CALIFORNIA STATE UNIVERSITY, NORTHridge

THE EFFECT OF BEHAVIORAL OBJECTIVES UPON

STUDENT ACHIEVEMENT IN ECONOMIC EDUCATION

Graduate project submitted in partial satisfaction of the
requirements for the degree of Master of Arts in

Secondary Education

by

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CHAPTER I
THE PROBLEM

Introduction and Background

A movement has been spreading in educational circles which advocates the use of behaviorally stated objectives in the teaching-learning process (Plowman, 1971). Such objectives, it is claimed, will help students learn more and will aid teachers to become more accountable to the taxpayers (Cory, 1974). Not only are public schools urged to use these objectives, but entire teacher-training programs have been set up around behavioral objectives and labeled "Performance-Based Teacher Education" (Elfenbein, 1972).

The movement has not been without its critics. Many philosophical debates have raged over the utility of behavioral objectives in helping learners grow cognitively and affectively (Popham, 1968). However, the debate over the effectiveness of behavioral objectives as a tool for the improvement of learning has become somewhat academic in California. In the fall of 1972, Assembly Bill 293, known as the Stull Bill was implemented. At the heart of the bill are provisions for the setting up, by all certificated personnel, of standards of expected student progress as well as devices for measuring that progress. Behavioral objectives, by law, became part of the curriculum planning.

In spite of the trend towards their use, behavioral objectives are looked upon by a substantial number of teachers in California as an exercise in futility (United Teachers, 1974). Few teachers perceive
them as having relevance or usefulness. Neither do the researchers
demonstrate conclusively that the use of behavioral objectives is in-
deed beneficial to learning (Duchastel & Merrill, 1973).

This study was designed to determine empirically the degree of
effectiveness of behavioral objectives in facilitating high school
pupils cognitive learning. The issue is particularly important in that
other states are watching California's experience with the Stull Bill
in hopes of establishing accountability systems of their own employing
behavioral objectives (Popham, 1971).

What is a behavioral objective? According to Mager (1962), a be-
havioral objective describes an instructional intent in such a way as
to include (1) the kind of performance which will be accepted as evi-
dence that the learner has achieved the objective; (2) a statement of
the conditions to be imposed upon the learner when he is demonstrating
his mastery of the objective; and (3) a description of the criterion
of acceptable performance. Three main rationales have been given for
the need to use behavioral objectives in curriculum planning (Duchastel
& Merrill, 1973). The first is that specific, prescribed, measurable
objectives give direction for teaching and curriculum planning. Second,
behaviorally stated objectives allow for guidance in evaluation. Third,
behavioral objectives facilitate learning by allowing the learner to
(a) know exactly what is expected of him (b) focus in on relevant
materials which lead to the attainment of the objective (c) ignore
those stimuli which are irrelevant to the attainment of the objective.

This study focused on the third rationale for the use of behavioral
objectives—that is, that such objectives facilitate learning by focus-
ing the learner's attention on what he or she is expected to learn. According to Mager (1961) and Popham (1969), teachers often preface their instruction with vague objectives or with superfluous information not based directly on the skills to be mastered.

Statement of the Problem

Does formulating an educational objective in behavioral terms and communicating that objective to the learner prior to instruction significantly affect post-instructional cognitive achievement? It was to this problem that the present study addressed itself.

Purpose of Study

The purpose of this study was to determine if a group of inner-city Mexican-American high school pupils would do significantly better on a cognitive posttest after receiving a written behavioral objective than would those students who, before instruction, received either a vague instructional objective or a placebo.

Method

The subjects consisted of 114 students who were members of the investigator's four 11th grade U.S. History classes. They had been classified by the school counselor as average ability students. The school is located in a predominantly Mexican-American neighborhood and has a low socio-economic classification.

The students were assigned to three treatment groups, randomly assembled after the names of all the students involved had been placed
in a box. The first third of the names drawn were assigned to group 1, which was to receive the behavioral objective along with a test item which matched the objective. The second group of one-third drawn at random was assigned to group 2, which was to receive a vague instructional objective. The remaining students were assigned to group 3, which was to be given the placebo.

