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ABSTRACT

Intended to follow an introductory unit, this revised unit is one of several being prepared as part of a geography course based on a settlement theme provisionally planned for tenth grade students and requiring approximately four weeks. An extensive tryout conducted in 1965 in four areas of California, Illinois, Ohio, and New Jersey involved 47 teachers and approximately 2200 students in the formative evaluation. Teachers administered the School and College Ability Tests (SCAT), form 2A, and also the Introduction to Geography and Intra-Urban Unit Tests as pre-tests and post-tests. Students and teachers completed questionnaires on their impressions of the unit, as summarized in an appendix, responding positively. On the average, from the pre-test to the post-test of the Intra-Urban unit test, there was a mean increase of 19 per cent in the number of students answering the questions correctly. Recommendations for improvement are that a greater variety of readings be included, more attention be focused on local communities, some activities need to be dropped because the unit is too long, and that the unit test, class discussions based on unit readings, and student exercises be examined and analyzed. See ED 046 803 for a list of related documents. (SJM)

HIGH SCHOOL GEOGRAPHY PROJECT

INTRA-URBAN UNIT

ETS Evaluation Report

Limited Field Trials

March 5, 1966

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INTRA-URBAN UNIT

I. Description of the Evaluation

This report is designed to serve two purposes. Of primary importance is the need to provide the unit author and others responsible for the unit's revision with suggestions, where needed, for modifying the unit. These suggestions are based upon test results and data from questionnaires filled out by the teachers, students, and observers who were involved in the tryout of the unit materials. At the same time general impressions of the unit's present effectiveness are needed to help in making decisions affecting the development of other units. It is hoped that these impressions may be of some help in formulating materials and strategies which are even more effective in accomplishing desirable educational objectives.

Because the conditions under which curriculum materials are tried out are critical in their evaluation, this section will describe the circumstances of the tryout, as well as some of the characteristics of the teachers and students who participated. Section II of the report will discuss the implications of the unit test and Section III the impressions of the participating teachers, students, and observers. Section IV will enumerate specific suggestions for modifying the unit and Section V will provide a brief statement summarizing the recommendations. Supporting data for most of the generalizations in the report will be provided in the appendix.

The Intra-Urban Unit is one of several units being prepared by the High School Geography Project to constitute a geography course for tenth-grade students. The course is based on a settlement theme. This unit, prepared under the direction of Dr. Arthur Getis of Rutgers University, is expected to follow an introductory unit and precede the Inter-Urban Unit.

The present version of the Intra-Urban Unit is planned to require 18 to 22 school class periods or approximately four weeks of school time. It is organized in four parts, each designed to teach certain concepts of intra-urban geography. Each part in turn is divided into several activities, for a total of 24 activities in the entire unit. Activities include all the identifiable and distinguishable educational experiences planned for the unit, including class discussions, homework assignments, films, guest speakers, and individual and group projects. Some activities are optional but most are considered essential in achieving the objectives of the unit. Each of the 24 activities is designed to introduce or reinforce the learning of one or more basic concepts. Only a few of the activities are discussions based on reading materials. These are primarily for the purpose of reinforcing ideas developed during other activities. The reading materials are divided into four parts corresponding to the parts of the unit. Each part contains a summary of the major ideas plus several readings. The summary is intended to be read by all the students and the readings are intended to be assigned to the students according to their level of reading ability.

The teacher is provided with a guide which delineates the four parts and 24 activities of the unit. Each activity is described in terms of the major concepts to be taught, the materials needed, a suggested procedure to be followed in class, and answers to points that might be raised by students. Although teachers are likely to modify the procedures suggested for a given activity and even the sequence of activities, the suggestions provide what the unit author believes is a logical, unified, and educationally desirable development of certain of the concepts of intra-urban geography.

The limited (regional) field trial of the Intra-Urban Unit was conducted in conjunction with the Introduction to Geography and Fresh Water Resources Units during the fall of 1965. The unit had been previously tried out during the spring of 1965 by approximately 200 students in New Jersey. On the basis of student and teacher reactions to those informal trials, the unit was revised for this second, more extensive tryout. Four areas, California, Illinois, Ohio, and New Jersey, were chosen as tryout centers. Each of the four areas was organized under the leadership of an Area Coordinator who supervised the teachers in his area and was responsible for the transfer of materials between ETS, the HSGP, and his teachers. All told, there were 47 teachers and a total of approximately 2200 students.

Although the Intra-Urban Unit was planned for 18-22 days of teaching, with class periods expected to be about 50 minutes long, a great degree of variation actually prevailed. Teachers spent anywhere from 16 to 36 days with the mean number of days being 25. Teachers from the New Jersey area averaged 29 days, while the averages in the other areas ranged from 23 to 25. Some class periods were only 40 minutes in length and others as long as 75 minutes, a mean time of 53 minutes.

In October 1965, the participating teachers administered the School and College Ability Tests, (SCAT), form 2A, which is designed for senior high school students. They also administered the Introduction to Geography and Intra-Urban Unit tests as pretests. From one to two weeks were devoted to the Introduction to Geography Unit materials. This was followed by the Intra-Urban Unit for four or five weeks, after which the unit tests were readministered.

Students and teachers filled out unit evaluation forms at the end of the unit. Teachers also filled out activity evaluation forms as they progressed through the unit. Eight of the teachers were observed every day the unit was taught. Then observers filled out evaluation forms similar to the activity forms of the teachers.

