

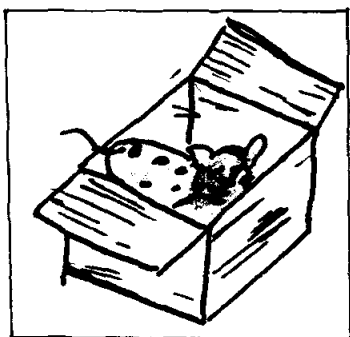
APPENDIX

APPENDIX I

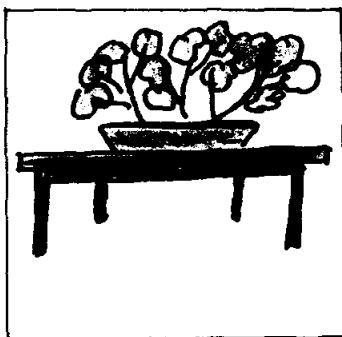
Table of Specification

PREPOSITIONS SHOWING	KINDS OF PREPOSITIONS	MULTIPLE CHOICE	COMPLETION	MATCHING	TOTAL
Place/position	in	1	1	1	3
	on	1	1	1	3
	at	1	-	1	2
	near	1	-	1	2
	for from	1	-	1	2
	in front of	-	1	1	2
	in back of	1	1	1	3
	under	1	-	1	2
	over	-	1	1	2
	beside	1	1	-	2
	between	1	1	-	2
	among	1	-	-	1
Time	in	1	1	-	2
	on	1	1	1	3
	at	1	-	-	1
Manner	by	1	1	-	2
	with	1	-	-	1
		15	10	10	35

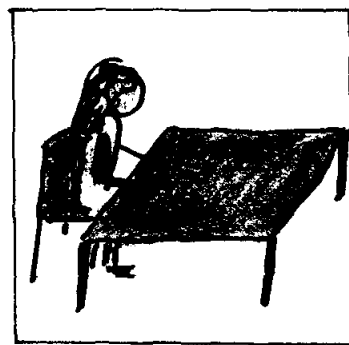
APPENDIX II



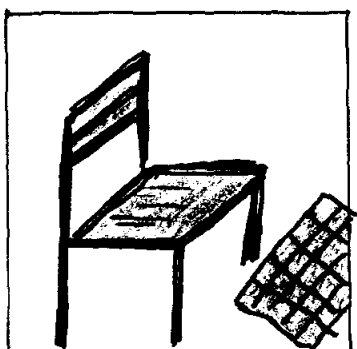
The cat is in the box



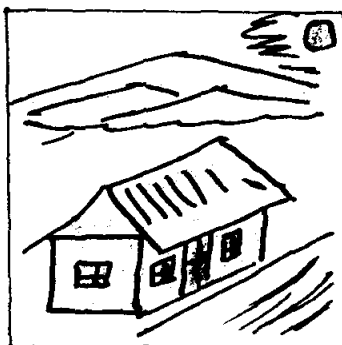
The vase is on the table



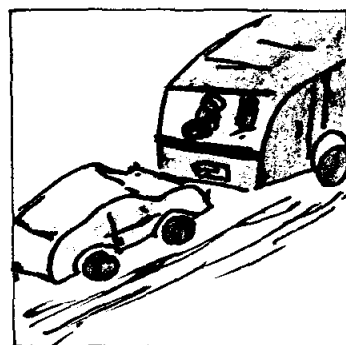
The girl is at the table



The chair is near the door-mat



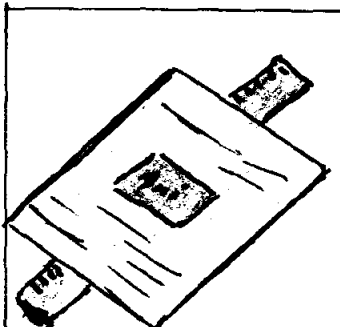
The house is far from the mountain



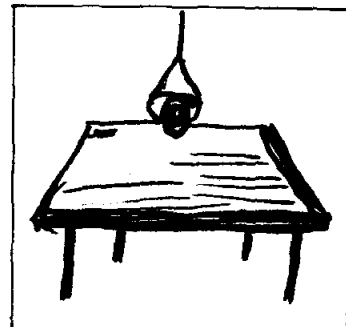
The bus is in front of the car



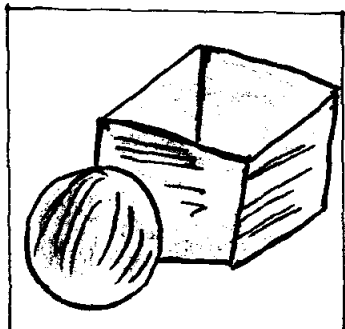
The tree is in back of the house



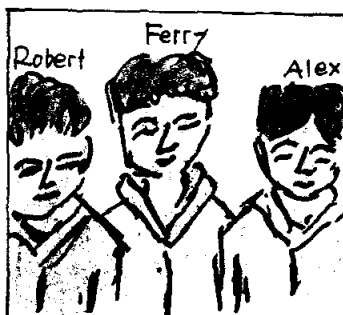
The ruler is under the book



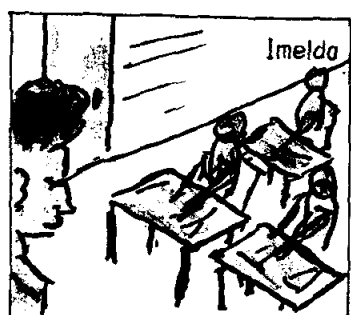
The lamp is over the table



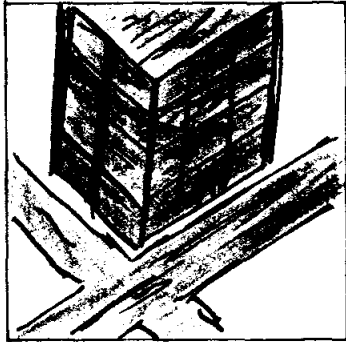
The ball is beside the box



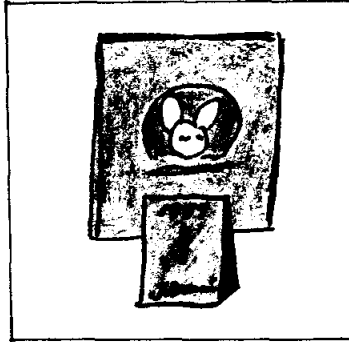
Ferry sits down between Robert and Alex



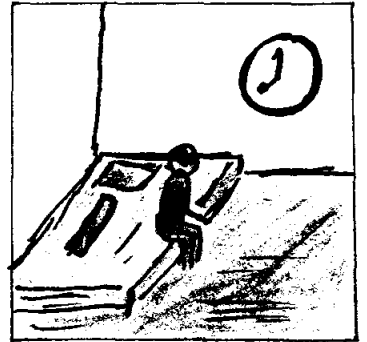
Imelda sits down among her friends



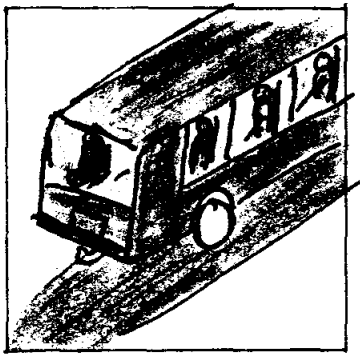
The building was built in
1940



The New Year is on 1
January



My brother gets up at 7
o'clock



The people go to the city
by bus



My mother sweeps the floor
with a broom

APPENDIX III

LESSON PLAN

For the Experimental Group

(through pictures)

Field of Study : English

Theme : -

Topic : Functional Skills

Sub-topic : Language Function

Class/quarter : 6/I SD

Time : 80'

I General Instructional Objective

Students master the using of English prepositions through pictures in social context.

II. Specific Instructional Objectives

1. Students are able to choose true or false based on the picture.
2. Students are able to arrange the words into a sentence correctly based on the picture.
3. Students are able to choose the correct answer based on the pictures.
4. Students are able to complete the questions by using the appropriate preposition based on the pictures.
5. Students are able to match the sentences with the words in the right column based on the pictures.

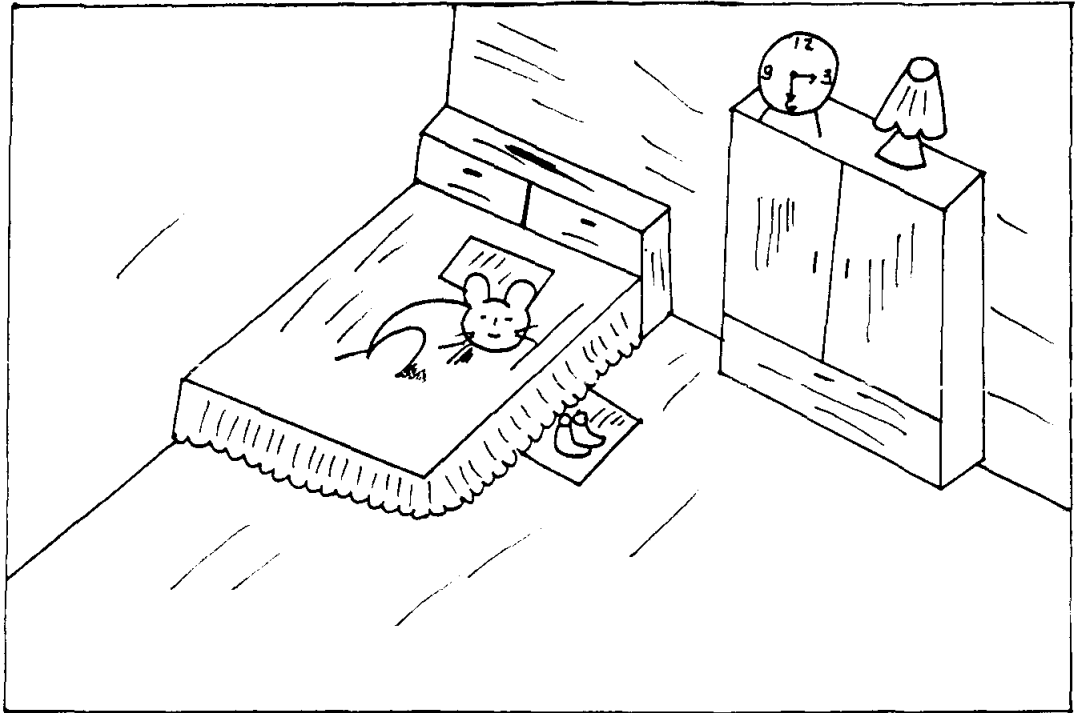
III. Material

A. Pre-structure Material

1. Have you ever been taught about prepositions before?
2. Can you mention them?
3. What is the meaning from each of them?