The objective chosen was the following:

Given a list of items, the pupil will demonstrate his understanding of the economic meaning of the term cost by identifying those items it will cost if he or she chose to do one thing instead of another.

The test item which reflected the objective was the following:

Directions to Pupils--Place an X next to those items it would cost if instead of coming to school today you stayed home and watched TV.

- a Big Mac  X seeing your classmates
- new shoes  X seeing your teachers
- X Nutrition   seeing a drive-in movie

This objective was chosen because the subject matter was sufficiently unfamiliar to the students of this grade level and the investigator felt confident the material had not yet been mastered.

The instructional materials used in this study consisted of: (a) a paperback comic book, The Adventures of Primero Dinero (Jackstadt & Hamada, 1971); (b) a practice worksheet; (c) a tape narrated by the investigator and another adult. A tape was used in order to insure that each class of students received wholly identical instruction.

The device used to reveal the message to the pupils was a folded letter with only the subject's name, group number and class period visible.
On the day of the study each student in attendance received his written message, a copy of the comic book, and the practice worksheet. Students were allotted time prior to instruction to read their written message. The taped instructions were then played, and were followed by a posttest which was administered, monitored and scored by the investigator.

Hypothesis

When three groups of high school pupils are randomly assigned to treatment groups, one of which receives a written behavioral objective, the second of which receives a vague objective, and the third of which receives a placebo, and all three groups receive identical instruction, the group which received the written behavioral objective will produce a significantly greater mean score on a cognitive posttest than will the other two groups.

Assumptions

The assumptions made in this study were the following:

1. Learning can be measured.

2. It is important for students to know in advance of instruction what they are expected to learn.

3. Behavioral objectives communicate with less ambiguity what is expected of the learner.

4. Pupil performance on short term tests will be valid predictors of long term and/or presently unmeasurable learning.
Definition of Terms

**Objective**: An objective is defined as a quantifiable and/or observable achievement accomplished under specific conditions (California School Board Association, 1969).

**Vague Objective (Goal)**: A goal is a statement that proposes desired and valued competencies, states of being and/or general levels of proficiency within an educational entity (California School Boards Association, 1969).

**Placebo**: The placebo is information of a superfluous nature.

**Message**: The message refers to the written information received by the learner prior to instruction.

**Group 1**: Group 1 refers to those pupils, randomly chosen, who received the behavioral objective.

**Group 2**: Group 2 refers to those pupils, randomly chosen, who received the vague objective.

**Group 3**: Group 3 refers to those pupils, randomly chosen, who received the placebo.

Limitations and Scope of Study

The following limitations were imposed on this study:

1. The study was limited to Mexican-American students at Garfield High School in a predominantly Mexican-American neighborhood.

2. The participants were all enrolled in the investigator's 11th grade U.S. History classes.
3. The entire study was done in four class periods during one school day. Each period lasted 50 minutes. A one day study was agreed upon because of the high absenteeism prevailing in the school.

4. The objective, which related to an economic concept, was classified as being in the cognitive domain (Application), as defined by Bloom (1956).
CHAPTER II
REVIEW OF RELATED LITERATURE

In reviewing the literature, the investigator was able to find several studies which related to the hypothesis under investigation, which was that students provided with behavioral objectives prior to instruction would achieve significantly better results on a post-instructional test than students not provided with the specific objective.

Doty (1968) tested the effects of behavioral objectives on learning by assigning 190 seventh grade students from seven public schools to treatment groups, only one of which received behavioral objectives. Instruction was presented on reading and calculating the tolerance and value of carbon axial resistors. All students were posttested and the results indicated that students who had received behavioral objectives scored significantly better than those who did not receive the specific objective.

Tiemann (1968) investigated the effects of providing behavioral objectives to college-level economic students during a four-week treatment period. The students were given either a behavioral objective or a general objective. On a posttest no significant differences were found in the achievement scores of the students. However, on a retention test those students receiving behavioral objectives prior to instruction did score higher than the general objective group.

The use of behavioral objectives in remedial chemistry was tested
by Boardman (1970). The group with the advanced knowledge of the specific objective showed a significant difference on an achievement test. Bishop (1969) in another study assigned students in a ninth grade vocational agriculture class into two groups, one of which received a behavioral objective prior to instruction. No significant difference was found between the two groups of students on a posttest.

