# The Effect of Colour Cues on the Achievement of Kuwaiti Pupils Learning English As a Foreign Language

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**Abstract**

This research aims at investigating the effect of colour cues on the achievement of Kuwaiti pupils learning English. An experimental group and a control group were taken from the 3rd year pupils (boys & girls) at intermediate schools. A Unit of the 3rd year book of the Crescent English Course, usually given in one month, was used as an instructional material. The new vocabulary and structures in the Unit were coloured in red. The coloured material was given to the experimental group, whereas the control group was given the black and white one, in which the whole book is printed. An achievement test on the unit was designed and proved to be valid and realiable.

The test was administered as a pretest and posttest. Analysis of results has shown that the pupils who used the colour-coded material achieved higher scores than those who used the black and white one. This difference was not statistically significant. Nevertheless, the researchers recommended that more studies should be done considering the age and the level of the learners, the size of the sample, and the amount of instructional material.

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# Introduction

## Background

After the discovery of coloured print almost all visual media such as cinema and television films, magazines, pictures, transparencies....etc have been produced in colour since they are more realistic, and hence more attractive and effective. Recently, publishers have presented instructional materials such as textbooks with coloured illustrations. It was assumed that the addition of colour to an illustration or to certain parts of the written material would increase their effectiveness by making them more attractive, and hence bringing out high attention on the part of the learner, and this might facilitate the process of learning (Dwyer, 1971, p. 401). Educators started discussing the addition of colour to instructional materials in terms of costs since the colour-coded textbooks are more expensive than their black and white versions (Peterson, 1976, p. 2). Investigations on the strategy and usefulness of colouring illustration and textbook materials are therefore needed for all those who are concerned such as publishers, educators, parents and learners.

Earlier researches in this field came out with results which did not completely agree with hypotheses about the positive effect of coloured materials on students' achievement.

Dwyer (1971, p. 400) points out that the mere addition of colour to an illustration over selected informational areas would not make it more effective than its black and white counterpart. Gulford (1973, p. 10) states that, "as the number of colour coded items increses, the value of colour as a cue for selecting important information decreases. In a very dense visual display colour coding at some minimal level helps in picking out important information; but if you increase this use of colour, its value as a selection cue diminishes." So, to use colour effectively one has to determine the crucial learning code, and then add colour to the cues in a manner which is thought to maximise the use of its function.

Recent researches have focused on certain attributes of the stimuli provided by a medium and the psychological function served for the learner (Wager, 1980, p. 19). Colour is considered a media attribute, and the function of its cues in instructional materials and their effectiveness on students' learning can be investigated and understood in terms of many instructional elements such as the type of the learning task, the aptitudes of learners, the type of colour cuing employed, and the role of other cues

in the text and their relationships with colour cues (chute, 1979, p. 251). Dwyer & Lumberski (1982-83, p. 305) point out that when colour materials such as films and photographs are presented entirely in colour, this means that both incidental or peripheral learning and task or essential learning are equally emphasized by the colour, thus creating a situation in which learners can not discrirninate between relevant and irrelevant cues. So, to use colour effectively in instructional material one would have to construct a colour version of the material in which relevant task cues are coloured and emphasized in a pattern which clearly shows their function.

Chute (1980, p. 11) discusses colour as a perceptual element which allows the learner to process what is perceived. He states that, "colour's importance as a media attribute that affects human learning rests primarily on the degree to which colour cues can facilitate the structuring and organizing of the learning task presented: the ability of colour to dilineate figure-ground relationships, to make discriminations and to organize a simplified whole into a more complex whole underscores colour's effectiveness in learning."

**Related Research**

Most of the research concerning the effectiveness of colour cuing was conducted in mediated instruction or visual presentations such as motion pictures. The findings of many of these research efforts have been inconclusive, and hence they provide few guidelines to educators regarding the proper use of colour cuing in media presentations (Chute, 1979, p. 251). Few studies have investigated the effects of colour cuing on learning from textbooks in which colour was added to printed words (Dwyer & Lumberski, 1982-83, p. 315). However, the findings of these research effects present contradictory evidence for the effective use of colour cuing in self-paced materials such as textbooks.