B. Whilst-structure Material

1. Write True or false based on the picture!



1. The cat is under the bed.

True

False

=

2. The clock is beside the lamp.

True

False

=

3. The things are in the bedroom.

True

False

=

4. The pillow is on the table.

True

False

=

5. The lamp is under the cupboard.

True

False

=

6. The bed is beside the cupboard.

True

False

=

7. The shoes are on the wall.

True

False

=

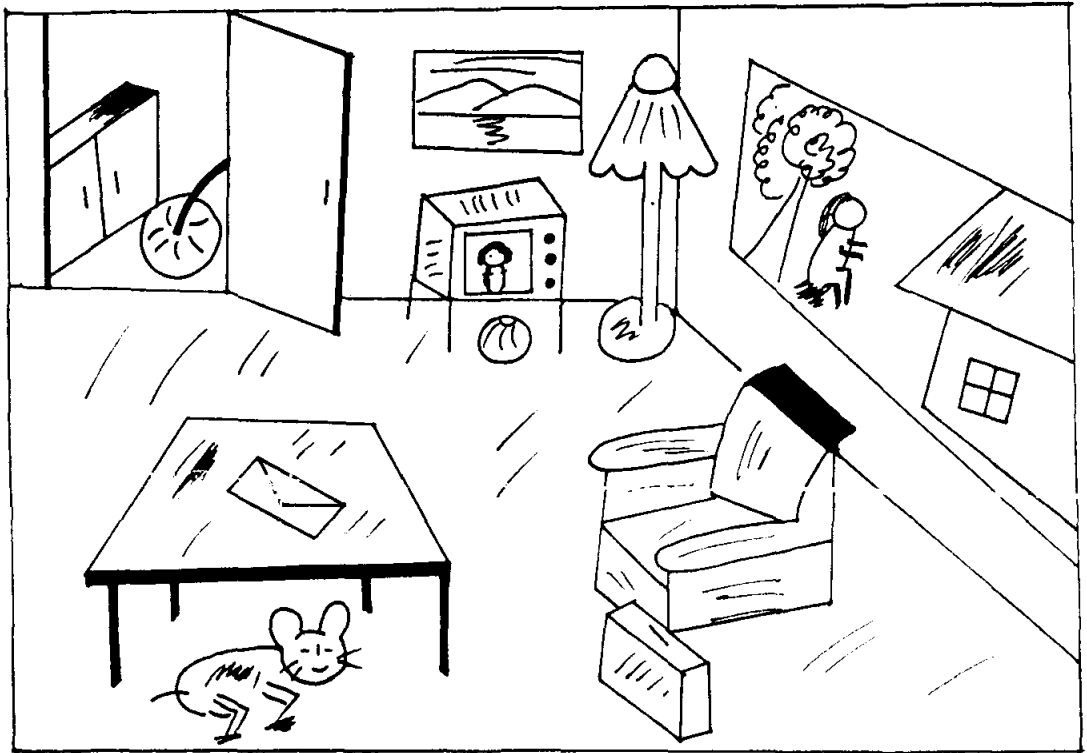
8. The cupboard is beside the bed.

True

False

=

II. Look at the picture, then arrange the words into a sentence correctly!



1. under — the — is — cat — table — the

2. picture — is — the — on — wall — the

3. is — under — the — television — the — picture

4. in back of — is — the — the — bicycle — door

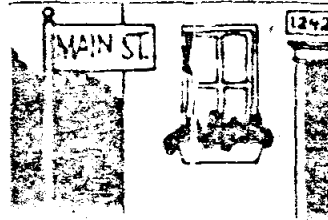
5. lamp — is — the — beside — television — the

C. Post-structure Material

I. Choose the correct answer based on the pictures!

1. John lives _____ 1242 Main Street.

- A. in C. at
B. by D. on



2. The cup is _____ the saucer.

- A. on C. near
B. in D. at



3. Mr. John writes a letter _____ a pen.

- A. by C. at
B. on D. with



4. Cecilia leaves her office _____ 5 o'clock.

- A. at C. on
B. with D. in



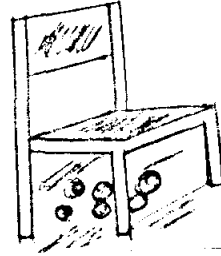
5. Colombus discovered America _____ 1492.

- A. by C. at
B. in D. on



6. The marbles are _____ the chair.

- A. in
- B. under
- C. over
- D. near



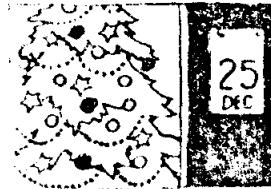
7. Istanbul is _____ Turkey.

- A. at
- B. on
- C. in
- D. near



8. Christmas is _____ December 25.

- A. on
- B. by
- C. in
- D. at



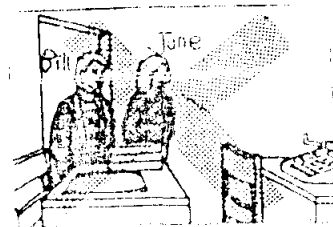
9. The people go to the city _____ train.

- A. at
- B. by
- C. on
- D. in



10. Bill stands up _____ Jane.

- A. in front of
- B. in back of
- C. beside
- D. far from



11. Tono is singing _____ Andi and Hari.

- A. between
- B. among
- C. far from
- D. at



12. Pauline sits down _____ her friends.

- A. in
- B. on
- C. among
- D. over

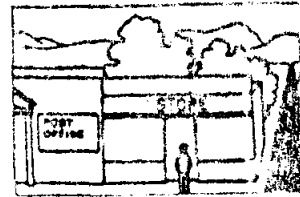


13. The trees are _____ the store.

- A. near
- B. in front of
- C. in back of
- D. far from

14. The store is _____ the post office.

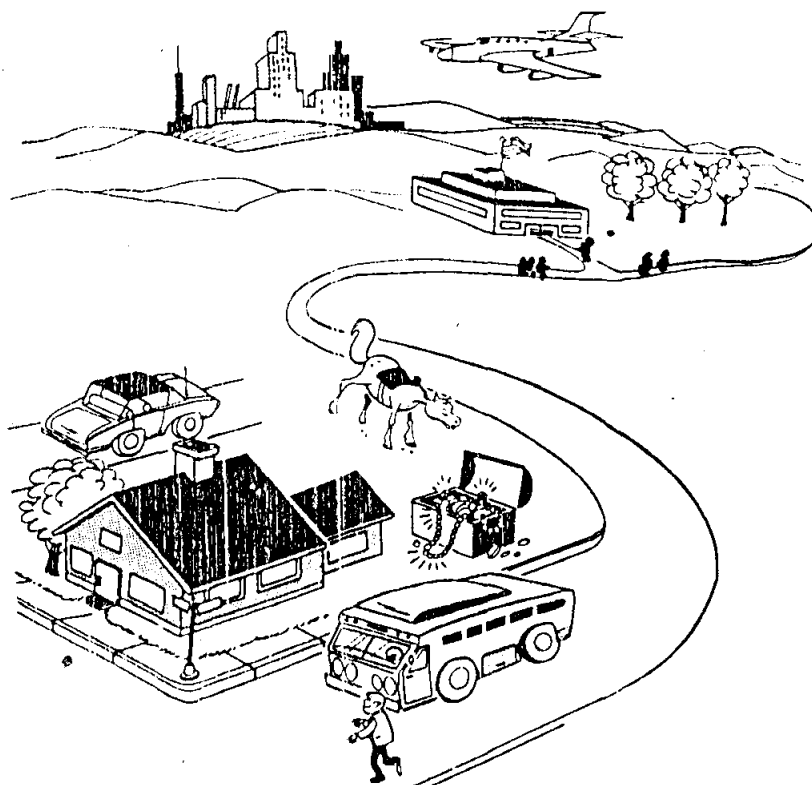
- A. far from
- B. in back of
- C. near
- D. in front of



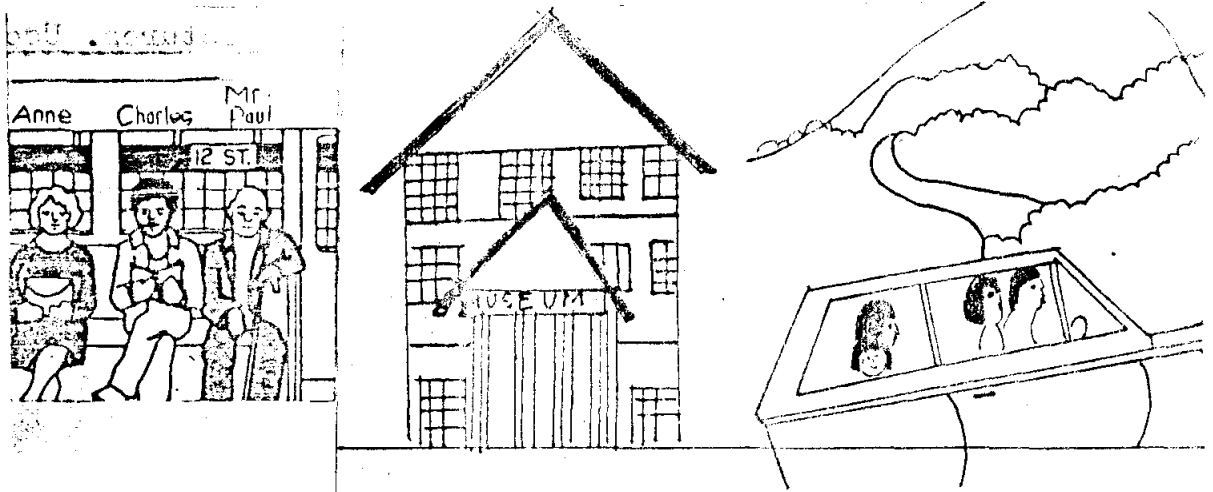
15. The mountains are _____ from the buildings.

