of nongifted group ($\chi^2=5.08$, $p<.05$); males outscored females in both cases.

Discussion

The results of the present study suggest that while there are similarities between the wishes of gifted and nongifted adolescents, there are significant differences as well. In terms of similarities, the findings indicated that (1) personal wishes were of the most concern for both gifted and nongifted adolescents, and (2) males in both groups wished for material possessions more often than did females. In the first case, the present

research appears to disagree Karnes and Wherry's (1981) finding that altruistic wishes were the largest category of gifted children's wishes. This division obviously is the result of using different logic in wish categorization as indicated previously in introduction section.

Because the contents of personal wishes, such as social relations and physical/psychological characteristics, are closely related to the concept of identity, the high percentage of wishes emerged in this category may be explained as a reflection of the psychosocial developmental stage of adolescents (search for identity). As for the second case, the sex difference in materialistic concern has been consistently reported in many of the previous studies. However, it should be noted that the nonsignificant overall sex difference showed in the present study suggests that regardless of sex and intellectual characteristic, adolescents are more alike than different.

In terms of differences, the present data revealed that gifted subjects more often mentioned altruistic and personal wishes and less often mentioned materialistic and goal wishes than their nongifted peers. The significantly more altruistic wishes made by our gifted sample suggests that gifted adolescents do have greater interest in altruistic concerns than nongifted adolescents. As suggested by Karnes and Wherry (1981), a possible explanation for this difference is that higher mental ability might heighten the awareness and concern for other people. However, whether altruism is a characteristic which differentiates gifted from nongifted persons needs to be further explored.

On the other hand, the tendency that nongifted adolescents more often asked for goal wishes than did gifted adolescents is certainly very intriguing, because one may usually predict that gifted people are more achievement oriented and have higher educational or vocational aspirations (Clark, 1979). This, however, is not the case in making wishes. It may be possible that the emphasis of success and achievement in American society may create more pressure for nongifted adolescents than for gifted adolescents. If this is the case, an assumption that wishes indicate things wishers lack and reflect the direction of the wishers' struggle may provide a partial explanation of the difference between gifted and nongifted wishers.

In view of the lack of available literature in this research area, the present findings are only suggestive. However, they do indicate some similarities and differences between the wish patterns of gifted and nongifted adolescents. From an application viewpoint, many subjects in the present study stated wishes that reflect their feelings about school and family; project their personal social relations, aspirations, and dissatisfactions; and mirror their individual identity problems. Therefore, it is sug-

gested that data revealed from adolescents' wishes may provide teachers, parents, and counselors a general picture of adolescents' psychological and social orientations which, in turn, may facilitate teacher-student and parent-child relations.

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資優及非資優青少年的三個願望

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摘要

本研究樣本為135名美國青少年，其中69名符合資賦優異條件，66名為一般青少年。他們的平均年齡約13歲。資料收集以團體的方式進行，每名受試者填寫他們最想要的三個願望，並註明其順序及許願原因。願望模式以物質、個人、利人及目標四項歸類。結果顯示13歲左右之青少年，不分資優與否，都最興趣於個人有關的願望。男性青少年對物質方面之願望顯著多於女性。資優青少年之利人願望顯著多於一般青少年。一般青少年之目標願望顯著多於資優青少年。這些結果建議：資優與非資優青少年有許多相似之心理需求，同時也有些不同心理導向，是否利人助人抱負為資優青少年之心理特質，有待進一步探討。詢問兒童或青少年願望是一種非常簡單的投射研究法；但却可提供老師與輔導員學生心理及社會導向的基本資料。

資賦優異兒童智力的發展研究*

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資賦優異兒童智力的發展研究，其目的在探討國小資優兒童智力的發展型態。本研究以「魏氏兒童智力量表」為工具，連續四年測量58名資優及普通兒童的智力。所得結果顯示：(1)資優與普通兒童在魏氏兒童智力量表十項分測驗的分數，確隨年齡的增長，呈直線發展的趨勢。(2)資優與普通兒童在魏氏兒童智力量表的常識、算術、詞彙、理解、圖形補充、連環圖系、物形配置等七個分測驗的班別和年級的交互作用達到顯著水準，顯示兩者在此等能力的發展曲線(趨勢)並非完全一致，但經趨向分析考驗，兩者都呈現直線趨向。而在類同、圖形設計、符號替代等三個測驗，則兩者的發展型態，無顯著的差別。(3)資優與普通兒童在魏氏兒童智力量表十項分測驗的分數，確有顯著差異存在，資優兒童的分數高(優)於普通學生。

緒論

資賦優異兒童為國家未來的棟樑，是極珍貴的人力資源，亟待開發。如欲期資賦優異兒童得以充分發揮潛能與才華，則當配合其身心特質，施予適當的課程，合宜的教材與良好的教學方法，始克有成。而欲瞭解資優兒童身心發展的變化，則非從事其身心發展之調查研究不可。自民國七十年起，作者等即在彰化縣員林國小以該校資優班學生為對象，就其智力，體格與基本體能為專題，進行長期的縱貫發展研究，本文為智力方面之第四年追蹤報告。

關於兒童及青少年心智能力發展的研究，一向為教育與心理學者所重視。國外學者利用各種智能測驗進行橫斷式或縱貫式的研究，已獲致相當豐碩的成果，並據以建立智力發展的理論。其主要論點可歸納為下列四項：一、兒童及青少年智能的發展兼涵質的提昇和量的增進兩方面。二、一般兒童的智力發展從學前期至青春期末等速進行，此後則隨年齡漸增而減緩其速度。三、在發展期間，正常兒童的智商保持相當的穩定性。四、早期的研究大多發現智力發展的頂峯在十五歲至二十歲之間；最近的研究結果則顯示：約在二十五歲時，智力發展達到其最高點(簡茂發，民70)。

近三十年來，我國學者在兒童智能發展方面的研究不少，除測驗學家在編製智力測驗時，為建立常模曾用以測量、探討兒童智力發展的研究外，其餘比較重要的正式研究如下：宗亮東與韓幼賢(民42)曾研究臺灣山地兒童的智力發展；葉可玉氏(民57)曾進行四至十歲兒童的智慧發展研究；徐澄清氏(民60, 62, 63)曾進行國小兒童智力發展的六年追蹤研究；陳青青氏(民62)曾探討兒童推理能力發展的問題；謝季宏氏(民65)曾就資優兒童的推理能力進行追蹤研究；李淑媛、曾淑容等氏

* 參與本研究的員林國小教師為：巫金煥、蕭彩瑕、邱玉霞、陳順明、游裕、楊瑋瑤、詹曼玲。另曾元貞老師協助本研究的部份統計工作，謹此致謝。