

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

This chapter presents qualitative judgments of the survey and the calculation of correlation between the academic scores and the BCT raw scores. The subjects' responses to the questionnaires are categorized and discussed in two main areas: the relationship between the BCT items and the curricular instruction in the first section, and the relationship between the BCT items and the content the BCT Center claims to test in the last. While the first and the last section deal with the findings and analysis of the questionnaires, the middle part presents the result of the correlation between the two sets of the scores at school and the BCT raw scores.

#### Descriptive Data of Questionnaire

Responses from the fifty-one qualified judges (Appendix E), about half of them were teaching in urban schools (54.9%), and three-fourths of them were in the schools whose class size were over 41 (76.5%). As for teachers' teaching experiences, three-fourths of them have taught for more than seven years (74.5%). Over two-thirds of the teachers have experience of teaching the six-year-long new version of textbooks for more than three years (68.6%). In short, no matter which city or county these teachers serve in, the experiences strengthen their ability for the judgments of

the BCT items.

When asked about their extra instruction for their students, most of the teachers agreed that they gave supplemental practices on vocabulary (81.4%), grammar (88.2%), and cloze tests (84.3%). Almost all teachers (98%) adopted extra reading comprehension practices while 94.1% of them adopted dialogue comprehension practices. Ninety-two percent of teachers adopted the mock test developed by the BCT Center while all of them adopted mock tests from other sources. Generally speaking, these teachers make every effort to broaden the content of their teaching materials in addition to the textbooks, which reveals their positive attitude toward their teaching.

As for teacher's classroom instruction, more than half of the teachers approved the suggestions given in the Curriculum Standards. Sixty-nine percent of teachers were teaching vocabulary suggested from the Curriculum Standards; seventy-five percent were teaching grammar suggested; fifty-eight percent were teaching readings recommended. To sum up, the outcome illustrates that most of these teachers, serving in the four main parts of Taiwan, are not only enthusiastic but also much experienced in junior high school English teaching. Their active attitude towards the Curriculum Standards reveals a strong relationship between the set teaching objective and their instruction.

## Relationship Between BCT and Teaching

This section reports teachers' responses to questionnaires concerning the relationship between BCT items and instruction (Table 4.1). There are four questions in the questionnaire, dealing with research questions (1-1, 1-2, 1-3, 1-4) separately. In Table 4.1, "Frequency" represents the number of teachers who answered positively. The percentage of positive answers was also calculated.

Table 4.1 Frequency of Agreement on the Relationship between BCT Items and Teachers' Instruction

BCT Items	1-1. Textbook		1-2. Instruction		1-3. Evaluation		1-4. Items not difficult	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Item 1	51	100 %	49	98 %	50	100 %	50	100 %
Item 2	50	98.1 %	48	96 %	49	98 %	49	98 %
Item 3	51	100 %	49	98 %	50	100 %	50	100 %
Item 4	51	100 %	49	98 %	50	100 %	50	100 %
Item 5	51	100 %	49	98 %	50	100 %	50	100 %
Item 6	50	98.1 %	49	98 %	49	98 %	45	90 %
Item 7	51	100 %	48	96 %	49	98 %	49	98 %
Item 8	49	96.1 %	47	94 %	48	96 %	48	96 %
Item 9	50	98.1 %	49	98 %	49	98 %	46	92 %
Item 10	51	100 %	49	98 %	49	98 %	47	94 %
Item 11	48	94.1 %	48	96 %	49	98 %	43	86 %
Item 12	51	100 %	49	98 %	50	100 %	50	100 %
Item 13	51	100 %	49	98 %	49	98 %	49	98 %
Item 14	50	98.1 %	49	98 %	49	98 %	46	92 %
Item 15	49	96.1 %	49	98 %	49	98 %	45	90 %
Item 16	51	100 %	49	98 %	50	100 %	50	100 %
Item 17	48	94.1 %	48	96 %	48	96 %	43	86 %

Item 18	49	96.1 %	48	96 %	48	96 %	45	90 %
Item 19	48	94.1 %	49	98 %	49	98 %	47	94 %
Item 20	47	92.2 %	49	98 %	49	98 %	43	86 %
BCT Part 1 (Item1-20)		97.76 %		97.3 %		98.3 %		94.5 %
Average								
Item 21(1)	46	90.2 %	47	94 %	47	94 %	43	86 %
Item 22(1)	46	90.2 %	47	94 %	48	96 %	42	84 %
Item 23(1)	44	86.3 %	47	94 %	47	94 %	41	82 %
Item 24(1)	43	84.3 %	47	94 %	47	94 %	39	78 %
Item 25(2)	48	94.1 %	47	94 %	49	98 %	46	92 %
Item 26(2)	47	92.2 %	48	96 %	48	96 %	44	88 %
Item 27(2)	48	94.1 %	47	94 %	49	98 %	45	90 %
Item 28(3)	43	84.3 %	46	92 %	46	92 %	46	92 %
Item 29(3)	39	76.5 %	45	90 %	46	92 %	41	82 %
Item 30(4)	38	74.5 %	39	78 %	41	82 %	42	84 %
Item 31(4)	35	68.6 %	40	80 %	40	80 %	40	80 %
Item 32(5)	46	90.2 %	44	88 %	44	88 %	47	94 %
Item 33(5)	44	86.3 %	43	86 %	43	86 %	45	90 %
Item 34(5)	45	88.2 %	43	86 %	44	88 %	46	92 %
Item 35(6)	47	92.2 %	46	92 %	47	94 %	49	98 %
Item 36(6)	44	86.3 %	44	88 %	46	92 %	47	94 %
Item 37(6)	43	84.3 %	45	90 %	47	94 %	46	92 %
Item 38(7)	45	88.2 %	46	92 %	46	92 %	46	92 %
Item 39(7)	47	92.2 %	46	92 %	46	92 %	47	94 %
Item 40(7)	44	86.3 %	46	92 %	46	92 %	44	88 %
Item 41(8)	40	78.4 %	41	82 %	42	84 %	41	82 %
Item 42(8)	42	82.4 %	44	88 %	45	90 %	42	84 %
Item 43(9)	43	84.3 %	43	86 %	41	82 %	43	86 %
Item 44(9)	41	80.4 %	43	86 %	42	84 %	41	82 %
Item 45(9)	40	78.4 %	42	84 %	40	80 %	39	78 %
BCT Part 2 (Item21-45)		85.33 %		89.28 %		90.16 %		87.36 %
Average								
BCT		91 %		92.84 %		93.78 %		90.53 %
Average								

Of the 51 teachers who replied to the questions, one teacher didn't answer

question 2, 3, and 4 that were on the last page of the questionnaire. Item 1 to 20 of

Part 1 in the BCT mainly test vocabulary or grammar in a discrete-point way. On the contrary, Part 2 deals with passages. Several items in this section (Item 21 to 45) are related to the same passage, testing concepts related to the same topic. Among items of Part 1, Item 1, 2, 3, 4, 5, 7, 8, 12, 13, 16 and 19 were about testing vocabulary while Item 6, 9, 10, 11, 14, 15, 17, 18 and 20 were about grammar. Part 2 had nine passages. Each passage consists of two or three or even four question items. If teachers consider the item in questions is congruent with their curriculum, their response is coded as 1, if not, as 0. Table 4.1 demonstrated the frequency and the percentage of teachers' positive responses regarding relevancy of BCT items to the textbooks, instructions, evaluations, and students' proficiency level (items not difficult for hard-working students).