- A. over
- B. near
- C. under
- D. far

II. Answer the questions according to the pictures. Use the appropriate preposition!

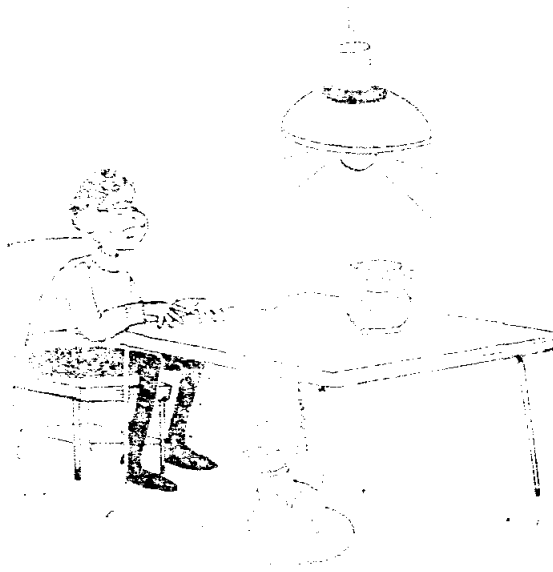


1. The horse is _____ the small house.
2. The treasure is _____ the box.
3. The large plane is _____ the school.
4. The students are _____ the school.
5. The chimney is _____ the big house.
6. The tree is _____ the big house.

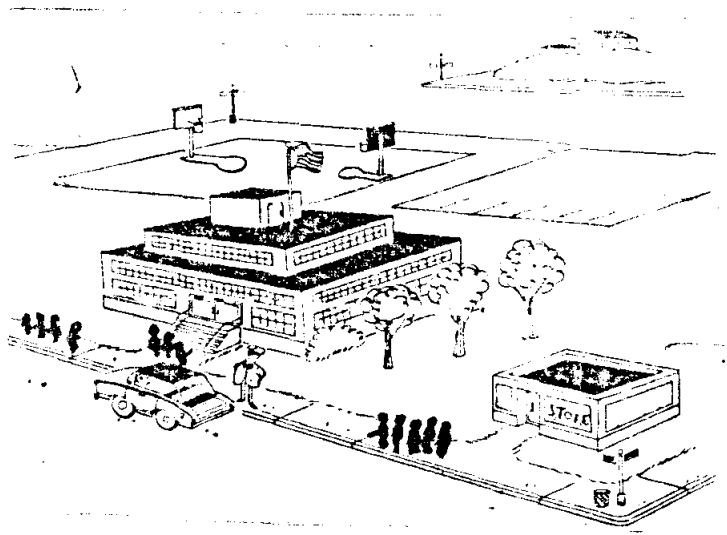


7. Charles sits down _____ Anne and Mr. Paul.
8. Mr. Lopez and family will take their vacation _____ Sunday.
9. They will go to the beach _____ car.
10. The museum was built _____ 1942.

III. Complete the sentences with the words in the right column!



- | | |
|------------------------------------|----------|
| 1. The cat is _____ the table. | A. at |
| 2. The light is _____ the table. | B. under |
| 3. The boy is _____ the table. | C. in |
| 4. The glass is _____ the table. | D. on |
| 5. The water is _____ the pitcher. | E. over |



6. The car is _____ the school. F. near
 7. The playground is _____ the school. G. in back of
 8. The house is _____ the school. H. on
 9. The store is _____ the school. I. In front of
 10. The students go back to school _____ J. far from
- July 20

IV. Teaching Learning Activities

A. The Approach : Meaningful Approach

The Method : Communicative Method

B. The Steps

No	Skill/Sub-skill	Procedure	Activities	Notes
1	Speaking	Pre-structure	Answer the question orally	I/G
2	Listening Speaking Writing Writing Speaking	Whilst-structure	Listen to the teacher's explanation. Memorize the teacher's explanation. Choose true or false based on the picture. Arrange the words into a sentence based on the picture. Check the answer together.	G I/G I I G
3	Writing Writing Writing	Post-structure	Choose the correct answer based on the pictures. Complete the questions by using the appropriate preposition based on the pictures. Match the sentences with the words in the right column based on the pictures.	I I I

V. Media and Source

A. Media : handouts, pictures

B. Source : Ali Sakti, Budiarti, and Aekanu Hariyono. 1998.

English for SD jilid 4C. Penerbit PT Grasindo.

Lado, Robert. 1980. Lado English Series 4: New Edition:

Teacher's Manual. New York: Regent Publishing Co.

VI. Evaluation

Students do the activities in the post-structure material.

VII. Key

Whilst-structure material

- I.**
 - 1. False.**
 - 2. True.**
 - 3. True.**
 - 4. False.**
 - 5. False**
 - 6. True.**
 - 7. False.**
 - 8. True.**

- II.**
 - 1. The cat is under the table.**
 - 2. The picture is on the wall.**
 - 3. The television is under the picture.**
 - 4. The bicycle is in back of the door.**
 - 5. The television is beside the lamp.**

Post-structure Material

I. 1. at.

2. on.

3. with

4. at.

5. in.

6. under.

7. in.

8. on.

9. by.

10. beside.

11. between.

12. among.

13. in back of.

14. near.

15. far.

II. 1. in back of.

2. in.

3. over.

4. in front of.

5. on.

6. beside.

7. between.

8. on.

9. by.

10. in.

III. 1. under.

2. over.

3. at.

4. on.

5. in.

6. in front of.

7. in back of.

8. far from.

9. near.

10. on.

Approved by:

Surabaya, August 10th 1998

Drs. Y.G. Harto Pramono M.Pd.

Tutor

Loe Fei Cien

Teacher candidate

Suggestion for the teacher candidate:

LESSON PLAN

For the Control Group

(without pictures)

Field of Study : English

Theme : -

Topic : Functional Skills

Sub-topic : Language Function

Class/quarter : 6/I SD

Time : 80'

I. General Instructional Objective

Students master the using of English prepositions without pictures in social context.

II. Specific Instructional Objectives

1. Students are able to complete a sentence by using the appropriate preposition based on the word in the bracket.
2. Students are able to make a dialogue based on the teacher's instruction.
3. Students are able to choose the correct answer based on the pictures.
4. Students are able to complete the questions by using the appropriate preposition based on the pictures.
5. Students are able to match the sentences with the words in the right column based on the pictures.

III. Material

A. Pre-structure Material

1. Have you ever been taught about prepositions before?
2. Can you mention them?
3. What is the meaning from each of them?

B. Whilst-structure Material

I. Complete the sentences by using the appropriate preposition based on the word in the bracket!

1. The bag is _____ the table. (di atas, nempel)
2. The flowers are _____ the vase. (di dalam)
3. The chair is _____ the table. (di samping)
4. The tree is the car. (di belakang)
5. The boy is _____ the office. (di depan)
6. The cat is _____ the table (di bawah)
7. The bird is _____ my house. (di atas, gantung)
8. The lamp is _____ the television. (dekat)
9. My teacher reads a magazine glasses. (dengan)
10. Her father goes to the office _____ car. (dengan)

II. Make a dialogue in pairs!

1. A: Apakah penggaris itu berada di dalam tas?
B: Tidak.
A: Di manakah penggaris itu?
B: Penggaris itu ada di bawah buku.
2. A: Apakah kucing itu berada di atas kursi?
B: Tidak.
A: Dimanakah kucing itu?
B: Kucing itu ada di bawah kursi.
3. A: Apakah bendera itu berada di bawah lantai?
B: Tidak.
A: Di manakah bendera itu?
B: Bendera itu ada di atas lantai.

4. A: Apakah anjing itu berada di dalam rumah?

B: Tidak.

A: Di manakah anjing itu?

B: Anjing itu ada di depan rumah.

C. Post-structure Material

I. Choose the correct answer based on the pictures!

1. John lives _____ 1242 Main Street.

A. in

C. at

B. by

D. on



2. The cup is _____ the saucer.

A. on

C. near

B. in

D. at



3. Mr. John writes a letter _____ a pen.

A. by

C. at

B. on

D. with



4. Cecilia leaves her office _____ 5 o'clock.

A. at

C. on

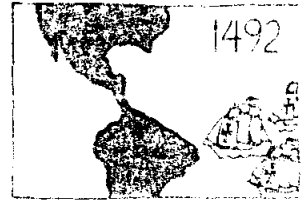
B. with

D. in



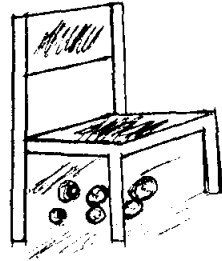
5. Colombus discovered America _____ 1492.

- A. by
- B. in
- C. at
- D. on



6. The marbles are _____ the chair.

- A. in
- B. under
- C. over
- D. near



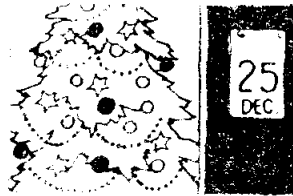
7. Istanbul is _____ Turkey.