In a study to compare, among other things, the effectiveness of colour strategies and black and white ones on achievement in college physical science, Scarbino (1971) concluded that colour strategies were as effective as strategies in black and white. Lumberski (1980) investigated the effect of verbal and visual colour strategy on student achievement. A self-paced instructional material was coded in a way intended to test the ability of colour cues to facilitate student learning of different cognitive tasks. The result indicated that colour-coded self-paced instructional materials were more efficient than the black and white ones. This was attributed to the ability of colour material to sustain the

student's attention and interaction with the content along with their ability to provide an enhanced associative memory structure.

In a similar study, Lumberski and Dwyer (1983) studied the effect of colour on information acquisition and retrieval. Subjects consisted of college students enrolled in a media course at Pensylvania State University. The material was a unit on the human heart which consisted of illustrations complementing the information presented in prose. Four criterion tests were used to measure students' achievement. These were; terminology test, drawing test, identification test, and comprehension test. The results indicated that students who received the colour-coded material achieved significantly greater mean scores than those who received the black and white version on all criterion tests. It seems that students have encoding and rehearsal strategies necessary to benefit from the colour visual and verbal information.

Blohn and Whiteside (1986) conducted a study to investigate, among other variables, the effect of color highlighting on college students' recall of paragraphs followed by either rote or semantic decision tasks, and presented on a microcomputer monitor. The results indicated that there was no significant main effect ($\propto = 0.05$) for colour highlighting. The investigators concluded that caution should be taken to extend the result of colour highlighting beyond this sample which consisted of mature readers who possess their own successful internalized strategy to distinguish the structural importance among ideas. Younger readers who are not aware of the relationship that exists among ideas in text, might well benefit from colour highlighting.

This review of research shows that since the results of investigations in this field are inconsistent, more studies have to be done before coming to a solid ground decision on the benefit of colour in textbook materials. Researches must cover all areas of teaching such as, languages, science, social studies ...etc. So, this study which is concerned with teaching English as a foreign language is needed so as to cast more light on the area. It should be mentioned, however, that to the best of our knowledge, we have not found any research on the effect of colour on the achievement of students learning English as a foreign language especially in the Arab countries.

**Statement of the Problem**

Kuwaiti students start learning English when they go to the

intermediate school (4 years) at the age of ten. They take 4 hours per week in the first two years and 6 hours per week in the second two years (Ministry of Education, 1987, p. 75). Arabic is the medium of study in all the other disciplines. Students are exposed to English in the classroom only. The textbook is therefore the most important source of knowledge for students to refer to. In such an atmosphere the textbook can be considered more important than the teacher himself. Improvements on the textbook with the intention to enhance learning is therefore essential.

Like other students studying English almost everywhere, Kuwaiti students face difficulties in English pronunciation, grammar, vocabulary, and spelling. The textbooks they are using include coloured illustrations, but the written material is in black print. However, the mere addition of colour to illustrations is not expected to enhance the process of learning since, in this case, there is neither function for colour cues, nor strategy in its application. The researchers believe that the strategy of colour should deal with the written material with an attempt to facilitate difficulties students face in learning English.

So, this study tries to answer the following question: Do colour cues in language texts have a positive effect on the achievement of students learning English.

**Aim**

The aim of this study can be stated in two related points:

- To improve the textbook lay-out so as to facilitate the learning process.
- To increase students' achievement in learning English as a foreign language.

**Delimitations of the study.**

The study is limited to the following:

a. Kuwaiti pupils: boys and girls.
b. Third year intermediate pupils (7th. grade).
c. Five week period (between October 25th. and November 30th., 1987)
d. Unit 2 in the Crescent English Course: Pupil's Book 3 (O'Neil, Terry & Snow, Peter, 1986, pp. 19-33), Pupil's Workbook 3 (O'Neill Terry & Snow, Peter, 1986, pp. 14-16), Pupil's Handwriting Book 3 (Butterfield, Neil 1986, pp. 7-14), and Teacher's book 3 (Butterfield, Neil; O'Neill, Terry & Snow, Peter, pp. 81-117.