From Item 1 to Item 45, over 90% of the teachers confirmed the relevancy of BCT items to their teaching. Detailed analyses of the data are described in the following four sections.

#### The Relationship between BCT and Textbooks

This section describes the detailed analyses of the data to answer research question 1-1: “ How many items of the BCT do the junior high school teachers agree to be congruent with the textbooks? ”. The study found that the qualified judges were

positive about the relationship between the BCT and their curricular instructions.

As Table 4.1 indicates, nearly every one (91%) of the teachers agreed that the BCT items were fitting for the textbooks. Greater than 97% of the judges acknowledged that Item 1 to Item 20, in Part 1 of the BCT, which mainly test vocabulary and grammar, were studied in the textbooks. Among the passages, 85.33% of the judges agreed that Items 23, 24, 28, 33, 34, 36, 37, 38, 40, 42, 43, and 44 were congruent. Checked by Aiken's Validity Index, all 45 items are significant in their relation with textbooks. However, three items with relatively low congruence rate are noteworthy. Items 29, 30, and 31 received 76.5%, 74.5%, and 68.6% agreement percentage separately.

Table 4.2 Aiken's Validity Index of Items Congruent with Textbooks

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Percentage	100%	98.1%	100%	100%	100%	98.1%	100%	96.1%	98.1%	100%	94.1%	100%	100%	98.1%	96.1%
p-value	7.001*	6.72*	7*	7*	7*	6.72*	7*	6.43*	6.716*	7*	6.14*	7*	7*	6.72*	6.43*
Item	16	17	18	19	20	21(1)	22(1)	23(1)	24(1)	25(2)	26(2)	27(2)	28(3)	29(3)	30(4)
Percentage	100%	94.1%	96.1%	94.1%	92.2%	90.2%	90.2%	86.3%	84.3%	94.1%	92.2%	94.1%	84.3%	76.5%	74.5%
p-value	7*	6.14*	6.43*	6.14*	5.86*	5.57*	5.57*	5*	4.72*	6.14*	5.86*	6.14*	4.72*	3.57*	3.43*
Item	31(4)	32(5)	33(5)	34(5)	35(6)	36(6)	37(6)	38(7)	39(7)	40(7)	41(8)	42(8)	43(9)	44(9)	45(9)
Percentage	68.6%	90.2%	86.3%	88.2%	92.2%	86.3%	84.3%	88.2%	92.2%	86.3%	78.4%	82.4%	84.3%	80.4%	78.4%
p-value	2.57*	5.57*	5*	5.29*	5.86*	5*	4.72*	5.29*	5.86*	5*	3.86*	4.43*	4.72*	4.14*	3.86*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

Item 29, the second question of Passage 3, deals with a book table content. This

type of question does not appear in the five volumes of the textbooks. Students' lack of training of the inferential judgment may be the reason for the low agreement because the textbooks do not provide this kind of training.

Item 30 and Item 31 deal with passage 4 that contains a poster about a lately opened zoo. Only 74.5% (Item 30) and 68.6% (Item 31) of the teachers agreed on the congruence of textbooks. This might be attributed to the rare appearance of the advertisement text type and the totally strange word *Nocsafari*. Furthermore, the only two sections of the advertisement, being similar to a short poem, contain five sentences, each rhyming with "sky". The low agreement also reflects that students have rare experiences of reading advertisement presented in the form of a short poem.

In general, with regard to textbook congruence, the experienced teachers' responses showed great agreement. Thus we can conclude that they gave assent to BCT's content validity.

### The Relationship between BCT and Instruction

In this section, the findings for the research question 1-2 are presented. To answer the question "How many items of the BCT do the junior high school teachers agree have been studied in English instruction? ", this study discovers that the qualified judges shared positive opinions about the relationships between BCT and

their curricular instructions again. Table 4.3 illustrates the findings.

As statistics in Table 4.1 shows, teachers (92.84%) concurred that the BCT items match their instruction. Ninety-seven percent of the judges admitted that Item 1 to Item 20, in Part 1 of the BCT items, primarily testing vocabulary and grammar independently, were covered in their instruction. Among the passages, over 89% of the judges agreed that Items 30, 31, 32, 33, 34, 36, 42, 43, 44 and 45 were covered. Although 45 of the BCT items are all significant as checked by Aiken's Validity Index, as reported in Table 4.4. , Item 30 in Passage 4 again received a relatively low agreement at 78%.

Table 4.3 Aiken's Validity Index of Items Congruent with Instructions

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Percentage	98%	96%	98%	98%	98%	98%	96%	94%	98%	98%	96%	98%	98%	98%	98%
p-value	6.65*	6.36*	6.65*	6.65*	6.65*	6.65*	6.36*	6.08*	6.65*	6.65*	6.36*	6.65*	6.65*	6.65*	6.65*
Item	16	17	18	19	20	21(1)	22(1)	23(1)	24(1)	25(2)	26(2)	27(2)	28(3)	29(3)	30(4)
Percentage	98%	96%	96%	98%	98%	94%	94%	94%	94%	94%	96%	94%	92%	90%	78%
p-value	6.65*	6.36*	6.36*	6.65*	6.65*	6.08*	6.08*	6.08*	6.08*	6.08*	6.36*	6.08*	5.8*	5.52*	3.82*
Item	31(4)	32(5)	33(5)	34(5)	35(6)	36(6)	37(6)	38(7)	39(7)	40(7)	41(8)	42(8)	43(9)	44(9)	45(9)
Percentage	80%	88%	86%	86%	92%	88%	90%	92%	92%	92%	82%	88%	86%	86%	84%
p-value	4.1*	5.23*	4.95*	4.95*	5.8*	5.23*	5.52*	5.8*	5.8*	5.8*	4.38*	5.23*	4.95*	4.95*	4.67*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

The low agreement of Item 30 (78%) implies that teachers rarely taught short-poem-like advertisement. Since the textbooks do not cover this kind of text type, teachers who teach according to the Curriculum Standards would not have the

opportunities to expose their students to this kind of text. Only when the teachers adopt a supplemental material that contains such a text type would they introduce the special type of text to students.

In general, strong relationship between BCT and teachers' instruction supports the content validity of BCT.

#### The Relationship between BCT and Evaluation

As for the research question 1-3: "How many items of the BCT do the junior high school teachers agree have been covered in school evaluation? ", the finding in Table 4.1 points out that the qualified judges were affirmative for the third time. Nearly all (93.78%) of them agreed that the BCT items have been studied in their evaluation of students' academic performance. Over 98% of the judges agreed that Item 1 to Item 20 are connected to their evaluation. Among the passages, all items accepted over 90% agreements. Forty-five BCT items are all significant when checked by Aiken's Validity Index. This means that school evaluation is highly relevant to the BCT items. In other words, BCT has the content validity from the viewpoint of school evaluation.