A study by Weinberg (1970) investigated the effect of behavioral objectives on bowling knowledge and skill. Four treatment groups were assigned either no objective, vague objectives, behaviorally stated objectives indicating terminal behavior only, or behavioral objectives describing both terminal and intermediate behavior. After ten weeks of instruction students were tested on knowledge and skill. No significant differences were shown between the four student groups on a post-instructional exam.

The effects of behavioral objectives on the learning of forty-eight elementary education students was studied by Engel (1968). The students were assigned to either a group who received no objective or a behavioral objective group. After a unit on math instruction the students were tested. The results indicated a significant difference favoring the group who had received behavioral objectives. Three weeks later a retention test was given. It also indicated the facilitating effect of behavioral objectives upon student learning.

Smith (1967) assigned 162 slow 8th grade learners to 2 treatment groups. The effect of providing behavioral objectives was investigated on a semi-programmed unit in beginning probability. On a posttest there was no significant difference between the objective and the no-objec-
Blaney and McKie (1969) investigated the effects of giving behavioral objectives to adult educators attending a two-day conference. The sixty educators were assigned to three groups: a behavioral objective group, a general introduction group and a pretest group. Each treatment was given to the volunteers prior to the conference and a posttest was administered immediately afterwards. Test scores indicated that the behavioral objectives group performed significantly better than the other two groups, which for their part did not differ significantly from one another.

Dalies (1970) investigated what effect the communication of precise instructional objectives to students has on their learning. A high school teacher with five health and safety classes randomly assigned the 143 students to three treatment groups which would receive written messages with varying degrees of clarity during a 10-week unit on growth and development. The messages consisted of behaviorally stated objectives, vaguely stated objectives and a placebo. The teacher in charge was unaware of the message content during the entire study. At the conclusion of the unit an achievement test was administered. The results showed that students receiving behavioral objectives prior to instruction showed greater achievement than those students who received vague or unrelated information. No significant difference was found between the vague objective group and the placebo group.

The review of related literature on the effects of providing behavioral objectives to the student prior to instruction in hopes of
facilitating learning indicates inconsistent results. In some studies it was concluded that it was possible to enhance learning significantly by providing the learner with a specific objective in advance of instruction. In other studies no significant differences were found between the behavioral objective and the no-objective learner.

Though the review of related literature indicates this hypothesis has been tested with varying results, no research was found that was conducted with Mexican-American Social Studies students. The present study has as its purpose to determine if a group of inner-city Mexican-American high school pupils would do significantly better on a cognitive posttest after receiving a written behavioral objective than would those students who, before instruction, received either a vague instructional objective or a placebo.
CHAPTER III
RESEARCH DESIGN AND PROCEDURES

Experimental Design

This study was conducted to determine if students receiving a specific behavioral objective prior to instruction would perform significantly better on a post-instructional achievement test than those students who received either a vague objective or a placebo.

The research design used for this study was the Posttest Only Control Group Design described by Campbell and Stanley (1963). This design takes the form RX01, RX02, RX03, in which X1, X2 and X3 represent the exposure of the groups to the treatments, the effects of which are to be measured; 01, 02 and 03 refer to the measurement process; and the symbol R indicates random assignment to separate treatment groups.

This design was chosen to avoid a potentially reactive pretest. In recommending this experimental design, Campbell and Stanley (1963) wrote:

While the pretest is a concept embedded in the thinking of research workers in education and psychology, it is not actually essential to true experimental design. For psychological reasons it is difficult to give up "knowing for sure" that the experimental and control groups were "equal" before the differential experimental treatment. Nonetheless, the most adequate all-purpose assurance of lack of initial biases between groups is randomization. Within the limits of confidence stated by the tests of significance, randomization can suffice without the pretest.

In order to randomly assign subjects into treatment groups the
names of all students in the investigator's 11th grade U.S. History classes were put into a box. The first third of the names drawn were assigned to group 1, which was to receive the behavioral objective along with a test item which matched the objective. The second group of one-third drawn at random was assigned to group 2, which was to receive a vague instructional objective. The remaining students were assigned to group 3 which was to be given the placebo.