## Procedure

### The Sample

Since the study was limited to Kuwaities, the sample was taken from Kuwaiti inhibited areas in the Kuwait city District. Two schools located in two very close areas (Al-Khaldiyya and Kifan) were taken. Those were:

- Nayla Intermediate School for Girls (Kifan area).
- Abu Ayyoob el-Ansari Intermediate School for boys (Al-Khaldiyya area).

Two classes were taken from each school. One class was experimental and the other was control. Both of the classes in each school were taught by the same teacher. An I.Q. test was administered to the four classes so as to consider the I.Q. factor if it reveals significant differences (Ministry of Education, State of Kuwait, Non-verbal Intelligence Test, 19). However, the I.Q's of the classes were very close to one another, and this factor was excluded. The following table shows the number of the pupils who took the test in both schools, and the I.Q. average of each class.

**Table 1**
**Results of the Non-verbal Intelligence Test of the sample**

| Name of School | No. of puiols in the experimental class | I.Q. | No. of pupils in the control class | I.Q. |
|---|---|---|---|---|
| Abu Ayyoob el-Ansari | 23 | 106.65 | 27 | 106.22 |
| Nayla | 24 | 108.66 | 26 | 108.32 |

### The Tool

The tool used was a test (henceforth, the Test) of two papers (28 items each) designed by the researchers and built on unit 2 (henceforth, the Unit) in the Crescent English Course Book 3 (see 0.5.d. above).

## Test Validity

### a. Content validity

The Test was designed in the light of the aims of the Unit as stated in the Teacher's Book 3 (Butterfield, Neil: O'Neill, Terry and Snow, Peter, 1986, p. 81). The specific aims of the 23 steps which consist this unit were also considered. To insure content validity of the Test the researchers did the following:

i. the aims of each step were extracted.

ii. The new vocabulary was listed and counted. The number was 74 words.

iii. The language functions and structures which the unit covered were stated. The functions were: warnings, instructions, advice, persuasion, expressions of sensation, and exclamations. The structures were: If + imperative, if + future, superlatives, should, why not? questions, answering yes / no questions and the intransitive verbs of senses: it smells / feels / sounds .... etc.

iv. Type of test items given in the intermediate stage were surveyed (Ministry of Education, 1987, pp. 123-127). Examples of tests on the Unit were referred to in Test Bank for the Intermediate Stage (Ministry of Education, 1986, pp. 97-101). These two types and examples were considered when the Test was designed.

### b. Test design

The Test was designed so as to cover almost the new vocabulary, structures, and features which the unit tries to teach. It also contains an unseen comprehension passage. It is composed of two papers:

#### i. Paper one

This paper consists of 28 items put into five grous as follows:

A. Filling spaces from a list: 5 items.

B. Putting ( ✓ ) or (X) beside a sentence: 6 items.

C. Filling spaces with words from the list: 5 items.

D. Filling spaces with words from the memory: 8 items.

E. Describing pictures with words from the memory: 4 items.

**ii. Paper two**

This paper consists of 28 items put into 4 groups:

A. Matching sentences: 10 items.

B. Completion of dialogues: 4 items.

C. Comprehension passage: 8 items.

D. Spelling: 6 items.

Each item in the two papers was considered equal to one score. So the full mark on the Test was 56.

After preparing the test, the researchers consulted two senior masters and two senior mistresses working in intermediate schools. They all agreed that the test was valid because it accorded with the pupils' levels and tested the new language, structures, and functions in the Unit.

**c. Item validity *(item discrimination index)**

To insure item validity the test was administered to a representative sample of 4th. year intermediate pupils who had already taken Book 3 in the year before. The sample consisted of four classes randomly chosen: two from Al-Fayha Girls School, and two from boys school. the number of the sample was 100 pupils.

The item discrimination index was calculated by finding the difference between the difficulty index of each item of the top and bottom 27 papers.

Table 2 shows the discrimination index and the standard deviation of each item. In table 3, the test items are classified according to the range of discimination index.