- A. at
- B. on
- C. in
- D. near



8. Christmas is _____ December 25.

- A. on
- B. by
- C. in
- D. at



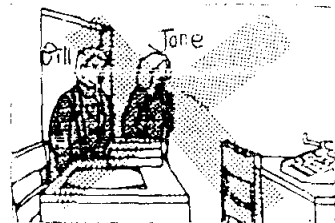
9. The people go to the city _____ train.

- A. at
- B. by
- C. on
- D. in



10. Bill stands up _____ Jane.

- A. in front of
- B. in back of
- C. beside
- D. far from



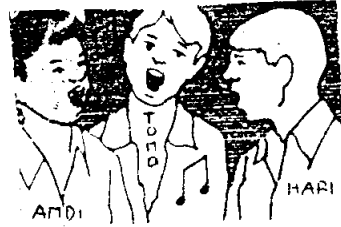
11. Tono is singing _____ Andi and Hari.

A. between

C. far from

B. among

D. at



12. Pauline sits down _____ her friends.

A. in

C. among

B. on

D. over



13. The trees are _____ the store.

A. near

C. in back of

B. in front of

D. far from

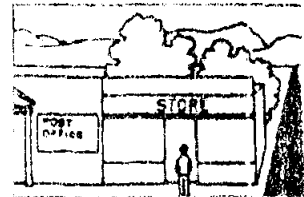
14. The store is _____ the post office.

A. far from

C. near

B. in back of

D. in front of



15. The mountains are _____ from the buildings.

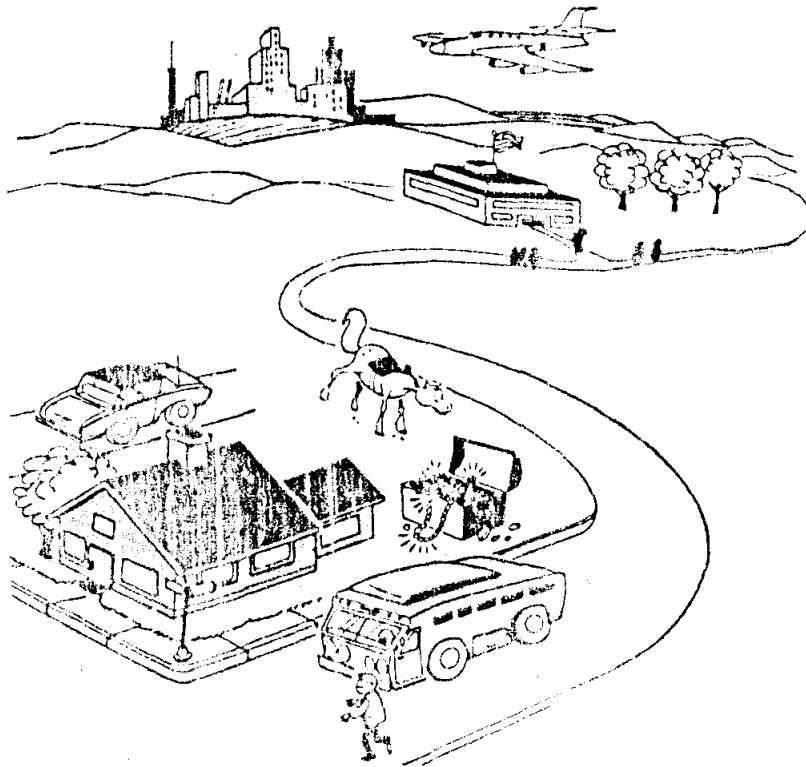
A. over

C. under

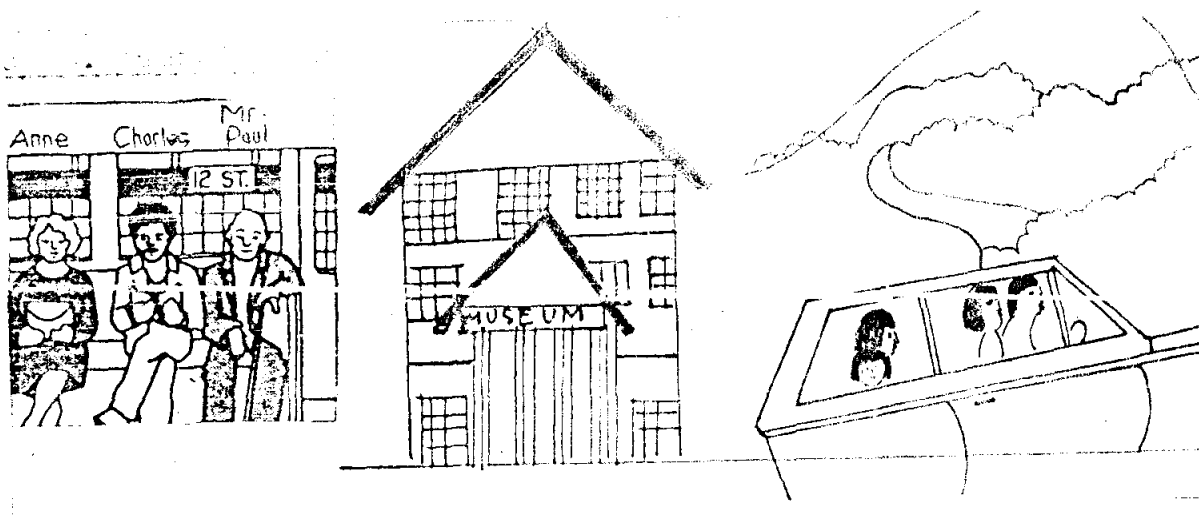
B. near

D. far

II. Answer the questions according to the pictures. Use the appropriate preposition!

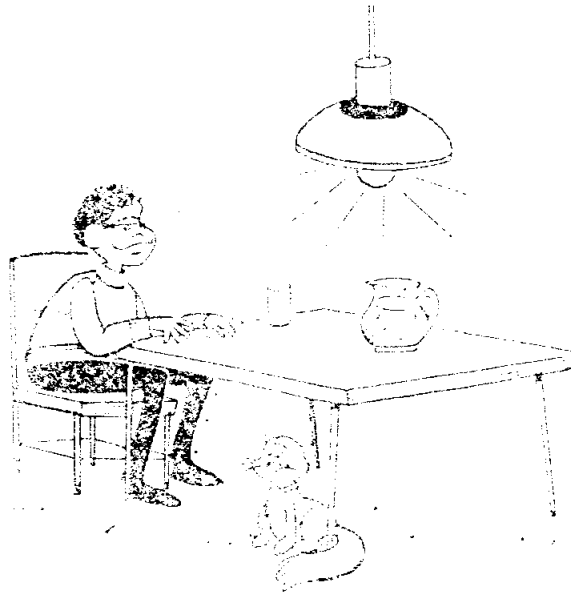


1. The horse is _____ the small house.
2. The treasure is _____ the box.
3. The large plane is _____ the school.
4. The students are _____ the school.
5. The chimney is _____ the big house.
6. The tree is _____ the big house.

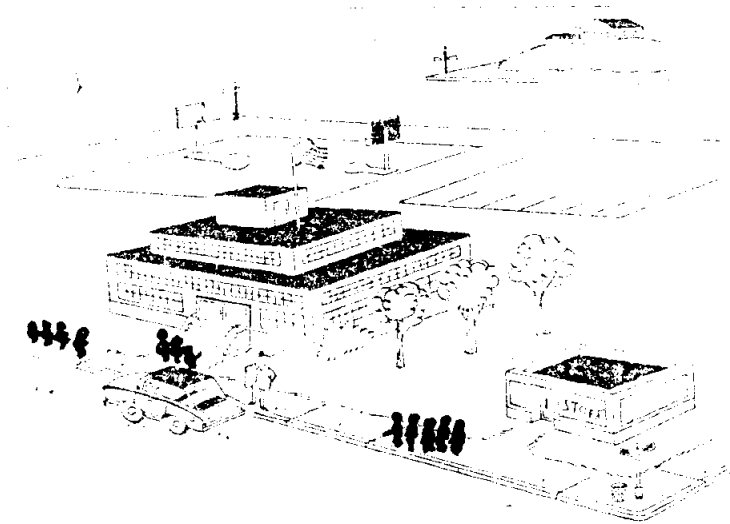


7. Charles sits down _____ Anne and Mr. Paul.
8. Mr. Lopez and family will take their vacation _____ Sunday.
9. They will go to the beach _____ car.
10. The museum was built _____ 1942.

III. Complete the sentences with the words in the right column!



- | | |
|------------------------------------|----------|
| 1. The cat is _____ the table. | A. at |
| 2. The light is _____ the table. | B. under |
| 3. The boy is _____ the table. | C. in |
| 4. The glass is _____ the table. | D. on |
| 5. The water is _____ the pitcher. | E. over |



- | | |
|--|----------------|
| 6. The car is _____ the school. | F. near |
| 7. The playground is _____ the school. | G. in back of |
| 8. The house is _____ the school. | H. on |
| 9. The store is _____ the school. | I. In front of |
| 10. The students go back to school _____ | J. far from |

July 20

IV. Teaching Learning Activities

A. The Approach : Meaningful Approach

The Method : Communicative Method

B. The Steps

No	Skill/Sub-skill	Procedure	Activities	No
1	Speaking	Pre-structure	Answer the question orally	1/
2	Listening Speaking Writing Reading Speaking	Whilst-structure	Listen to the teacher's explanation. Memorize the teacher's explanation. Complete a sentence by using the appropriate preposition based on the word in the bracket. Make a dialogue based on the teacher's explanation. Check the answer together.	C C I C C
3	Writing Writing Writing	Post-structure	Choose the correct answer based on the pictures. Complete the questions by using the appropriate preposition based on the picture. Match the sentences with the words in the right column based on the pictures.	I I I

V. Media and Source

A. Media : handouts

B. Source : Ali Sakti, Budiarti, and Aekanu Hariyono. 1998.

English for SD jilid 4C. Penerbit PT Grasindo.

**Lado, Robert. 1980. Lado English Series 4: New Edition:
Teacher's Manual. New York: Regent Publishing Co.**

VI. Evaluation

Students do the activities in the post-structure material.