The 47 teachers who participated in the tryout of this unit were recruited by the Area Coordinators and paid an honorarium for their participation. Thirteen of the teachers were from the area of San Diego, California, 10 from central Illinois, 12 from Ohio, and 12 from New Jersey. As a group they seem to be better prepared academically than most high school social studies teachers. They are also probably more experiended than most high school teachers.

The 46 teachers who completed a background information questionnaire indicated that they had taken a greater amount of course work in history than in geography, the mean number of semester hours being 20 and 15 respectively. The mean for "other social science" was 19 semester hours. Only about 20 per cent had any geology course work and for these only one or two semester courses was indicated.

More than half of the teachers (54 per cent) had 6 or more years teaching experience while 20 per cent had less than four years. However, their experience in teaching geography was somewhat less, with 30 per cent having 6 or more years and 43 per cent having less than 4 years.

The total number of students in the trials was just short of 2200. 1231 of these were boys and 963 were girls. More students were in the 9th grade (885) than in any other grade. (618 in 10th, 140 in 11th, and 385 in 12th) This 9th grade emphasis in the tryout group is due largely to the fact that all of the California students were 9th graders.

Most of the participating students came from large schools. It is likely that about 20 per cent of the students were in schools enrolling fewer than 200 in 10th grade, whereas more than 40 per cent had at least 400 in their 10th-grade class. Only 380 of the students were from rural or small town areas, while 657 lived in towns of 20,000 - 100,000, 512 were in predominantly suburban areas, 585 were from cities of over 100,000.

Performance of the students on the Cooperative School and College Ability Test (SCAT) indicates that they were above average in verbal ability, their mean score being equivalent to a position at the 60th percentile for 10th-grade SCAT norms. Mathematical ability scores are at the 50th percentile rank for 10th grade. A 20 per cent random sample of student questionnaires was drawn for analysis. This subsample showed SCAT results which were almost identical with the total group.

II. Teacher, Student, and Observer Impressions

The following observations about the Intra-Urban Unit are based on questionnaires filled out by teachers, students, and observers.* Student impressions are based on a 20 per cent student sample (301 students) from three of the four geographic areas. Two subgroups, those who scored in the upper and lower quartiles on the aptitude test, were isolated for comparison with the total 20 per cent student sample. Teacher and observer impressions are based on reactions from the participants in all four areas.

A. Unit as a Whole

The teachers were favorably impressed by the unit. They thought it had a great motivational influence on their students, even stimulating those who seemed to be unreceptive to most other school work. As a result, individual and group participation was unusually good. The unit's approach was sufficiently novel and its activities sufficiently varied to provide continuous interest for most of the students. And above all, the teachers felt that the unit had stimulated the students to greater awareness of their local environment, of the city in general, and of the basic concepts being taught.

The greatest problem encountered by many teachers was the shortage of time allowed for the teaching of the unit. Most teachers found it necessary to rush activities that should have been expanded if time had not been limited. And lack of time forced all but a few teachers to eliminate one or more optional activities that they felt would have been profitable. Student observations indicated an awareness of the pressures presented by insufficient time.

A great majority of the students found the unit as a whole to be either generally or extremely interesting. The top 25 per cent of the students on the aptitude test indicated a slightly greater degree of interest in the unit as a whole than did the bottom 25 per cent. This is substantiated by the teachers who indicated that the degree of interest of high ability students was generally greater than the interest of low ability students.

* Data on which this section is based are summarized in the appendix.

The eight observers who attended the classes of eight of the teachers were in general agreement with the teachers they observed as to the value of the activities and the responses of the students. In all but a few cases they felt that the unit materials had been used by the teachers effectively and as intended by the unit author. The tendency of observers to agree with the teacher's evaluations of the activities probably indicates that the teachers' opinions are valid interpretations of the classroom situation.

A majority of the teachers found the concepts taught in the unit appropriate for the age-group. Most teachers thought that the number of concepts taught was generally appropriate, the sequence of concepts was generally good or excellent, and the manner in which the concepts were developed, specifically the kind and amount of explanation, was generally good or excellent.

B. Reading Materials

Of all aspects of the unit, the reading materials seemed to be the least interesting for students. Approximately half of the students found the reading either generally uninteresting or dull. Although not requested to include the readings in their choice of the most and least interesting activities, almost 14 per cent chose them as the least interesting and only 1 per cent as the most interesting type of activity. Student suggestions for improving the unit were overwhelmingly centered on the need for more interesting, clearer, and less difficult reading materials. Students scoring in the upper quartile on the aptitude test found the readings more interesting than students scoring in the bottom quartile. Teachers' comments substantiated the greater interest of the readings for students scoring in the upper quartile. Although over 2/3 of the teachers believed the reading materials to be clearly written and understandable to the majority of the students, most of those who felt the readings were not understandable identified the difficulty encountered by their low-ability students as the primary reason. The observers generally felt that discussion of the reading assignments was the least effective use of teaching time. Observers often felt that students had not read assignments, and when the text was read in class the level of interest reached was at its lowest point.

Almost all teachers believed the student text was well organized and felt that the author's use of questions was generally good in stimulating student thoughts and in furthering learning.

C. Class Discussions

Although each activity involves a certain amount of class discussion, there were several specially planned teacher-led discussions. These include discussions based on either reading assignments, the teaching of the concepts necessary for a student's successful performance of a forthcoming activity, or the teaching of concepts which were not developed as a part of any other activity.

As might be expected, class discussion was less interesting to students than group activity. At the same time discussions were more interesting than certain types of individual student exercises. Every observer indicated a gradual loss of interest during activities that were based primarily on teacher-student discussion. They felt that the discussion of a concept generated considerably less student interest than the application of that concept in individual or group projects.