Since 33 items have a discrimination index of more than 0.60; 15 items have a discimination index between 0.40 and 0.59; and 8 items range between 0.20 and 0.39, all of the Test items are considered valid.

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* Item discrimination = (H−L)/N. where
H = correct answers in the higher 27 per cent, L = correct answers in the lower 27 per cent, N = size of the 27 per cent (Lado, 1967, pp. 349-354).

**Table 2**
**Discrimination Indices and Standard Deviations of the Test-Items**

| Test-Item No. | Discr. Index | Standard Deviation | Test-Item No. | Discr. Index | Standard Deviation |
|---|---|---|---|---|---|
| 1 | 0.48.5 | 0.59 | 29 | 0.40.7 | 0.33 |
| 2 | 0.49.2 | 0.81 | 30 | 0.49.7 | 0.59 |
| 3 | 0.48.8 | 0.86 | 31 | 0.49.4 | 0.56 |
| 4 | 0.48 | 0.89 | 32 | 0.44.9 | 0.52 |
| 5 | 0.49.9 | 0.93 | 33 | 0.35.7 | 0.22 |
| 6 | 0.49 | 0.74 | 34 | 0.42.1 | 0.29 |
| 7 | 0.44.9 | 0.71 | 35 | 0.43.3 | 0.26 |
| 8 | 0.49.5 | 0.77 | 36 | 0.45.4 | 0.44 |
| 9 | 0.49.5 | 0.67 | 37 | 0.45.4 | 0.67 |
| 10 | 0.48.5 | 0.51 | 38 | 0.47.2 | 0.78 |
| 11 | 0.43.3 | 0.30 | 39 | 0.47.4 | 0.63 |
| 12 | 0.44.9 | 0.26 | 40 | 0.46.2 | 0.66 |
| 13 | 0.49.9 | 0.48 | 41 | 0.49.2 | 0.85 |
| 14 | 0.47.7 | 0.48 | 42 | 0.50 | 0.70 |
| 15 | 0.37.6 | 0.44 | 43 | 0.46.6 | 0.66 |
| 16 | 0.42.1 | 0.52 | 44 | 0.50 | 0.70 |
| 17 | 0.47.4 | 0.77 | 45 | 0.49.6 | 0.63 |
| 18 | 0.49.8 | 0.92 | 46 | 0.48.5 | 0.56 |
| 19 | 0.47.7 | 0.77 | 47 | 0.48.5 | 0.78 |
| 20 | 0.48 | 0.78 | 48 | 0.43.9 | 0.41 |
| 21 | 0.34.7 | 0.26 | 49 | 0.49.4 | 0.74 |
| 22 | 0.47.2 | 0.85 | 50 | 0.50 | 0.82 |
| 23 | 0.28.6 | 0.30 | 51 | 0.47 | 0.41 |
| 24 | 0.47.7 | 0.85 | 52 | 0.50 | 0.62 |
| 25 | 0.44.4 | 0.67 | 53 | 0.49.8 | 0.63 |
| 26 | 0.46.6 | 0.74 | 54 | 0.42.7 | 0.48 |
| 27 | 0.44.4 | 0.74 | 55 | 0.49.9 | 0.74 |
| 28 | 0.38.4 | 0.56 | 56 | 0.50 | 0.82 |

**Table 3**

| Number of test-items | Range of discrimination indices | Percentage of total |
|---|---|---|
| 33 | more than 0.6 | 59% |
| 15 | 0.4 - 0.59 | 23% |
| 8 | 0.2 - 0.39 | 12% |

**Test Reliability**

The reliability coefficient was calculated by using the split-half method as described by Lado (1967, p. 335). The formula applied to compute the correlation between the two halves was the following (Guilford, 1956, p. 141):

$$r^2_{xy} = \frac{[N. \quad XY - (\ X)\ (\ Y)]^2}{[N. \quad X^2 - (\ X)^2]\ [N. \quad Y^2 - (\ Y)^2]}$$

where,

$r^2_{xy}$ = the square of the correlation of the scores on the two halves of the test.

N = the number of students in the sample.

X = the sum of x scores, and Y = the sum of Y scores.