Table 4.4 Aiken's Validity Index of Items Covered in Evaluations

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Percentage	100%	98%	100%	100%	100%	98%	98%	96%	98%	98%	98%	100%	98%	98%	98%
p-value	6.93*	6.64*	6.93*	6.93*	6.93*	6.64*	6.64*	6.36*	6.64*	6.64*	6.64*	6.93*	6.64*	6.64*	6.64*
Item	16	17	18	19	20	21(1)	22(1)	23(1)	24(1)	25(2)	26(2)	27(2)	28(3)	29(3)	30(4)
Percentage	96%	98%	92%	92%	98%	94%	96%	94%	94%	98%	96%	98%	92%	92%	82%
p-value	6.93*	6.36*	6.36*	6.64*	6.64*	6.08*	6.368	6.08*	6.08*	6.64*	6.36*	6.64*	5.79*	5.79*	4.38*
Item	31(4)	32(5)	33(5)	34(5)	35(6)	36(6)	37(6)	38(7)	39(7)	40(7)	41(8)	42(8)	43(9)	44(9)	45(9)
Percentage	80%	88%	86%	88%	94%	92%	94%	92%	92%	92%	84%	90%	82%	84%	80%
p-value	4.10*	5.23*	4.95*	5.23*	6.08*	5.79*	6.08*	5.79*	5.79*	5.79*	4.66*	5.51*	4.38*	4.66*	4.10*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

#### The Relationship between BCT and Items not Difficult to Answer

For the research question 1-4: "How many items of BCT do the junior high school teachers think are not difficult for hard-working examinees to answer? ", the outcome of the present study shows that hard-working students perform better on BCT. All of the 45 BCT items are all significant as checked by Aiken's Validity Index, which is reported in Table 4.5.

Table 4.5 Aiken's Validity Index of Items not Difficult to Answer

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Percentage	100%	98%	100%	100%	100%	90%	98%	96%	92%	94%	86%	100%	98%	92%	90%
p-value	6.93*	6.65*	6.93*	6.93*	6.93*	5.52*	6.65*	6.36*	5.8*	6.08*	4.95*	6.93*	6.65*	5.8*	5.52*
Item	16	17	18	19	20	21(1)	22(1)	23(1)	24(1)	25(2)	26(2)	27(2)	28(3)	29(3)	30(4)
Percentage	100%	86%	90%	94%	86%	86%	84%	82%	78%	92%	88%	90%	92%	82%	84%
p-value	6.93*	4.95*	5.52*	6.08*	4.95*	4.95*	4.67*	4.38*	3.82*	5.8*	5.23*	5.52*	5.8*	4.38*	4.67*
Item	31(4)	32(5)	33(5)	34(5)	35(6)	36(6)	37(6)	38(7)	39(7)	40(7)	41(8)	42(8)	43(9)	44(9)	45(9)
Percentage	80%	94%	90%	92%	98%	94%	92%	92%	94%	88%	82%	84%	86%	82%	78%
p-value	4.1*	6.08*	5.52*	5.8*	6.65*	6.08*	5.8*	5.8*	6.08*	5.23*	4.38*	4.67*	4.95*	4.38*	3.82*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

The majority (90.53%) of the teachers agreed that the BCT items were not complicated for hard-working students to answer. Above 94% of the judges were in agreement that Item 1 to Item 20 were not tricky for hard-working examinees to respond. Among the passages, Items 24 and 45 were regarded as relatively complicated for hard-working examinees to respond. Both of them got agreement rate at 78%.

Item 24 is one of the four cloze questions of Passage 1, which deals with a letter seeking advice. The author, Johnny, enjoyed a close friendship between Daniel and himself until Daniel got a new girlfriend. The item asks test takers to choose a correct verb form to complete the sentence: “ Daniel \_\_\_\_\_ me several times that he needs more time to be with his dear Gloria.” The clue to the answer comes from the adverbial phrase “several times”, which implies the sentence should use a present

perfect tense. Although both Item 23 and 24 require a present perfect form to complete the sentence, Item 23 (82%) seems easier to answer than Item 24 (78%). The stem of Item 23, “But things \_\_\_\_\_ since we graduated.”, probably gives the students a stronger hint because of the relative adverb “ since”, which appears twice in a whole sentence in Textbook Volume Five. But “several times” of Item 24 shows up only once in a dialogue responding to ” Have you?” in Lesson One in the same volume. Maybe this can explain why there were still eight out of fifty-one teachers who disagreed on a relationship between Item 24 and textbooks. Although 94% agreement (both in the areas of instructions and evaluations) reveals that teachers emphasize teaching the present perfect form, 78% of them thought this form was difficult for students to master.

Item 45 is a narrative text in which the author talks about the change of a river, and thus reflects how helpless she is when she hears the river crying for help. As shown in Table 4.6, Passage 9 gets relatively low agreement compared with the average of Part 2.

Table 4.6 Comparisons of Passage 9 and Part 2 Averages

Passage 9	1-1. Textbook		1-2. Instruction		1-3. Evaluation		1-4. Items not Difficult	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Item 43(9)	43	84.3 %	43	86 %	41	82 %	43	86 %
Item 44(9)	41	80.4 %	43	86 %	42	84 %	41	82 %
Item 45(9)	40	78.4 %	42	84 %	40	80 %	39	78 %
Passage 9 Average		81.03 %		85.6 %		82 %		82 %
Part 2 Average		85.33 %		89.28 %		90.16 %		87.36 %

Item 43, 44, and 45 of Passage 9 include the word “writer” in both the stem and the options. The unfamiliar word “writer”, which is not listed in any of the five textbooks, might have caused the low agreement on the inclusion of items in textbooks, instructions, and evaluations, and thus makes the item hard for students to comprehend. In addition, Item 45 gets the lowest agreement (78%) in all of the four areas. Item 45: “What did the writer mean when she said, ‘I grew up with it?’” is a question testing students’ inferential judgment. The powerful distracters “She had many friends who lived near the river.” and “She grew well by eating fish and clams from the river.” might further confused the examinees.

In sum, the questionnaires to the research question about the relationship between BCT and school instruction provided the study with strong evidence.

In particular, a comparison of responses to BCT Part 1 and Part 2 reveals a general pattern: Part 1 attracts more agreement than Part 2 whether in the area of textbook, instruction, evaluation congruence, or the difficulty judgment. This means teachers show more confidence in their judgment of Part 1 items, which are discrete-point tests, while they feel less certain about Part 2, which contains items of integrative type. Although the agreement rate is slightly different, both of them support the content validity of BCT.

### Score-correlation Analysis

The following data were collected to provide evidence to answer the research question about the relationships between students' performance on BCT and their performance at school. This section is divided into three parts, reporting the distribution of academic scores, the BCT raw scores, and the correlation of the two sets of the scores separately.

#### Distributions of Academic Scores

To answer research question 2-1: "What's the distribution of students' academic scores in the three years at a junior high school?", Figure 4.1, 4.2, 4.3, and 4.4 show

the distribution of students' score at the four schools separately; means and standard deviations are also reported.

Although the mean score is low at 57.0, it shows an irregular distribution of academic scores of a school in an eastern county. Figure 4.1 demonstrates the result.