VII. Key

Whilst-structure material

- | | | |
|----|-----------------|-----------|
| I. | 1. on. | 6. under. |
| | 2. in. | 7. over. |
| | 3. beside. | 8. near. |
| | 4. In back of. | 9. with. |
| | 5. In front of. | 10. by. |

II. 1. A: Is the ruler in the bag?

B: No, it isn't.

A: Where is it?

B: It's under the book.

2. A: Is the cat on the chair?

B: No, it isn't.

A: Where is it?

B: It's under the chair.

3. A: Is the flag under the floor?

B: No, it isn't.

A: Where is it?

B: it's on the floor.

4. A: Is the dog in the house?

B: No, it isn't.

A: Where is it?

B: It's in front of the house.

Post-structure Material

I. 1. at.

2. on.

3. with

4. at.

5. in.

6. under.

7. in.

8. on.

9. by.

10. beside.

11. between.

12. among.

13. in back of.

14. near.

15. far.

II. 1. in back of.

2. in.

3. over.

4. in front of.

5. on.

6. beside.

7. between.

8. on.

9. by.

10. in.

III. 1. under.

2. over.

6. in front of.

7. in back of.

3. at.

4. on.

5. in.

8. far from.

9. near.

10. on.

Approved by:

Surabaya, August 11th 1998

Drs. Y.G. Harto Pramono M.Pd.

Tutor

Loe Fei Cien

Teacher candidate

Suggestion for the teacher candidate:

APPENDIX IV

Below are questionnaires related to the significance of pictures in teaching prepositions. Kindly answer each item objectively. Your answer does not interfere your current position.

Teacher

1.a. Do you use pictures in teaching prepositions?

- A. always ☐
- B. usually ☐
- C. often ☐
- D. seldom ☒
- E. never ☐

b. What kinds of pictures do you give your students in teaching prepositions?

I give pictures which show our daily activities or funny cartoon pictures

2.a. Do you usually color your pictures?

- A. always ☒
- B. usually ☐
- C. often ☐
- D. seldom ☐
- E. never ☐

b. Do you use colorful pictures in teaching prepositions?

- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒

3. How do you apply the pictures in teaching prepositions?

I take pictures which related to prepositions. For example, prepositions which point places. I'll give pictures that are showing activities with the 'actors'.

4. To what extent do pictures help your teaching prepositions?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒
5. Can your students understand the given materials easily?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒
6. Do your students participate actively when you are teaching through pictures?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒
7. Do you think pictures indicating prepositions help you prepare your teaching?
- A. very much ☐
- B. sufficiently ☒
- C. not at all ☐
8. Do you think pictures indicating prepositions help the students understand the meaning and distribution of prepositions?
- A. very much ☐
- B. sufficiently ☒
- C. not at all ☐
9. Do you think your students are responsive in the process of teaching learning activities?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒

10. Do you feel it easier to teach prepositions through pictures?

A. much easier ☐

B. sufficiently ☐

C. difficult ☒

Below are questionnaires related to the significance of pictures in teaching prepositions. Kindly answer each item objectively. Your answer does not interfere your current position.

Students

1.a. Does your teacher often use pictures in teaching prepositions?

- A. always ☐
- B. usually ☐
- C. often ☐
- D. seldom ☒
- E. never ☐

2. Do you pay more attention when the teacher teach especially prepositions through pictures?

- A. Yes, I do ☐
- B. No, I do not ☒

3. Do you understand more easily learning prepositions through pictures?

- A. much easier ☐
- B. sufficiently easier ☐
- C. difficult ☒

4. Are you motivated by learning prepositions through pictures?

- A. Yes, I am ☐
- B. No, I am not ☒

5. Does learning (especially prepositions) reduce your boredom in the class?

- A. very much ☐
- B. sufficiently ☒
- C. do not reduce at all ☐

6. Can learning with pictures prolog your remembrance about prepositions?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒
7. Can learning prepositions through pictures make the situation of the class better?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒
8. Does it take you less time to learn prepositions through pictures than without pictures?
- A. Yes, it does ☐
- B. No, it does not ☒
9. Are colorful pictures more interesting than black and white?
- A. Yes, they are ☒
- B. No, it does not ☐
10. Do colorful pictures motivate you to learn prepositions?
- A. very much ☐
- B. sufficiently ☐
- C. not at all ☒

APPENDIX V

MULTIPLE CHOICE

SUB NUM	I T E M															TOTAL SCORE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	1	12
2	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	5
3	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	9
4	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	8
5	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	5
6	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	14
7	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	10
8	0	1	1	0	1	0	1	0	0	1	1	1	1	1	1	10
9	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	13
10	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	4
11	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	5
12	0	0	0	0	1	0	1	0	1	1	1	1	1	1	1	9
13	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	9
14	1	1	1	0	1	0	1	1	0	1	0	1	1	1	1	11
15	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	7
16	0	0	0	1	1	1	1	1	1	1	0	1	1	1	1	11
17	0	0	1	1	1	0	1	1	0	0	1	1	1	1	1	10
18	0	1	0	0	1	0	1	0	0	1	1	1	1	1	1	9
19	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	14
20	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	13
21	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	14
22	0	1	1	1	0	0	0	1	0	1	0	0	0	0	0	5
23	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	12
24	0	0	1	0	0	0	1	0	1	0	0	1	1	1	1	7
25	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	6
26	1	0	0	1	1	0	0	0	1	1	0	0	0	0	0	5
27	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	4
28	0	0	1	0	1	1	1	0	0	1	0	0	0	0	0	5
29	0	1	0	1	1	0	1	0	0	1	1	0	0	0	0	6
30	1	0	0	1	1	1	0	0	0	1	1	1	1	1	1	10
31	0	0	1	1	0	1	0	0	0	1	0	1	1	1	1	8
32	0	0	0	0	1	0	1	1	1	0	0	1	1	1	1	8
33	0	1	0	0	1	0	0	1	1	1	0	1	1	1	1	9
34	0	1	0	1	1	0	1	1	1	1	0	1	1	1	1	11
35	0	0	1	0	1	0	1	1	1	1	1	0	0	0	0	7
36	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	4
37	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	7
38	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	11
39	1	1	1	0	1	0	1	1	0	1	0	1	1	1	1	11
40	0	1	0	0	1	1	0	1	0	1	1	0	0	0	0	6
41	1	0	0	0	1	1	1	0	1	1	1	1	1	1	1	11
42	0	1	0	0	1	1	0	1	0	0	0	1	1	1	1	8

CALCULATION OF DISCRIMINATION POWER AND DIFFICULTY INDEX
(MULTIPLE CHOICE)

SUBJECT NUMBER	I T E M															TOTAL SCORE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
U P P E R G R O U P	22	1	0	1	1	0	1	1	1	1	1	1	1	1	1	13
	23	0	1	1	1	1	1	1	0	1	1	1	1	1	1	13
	15	0	1	1	1	0	1	1	1	1	1	1	1	1	1	13
	18	1	1	1	1	1	1	1	0	1	0	1	1	1	1	13
	9	1	1	1	1	0	1	1	1	1	1	1	1	0	1	13
	32	0	1	1	1	0	1	1	1	1	1	1	1	1	1	13
	34	0	1	1	1	0	1	1	1	1	1	1	1	1	1	13
	7	0	1	1	1	1	0	1	0	1	1	1	1	1	1	12
	40	1	1	1	1	0	1	1	0	1	0	1	1	1	1	12
	27	0	1	1	1	1	1	0	1	1	1	1	0	1	1	12
	35	0	1	0	1	1	1	1	1	1	1	1	0	1	1	12
	36	1	1	1	1	1	1	0	0	1	1	1	0	0	1	11
	1	1	1	1	1	0	1	1	0	1	0	1	0	1	1	11
	11	1	1	1	1	0	1	1	0	1	0	1	1	1	0	11
	24	0	1	1	1	1	1	0	1	1	1	1	0	0	1	11
	19	1	1	1	1	0	1	0	1	1	1	0	0	1	0	10
	30	0	1	1	1	0	1	1	1	1	0	1	0	1	0	10
	41	1	1	1	1	0	1	1	0	1	0	1	1	0	0	10
	21	0	0	1	1	0	0	1	0	1	1	1	1	1	1	10
	38	0	0	1	1	0	1	1	0	1	1	1	0	0	1	9
	2	0	1	1	1	1	1	1	0	1	0	1	0	1	0	9
CORRECT ANSWER (U)		9	18	20	21	8	19	17	10	21	14	20	12	17	16	19

L O W E R G R O U P	6	0	0	1	1	0	1	0	1	1	0	0	0	1	1	1	8
	4	0	0	1	1	0	1	0	0	1	0	1	0	1	1	1	8
	8	0	1	1	1	0	1	0	0	1	1	1	0	0	0	1	8
	37	0	1	1	1	0	0	1	0	1	0	1	0	1	0	0	8
	33	0	1	0	1	0	1	1	0	1	0	1	1	1	0	0	8
	14	0	1	1	0	0	0	0	0	1	0	0	1	1	1	1	7
	31	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0	7
	26	0	1	0	1	0	0	1	0	1	0	1	1	1	0	0	7
	5	1	0	1	1	1	1	1	0	0	0	1	0	0	0	0	7
	29	0	1	0	1	0	1	0	0	1	0	1	1	0	0	1	7
	42	0	1	0	1	0	0	1	0	1	0	1	1	1	0	0	7
	10	0	1	0	1	0	0	1	0	1	0	1	1	0	0	0	6
	17	0	0	1	1	0	1	1	1	0	0	0	0	1	0	0	6
	39	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	6
	20	0	1	0	1	0	1	1	0	1	0	1	0	0	0	0	6
	25	1	1	0	1	0	0	0	1	1	1	0	0	0	0	0	6
3	1	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	5
	16	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	5
	28	0	1	0	0	1	0	0	1	0	0	0	0	0	1	1	5
	12	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
	13	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	4
CORRECT ANSWER (L)		4	13	10	15	3	10	12	5	16	3	12	7	10	7	8	
DP = (U-L) / N		0.24	0.24	0.48	0.29	0.24	0.43	0.24	0.24	0.24	0.52	0.38	0.24	0.33	0.43	0.52	
Interp.		Sat.	Sat.	Good	Sat.	Sat.	Good	Sat.	Sat.	Sat.	Good	Sat.	Sat.	Sat.	Good	Good	
CORRECTLY (C)		13	31	30	36	11	29	29	15	37	17	32	19	27	23	27	
DI = C / TOTAL		0.3	0.73	0.714	0.85	0.26	0.69	0.69	0.35	0.88	0.4	0.76	0.452	0.642	0.547	0.642	
Interp.		Mod.	Easy	Easy	Easy	Mod.	Mod.	Mod.	Mod.	Easy	Mod.	Easy	Mod.	Mod.	Mod.	Mod.	