The Spearman-Brown formula was used to compute the reliability of the entire test. The formula is:

$$r_{11} = \frac{2r_{½½}}{(1 + r_{½½})}.$$

Where,

$r_{11}$ = the obtained reliability coefficient of the entire test.

$r_{½½}$ = the obtained reliability of half the test.

The reliability of the whole test was 0.96.

## Implementation

### Preparation of the colour material

The researchers' strategy in colouring the instructional material was based on the aims of the Unit and each of its steps as stated in the Teacher's Book (Butterfield, Neil, O'Neill, Terry, and Snow, Peter, 1986, pp. 81-117). So, the new language, the new structures, and the new functional expressions in the Unit were coloured in the three books: Pupil's Book 3 (pp. 20-33) Pupil's Workbook 3 (pp. 14-26), and Pupil's handwriting Book 3 (pp. 8-14).

The new items in each book were coloured whenever they occured in the Unit. These items might be bound morphemes, free morphemes, abreviations, phrases, or verbs of the main clause and the subordinate clause of a conditional sentence. For example, the underlined items in the following are coloured:

- Shortest.
- Sweets are bad for your teeth.
- You're joking.
- Remember, be careful when you cross the road.
- If you touch him he'll bite you.

The material of the Unit in the three Books of the pupil was reprinted according to the colour strategy already mentioned. The reprinted pages were covered exactly like the books from which they were extracted. All the other parts of the Unit were identical with the origin.

## Test administration.

The researchers gave the test to both groups of the sample on the 25th. of october 1987 just one day before they started learning the Unit [pre-test]. This was done so as to investigate whether they were any significant differences in the knowledge of the pupils about the Unit before they began learning it. The same test was given to the same groups after they had finished learning the Unit [post-test].

The achievement grade for each pupil was worked out by the addition of his scores in the two papers. The full mark was 56. Teaching in both schools took place as usual. No special instructions were given to the teachers who usually follow the steps described in the teacher's book.

**Statistical analysis**

The results of the pre-test and the post-test were analyzed with regard to groups, mean, standard deviation, T-value, and level of significance.

## Results and Discussion

The following tables show the results. The level of significance appears at the bottom of each table in percentage terms. The 0.05 level is regarded significant.

The tables are arranged in the following order:

a. The pre-test vs. the post-test
   - The girls' control group (black & white Unit)*.
   - The girls' experimental group )colour-Unit)**.
   - The boys' control group (BWU).
   - The boys' experimental group (CU).
   - The boys and girls' control group (BWU).
   - The boys and girls' experimental group (CU).

b. Control (BWU) vs. experimental (CU) in the pre-test.
   - The girls' groups.
   - The boys' groups
   - The boys' and girls' groups.

c. Control (BWU) vs. experimental (CU) in the post-test.
   - The girls' groups.
   - The boys' groups.
   - The boys and grils' groups.

**The pre-test vs. the post-test.**

Mean differences between the pre-test and the post-test achievement scores.

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* Henceforth BWU.
** Henceforth CU.

### 2.1.1 The girls' control group (BWU).

| Variable | pre-test control group BWU (girls) | | | post-test control group BWU (girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 26 | 17.27 | 6.38 | 26 | 29.77 | 12.16 | −4.64 |

(Significant at 0.000 level)

### 2.1.2 The girls' experimental group (CU).

| Variable | pre-test experimental group CU (girls) | | | post-test experimental grop CU (girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 24 | 16.71 | 5.53 | 23 | 32.87 | 13.10 | −5.55 |

(Significant at 0.000 level)

### 2.1.3 The boys' control group (BWU).

| Variable | pre-test control group BWU (boys) | | | post-test control group BWU (boys) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 27 | 13.66 | 6.73 | 27 | 24.22 | 12.95 | −3.76 |

(Significant at 0.000 level)

### 2.1.4 The boys' experimental group (CU).

| Variable | pre-test experimental group CU (boys) | | | post-test experimental grop CU (boys) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 23 | 14.91 | 9.28 | 23 | 27.26 | 13.94 | −3.54 |