Figure 4.1 Distributions of Academic Scores of School 1

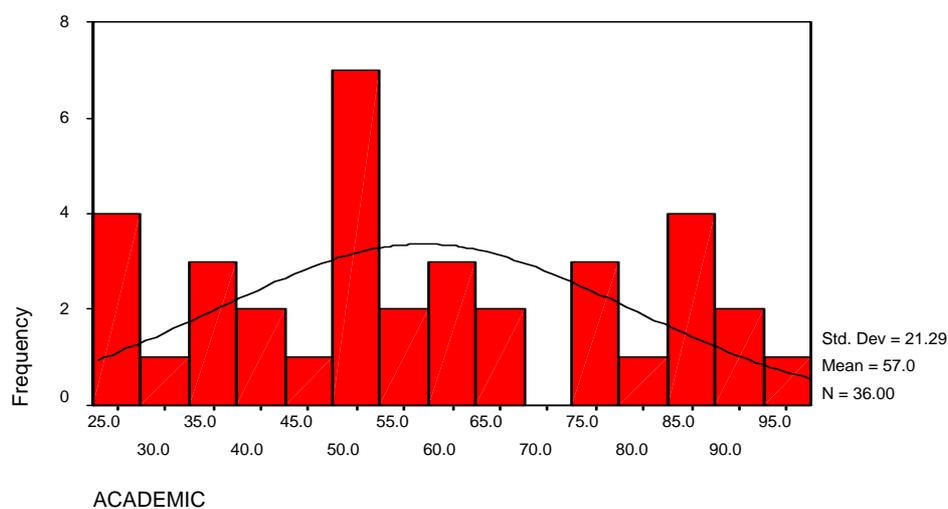


Figure 4.2 presents the distribution of academic scores of school 2, which is located in a southern county. Although the mean score is 57.8, not much higher than the mean score of school 1, the shape shows double peaks, which is symmetrical with almost increasing number of students at high and low ends as the scores move further and further away from the center in both directions.

Figure 4.2 Distributions of Academic Scores of School 2

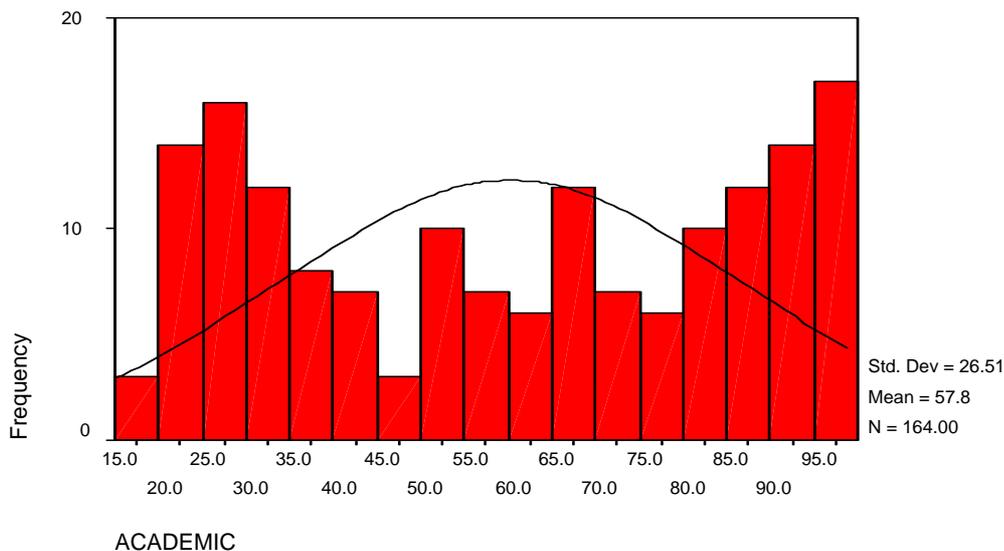


Figure 4.3 of school 3 in a central county indicates a negatively skewed distribution. Such a distribution indicates that part of students performed reasonably well and learned the material being tested at school well.

Figure 4.3 Distributions of Academic Scores of School 3

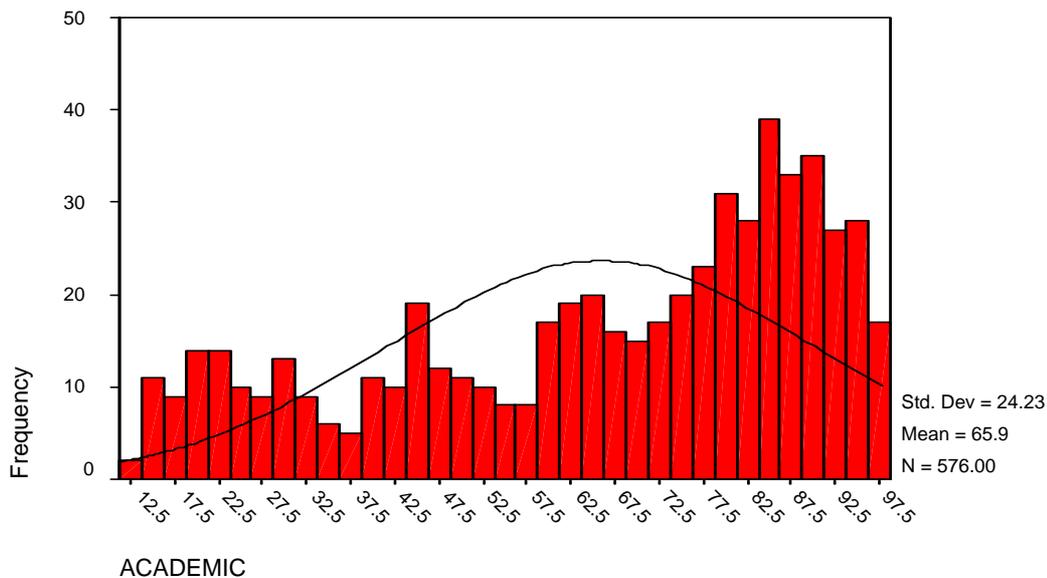
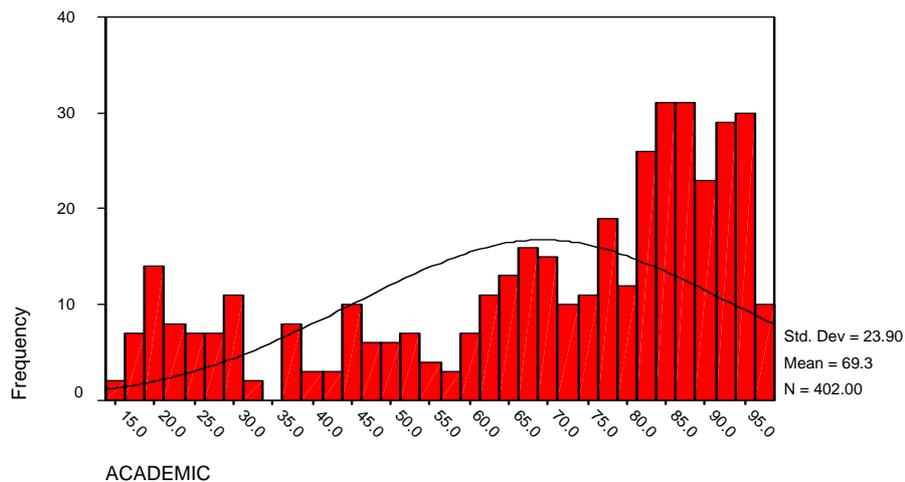


Figure 4.4 of school 4 in a northern city also shows the negatively skewed

distribution. The frequency of the cases of high scores reveals that students performed relatively better and learned the material being tested at school better than the previous schools.