Criterion of Discrimination Power

0.00 - 0.20 : Poor
0.20 - 0.40 : Satisfactory
0.40 - 0.70 : Good
0.70 - 1.00 : Excellent

Criterion of Difficulty Index

0.00 - 0.30 : Difficult
0.30 - 0.70 : Moderate
0.70 - 1.00 : Easy

CALCULATIONS OF EMPIRICAL VALELITY, r PRODUCT MOMENT *)
(MULTIPLE CHOICE)

No.	TRY O SUB-SUM				
	X	Y	X ²	Y ²	XY
1	11	6	121	36	66
2	9	6	81	36	54
3	5	5	25	25	25
4	8	5	64	25	40
5	7	6	49	36	42
6	8	7	64	49	56
7	12	9	144	81	108
8	8	5	64	25	40
9	13	8	169	64	104
10	6	7	36	49	42
11	11	8	121	64	88
12	4	5	16	25	20
13	4	6	16	36	24
14	7	7	49	49	49
15	13	9	169	81	117
16	5	5	25	25	25
17	6	7	36	49	42
18	13	9	169	81	117
19	10	7	100	49	70
20	6	5	36	25	30
21	10	7	100	49	70
22	13	8	169	64	104
23	13	8	169	64	104
24	11	5	121	25	55
25	6	5	36	25	30
26	7	5	49	25	35
27	12	6	144	36	72
28	5	5	25	25	25
29	7	5	49	25	35
30	10	6	100	36	60
31	7	5	49	25	35
32	13	9	169	81	117
33	8	7	64	49	56
34	13	7	169	49	91
35	12	8	144	64	96
36	11	7	121	49	77
37	8	5	64	25	40
38	9	5	81	25	45
39	6	5	36	25	30
40	12	7	144	49	84
41	10	6	100	36	60
42	7	6	49	36	42
TOTAL n = 42	376	269	3706	1797	2522

X = SCORE OF TRY OUT

Y - SCORE OF SUB-SUMATIVE TEST

$$1. r = \frac{n \sum XY - \sum X \cdot \sum Y}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}} = 0.717$$

2. 5% significance level, r table = 0.304

3. CONCLUSION:

Since /r calculation 0.717026 > r table, then there is significant correlation between X and Y.

So, test is valid.

*) Soeharsimi Arikunto, DR, Dasar-dasar Evaluasi Pendidikan
PT Bumi Aksara, Jakarta, 1987, p. 65.

CALCULATION FOR RELIABILITY KR-21
(MULTIPLE CHOICE)

NO.	X	X ²
1	11	121
2	9	81
3	5	25
4	8	64
5	7	49
6	8	64
7	12	144
8	8	64
9	13	169
10	6	36
11	11	121
12	4	16
13	4	16
14	7	49
15	13	169
16	5	25
17	6	36
18	13	169
19	10	100
20	6	36
21	10	100
22	13	169
23	13	169
24	11	121
25	6	36
26	7	49
27	12	144
28	5	25
29	7	49
30	10	100
31	7	49
32	13	169
33	8	64
34	13	169
35	12	144
36	11	121
37	8	64
38	9	81
39	6	36
40	12	144
41	10	100
42	7	49
TOTAL	376	3706
n = 42		
MEAN	8.95238	
VAR	8.09297	

$$M = \frac{\sum X}{n} = 8.9523$$

$$V = \frac{\sum X^2 - (\sum X)^2 / n}{n} = 8.0929$$

$$K = 15$$

KR-21 FORMULA :*)

$$r = \frac{K}{K-1} \left(1 - \frac{M(K-M)}{KV} \right) = 0.5935^*$$

Where: r = Reliability

n = Number of subjects

M = Mean

V = Variance

K = Number of items

n = 42, r tabel = 0.304

Because r greater than r table, so the test is reliable.

*) Soeharsimi Arikunto, DASAR-DASAR EVALUASI PENDIDIKAN,
PT Bumi Aksara, Jakarta, 1990, h. 98.

COMPLETION

SUB NUM	I T E M										TOTAL SCORE
	1	2	3	4	5	6	7	8	9	10	
1	0	0	1	0	0	0	1	0	1	1	4
2	0	1	1	0	1	0	1	0	1	0	5
3	0	1	0	0	0	0	1	0	1	0	3
4	0	0	1	0	0	0	1	0	1	0	3
5	1	1	0	0	0	0	0	0	1	0	3
6	0	1	0	0	1	0	1	1	1	0	5
7	1	1	1	1	1	1	1	1	1	0	9
8	0	0	0	0	0	1	1	0	1	0	3
9	1	0	1	0	1	1	1	1	1	1	8
10	0	1	0	0	1	0	1	0	1	1	5
11	0	1	1	1	1	1	1	1	1	0	8
12	0	0	1	1	0	0	0	0	1	0	3
13	0	1	0	0	1	0	1	1	1	0	5
14	1	0	0	1	0	0	1	1	1	0	5
15	0	1	1	0	1	0	1	1	1	0	6
16	0	0	0	0	1	0	0	1	0	1	3
17	0	1	1	0	1	0	0	1	1	1	6
18	0	1	1	1	1	1	1	1	1	1	9
19	0	0	0	0	0	0	0	1	1	0	2
20	1	1	0	0	1	0	0	0	0	0	3
21	1	0	1	0	0	0	0	1	1	1	5
22	0	1	1	1	1	0	0	1	1	0	6
23	0	1	0	0	1	0	1	1	1	1	6
24	0	1	0	0	0	0	0	0	1	0	2
25	0	0	0	0	0	0	0	1	1	0	2
26	1	0	0	0	0	0	0	0	1	0	2
27	0	0	0	0	0	0	0	1	1	1	3
28	0	0	1	0	0	0	1	0	0	0	2
29	0	1	0	0	0	0	0	1	1	0	3
30	0	0	1	0	0	0	1	0	1	0	3
31	0	0	1	0	0	0	0	1	1	0	3
32	1	1	1	1	1	1	1	1	1	0	9
33	0	1	1	0	1	0	1	0	1	0	5
34	0	1	1	1	1	1	1	0	1	0	7
35	1	1	1	1	1	1	1	1	1	0	9
36	1	0	1	0	0	0	1	1	1	1	6
37	0	0	0	0	0	0	0	1	1	0	2
38	0	1	0	0	1	0	0	0	1	0	3
39	0	0	1	0	0	0	0	0	1	0	2
40	0	1	1	0	1	0	0	1	1	1	6
41	0	1	1	0	0	0	0	0	1	0	3
42	1	1	1	0	0	0	1	1	1	0	6

**CALCULATION OF DISCRIMINATION POWER AND DIFFICULTY INDEX
(COMPLETION)**

SUBJECT NUMBER		I T E M										TOTAL SCORE
		1	2	3	4	5	6	7	8	9	10	
U P P E R G R O U P	32	1	1	1	1	1	1	1	1	1	0	9
	35	1	1	1	1	1	1	1	1	1	0	9
	7	1	1	1	1	1	1	1	1	1	0	9
	18	0	1	1	1	1	1	1	1	1	1	9
	11	0	1	1	1	1	1	1	1	1	0	8
	9	1	0	1	0	1	1	1	1	1	1	8
	34	0	1	1	1	1	1	1	0	1	0	7
	15	0	1	1	0	1	0	1	1	1	0	6
	22	0	1	1	1	1	0	0	1	1	0	6
	17	0	1	1	0	1	0	0	1	1	1	6
	23	0	1	0	0	1	0	1	1	1	1	6
	40	0	1	1	0	1	0	0	1	1	1	6
	42	1	1	1	0	0	0	1	1	1	0	6
	36	1	0	1	0	0	0	1	1	1	1	6
	33	0	1	1	0	1	0	1	0	1	0	5
	13	0	1	0	0	1	0	1	1	1	0	5
	2	0	1	1	0	1	0	1	0	1	0	5
	21	1	0	1	0	0	0	0	1	1	1	5
	14	1	0	0	1	0	0	1	1	1	0	5
	6	0	1	0	0	1	0	1	1	1	0	5
	10	0	1	0	0	1	0	1	0	1	1	5
CORRECT ANSWER (U)		8	17	16	8	17	7	17	17	21	8	

L O W E R G R O U P	1	0	0	1	0	0	0	1	0	1	1	4
	41	0	1	1	0	0	0	0	0	1	0	3
	30	0	0	1	0	0	0	1	0	1	0	3
	16	0	0	0	0	1	0	0	1	0	1	3
	31	0	0	1	0	0	0	0	1	1	0	3
	8	0	0	0	0	0	1	1	0	1	0	3
	20	1	1	0	0	1	0	0	0	0	0	3
	12	0	0	1	1	0	0	0	0	1	0	3
	5	1	1	0	0	0	0	0	0	1	0	3
	38	0	1	0	0	1	0	0	0	1	0	3
	29	0	1	0	0	0	0	0	1	1	0	3
	27	0	0	0	0	0	0	0	1	1	1	3
	3	0	1	0	0	0	0	1	0	1	0	3
	4	0	0	1	0	0	0	1	0	1	0	3
	28	0	0	1	0	0	0	1	0	0	0	2
	19	0	0	0	0	0	0	0	1	1	0	2
	39	0	0	1	0	0	0	0	0	1	0	2
	26	1	0	0	0	0	0	0	0	1	0	2
	24	0	1	0	0	0	0	0	0	1	0	2
	25	0	0	0	0	0	0	0	1	1	0	2
	37	0	0	0	0	0	0	0	1	1	0	2
CORRECT ANSWER (L)		3	7	8	1	3	1	6	7	18	3	
DP = (U-L) / N		0.24	0.48	0.38	0.33	0.67	0.29	0.52	0.48	0.14	0.24	
Interp.		Sat.	Good	Sat.	Sat.	Good	Sat.	Good	Good	Poor	Sat.	
CORRECTLY (C)		11	24	24	9	20	8	23	24	39	11	
DI = C / TOTAL		0.26	0.57	0.571	0.21	0.47	0.19	0.54	0.57	0.92	0.26	
Interp.		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Easy	Mod.	