Subjects

The subjects were 114 average ability students from Garfield High School in East Los Angeles. Absenteeism on the day of the study reduced the final number of pupil subjects to 94. Most of the students were Mexican-American in origin and of low socio-economic status.

Procedures

One week prior to this study students were told that they would be participating in an experiment. This was done in an effort to gain maximum attendance on the part of pupils whose rate of absence was high. In addition, they were told that the results of this experiment would not affect their grade. No further details were given. On the day of the study, during each of the investigator's four U.S. History classes, the following took place: Each student received a copy of the comic book The Adventures of Primero Dinero (Jackstadt & Hamada, 1971), a practice worksheet (See Appendix A), and a folded written message containing either a behavioral objective with a test item to match the objective, a vague objective or a placebo (See Appendix B).
Upon receiving these materials, taped instruction began. This format was used to ensure that each class period received wholly identical instruction (See Appendix C for a transcript of the tape). The tape's narrator asked the students to open and read their messages, but told them not to reveal their contents to anyone throughout the day. Approximately two and a half minutes were allowed for this. Then the narrator asked the pupils to examine the comic book for one minute. The first chapter was read to them as they followed along in their copies. Next, pupils were provided with relevant practice in the basic economic concepts under study. Students were then urged to use a two minute study period to review their message and the first chapter of the comic book. All materials, including their message, were then collected. A posttest was administered, monitored and scored by the investigator.

Measuring the Effects of the Treatment

In order to measure the effects of the treatments on the achievement of pupils, the subjects in all three groups received an identical fifteen-item posttest. (See Appendix D for a copy of the posttest). The test items used in this study were based on those validated by Levine and Sharp (1973).

The day preceding the study at hand, a group of students similar in age, background and I.Q. to the three treatment groups were administered the posttest and took no further part in the study. Subsequently, the mean test scores for this uninstructed group were compared with those of pupils who received instruction to demonstrate that
learning had taken place.

Data Analysis

A t-test was used to determine the statistical significance in the mean scores achieved by pupils who were pretested and took no further part in this study, and pupils who were instructed and subsequently posttested. Results are presented in Table 1.

The mean score achieved by pupils who were pretested but who received no instruction was 9.19. The mean score achieved by all pupils who were instructed was 14.09. This difference in means was significant (p < .01), and provided evidence that pupil learning had taken place in this study.

Analysis of Variance was used to determine the significance of the differences in the mean scores among the three treatment groups. Since a prediction was made that one treatment group would elicit significantly more pupil achievement than the other two, a one-tailed test of significance was employed. Results are presented in Table 2.

Though the group which had received the behavioral objective outperformed the other two groups, the F value of 0.55 was found to be nonsignificant. The hypothesis that the treatment group which received the specific behavioral objective prior to instruction would significantly outperform the other two groups on a cognitive test was not confirmed.

*The mean score of the group which received the behavioral objective was 14.21, while the mean score of the vague objective group was 14.18, and that of the placebo group was 13.87.
TABLE 1

Comparison of Test Scores for A Pretested Group with Scores of Pupils Who Were Instructed and Posttested

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>Mean Score</th>
<th>t</th>
</tr>
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<tr>
<td>Pretested Group</td>
<td>27</td>
<td>3.36</td>
<td>.65</td>
<td>9.19</td>
<td>-11.23*</td>
</tr>
<tr>
<td>Posttested Group</td>
<td>94</td>
<td>1.39</td>
<td>.14</td>
<td>14.09</td>
<td></td>
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</tbody>
</table>

* Significant beyond the 0.01 level.
TABLE 2

Analysis of Variance of Pupil Test Scores of Three Groups of Students Who Had Received Different Types of Pre-Instructional Cues

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Square Variance</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>2.166</td>
<td>1.083</td>
<td>.55 (n.s)</td>
</tr>
<tr>
<td>Within Groups</td>
<td>91</td>
<td>181.320</td>
<td>1.993</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>93</td>
<td>183.486</td>
<td></td>
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CHAPTER IV
CONCLUSIONS, RECOMMENDATIONS, AND SUMMARY

Conclusions

The purpose of this study was to determine if a group of inner-city Mexican-American high school pupils would do significantly better on a posttest after receiving a written behavioral objective than would those students who, before instruction, received either a vague instructional objective or a placebo. It was predicted that the behavioral objective treatment group would achieve significantly better results than the other two groups. Analysis of Variance was used to determine the significance of the differences in the mean scores among the three treatment groups. Results were presented in Table 2.