Figure 4.4 Distributions of Academic Scores of School 4



In sum, all the figures show that students' academic scores deviate from normal distribution.

#### Distributions of BCT Raw Scores

To answer research question 2-2: "What's the distribution of students' BCT raw scores?", Figure 4.5, 4.6, 4.7, and 4.8 summarize the data of the four schools from the main areas in Taiwan. School 1 got the mean scores of 17.8, with 2 cases of the highest scores (35).

Figure 4.5 Distributions of BCT Raw Scores of School 1

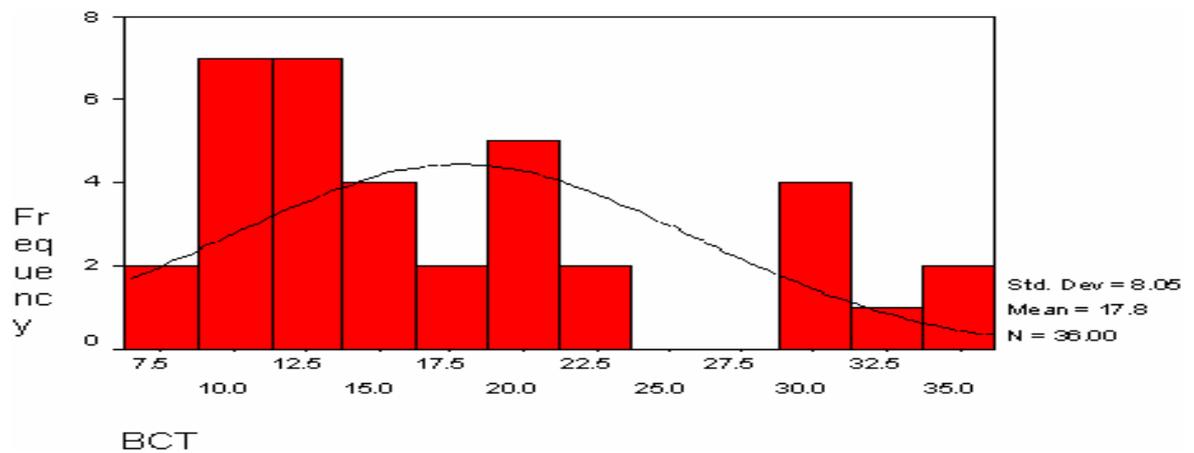
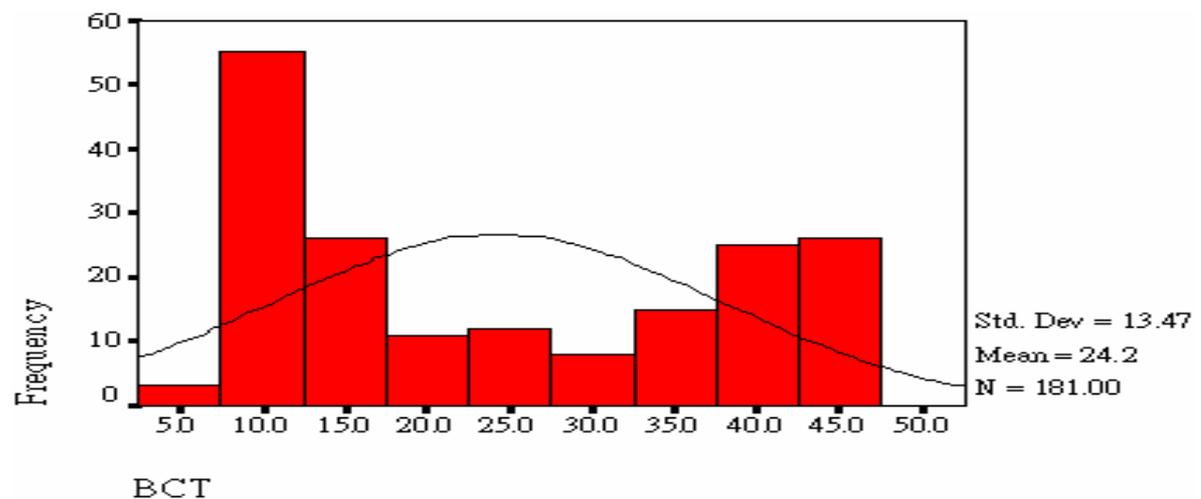


Figure 4.6 presents the distribution of BCT raw scores of school 2. The shape still demonstrates double peaks. Notice that about 55 students, comparatively the most, got 7.5 to 12.5 items correct.

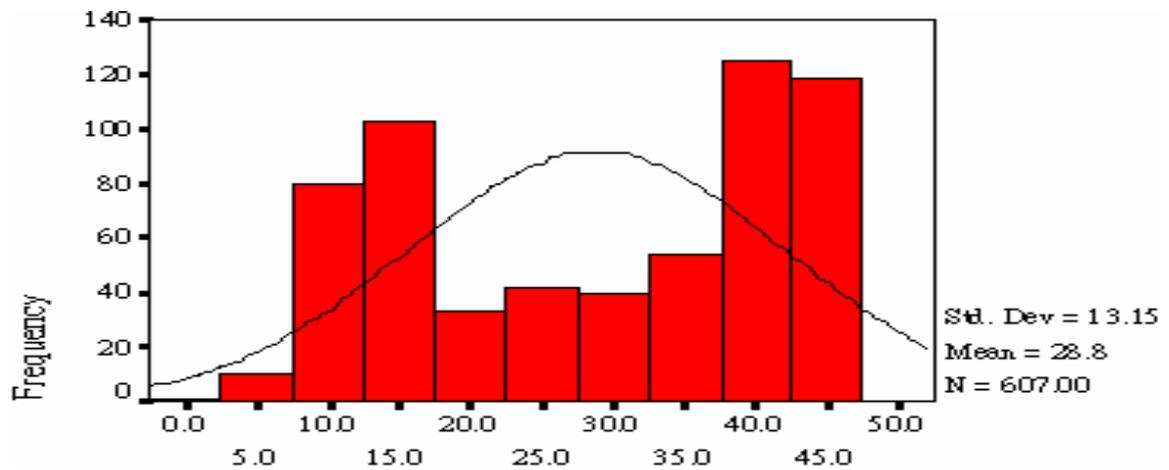
Figure 4.6 Distributions of BCT Raw Scores of School 2



The shape of Figure 4.7 of school 3 is also double-peaked. Note that the students

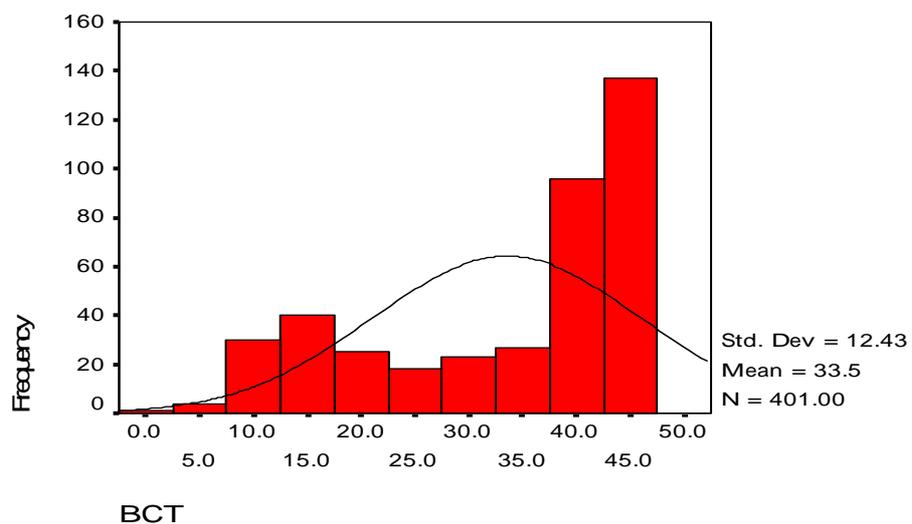
of high scores are more than those of low scores.