Criterion of Discrimination Power

0.00 - 0.20 : Poor
0.20 - 0.40 : Satisfactory
0.40 - 0.70 : Good
0.70 - 1.00 : Excellent

Criterion of Difficulty Index

0.00 - 0.30 : Difficult
0.30 - 0.70 : Moderate
0.70 - 1.00 : Easy

CALCULATIONS OF EMPIRICAL VALIDITY, r PRODUCT MOMENT *)
(COMPLETION)

No.	TRY O SUB-SUM				
	X	Y	X ²	Y ²	XY
1	4	6	16	36	24
2	5	6	25	36	30
3	3	5	9	25	15
4	3	5	9	25	15
5	3	6	9	36	18
6	5	7	25	49	35
7	9	9	81	81	81
8	3	5	9	25	15
9	8	8	64	64	64
10	5	7	25	49	35
11	8	8	64	64	64
12	3	5	9	25	15
13	5	6	25	36	30
14	5	7	25	49	35
15	6	9	36	81	54
16	3	5	9	25	15
17	6	7	36	49	42
18	9	9	81	81	81
19	2	7	4	49	14
20	3	5	9	25	15
21	5	7	25	49	35
22	6	8	36	64	48
23	6	8	36	64	48
24	2	5	4	25	10
25	2	5	4	25	10
26	2	5	4	25	10
27	3	6	9	36	18
28	2	5	4	25	10
29	3	5	9	25	15
30	3	6	9	36	18
31	3	5	9	25	15
32	9	9	81	81	81
33	5	7	25	49	35
34	7	7	49	49	49
35	9	8	81	64	72
36	6	7	36	49	42
37	2	5	4	25	10
38	3	5	9	25	15
39	2	5	4	25	10
40	6	7	36	49	42
41	3	6	9	36	18
42	6	6	36	36	36
TOTAL n = 42	193	269	1089	1797	1344

X = SCORE OF TRY OUT

Y - SCORE OF SUB-SUMATIVE TEST

$$1. r = \frac{n \sum XY - \sum X \cdot \sum Y}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}} = 0.881$$

2. 5% significance level, $r_{\text{table}} = 0.304$

3. CONCLUSION:

Since r calculation $0.881406 > r_{\text{table}}$, then there is significant correlation between X and Y.

So, test is valid.

*) Soeharsimi Arikunto, DR, Dasar-dasar Evaluasi Pendidikan
PT Bumi Aksara, Jakarta, 1987, p. 65.

CALCULATION FOR RELIABILITY KR-21
(COMPLETION)

NO.	X	X ²
1	4	16
2	5	25
3	3	9
4	3	9
5	3	9
6	5	25
7	9	81
8	3	9
9	8	64
10	5	25
11	8	64
12	3	9
13	5	25
14	5	25
15	6	36
16	3	9
17	6	36
18	9	81
19	2	4
20	3	9
21	5	25
22	6	36
23	6	36
24	2	4
25	2	4
26	2	4
27	3	9
28	2	4
29	3	9
30	3	9
31	3	9
32	9	81
33	5	25
34	7	49
35	9	81
36	6	36
37	2	4
38	3	9
39	2	4
40	6	36
41	3	9
42	6	36
TOTAL	193	1089
n = 42		
MEAN	4.59523	
VAR	4.81235	

$$M = \frac{\sum X}{n} = 4.5952$$

$$V = \frac{\sum X^2 - (\sum X)^2 / n}{n} = 4.8123$$

$$K = 10$$

KR-21 FORMULA :*)

$$r = \frac{K}{K-1} \left(1 - \frac{M(K-M)}{KV} \right) = 0.5376 *$$

Where: r = Reliability
 n = Number of subjects
 M = Mean
 V = Variance
 K = Number of items

n = 42, r tabel = 0.304

Because r greater than r table, so the test is reliable.

*) Soeharsimi Arikunto, DASAR-DASAR EVALUASI PENDIDIKAN,
 PT Bumi Aksara, Jakarta, 1990, h. 98.

MATCHING

SUB NUM	I T E M										TOTAL SCORE
	1	2	3	4	5	6	7	8	9	10	
1	0	1	1	1	0	0	0	0	0	1	4
2	0	0	0	0	0	1	1	0	0	0	2
3	1	0	0	0	0	1	0	0	0	0	2
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	1	0	0	1	0	1	1	0	4
6	1	1	1	1	1	1	0	1	1	0	8
7	1	1	1	1	1	1	1	1	1	1	10
8	0	0	0	0	0	0	1	0	0	0	1
9	1	0	0	0	1	1	1	1	1	1	7
10	1	1	1	1	1	1	0	1	1	0	8
11	1	0	1	0	1	1	1	0	1	0	6
12	0	0	1	0	1	0	0	0	0	0	2
13	1	0	0	1	1	1	1	0	0	1	6
14	1	1	1	1	1	1	0	1	1	0	8
15	1	1	1	1	1	1	1	1	1	1	10
16	0	0	0	0	0	0	0	0	0	1	1
17	1	1	1	1	1	1	0	1	1	0	8
18	1	1	1	1	1	1	1	1	1	1	10
19	1	1	0	0	1	1	1	1	1	1	8
20	0	1	0	1	1	1	0	0	0	0	4
21	1	1	1	0	0	0	1	1	0	1	6
22	1	1	1	1	1	0	1	1	0	1	8
23	1	0	1	0	1	1	1	1	1	1	8
24	1	0	0	1	0	0	0	1	0	0	3
25	0	0	0	0	1	1	0	0	0	0	2
26	1	0	0	1	0	1	0	1	1	0	5
27	1	1	1	1	1	0	0	0	0	1	6
28	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	1	1	0	0	0	0	0	2
30	1	1	1	0	0	0	1	1	0	1	6
31	0	0	0	0	0	1	0	0	0	0	1
32	1	1	1	1	1	1	1	1	1	1	10
33	1	1	1	1	1	1	0	1	1	0	8
34	1	0	0	0	1	1	1	1	1	1	7
35	1	0	1	0	1	1	0	0	1	0	5
36	1	1	0	1	0	1	1	1	1	1	8
37	0	0	0	0	0	0	0	0	0	0	0
38	1	0	0	0	0	1	0	1	0	0	3
39	1	1	1	0	0	0	0	1	1	0	5
40	1	0	0	0	1	1	0	0	1	1	5
41	1	0	0	1	1	1	0	1	1	0	6
42	1	0	0	0	1	1	0	0	1	1	5

CALCULATION OF DISCRIMINATION POWER AND DIFFICULTY INDEX

(MATCHING)

SUBJECT NUMBER	I T E M										TOTAL SCORE
	1	2	3	4	5	6	7	8	9	10	
U P P E R G R O U P	18	1	1	1	1	1	1	1	1	1	10
	32	1	1	1	1	1	1	1	1	1	10
	7	1	1	1	1	1	1	1	1	1	10
	15	1	1	1	1	1	1	1	1	1	10
	22	1	1	1	1	1	0	1	1	0	8
	36	1	1	0	1	0	1	1	1	1	8
	19	1	1	0	0	1	1	1	1	1	8
	23	1	0	1	0	1	1	1	1	1	8
	17	1	1	1	1	1	0	1	1	0	8
	14	1	1	1	1	1	0	1	1	0	8
	6	1	1	1	1	1	0	1	1	0	8
	10	1	1	1	1	1	0	1	1	0	8
	33	1	1	1	1	1	0	1	1	0	8
	34	1	0	0	0	1	1	1	1	1	7
	9	1	0	0	0	1	1	1	1	1	7
	30	1	1	1	0	0	0	1	1	0	6
	13	1	0	0	1	1	1	1	0	0	6
	41	1	0	0	1	1	1	0	1	1	6
	27	1	1	1	1	1	0	0	0	1	6
	11	1	0	1	0	1	1	0	1	0	6
	21	1	1	1	0	0	0	1	1	0	6
CORRECT ANSWER (U)		21	15	15	14	18	17	14	18	16	14

L O W E R G R O U P	26	1	0	0	1	1	0	0	1	1	0	5
	40	1	0	0	0	1	1	0	0	1	1	5
	42	1	0	0	0	1	1	0	0	1	1	5
	35	1	0	1	0	1	1	0	0	1	0	5
	39	1	1	1	0	0	0	0	1	1	0	5
	5	0	0	1	0	0	1	0	1	1	0	4
	1	0	1	1	1	0	0	0	0	0	1	4
	20	0	1	0	1	1	1	0	0	0	0	4
	24	1	0	0	1	0	0	0	1	0	0	3
	38	1	0	0	0	0	1	0	1	0	0	3
	3	1	0	0	0	0	1	0	0	0	0	2
	25	0	0	0	0	1	1	0	0	0	0	2
	2	0	0	0	0	0	1	1	0	0	0	2
	29	0	0	0	1	1	0	0	0	0	0	2
	12	0	0	1	0	1	0	0	0	0	0	2
	31	0	0	0	0	0	1	0	0	0	0	1
	8	0	0	0	0	0	0	1	0	0	0	1
	16	0	0	0	0	0	0	0	0	0	1	1
	37	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0
	28	0	0	0	0	0	0	0	0	0	0	0
CORRECT ANSWER (L)		8	3	5	5	8	10	2	5	6	4	
DP = (U-L) / N		0.62	0.57	0.48	0.43	0.48	0.33	0.57	0.62	0.48	0.48	
Interp.		Good	Good	Good	Good	Good	Sat.	Good	Good	Good	Good	
CORRECTLY (C)		29	18	20	19	26	27	16	23	22	18	
DI = C / TOTAL		0.69	0.42	0.476	0.45	0.61	0.64	0.38	0.54	0.52	0.42	
Interp.		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	