The F value of 0.55 was found to be nonsignificant. The hypothesis that the treatment group which received the specific behavioral objective prior to instruction would significantly outperform the other two groups on a cognitive test was not confirmed.

Though greater pupil achievement favored the behavioral objective treatment group, the results of this study tended to confirm previous studies that found no significant difference between treatment groups given precise instructional objectives and those not given such objectives (Bishop, 1969; Smith, 1967; Tiermann, 1968; Weinberg, 1970).

The findings of the study may have been influenced by the following factors:

1. The pupil posttest used to measure the effects of the
treatment failed to provide sufficient ceiling in order to discriminate among achievement scores. The test items had previously been validated (Levine & Sharp, 1973) with able ninth graders in an upper middle class suburban area. It was believed that the discrepancy in grade level of the validation group and the subjects used in this study would be compensated by the large differences in socio-economic background and I.Q. scores. However, the mean posttest score of 14.09 (15 points maximum) for the three treatment groups revealed that sufficient ceiling was lacking to measure the effects of the treatment on subsequent learner achievement. Thus, the present study may not have been a fair test of the hypothesis under investigation.

2. Since no effort was made to call the subjects' attention to the significance of their individual written messages, many students may have ignored its content. Pupils who were in the behavioral objective treatment group subsequently told the investigator that though they read their messages, they did not expend their efforts focusing on relevant materials which would lead to the attainment of the objective. Although the objective was stated in their messages, the pupils did not feel confident that the post-instructional test would accurately reflect it. Perhaps students have to be trained to use objectives as a focusing mechanism if results are to be obtained in the future.
3. Finally, one must contend with the thesis that revealing objectives to pupils prior to instruction really does not significantly effect pupils' subsequent achievement on a post-instructional cognitive test.

Recommendations

Since the experimental research in this area has been so inconclusive, additional studies are called for to assess the effectiveness of behavioral objectives on learning. Further research should provide for better test validation. This could be accomplished by devising a test to reflect the instructional objective and administering it to pupils of similar grade level, background and I.Q. as those to be used in the study to make certain that posttest results discriminate among pupils. Thus, the effects of the treatment, if any, could be measured.

Since pupils may tend to ignore behavioral objectives received prior to instruction, future studies might be devised to train subjects in the use of behavioral objectives as a facilitator of learning and to compare their subsequent achievement on a post-instructional test with a group not so trained. If behavioral objectives remain a part of curriculum planning in the schools, then students may have to be taught to use them.

Summary

The utilization of behavioral objectives in the teaching-learning process was under investigation.

This study was designed to determine the effect of providing
students with behavioral objectives prior to instruction upon their post-instructional cognitive learning. To conduct this study the following hypothesis was tested: those students receiving behavioral objectives prior to instruction would do significantly better on a post-instructional test than would those students receiving either a vague objective or a placebo. No significant differences were found among the mean scores of the three treatment groups.
REFERENCES


APPENDICES
Appendix A

Practice Worksheet
Worksheet on *The Adventures of Primero Dinero*

1. **SCARCE**

Place an X next to those items which are most likely to be scarce on a desert island.

- [ ] air
- [ ] schools
- [ ] parks
- [ ] houses
- [ ] sun
- [ ] a McDonald's hamburger stand

2. **RESOURCE**

Place an X next to those items which are resources.

- [ ] air
- [ ] schools
- [ ] parks
- [ ] houses
- [ ] sun
- [ ] a McDonald's hamburger stand

3. **COST**

Place an X next to those items it will cost if all of the land in East Los Angeles were to be used for farming.

- [ ] air
- [ ] schools
- [ ] parks
- [ ] houses
- [ ] sun
- [ ] a McDonald's hamburger stand
Appendix B

Behavioral Objective, Vague Objective and Placebo Messages
No. I

Sample Behavioral Objective Message

Hi __________________;

name of receiver

Today you will be tested on your understanding of the economic term cost. After you have listened to a tape recording you will be given a test. On the test you will be given a list of items and you will be asked to identify those items it will cost if you did one thing instead of another.