Figure 4.7 Distributions of BCT Raw Scores of School 3



The shape of Figure 4.8 of school 4 is negatively skewed. Notice that almost half number of students gain scores between 37.5 to 45.

Figure 4.8 Distributions of BCT Raw Scores of School 4



School 2, 3 and 4 show a general tendency, but school 1 shows otherwise, which is located in an eastern Taiwan county with a small number of students. No matter in

the aspect of academic scores or BCT raw scores, a double-peaked pattern remains.

### Correlation of Academic Scores and BCT Raw Scores

To answer research question 2-3: “Is there a relationship between the academic scores and BCT raw scores? ”, the following data summarize the results. At the critical 0.01 level, the coefficient of the academic scores and BCT raw scores of school 1 is  $r = .815$ . The positive correlation of school 1 indicates that the higher the academic scores are, the higher the BCT raw scores are. In other words, students with good academic performance at school tended to perform well on BCT. On the contrary, those who did not learn well at school gain low scores on BCT. Figure 4.9 sums up the correlation.

Figure 4.9 Correlation of School 1

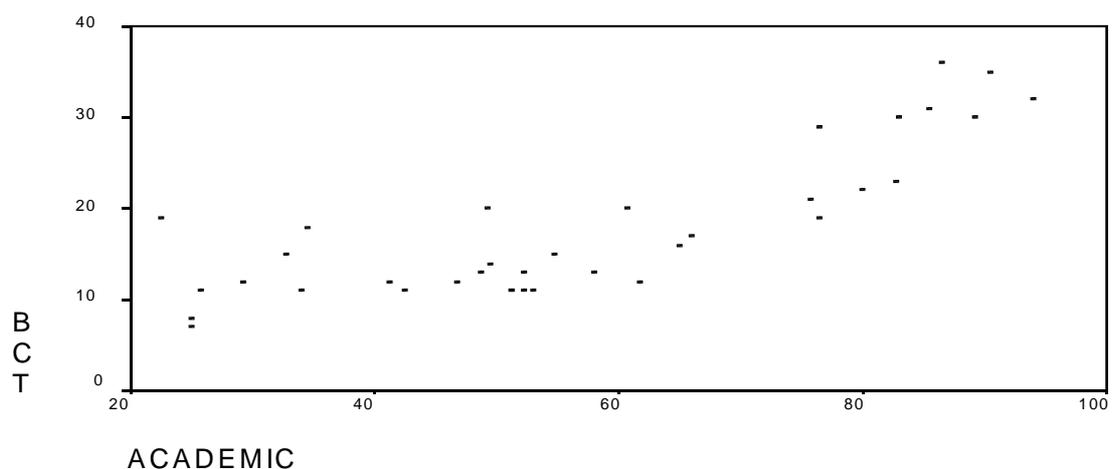
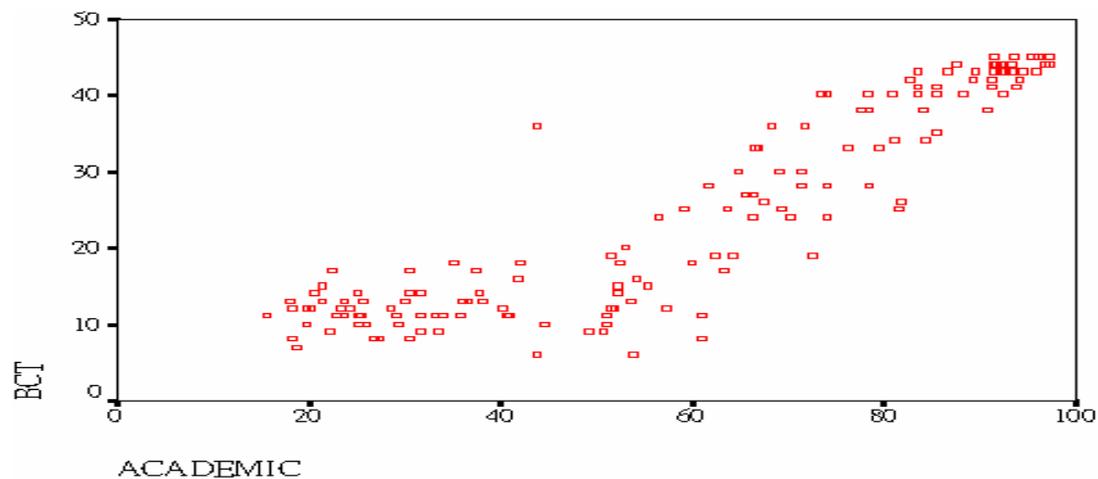


Figure 4.10 illustrates the relationship between the two sets of scores of school 2. At the critical 0.01 level, the coefficient of the academic scores and BCT raw scores of school 2 is  $r = .908$ . As the figure indicates, the plots keep steady at the below left while the tendency of the plots rises in the central part. Notice that students with lower than 60 academic scores gained about 20 correct items on BCT, which is the same as the students with academic scores of 20. Although the researcher discovered that it is not suitable to explain the positive correlation for the below left part of academic scores, coefficient is very high for students with academic scores higher than 60.

The following may be the reasons that students with 60 academic average scores and those with 20 academic scores both gained about 20 correct items on BCT. First, owing to multiple choice as the only measurement type, the guessing factor remains, especially for those students who have low achievement. Second, the average academic scores were counted from the first semester. The Curriculum Standards sets the goal of language learning as progressive, which means only when the basic concept is well learned will the next step proceed. Students can gain high academic scores in the first grade due to the easy course, while they may give up learning in the third grade on the condition that they do not learn well and practice enough in the second grade, during which the course is considered tough. The low scores of the

third grade might offset the high scores of the first grade. Consequently, students with academic score of 60 may demonstrate a similar level of ability to those students with the score of 20 at graduation.

Figure 4.10 Correlation of School 2



The results of the relationship between the two sets of scores of school 3 are presented in Figure 4.11. At the critical 0.01 level, the coefficient of the academic scores and BCT raw scores of school 3 is  $r = .909$ . As the figure indicates, students with the score lower than 40 gained about 20 correct items on BCT, which is equal to the students with the score of 20. Students with the score over 80 gained full scores on BCT as those with 90. Accordingly, we can conclude that BCT can be predicted by the performance of middle level students. In other words, BCT can reflect fairly

students' academic scores, particularly reflecting those at the middle level.