Class discussions which were centered around the students' local communities generated more interest than any other type of discussion. Those teachers who adhered to the author's suggestion that facts about the local community be introduced wherever possible often noted the stimulating effect this had upon their students.

D. Student Individual and Group Activities

The student activities were generally well received by both students and teachers. Over 80 per cent of all the students found them interesting. Over 3/4 of the teachers believed the activities were appropriate for students with different levels of ability and all but a few teachers mentioned their uniqueness and motivational value as among the greatest strengths of the unit.

Although there was general enthusiasm by students and teachers for the activities in general, there were marked differences in their reactions to different types of activities. In one type of individual student activity students were asked to make judgments about the most likely location of places on hypothetical maps or diagrams. While most students found this type of activity generally interesting, teacher and observer reactions varied from extreme enthusiasm to judgments that this was the least effective type of student activity.

Individual student activities involving computing and plotting were the least well received by students. When compared with other individual and group activities about 55 per cent of the students chose activities of this type as least interesting. If anything, there was even less interest shown by the upper quartile students. One-third of the teachers identified one of the 3 computing activities as the least effective exercise in meeting the objectives of the unit. However, most did agree that activities requiring individual work by the students promoted greater interest than activities requiring no active student participation.

The group activities centering on materials like the Portsville Map and the Planning Board evoked the greatest positive response of any type of student activity from both students and teachers. Almost 90 per cent of the students rated these two activities as either extremely or generally interesting while 75 per cent of the students identified them as the most interesting of all the student activities.

The teachers were equally enthusiastic about these two group projects, as 60 per cent identified one or the other as the most effective activity in meeting the unit's objectives. A great majority of teachers felt that they were very effective in both stimulating student interest and in helping to teach what was intended. Observers agreed that student interest during the group projects was exceptionally good, as evidenced by intense student participation.

E. Films and Guest Speakers

The use of films and guest speakers was generally well received, but less than half of the teachers were able to include them in the unit. Due to time problems or to difficulties in ordering, only 20 teachers used a film. Those who did so thought it was an excellent summary technique. Over 80 per cent of the students who viewed the film found it either

extremely or generally interesting, with students scoring in the upper quartile indicating somewhat more interest. Due to such positive student reaction, several teachers suggested that a film be shown at the beginning as well as at the end of the unit. Students indicated a desire to see more films during the course of the unit. Only 16 teachers were able to arrange for a guest speaker, and their reactions were extremely favorable. The introduction of students to prominent men in the field of urban geography served to associate the classroom situation with the real world and proved to be a valuable teaching aid.

F. Tests

Ninety per cent of the teachers felt that the unit test adequately measured the learning objectives of the unit. Several teachers felt the need for more testing during the course of the unit to serve as a guide-line for evaluating student progress. Twenty per cent of the teachers thought that some questions tested concepts that either were not taught in the unit or were based on activities designated as optional.

G. Teacher Guide

The teacher's guide was very helpful in meeting the teachers' professional needs. Almost all teachers found it either generally or very helpful in clarifying the objectives of the unit, in suggesting a variety of learning activities, and in providing needed geographical background. The two most commonly reported weaknesses in the guide were a lack of suggestions for supplementary student reading materials and a lack of guidelines for continuous evaluation of student progress.

III. The Unit Test Results

The Intra-Urban Unit pretest of 55 questions was administered to the students in California, Illinois, Ohio, and New Jersey before the test materials were taught, and a posttest of the same 55 questions was administered at the completion of the unit. The pretest mean score of 23.08 increased to 33.20 on the posttest. The standard deviation increased also from 6.32 on the pretest to 8.07 on the posttest. A copy of the test appears in Appendix D. Questions 10, 38, and 48 were judged defective and are not included in the analysis. All test figures are based on the results of the 52 questions taken by the students in California, Ohio, and New Jersey only. The tests were administered to a total of 1622 students in these 3 areas.

The test was designed to measure an understanding of the basic concepts of the unit. On the average each of the 52 questions was answered correctly on the pretest by 43 per cent of the students, while on the posttest each question was answered correctly by an average of 62 per cent of the students. Thus, from the pretest to the posttest there was a mean increase of 19 per cent in the number of students answering the questions correctly.

The unit is divided into 4 parts, and each part is designed to develop an understanding of several of the unit's conecpts. By relating each test question to one or more of the concepts, an analysis of the extent to which students understand the concepts is possible.

Part I of the Unit: The Location of Settlements

Part I is designed to develop an understanding of the following concepts:

1) Some sites are better than others for the location of settlements.

2) Attractive characteristics of favorable sites are:
   a) nearness to transportation facilities
   b) nearness to natural resources
   c) conditions conducive to health, safety, and comfort

3) Favorable locational characteristics change over time.

The unit test contained 5 questions designed to measure the student's understanding of these concepts. An average of 44 per cent of the students answered each of the questions correctly on the pretest (as compared with 43 per cent for all the questions). On the posttest each question was answered correctly by an average of 62 per cent of the students (the same average as all the questions). Thus, from the pretest to the posttest there was a mean increase of 18 per cent in the number of students correctly answering the questions related to Part I (as compared with 19 per cent for all 52 questions).

The results of the 5 questions related to Part I are:

Question	Concept(s) Tested	Pretest (% of students answering correctly)	Posttest (% of students answering correctly)	Increase in % of students answering correctly
2	1, 2, 3	30%	49%	19%
5	1, 2, 3	45	68	23
20	1, 2, 3	44	62	18
26	1, 2, 3	35	56	21
27	1, 2, 3	64	73	9
		M 44%	M 62%	M 18%

Part II of the Unit: Factors Affecting City Growth

Part II is designed to develop an understanding of the following concepts:

1) Cities prosper when money is brought in from outside areas (when exchange takes place).