(Significant at 0.000 level)

### 2.1.5 The boys and girls' control group (BWU).

| Variable | pre-test control group BWU (boys & girls) | | | post-test control group BWU (boys & girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 53 | 15.43 | 6.74 | 53 | 26.94 | 12.76 | −5.81 |

(Significant at 0.000 level)

### 2.1.6 The boys and girls' experimental group (CU).

| Variable | pre-test experimental group CU (boys & girls) | | | post-test experimental grop CU (boys & girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 47 | 15.83 | 7.57 | 46 | 30.07 | 13.67 | −6.23 |

(Significant at 0.000 level)

**Control group vs. experimental group in the pre-test.**

Mean differences between the achievement scores of the control group (BWU) and the experimental group (CU) in the pre-test.

### 2.2.1 The girls' groups (BWU vs. CU)

| Variable | control group BWU (girls) | | | experimental group CU (girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 26 | 17.27 | 6.38 | 24 | 16.71 | 5.53 | −0.33 |

(Not significant at the 0.05 level)

### 2.2.2 The boys' groups (BWU vs. CU)

| Variable | control group BWU (boys) | | | experimental group CU (boys) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 27 | 13.66 | 6.73 | 23 | 14.91 | 9.28 | −0.55 |

(Not significant at the 0.05 level)

### 2.2.3 The boys and girls' groups (BWU vs. CU)

| Variable | control group BWU (boys & girls) | | | experimental group CU (boys & girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 53 | 15.43 | 6.74 | 47 | 15.83 | 7.57 | −0.28 |

(Not significant at the 0.05 level)

**Control group vs. experimental group in the post-test.**

Mean differences between the achievement scores of the control group (BWU) and the experimental group (CU) in the post-test.

### 2.3.1 The girls' groups (BWU vs. CU)

| Variable | control group BWU (girls) | | | experimental group CU (girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 26 | 29.77 | 12.16 | 23 | 32.87 | 13.10 | −0.86 |

(Not significant at the 0.05 level)

### 2.3.2 The boys' groups (BWU vs. CU)

| Variable | control group BWU (boys) | | | experimental group CU (boys) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 27 | 24.22 | 12.95 | 23 | 27.26 | 13.94 | −0.8 |

(Not significant at the 0.05 level)

### 2.3.2 The boys and girls' groups (BWU vs. CU)

| Variable | control group BWU (boys & girls) | | | experimental group CU (boys & girls) | | | |
|---|---|---|---|---|---|---|---|
| | No. of cases | Mean | Standard deviation | No. of cases | Mean | Standard deviation | T value |
| The Test Papers 1 & 2 | 53 | 26.94 | 12.76 | 46 | 30.07 | 2.02 | −1.17 |

(Not significant at the 0.05 level)

## Discussions

### The pre-test vs post-test

The tables under 2.1. above indicate that there is a significant difference between the achievements of both groups before they took the Unit and after they finished it. This is obviously due to learning which took place during the five week period in which the Unit was given.

### Control group vs. experimental group in the pre-test

The tables 2.2.1., 2.2.2., and 2.2.3. above show that there are no significant differences between the control and the experimental groups

in the pre-test. This means that both of the groups in the boys' school and the girls' school started with almost the same amount of knowledge with regard to the Unit.

### Control vs. experimental in the post-test

The tables 2.3.1., 2.3.2., and 2.3.3. show that the pupils )girls and boys) who used the colour version of the Unit scored higher means (girls: 32.87, boys: 27.26, girls & boys: 30.07) than those who used the black and white one )girls: 29.77, boys: 24.22, girls & boys: 26.94). Although this difference is not statistically significant, yet the increase in means could possibly suggest that the colour coded material was more helpful than the black and white one. This result agrees with that of Lumberski (1980) and the same time supports Dwyer's results (1983), (see 0.2 above). It should be pointed out however that the increase in mean realized by the girls (3.10) is almost the same as the one realized by the boys (3.04), which may suggest a possible regularity in similar circumstances.

We may also add that a statistically significant difference in achievement is likely to occur if the whole book is colour-coded and the sample is increased.