Figure 4.11 Correlation of School 3

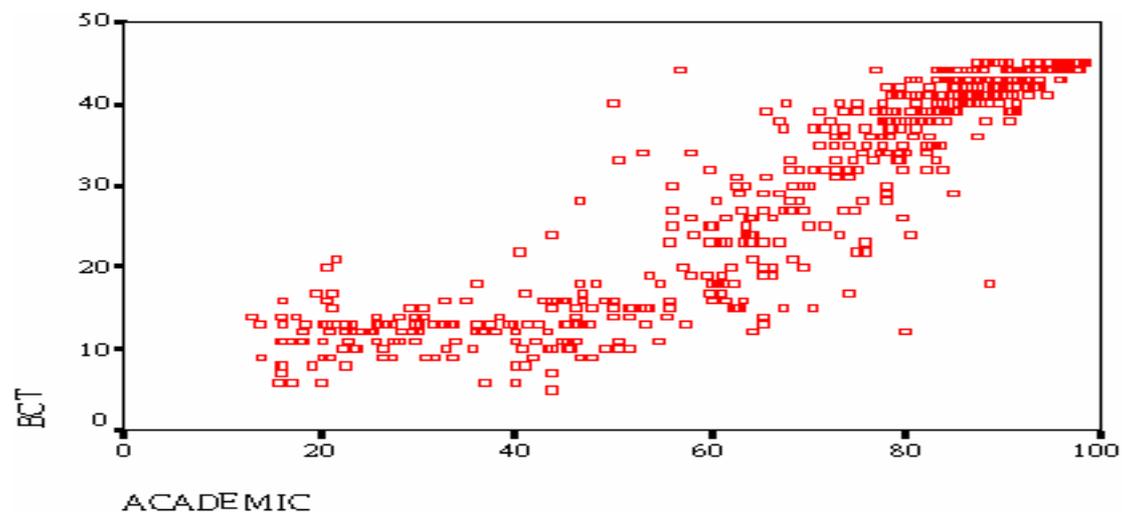
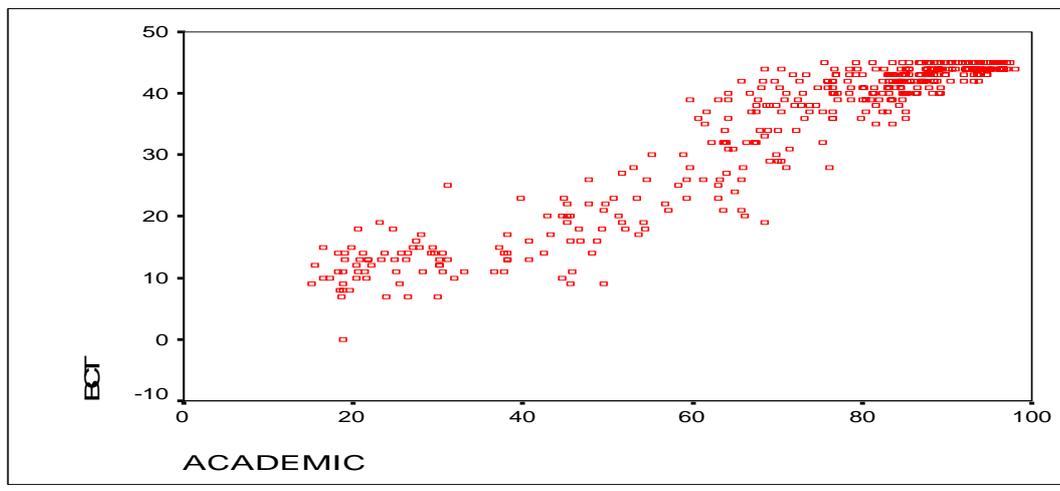


Figure 4.12 presents the relationship between the two sets of scores of school 4. At the critical 0.01 level, the coefficient of the academic scores and the BCT raw scores of school 4 is  $r = .946$ . Once more the high correlation shows evidence for BCT's content validity.

Figure 4.12 Correlation of School 4



To sum up, the high correlation reveals that the higher academic scores a student gains, the higher BCT raw scores he/she receives. On the contrary, the lower academic scores a student gets, the lower BCT raw scores he/she receives. From quantitative point of view, BCT attracts high agreement with teachers' evaluation at school, which is one of the objectives BCT claims to achieve. Since teachers, no matter in which area of Taiwan, seem to have followed, according to the survey, the instructional suggestions given by the Curriculum Standards, BCT appears to be able to reflect what teachers teach and evaluate in school. Looking from another perspective, it seems obvious that teachers are teaching on the track to the test. As for students, as long as they perform well at school evaluation, they can probably gain relatively high raw scores on BCT. The result matches the aim of educational reform; that is, BCT may be predicted according to students' academic scores. That certifies

the content validity of BCT.

However, it should be noted that in calculating the correlations, both independent and dependent variables were found not normally distributed – a violation of basic assumption of correlation statistics. Therefore, the results should be interpreted cautiously.

Table 4.7 Score Correlations of Four Schools

	Number of Participants	Correlation Coefficient
School 1	38	$r = .815$
School 2	187	$r = .908$
School 3	577	$r = .909$
School 4	402	$r = .946$

This research was unable to calculate the correlation of the total four schools because the BCT Center, who did the foregoing calculation for the researcher, refused to release the data of the four schools owing to the reason that the criterion for assigning academic scores at different schools is different. In other words, although each school has the same textbooks, their monthly evaluation standard might differ. Maybe that's why the BCT Center does not employ students' academic scores as a reference for application to schools. Although the total correlation was not provided in

this research, we might be able to figure it out by combining the four acquired correlations (Table 4.7), which are  $r = .815$ ,  $r = .908$ ,  $r = .909$ , and  $r = .946$  separately, and then getting an average. The answer is  $r = .89$ , a very high coefficient. Although this figure is in no way equivalent to the actual correlation, it may serve as a reference to compensate the information gap.

#### Relationship between BCT and the Content Domain the BCT Center Claims to Test

This section reports questionnaire responses concerning research question 3. For quantification, the responses were coded 0 as strongly disagree, 1 as disagree, 2 as neutral, 3 as agree, and 4 as strongly agree. The data were completed and statistically tested to answer research question three about the relationship between BCT and the content domain the BCT Center claims to test. The Cronbach's alpha of reliability coefficients is .915

In research question 3-1, when requested to judge the relationships between BCT and the general objectives of Curriculum Standards, only 43.1% of the judges showed a positive attitude, whereas almost half of the teachers (41.2%) show a neutral attitude. Responses for the question that BCT can assess knowledge of national and foreign socio-culture are not statistically significant. The results are reported in Table 4.8.

Table 4.8 Teachers' Opinions about BCT and the General Objectives of Curriculum Standards

Question about General Objectives of Curriculum Standards	Percentage of Agreement					Aiken's Index p-value
	4 (Strongly agree)	3 (Agree)	2 (Neutral)	1 (Disagree)	0 (Strongly disagree)	
1. The BCT can assess knowledge of national and foreign socio-culture.	3.9%	39.2%	41.2%	15.7%	0%	1.534729

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

The low agreement to research question 3-1 may probably be due to the reason that the goal is too general to be specifically assessed. For one thing, the BTC, supposed to focus mainly on students' life experiences, is not directly associated with the broad knowledge of national and foreign socio-culture. For another, when teachers judge the BCT items, the general goal looks so vague that they are not certain whether or not the BCT meets the general objective of Curriculum Standards. The researcher thus suggests that, for the ease of judgment, the criterion be as concrete as possible.