2) Money is brought into the city when goods and services are sold to people in other areas. Thus, growth occurs when (a) certain characteristics of a site are used to advantage to produce goods and services; (b) successful trading relationships are established between the settlement and areas outside of it.

3) Basic workers are engaged in activities which bring money into the city from outside areas. Cities grow through an increase in the number of basic workers.

The unit test contained 8 questions designed to test the students' understanding of these concepts. An average of 26 per cent of the students correctly answered each of the questions in the pretest (as compared with 43 per cent for all questions). On the posttest, each question was answered correctly by an average of 51 per cent of the students (as compared with 62 per cent for all the questions). Thus, from the pretest to the posttest there was a mean increment of 25 per cent in the number of students correctly answering the questions related to Part II (as compared with 19 per cent for all 52 questions). This is the greatest increase in the per cent of students correctly answering questions related to one of the unit's parts. However, this is probably a result of the fact that several questions deal with basic-nonbasic workers, a concept with which few students would have been familiar before exposure to the unit.

The results of the 8 questions related to concepts in Part II are:

Question	Concept(s) tested	Pretest (% of students answering correctly)	Posttest (% of students answering correctly)	Increase in % of students answering correctly
7	1, 2	48%	60%	12%
39	2	39	58	19
50	1, 2, 3	14	20	6
8	3	7	54	47
34	3	15	31	16
44	3	43	73	30
45	3	16	76	60
54	3	28	34	6
		M 26%	M 51%	M 25%

The results from the questions which test an understanding of Concepts 1 and 2 indicate that the students understand a city's need for trade. The results from the questions related to Concept 3 indicate an improved understanding of the basic-nonbasic concept. Questions 8, 44, and 45 measure the students' understanding of what the term means. An average of 64 per cent of the students answered these 3 questions correctly on the posttest (an average increase from the pretest of 46 per cent). However, questions 34, 50, and 54, which measure the students' ability to relate this concept to urban growth, were answered correctly by an average of only 28 per cent of the students on the posttest (an average increase from the pretest of only 9 per cent). Thus, the test results show a marked improvement in student understanding of the basic-nonbasic idea, but little grasp of its significance.

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Three other questions on the test (14, 21, and 51) were directly related to the study of Portsville, and therefore they have not been included in the above analysis of the extent to which students understand the concepts of Part II. The results of the 3 questions related to Portsville are:

Questions	Pretest (% of students answering correctly)	Posttest (% of students answering correctly)	Increase in % of students answering correctly)
14	14%	53%	39%
21	42	67	25
51	24	78	54
	M 27%	M 66%	M 39%

Part III of the Unit: Accessibility, Land Values, and Land Uses

Part III is designed to develop an understanding of the following concepts:

1) Some places within a city are more accessible than others. Highly accessible locations are places that are reached easily by large numbers of people. Time distance is a useful way to measure ease of movement and access.

2) Accessibility changes as population and transport facilities change.

3) Urban population densities are greatly affected by accessibility and land values. Density gradients reach a peak just outside of the central business district and decline rapidly toward the suburbs.

4) There is a correlation between accessibility and land values, with land values tending to be highest at very accessible spots.

5) Land values tend to indicate the kinds of uses to which urban land is put.

6) Certain typical urban land patterns have evolved in Anglo-America, based on the following tendencies:

   a) Commercial establishments seek locations that are accessible to large groups of people.

   b) Industrial establishments seek locations which are accessible to their raw material suppliers and/or the people who buy their manufactured products.

   c) City residents seek locations for homes which are accessible to a number of things, the most important of which are the residents' place of work, schools, shops, and pleasant surrounding.

The unit test contained 28 questions designed to test the students' understanding of these concepts. An average of 50 per cent of the students answered each of these 28 questions correctly on the pretest (as compared with 43 per cent for all questions). On the posttest, each question was

answered correctly by an average of 67 per cent of the students (as compared with 62 per cent for all questions). Thus, there was a mean increase of 17 per cent from the pretest to the posttest in the number of students correctly answering questions related to Part III (as compared with 19 per cent for all 52 questions).

Seven of the 28 questions tested the first concept dealing with accessibility and time distance. An average of 54 per cent of the students correctly answered each of these questions on the pretest (as compared with 43 per cent for all questions). On the posttest each question was answered correctly by an average of 75 per cent of the students (as compared with 62 per cent for all questions). Thus, with respect to the first concept of Part III the mean increase in student performance from pretest to posttest was 2 per cent above that for all the questions on the test.

Only 1 question was relevant to the second concept and it had a pretest to posttest increase of 21% also.

The 2 questions related to the third concept showed considerably less improvement from pretest to posttest. An average of 44 per cent of the students correctly answered each of these questions on the pretest and 56 per cent on the posttest for an average increase of only 12 per cent.

The fourth concept was tested by 4 questions. There was a 21 per cent increase in the average per cent of students answering the questions correctly, from a pretest mean of 57 per cent to a posttest mean of 78 per cent.

Concept 5 was tested by 5 questions. An average of 53 per cent correctly answered each of these questions on the pretest and 74 per cent on the posttest. This 21 per cent increase compares favorably with student achievement of other concepts in the unit.

The largest number of questions for any unit concept were relevant to the sixth concept in Part III of the unit. The 11 questions showed a small degree of gain from pretest to posttest. An average of 46 per cent answered each of these questions correctly on the pretest and 58 per cent on the posttest, one of the smallest increases of any of the unit concepts.