## Conclusion and Recommendations

### Conclusion

The findings of this study have shown that the pupils who used the colour-coded material achieved higher scores than those who used the black and white one. However, this difference is not statistically significant, a fact which may be attributed to the shortness of the period of the experiment. A study which experiments colour-coded material given in one whole semester may reveal statistically significant results.

### Recommendations

In the light of this study the researchers would like to recommend that more studies be done on the effect of colour cues in the area of teaching English as a foreign language. Such studies may deal with different variables such as: the age and the level of the learners as well as the amount of the instructional material.

## References


1. Blohm paul, J. & Custerwhite side, H., Effect of Colour Highlighting and Decision Type for Improving Learners' Recall of Text on the Microcomputer, **International Journal of Instructional Media,** Vol. 13 (1), 1986 (pp. 19-26).
2. Butterfield, Neil, **Crescent English Course pupil's handwriting book3,** Oxford University Press, Beirut, 1986 (pp. 7-14).
3. Butterfield, Neil, O,Neil, Terry and Snow, Peter, **Crescent English Course, Teacher's Book 3,** Oxford University Press, Beirut, 1986 (pp. 81-117).
4. Chute, A. Analysis of the Instructional Functions of Color and Monochrome Cuing in Media presentations. **ECTJ,** 1979, 27, 4 (pp. 251-263).
5. Chute, A. Effect of Color and Monochrome Versions of A Film on Incidental and Task - Relevant Learning. **ECTJ,** 1980, 28, 1, (pp. 10-18).
6. Dwyer, F. Color as an Instructional Variable. **AVCR,** 19, 4, 1971 (pp. 399-416).
7. Dwyer, F. & Lumberski, R. A Review of the Research on the Effects of the Use of Color in the Teaching - Learning Process. **Intl. J. of Instructional Media,** 1982-1983, 10, 4, (pp. 303-327).
8. Guildford, J.P., **Fundamental Statistics in psychology and Education,** 3rd. ed. McGraw-Hill New York, 1956 (p. 141).
9. Guildofrd, N. **Current Research on the Relative Effectiveness of selected Media Characteristics,** Research and Development Center, Westinghouse Electric Corp., Pittsburg, Pennsylvania 15235, 1973 (p. 10).
10. Lado, Robert, **Language Testing,** Longman, London, 5th Impression, 1967 (pp. 335-354).
11. Lumberski, R. **The Effect of a Verbal and Visual Color Code on Self-Paced Instruction and Testing for Retention on Different Tasks.** Unpublished Doctoral Dissertation, The Pannsylvania State University, 1980.
12. Lumberski, R. & Dwyer, F. The Instructional Effect of Coding (Color and Black and White) on Information Acquisition and Retrieval. **ECTJ,** 1983, 31, 1, (pp. 9-21).
13. Ministry of Education, State of Kuwait, **English Language Syllabus and Guidelines - Intermediate Stage.** Kuwait, 1987 (pp. 15-19), (p. 75) and (pp. 123-125).
13. Ministry of Education, State of Kuwait, **Non-Verbal Intelligence Test.**
14. Ministry of Education, State of Kuwait, **Test Bank for the Intermediate State,** Kuwait, 1985, (pp. 93-120).
15. O'Neil Terry and Snow, Peter, **Crescent English Course, Pupil's Book 3,** Oxford University Press, Beirut, 1986 (pp. 19-33).
16. O'Neil Terry and Snow, Peter, **Crescent English Course, Pupil's Workbook 3,** Oxford University press, Beirut, 1986 (pp. 14-26).
17. Peterson, V. The Effects of Color Vs. Black and White Learning Materials on Academic Achievement. **ERIC.** ED. 190258, 1976, (p. 12).
18. Scarpino, T. The Comparative Effect of Two Strategies - Color Versus Black and White on Achievement in College Physical Science. **Dissertation Abstracts International,** 1971, 32, (p. 6223 - A).
19. Wager W. A Theoritical Framework for Studying Educational Media: A Pilot Study. **ECTJ,** 28, 1, 1980, (pp. 19-24).