Question 3-2 of the questionnaire focuses on views about the degree to which BCT matches the specific objectives of Curriculum Standards. Table 4.9 summarized the results of the survey of teachers' opinions.

Table 4.9 Teachers' Opinions about BCT and the Specific Objectives of Curriculum Standards

Questions about Specific Objectives of Curriculum Standards		Percentage of Agreement					Aiken's Index p-value
		4	3	2	1	0	
2.	The BCT can assess the ability to recognize vocabulary and phrases.	31.4%	66.7%	0	2.0%	0	6.386452*
3.	The BCT meets the objective set in Curriculum Standards: Able to understand common usage and classroom English.	11.8%	43.1%	39.2%	5.9%	0	5.301995*
4.	The BCT meets the objective set in Curriculum Standards: Able to understand the contents and plots in dialogues, short passages, stories, and letters.	37.3%	58.5%	3.9%	0	0	6.683496*
5.	The BCT can assess the ability to recognize common signs.	19.6%	39.2%	35.3%	5.9%	0	3.614039*
6.	The BCT can assess knowledge of foreign customs and concepts.	0	23.5%	58.8%	15.7%	2.0%	0.148522
7.	The BCT can assess communicative functions such as daily interactions and interpersonal communications. These functions are specified in the textbook (not including textbooks for selective English courses).	7.8%	58.8%	31.4%	2.0%	0	3.614039*
8.	The BCT can assess communicative functions that are related to student's life experience and basic level of English usage. These functions are specified in the textbook (not including textbooks for selective English courses).	13.7%	74.5%	11.8%	0	0	5.09926*

9.	The BCT corresponds to topics that are informative, interesting, realistic, and close to life. These topics are specified in the textbook (not including textbooks for selective English courses).	13.7%	64.7%	21.6%	0	0	4.604186*
10.	The BCT corresponds to multiple topics such as: school, family, food, festivals, occupations, travel, stories, fables, and sports. These topics are included in the textbook (not including textbooks for selective English courses).	15.7%	62.7%	17.6%	3.9%	0	4.505171*
11.	The BCT is developed within the range of 800 basic vocabulary and relevant phrases as listed in the textbook (not including textbooks for selective English courses).	33.3%	60.8%	5.9%	0	0	6.386452*
12.	The BCT is developed within the range of 1200 words for recognition as listed in the textbook (not including textbooks for selective English courses)	19.6%	60.8%	19.6%	0	0	5.000245*
13.	The BCT corresponds to the linguistic components that are listed as basic grammar and structures, to the exclusion of difficult, rarely used grammatical concepts and sentences. These components are included in the textbook (not including textbooks for selective English courses).	39.2%	59.2%	5.9%	2.0%	0	6.386452*
14.	The BCT corresponds to the linguistic components of classroom and daily English.	11.8%	49.0%	35.3%	3.9%	0	3.416009*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

Both Question 2, which focuses on the specific objective of the ability to recognize vocabulary and phrases, and Question 4, which centers on the ability to understand the contents and plots in various text types received high rating. The question that received the lowest rating was the one in regard to the understanding of culture and customs (Question 6).

Twelve out of the thirteen questions were found to be statistically significant except Questions 6. These twelve questions are related to linguistic abilities specified in the specific objectives of Curriculum Standards.

The specific objectives of Curriculum Standards are mostly achieved by the BCT items judged by the teachers except Question 6, concerning about broader concepts than other questions of this part. Like the low agreement of Question 1, the knowledge of foreign customs or concepts could not obviously be found from the BCT items. The judges need a more specific criterion to measure the validity of BCT. Teachers ranked Questions 11 and 13 higher than general description (Question 7, 8, 9, 10, 12, and 14). Responses to Questions 11 and 13, which cope with vocabulary range, show teachers' belief in a set criterion for the BCT.

Three questions ask teachers' views about BCT items' agreement with the test principles the BCT Center announces (Table 4.10). All of the questions received high ranking, and reached significance.

Table 4.10 Teachers' Opinions about BCT and Test Principles the BCT Center Announces

Questions about Test Principles the BCT Center Announces		Percentage of Agreement					Aiken's Index p-value
		4	3	2	1	0	
15.	The BCT corresponds to students' life experiences.	3.9%	51.0%	41.2%	3.9%	0	2.722906*
16.	The BCT is based on the unified textbook.	15.7%	60.8%	15.7%	7.8%	0	4.208127*
17.	The BCT excludes concepts that do not appear in the unified textbook but in the textbooks for selective English courses.	10.2%	61.2%	22.4%	6.1%	0	3.687057*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

Research question 3-4 elicited teachers' opinions about the degree BCT matches the Core Competence Indicators the BCT Center announces. From Table 4.11, it can be seen that teachers viewed BCT as a realization of Core Competence Indicators. All of the indicators received significantly high ranking.

Table 4.11 Teachers' Opinions about BCT and Core Competency Indicators

Questions about Core Competency Indicators		Percentage of Agreement					Aiken's Index p-value
		4	3	2	1	0	
18.	The BCT meets the objective set in Curriculum Standards: Able to recognize correct sentences.	29.4%	58.8%	9.8%	2.0%	0	5.792363*
19.	The BCT meets the objective set in Curriculum Standards: Able to realize clear descriptive details and infer from them.	25.5%	62.7%	11.8%	0	0	5.693348*
20.	The BCT meets the objective set in Curriculum Standards: Able to understand coherence constructed by words and syntactic structures.	29.4%	66.7%	3.9%	0	0	6.287437*
21.	The BCT meets the objective set in Curriculum Standards: Able to guess the meaning of new words or phrases according to the context.	37.3%	54.9%	5.9%	2.0%	0	6.386452*
22.	The BCT meets the objective set in Curriculum Standards: Able to understand figures or charts.	37.3%	49.0%	13.7%	0	0	6.188422*
23.	The BCT meets the objective set in Curriculum Standards: Able to identify the main idea from the discourse or passage.	27.5%	60.8%	9.8%	2.0%	0	5.693348*
24.	The BCT meets the objective set in Curriculum Standards: Able to understand the authors' viewpoint and the tone of the discourse.	17.6%	56.9%	23.5%	2.0%	0	4.505171*
25.	The BCT meets the objective set in Curriculum Standards: Able to make judgment on given messages.	13.7%	62.7%	19.6%	3.9%	0	4.30714*

p is significant if  $p > 1.96$  or  $p < -1.96$  at  $\alpha=0.05$

The strong relationship between BCT and the content domain the BCT Center claims to test again certified the content validity of BCT. Except for the broader

criteria concerning about concepts of nation or culture, BCT received high agreement of content validity judged by experienced teachers. Furthermore, the researcher discovered that the more specific the criterion is, the easier the judges can evaluate the question and reach high percentage of agreement. When teachers made judgment against the Core Competency Indicators, because of the clear and specific criterion given, they appeared to have less difficulty in making decisions. It appears that while investigating the content validity of a test, the degree of clarity of the criterion constitutes a variable.