The results of each of the 28 questions related to Part III of the unit are as follows:

Question	Concept Tested	Pretest (% answering correctly)	Posttest (% answering correctly	Increase in % of students answering correctly
1	1	60%	88%	28%
9	1	36	51	15
15	1	68	81	13
29	1	82	90	8
30	1	50	60	10
49	1	55	81	26

Question	Concept(s) Tested	Pretest (% answering correctly)	Posttest (% answering correctly)	Increase in % of students answering correctly
16	1, 2	25	71	46
18	3	39	51	12
24	3	49	61	12
22	4	65	81	16
40	4	48	69	21
46	4	47	80	33
35	4, 5	69	84	15
3	5	55	81	26
6	5	38	69	31
41	5	60	73	13
52	5	45	65	20
11	6	27	34	7
12	6	47	66	19
17	6	26	36	10
23	6	49	64	15
31	6	51	55	4
32	6	57	71	14
33	6	72	86	14
36	6	34	60	26
42	6	21	27	6
47	6	74	79	5
53	6	44	56	12
		M 50%	M 67%	M 17%

Part IV of the Unit: The Importance of Local Planning

Part IV is designed to develop an understanding of the following concepts:

1) Conflicting desires of urban land users often lead to undesirable land use associations.

2) Problems of land use associations are also apt to arise during times of rapid growth or stagnation.

3) Planning can alleviate some of these problems.

The unit test contained 8 questions designated to test the students' understanding of these concepts. An average of 42 per cent of the students correctly answered each of the 8 questions on the pretest (as compared with 43 per cent for all questions). On the posttest, each question was answered correctly by an average of 58 per cent of the students (as compared with 62 per cent for all questions). Thus, from the pretest to the posttest, there was a mean increase of 16 per cent in the number of students correctly answering the questions related to Part IV (as compared with 19 per cent for all questions).

The smaller than average gain on questions relevant to this part of the unit may be due to the tendency of teachers to hurry through the last part of a unit. This tendency could easily have been accentuated in this instance because the unit took most teachers more time than was originally planned. Another explanation, however, can also be found in the variety of factors teachers might have considered under concept 3. In fact the 5 questions counted as relevant to this concept dealt with a miscellany of items and had a mean pretest to posttest increment of only 14 per cent.

The results of the 8 questions related to Part IV are:

Question	Concept Tested	Pretest (% of students answering correctly)	Posttest (% of students answering correctly)	Increase in % of students answering correctly)
4	1	63%	85%	22%
43	1	59	77	18
55	1	21	45	24
13	3	23	52	29
19	3	23	18	-5
25	3	77	86	9
28	3	44	49	5
37	3	27	50	23
		M 42%	M 58%	M 16%

IV. Suggestions for Modifying the Unit

The suggestions for unit revision are directed at specific aspects of individual activities. Each activity is first described as the unit author intended it to be used in the classroom. General observations of those teachers who taught and evaluated the activity are indicated with respect to the following:

a) Whether the activity was generally effective or ineffective in stimulating student interest. Where student opinions are available, these are included as well.

b) Whether the activity was generally effective or ineffective in helping students learn what was intended.

c) Whether the activity should be retained in the unit without revision, with minor revisions, with major revisions, or whether it should not be retained.

The effectiveness of the activity in helping students learn what was intended is then analyzed with respect to the results of those unit test questions which test the students' understanding of the concept(s) to be taught by the activity. The concepts are identified by the number of the concept as outlined in Section III of this report.

Finally, suggestions for improving the activity are listed. The number of teachers mentioning each idea is indicated in parentheses.

Part I of the Unit: The Location of Settlements

Activity 1: Discussion of City Sites Generally and Local Community Specifically (40 teachers reporting)

Activity 1 is designed as a teacher-led discussion of the location of urban sites and the reasons for these locations.

Almost all teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. Almost 70 per cent of the teachers felt that the activity should be retained without any revision, and the others would retain it with the minor revisions suggested below.

Question 2 is most closely related to this activity. The 19 per cent increase from pretest to posttest indicates that the activity is contributing to an understanding of the concepts taught in the activity.

1. Several teachers and observers felt that a visual aid such as an introductory filmstrip might arouse greater student interest, especially for classes of average or below average ability.

2. If below average students were provided with desk maps of the United States or small atlases, greater student involvement would be encouraged. (3 + 3 observers)

3. The above average ability students might be further challenged. One teacher suggested devising hypothetical problems for these students; that is, asking them to decide what type of urban area would develop (e.g., industrial, tourist, recreational) if certain factors were working. This could promote a deeper discussion of the various aspects of urban development.

Activity 2: Site Diagrams (37 teachers reporting)

Activity 2 is a discussion centered around 5 diagrams for which students are instructed to indicate the site at which a settlement is most likely to develop in the year indicated. Its purpose is to introduce the concept that favorable locational characteristics change over time.

All teachers thought that the activity was effective in stimulating student interest, and about 80% of the students agreed. All but two teachers thought the activity was effective in helping students learn what was intended. Almost 80 per cent of the teachers suggested retaining the activity without revision. One teacher thought the diagrams might include a scale of miles.

The test results indicate that this activity is contributing to an understanding of the concepts emphasized in this part of the unit. Although this activity might well have contributed to student success on all five of the questions, question 20 and 26, with a mean increment of 19%, are particularly relevant.

Activity 3: Determining the Site of Portsville (40 teachers reporting)

Activity 3 is the first of several dealing with a large map of Portsville-(actually Seattle, Washington) on which students construct a city according to a teacher narrative of the history of this area. This activity is a discussion of the area represented on the map by which students are led to identify the site where Portsville was first settled.