Criterion of Discrimination Power

0.00 - 0.20 : Poor
0.20 - 0.40 : Satisfactory
0.40 - 0.70 : Good
0.70 - 1.00 : Excellent

Criterion of Difficulty Index

0.00 - 0.30 : Difficult
0.30 - 0.70 : Moderate
0.70 - 1.00 : Easy

CALCULATIONS OF EMPIRICAL VALIDITY, r PRODUCT MOMENT *)
(MATCHING)

No.	TRY O SUB-SUM				
	X	Y	X ²	Y ²	XY
1	4	6	16	36	24
2	2	6	4	36	12
3	2	5	4	25	10
4	0	5	0	25	0
5	4	6	16	36	24
6	8	7	64	49	56
7	10	9	100	81	90
8	1	5	1	25	5
9	7	8	49	64	56
10	8	7	64	49	56
11	6	8	36	64	48
12	2	5	4	25	10
13	6	6	36	36	36
14	8	7	64	49	56
15	10	9	100	81	90
16	1	5	1	25	5
17	8	7	64	49	56
18	10	9	100	81	90
19	8	7	64	49	56
20	4	5	16	25	20
21	6	7	36	49	42
22	8	8	64	64	64
23	8	8	64	64	64
24	3	5	9	25	15
25	2	5	4	25	10
26	5	5	25	25	25
27	6	6	36	36	36
28	0	5	0	25	0
29	2	5	4	25	10
30	6	6	36	36	36
31	1	5	1	25	5
32	10	9	100	81	90
33	8	7	64	49	56
34	7	7	49	49	49
35	5	8	25	64	40
36	8	7	64	49	56
37	0	5	0	25	0
38	3	5	9	25	15
39	5	5	25	25	25
40	5	7	25	49	35
41	6	6	36	36	36
42	5	6	25	36	30
TOTAL n = 42	218	269	1504	1797	1539

X - SCORE OF TRY OUT

Y = SCORE OF SUB-SUMATIVE TEST

$$1. r = \frac{n \sum XY - \sum X \cdot \sum Y}{\sqrt{[n \sum X^2 - (\sum X)^2][n \sum Y^2 - (\sum Y)^2]}} = 0.859$$

2. 5% significance level, $r_{\text{table}} = 0.304$

3. CONCLUSION:

Since r calculation $0.859207 > r_{\text{table}}$, then there is significant correlation between X and Y.

So, test is valid.

*) Soeharsimi Arikunto, DR, Dasar-dasar Evaluasi Pendidikan

PT Bumi Aksara, Jakarta, 1987, p. 65.

**CALCULATION FOR RELIABILITY KR-21
(MATCHING)**

NO.	X	X ²
1	4	16
2	2	4
3	2	4
4	0	0
5	4	16
6	8	64
7	10	100
8	1	1
9	7	49
10	8	64
11	6	36
12	2	4
13	6	36
14	8	64
15	10	100
16	1	1
17	8	64
18	10	100
19	8	64
20	4	16
21	6	36
22	8	64
23	8	64
24	3	9
25	2	4
26	5	25
27	6	36
28	0	0
29	2	4
30	6	36
31	1	1
32	10	100
33	8	64
34	7	49
35	5	25
36	8	64
37	0	0
38	3	9
39	5	25
40	5	25
41	6	36
42	5	25
TOTAL	218	1504
n = 42		
MEAN	5.19047	
VAR	8.86848	

$$M = \frac{\sum X}{n} = 5.1904$$

$$V = \frac{\sum X^2 - (\sum X)^2 / n}{n} = 8.8684$$

$$K = 10$$

KR-21 FORMULA :*)

$$r = \frac{K}{K-1} \left(1 - \frac{M(K-M)}{KV} \right) = 0.7983 *$$

Where: r = Reliability
 n = Number of subjects
 M = Mean
 V = Variance
 K = Number of items

n = 42, r tabel = 0.304

Because r greater than r table, so the test is reliable.

*) Soeharsimi Arikunto, DASAR-DASAR EVALUASI PENDIDIKAN,
 PT Bumi Aksara, Jakarta, 1990, h. 98.

CALCULATION FOR TWO MEANS TEST

NO.	x _A	x ² _A	x _B	x ² _B
1	7	49	5	25
2	8	64	5	25
3	5	25	4	16
4	5	25	5	25
5	8	64	7	49
6	4	16	6	36
7	6	36	6	36
8	7	49	3	9
9	8	64	4	16
10	8	64	3	9
11	5	25	5	25
12	7	49	7	49
13	7	49	7	49
14	9	81	6	36
15	7	49	7	49
16	6	36	6	36
17	8	64	8	64
18	5	25	7	49
19	4	16	8	64
20	9	81	8	64
21	6	36	4	16
22	8	64	4	16
23	6	36	8	64
24	5	25	7	49
25	9	81	8	64
26	6	36	6	36
27	5	25	8	64
28	8	64	5	25
29	9	81	8	64
30	7	49	7	49
31	9	81	8	64
32	7	49	7	49
33	5	25	6	36
34	5	25	5	25
35	9	81	7	49
36	8	64	6	36
37	7	49	5	25
38	7	49	8	64
39	9	81	8	64
40	7	49	8	64
41	8	64	8	64
42	6	36	9	81
TOTAL	289	2081	267	1799
n	42		42	
MEAN	6.880952		6.357143	
SD	1.501258		1.574514	

TESTS OF HYPOTHESES:

1. $H_0 : \mu_A = \mu_B$, there is no significant difference between the mean groups.
 $H_a : \mu_A > \mu_B$, mean score of A group is greater than B group.

2. t-test, where $df = n_A + n_B - 2 = 82$

$$t(0.05) = 2.000$$

3. Calculation for t observation (t_0):

A : EXPERIMENT GROUP

$$\bar{x} = \frac{\sum x}{n} = 6.880952 \quad ; \quad n = 42$$

$$s = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}} = 1.501257$$

B : CONTROL GROUP

$$\bar{x} = \frac{\sum x}{n} = 6.357142 \quad ; \quad n = 42$$

$$s = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}} = 1.574513$$

$$t_0 = \frac{\bar{x}_A - \bar{x}_B}{\sqrt{\frac{(n_A - 1)s^2_A + (n_B - 1)s^2_B}{n_A + n_B - 2} \left(\frac{1}{n_A} + \frac{1}{n_B} \right)}} = 1.560$$

4. Conclusion:

Because $|t \text{ observation}| = 1.560399 < t(0.05/2)$ so H_0 is accepted.

Hence we conclude that at a 0.05 level there is no significant difference between groups.

CALCULATION FOR TWO MEANS TEST

NO	x _A	x ² _A	x _B	x ² _B
1	27	729	21	441
2	31	961	21	441
3	19	361	16	256
4	21	441	22	484
5	30	900	28	784
6	17	289	24	576
7	23	529	24	576
8	34	1156	11	121
9	33	1089	16	256
10	33	1089	11	121
11	18	324	20	400
12	27	729	28	784
13	27	729	30	900
14	33	1089	27	729
15	28	784	29	841
16	24	576	24	576
17	29	841	34	1156
18	21	441	30	900
19	17	289	33	1089
20	35	1225	34	1156
21	24	576	18	324
22	29	841	18	324
23	25	625	32	1024
24	20	400	29	841
25	34	1156	33	1089
26	24	576	25	625
27	18	324	32	1024
28	34	1156	22	484
29	34	1156	32	1024
30	27	729	29	841
31	33	1089	32	1024
32	26	676	28	784
33	18	324	25	625
34	19	361	23	529
35	34	1156	30	900
36	34	1156	27	729
37	26	676	23	529
38	26	676	33	1089
39	33	1089	32	1024
40	32	1024	33	1089
41	32	1024	35	1225
42	28	784	35	1225
TOTAL	1137	32148	1109	30969
n	42		42	
MEAN	27.07143		26.40476	
SD	6.769528		6.393821	

TESTS OF HYPOTHESES:

1. $H_0 : \mu_A = \mu_B$, there is no significant difference between the mean groups.

$H_a : \mu_A > \mu_B$, mean score of A group is greater than B group.

2. t-test, where $df = n_A + n_B - 2 = 82$

$$t(0.05) = 1.671$$

3. Calculation for t observation (t_0):

A : EXPERIMENT GROUP

$$\bar{x} = \frac{\sum x}{n} = 27.07142 \quad ; \quad n = 42$$

$$s = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}} = 5.769528$$

B : CONTROL GROUP

$$\bar{x} = \frac{\sum x}{n} = 26.40476 \quad ; \quad n = 42$$

$$s = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}} = 6.393821$$

$$t_0 = \frac{\bar{x}_A - \bar{x}_B}{\sqrt{\frac{(n_A - 1)s^2_A + (n_B - 1)s^2_B}{n_A + n_B - 2} \left(\frac{1}{n_A} + \frac{1}{n_B} \right)}} = 0.502$$

4. Conclusion:

Because $|t \text{ observation}| = 0.501676 < t(0.05)$ so H_0 is accepted.

Hence we conclude that at a 0.05 level there is no significant difference between groups.