Below is a sample of the type of question you will be asked on this test. Study it carefully.

Sample Test Item
Place an X next to those items it would cost you if instead of coming to school today you stayed home and watched T.V.

_____ a Big Mac     _____ new shoes
_____ seeing your classmates  _____ seeing a drive-in movie
_____ Nutrition  _____ seeing your teachers

Good luck on your test!

Your teacher
Sample Vague Objective Message

Hi __________________;
    name of receiver

Today you will have a short lesson on economics. You will be learning some important terms that will help you understand the study of economics. You will be learning such words as scarce, resource and cost.

Good luck on your test which follows the lesson.

Your teacher
No. III

Sample Placebo Message

Hi __________________;
name of receiver

While learning about economics today, you will meet this crazy guy named Primero Dinero. (He's a male chauvinist!) In this comic book, Primero goes through lots of changes. Be alert!
Good luck on your test which follows the lesson.

Your teacher
Appendix C

Taped Instruction Transcript
Ladies and gentleman, you will be participating in an educational experiment today. Each of you should have received a written message. In order for this experiment to work, please do not discuss this message with anyone inside or outside this class.

Now, open your message and read it carefully in the next few minutes. (2½ minutes of silence follow.)

Each of you should have in front of you a copy of the comic book The Adventures of Primero Dinero, a pen or pencil and a worksheet. Take a minute to get acquainted with this comic book by briefly glancing through it. (1 minute of silence.)

Now open your book to page two. We are all going to read the first chapter of Primero Dinero together. Follow along as it is being read to you on this tape.*

Now ladies and gentlemen, let's see what you have learned about these economic terms: scarcity, resource and cost. We are going to do some practice exercises before your test. For this, you will need your worksheet and a pen or a pencil.

Turn to page three. At the bottom of the page, follow along as I read the definition of scarce: "Something is scarce when you don't have as much of it as you would like." Now reread it to yourself. (15 seconds of silence.) Stop. Look at your worksheet next to number 1. To see if you understand the definition of scarce, place an X next to those items which are most likely to be scarce on a desert island. Please begin. (50 seconds of silence.) Stop. Now let's see if you got the answers correct. You should have placed an X next to houses, schools, parks and a McDonald's hamburger stand because these items would be scarce on a desert island.

Now turn to page five and follow along as I read to you the definition of the term resource: "A resource is anything that can be used to satisfy human wants." Would you please reread this to yourself. (15 seconds of silence.) Now look at number 2 on your worksheet. To see if you understand the definition of the term, place an X next to those items which are resources. Please begin. (50 seconds of silence.) Stop. Your should have placed an X next to air, houses, schools, sun, parks and a McDonald's hamburger stand. All of these are resources because in some way each one satisfies a human want.

Now turn to page six and find the definition of cost: "Something costs whenever you have to give up something else in order to get it." Would you please reread this definition to yourself. (15 seconds of silence.) Stop. Now look at number three on your worksheet. To see if you understand the definition of cost, place an X next to those items it would cost if all the land in East Los Angeles were to be used for farming. Begin. (50 seconds of silence.) Stop. You should have placed an X next to houses, schools, parks and a McDonald's hamburger stand. These items would no longer exist if all of East Los Angeles was to be used for farming.

Now take a couple of minutes to review your written message and the first chapter of Primero Dinero. While you are doing this a test will be passed out to you. Do not begin your test until I tell you to.

* The narrator then read Chapter I in the Adventures of Primero Dinero.
do so. Please begin to review now. (2 minutes of silence.)
Appendix D

Pupil Posttest
The Adventures of Primero Dinero

Pupil Posttest

A. Place an X next to those items it would cost if all of the land in Los Angeles were used for freeways and parking lots.

_____schools   _____rubber trees   _____houses

_____grass     _____sun

B. Place an X next to those items it will cost if all the land were to be used for factories, houses and hotels.

_____lemon trees   _____rain    _____farms

_____schools   _____movie theaters

C. Place an X next to those items it will cost if all the land in East Los Angeles were to be used for schools.

_____supermarkets   _____parks   _____high schools

_____sun     _____hospitals