Almost all teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Almost 90 per cent of the teachers felt the activity should be retained without revision, and the others would retain it with the minor revisions suggested below.

The two questions (2 and 5) related to this activity show a mean increase from pretest to posttest of 21 per cent.

1. Students could be given a short review of the history of the United States during the time of Portsville's site selection. (3)

2. A film or the introduction of slides at this point could help to acquaint students with the topography of the area. (1)

3. Since some equipment for assembling the Portsville Map was missing from the packages of a few teachers, care should be taken to supply each teacher with all necessary materials. (2)

Activity 4: Readings in The Geography of Cities, Part I, and Discussion of Readings (38 teachers reporting)

Activity 4 is the first of 4 activities in which students and teachers discuss readings from the student text. This activity is a discussion of a summary of the concepts learned in the first 3 activities and of 2 readings dealing with the selection of sites for Jamestown, Virginia and Levittown, New Jersey.

Almost all teachers found the activity to be generally effective in stimulating student interest and in helping students learn what was intended. However, almost one half of the teachers would revise the activity in one or another of the ways suggested below.

The test results have very little direct bearing on the effectiveness of the readings.

1. Below average ability students could be given selections that are shorter and easier to read. Although only 1 teacher thought the subject matter was inappropriate for the students, 6 teachers recommended revision of the readings to increase the number of students who comprehend them and to encourage a greater number of students to read the assignments.

2. If the factors affecting the sites of Jamestown and Levittown were made clearer to the teachers, they might might be better prepared to handle the questions of some of their more able students. (3)

3. More background information for class discussion is needed. (4)

4. Questions of a more specific type would be of greater interest to students. (2)

Part II of the Unit: Factors Affecting City Growth

Activity 5: Portsville 1851-1880 (41 teachers reporting)

Activity 5 is the second of the Portsville activities. Students discuss the growth of Portsville from 1851 to 1880, view slides of the area at that time, discuss various categories of land uses, and build the city of Portsville on the map as they think the area might have appeared.

Almost all teachers found the activity to be very effective in stimulating student interest and in helping students learn the material. However, half of the teachers would revise the activity in one or more of the ways suggested below.

Only one question, number 14, applied to this activity. The per cent of students answering correctly increased from 14 on the pretest to 53 on the post-test, a gain of 39 per cent. This great increase reflects the fact that the question requires specific knowledge of Portsville history.

1. Care should be taken to supply all teachers with a sufficient number of plastic pieces. Several teachers found it necessary to improvise when certain materials were missing from their kits for one or more of the Portsville activities. (5)

2. If the point at which each slide is to be shown were indicated in the narrative, if the slides were labelled or numbered, and if the slides were described in the teacher's guide, the classroom situation might be improved and the viewing might more easily be an uninterrupted and meaningful experience for the students. (5)

3. If the activity on land values (or at least an introduction to the concepts of land value and land use patterns of business, residential, and commercial areas) preceded the activities on Portsville, the students could make more accurate decisions in placing plastic pieces on the map. (2)

4. If teachers were given more specific guidelines on likely locations for the plastic pieces, they could be of more assistance to the students who are making decisions on land use patterns. Two teachers felt the need for more information on the reasons for land values, and 3 teachers felt their knowledge was inadequate to direct the students' placement of pieces on the board. An indication for both students and teachers of the approximate number of people per square mile might result in a more realistic replica of actual land use patterns.

5. Since many teachers and observers noticed some lack of interest in students not activlly participating, the decisions involved in placing the plastic pieces could be made by a consensus of the entire class rather than by a small group of students.

6. If the graph paper activity for each time period were worked by each student before the large board was assembled, its final assembly could be the the result of the majority decisions of all students. (5) This would prevent students from copying the assembled board's design onto graph paper, a practice which several observers noticed.

7. To assist in their map decisions, students could be given more concrete examples of the five different categories of land use. (1)

8. If the students were given a copy of the Narrative, they could familiarize themselves with the history and growth of Portsville before coming to class. A student copy would also help them review the history of Portsville's growth and factors which influence growth. (1)

9. The time limitations imposed by the unit author presented definite problems for this as well as for the other Portsville activities. The construction of the board took such a long time in most classes that little if any time remained for the discussion of the concepts illustrated. A shortened version of the activity or the assembly of the board by students before class might solve this problem.

10. Several teachers were confused by the chart on page 25 of the teacher's guide. It should indicate whether the number of pieces indicated is the total number to be used for each time period or the cumulative number to be used for all time periods.

Activity 6: Simulation of Portsville's Growth on Graph Paper (41 teachers reporting)

Activity 6 consists of a desk map on which students can sketch the development of Portsville with colored pencils for the 1851-1880 period, and for subsequent periods if they so wish.

Almost all teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Over 60 per cent of the teachers would retain the activity without revision, and the others would retain it with the revisions suggested below.

The test results have little direct bearing on the effectiveness of the graph paper activity.

1. Many teachers and most observers noticed that most students who were not actively participating in building the large map were less stimulated than those who were. Teachers who combined the graph paper activity with the Portsville map noted a greater degree of student interest than teachers who conducted the activities separately. If the simulation of Portsville on graph paper and the construction of the large map were conducted simultaneously, an even larger number of students are likely to become actively involved.

2. Since many students disliked coloring over work previously completed, students could be given a different piece of graph paper for each time period. Overlays rather than a single paper map would accomplish the same objective. (5)

3. Since many students of all levels of ability found the coloring of the graph paper either tedious or disturbingly complex, students could be given a map with larger squares or a shorter, more comprehensive activity. (3)

4. To facilitate a more accurate construction of their graphs, students might be supplied with a copy of page 25 in the teacher's guide. Instructions for students should include the number of squares to be colored for the railroads. Student instructions should also clearly state that the number of squares to be colored for each time period is distinct from the number of squares already colored. (3)

5. Several teachers noted the need for a clarification of the following ideas and information:

a. the number of retail stores in relation to population (relationship of retail growth to residential growth)

b. the composition of the central business district (that city structures develop close together)

c. the classification of commercial land use as compared with industrial land use

Activity 7: Discussion of City Growth and the Basic - Nonbasic Concept (41 teachers reporting)

Activity 7 is a discussion of the growth of a city through the introduction of the basic and nonbasic workers idea.

Almost all teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Sixty per cent of the teachers would retain the activity without revision, and the others would retain it with the revision suggested below.

As indicated in the section of this report dealing with test results, evidence from the test questions suggests that students understand the difference between basic and nonbasic workers better than they understand the relationship between basic workers and urban growth.

1. At least 6 teachers requested that they be supplied with additional information for this activity. Additional reading materials for the teacher and readings and/or projects for the students could give more meaning to and generate greater interest in the basic-nonbasic worker concept.

Activity 8: Portsville 1881-1890 (42 teachers reporting)

In Activity 8, students build Portsville for the period 1881 to 1890 with the aid of slides which depict the area and the Narrative which discusses Portsville's growth during that time. Emphasis is placed on the necessity of trade, accessibility, and basic workers for city growth and the land use patterns that arise during growth.

Almost all teachers found the activity effective in stimulating student interest and in helping students learn what was intended. About 60 per cent would retain the activity without revision, and the others would retain it with the revisions suggested below.

Question 51, which shows a pretest to posttest increase of 54 per cent, indicates that students are learning the information about Portsville's growth emphasized in this activity.

1. Since several teachers encountered some difficulty when the railroad was introduced, teachers and students might be supplied with a more detailed explanation of the railroad assembly and what factors determine its route. (4) Teachers might also be given some guidelines as to the approximate number of railroad pieces to be used for each time period. (2)

2. Some teachers sensed that the more able students were becoming bored by the repetition of the Portsville assembly. An amplification of point 4 on page 45 of the Teacher's Guide in which the students could compute the proportions of land in different uses might serve as a new challenge for the more able student. (1)

Activity 9: Portsville 1891-1900 (41 teachers reporting)

In Activity 9, students construct Portsville for the period 1891-1900, again using slides and the Narrative as bases for their decisions. Emphasis is made upon the rapid growth of Portsville, the necessity of transportation for trade and growth, the effect of basic workers on the city, and the effect of economic growth on spatial growth.

Almost all teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. About 60 per cent would retain the activity without revision, and the others would retain it with the revisions suggested below.

Question 21, which relates to Portsville during this period, shows a modest pretest to posttest increase of 25 per cent.

1. Since some students were confused by the filling in of the tidal land area, teachers might be given a more detailed explanation of this development. (3)

2. The last 2 pages of the Narrative might be reprinted for students to aid them in their construction of the board and graph maps for 1900. (2)

Activity 10: Discussion of Map of Seattle, 1950 (38 teachers reporting)

Activity 10 completes the Portsville activities with a discussion of Seattle as it appeared in 1950.

Approximately 85 per cent of the teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Almost half of the teachers would retain the activity with the revisions suggested below.

Test results have little direct bearing on the effectiveness of this activity.

1. Eleven teachers felt the need for more slides to supplement the Narrative and for more information about present-day Seattle.

2. Six teachers suggested revising the slide of Seattle so that it more accurately reflects Portsville. Three teachers thought the slide could have been more meaningful if it had been oriented in the same direction as Portsville. Other teachers felt that the slide would be better if it identified the different land use areas of Seattle as Portsville shows them, possibly with the areas colored in the same code.

Activity 11: Discussion of Growth of Home Town (36 teachers reporting - 3 teachers incorporated this discussion in other activities.)

Activity 11 is a discussion of the students' home town with emphasis on the reasons for the town's growth and the historic and economic factors which influenced that growth.

Almost all teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Two teachers would eliminate the activity or incorporate it with others, but over three-fourths of them would retain it without revision. Several suggested that additional sources for locating information about the growth of their local area would be useful.

Test results have little direct bearing on the effectiveness of this activity.

Activity 12: Readings in The Geography of Cities, Part II, and Discussion of Readings (38 teachers reporting)

Activity 12 is the second discussion of readings, which include a summary of the concepts learned in Part II, an article dealing with the history of land speculation during the 1800's, and an article discussing the basic worker concept.

Approximately three-fourths of the teachers found the activity effective in stimulating student interest, and about 85 per cent found it effective in helping students learn what was intended. Approximately one-half of the teachers would retain it with the revisions suggested below.

Question 54 dealt with the ratio of new basic workers to total job additions, a point brought out in one of the readings. The per cent of students getting the question right on the pretest was 28. This increased to 34 per cent on the posttest. This poor increase suggests that few students may be reading the articles or, at any rate, that this point is receiving virtually no emphasis in class discussion.

1. Four teachers mentioned that the vocabulary and the reading level of the article by John Reps seemed too difficult for many students, and the following minor suggestions were made as ways to improve the students' comprehension of the article:

a. Eliminate quotations around the Speakers' names in the dialogue on page 13. (2)

b. Explain the reference to Hygeia since it is unfamiliar to the students. (1)

2. If both selections could make reference to Portsville, a familiar situation, students would be better prepared to generalize about the growth of cities. (2)

Part III of the Unit: Accessibility, Land Values and Land Uses

Activity 13: Accessibility Diagrams (42 teachers reporting)

Activity 13 is a discussion centered around 5 diagrams for which students are instructed to indicate the place they consider to be the most accessible spot. The purpose is to introduce the concept of accessibility.

All teachers thought that the activity was effective in stimulating student interest, although 25 per cent of the students thought it somewhat uninteresting. Most teachers found it effective in helping students learn what was intended. About 60 per cent of the teachers would retain the activity without revision, and the others would retain it with the revisions suggested below.

Five questions, 1, 9, 15, 29, and 30, deal directly with the concept of accessibility. The mean student per cent right of 59 on the pretest suggests that most students understand the idea before it is introduced. The relatively small increase of 15 per cent from pretest to posttest, in part at least, is due to this high percentage of students who are able to respond correctly at the pretest stage.

1. Several teachers reported that their students tended to use the central location factor as the sole determinant of the most accessible spot. More explanation and diagrams that strikingly illustrate the differences between accessibility and concentration might prove worthwhile. If posed with such problems as: "How many people would there have to be at 'D' to move the most accessible spot there," the effects of population concentration might be more vividly demonstrated. (5)

2. Student directions should specify that the number at each letter represents the number of people. (2)

3. Since many of the students found it difficult to explain their choice of the most accessible spot in diagram V, they might be given the table on page 66 of the Teacher's Guide. Also, if a second diagram similar to diagram V were supplied, the students would be able to apply the knowledge of the concepts learned to another situation. (2)

Activity 14: Time-Distance Exercise (37 teachers reporting)

Activity 14 is an optional activity in which each student plots isochrones on a city map in order to deepen his understanding of time-distance in particular and the accessibility concept in general.

Over 80 per cent of the teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Most students who found this to be the least interesting activity mentioned its difficulty and the calculations involved as the primary reasons. Over half of the teachers suggested revisions for the activity before including it in the final version of the unit.

Questions 16 and 49 required the use of the time-distance concept. The mean pretest to posttest increase of 36 per cent (from 40 per cent to 76 per cent) indicates the effectiveness of this activity in teaching the concept.

1. The term "isochrone" should be explained in much greater detail. Since some students did not understand the term "contour," 13 teachers had difficulty explaining the plotting of isochrones to them. A step-by-step approach that teachers could use in teaching the plotting of isochrones could eliminate some of the confusion.

2. Several teachers felt that the above average students should be challenged further. One suggested introducing a second freeway and asking how this would change the pattern of the isochrones.

3. Other teachers felt that below average students might be better able to handle this activity if they could work with a map having fewer streets and having numbers (minutes) that coincide with isochrone lines. If time in minutes between intersections equaled the isochrone intervals, much time spent in approximating time-distance could be saved. (2) Since students were confused by the use of two different terms to identify the same road on the map, either the term freeway or expressway should be used throughout. (1) Point 3 in the General Instructions for Students might refer to the starting point as a "black dot" rather than a circle to distinguish it from the other circles on the map. (1) The street line below the starting point, and the line parallel to it on the left, should indicate the time it takes to get from the first intersection to the second. (1)

Activity 15: The Relationship of Accessibility to Land Values (43 teachers reporting)

Activity 15 is a lecture-discussion designed to introduce the concepts of land values and land uses, and to show the relationship between accessibility and land values and uses.

Almost all teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. Seventy per cent of the teachers would retain the activity without revision, and the others would retain it with the suggestions below.

Questions 22, 35, 40, and 46 are related to the concepts stressed in this activity. The mean increase was 21 per cent, from a pretest mean of 57 per cent to a posttest mean of 78 per cent. Even though more than half of the students were able to correctly answer the questions before the unit began, the increase to 78 per cent is more than the average for all the questions in the test.

1. Several teachers would have liked more meaningful examples of this concept. Clear definitions and examples of various types of stores that are more familiar to the students might be helpful. (5)

2. Student interests and teacher suggestions indicate the need for a student activity dealing with an actual situation in order to increase the depth of comprehension of this concept for below-average students. One teacher reported success when he illustrated the concept by relating student and teacher seating positions to population concentration and store position.

Activity 16: Accessibility Board (19 teachers in Illinois and New Jersey reporting)

Activity 16 consists of a student-operated mechanism by which students should be able to discover the principles of accessibility and to hypothesize as to the effects of changing accessibility on land values and land uses.

Approximately 80 per cent of the 19 teachers reporting found the activity effective in stimulating student interest and in helping students learn what was intended. However, almost half of these teachers would revise the activity in some way, and several suggestions are noted below.

The test results have little direct bearing on the effectiveness of this activity.

1. Teachers might be more explicitly directed to keep the students aware of the concepts involved at all times since many students treated the activity solely as a game. (5)

2. The construction of one large, well-made board that functioned in a predictable and accurate way might help to direct students to thinking in terms of the concepts involved. When operated in the classroom, the marbles often stuck due to humidity, dust, and warping of the boards, and a realistic comparison of the board with highways was difficult. (3)

Activity 17: Accessibility and Land Values Exercise (41 teachers reporting)

Activity 17 is a discussion based on 2 maps and 2 charts; students plot the land values of both residential and commercial areas of Chicago in order to determine the effect of accessibility on land values and to compare the land values in both areas.

Almost all of the teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. However, almost half of the teachers would make revisions in the activity before retaining it in the unit.

Questions 12 and 36, which provide information about this activity, show a mean increase of 23 per cent from 40 per cent to 63 per cent. This is an above average increase.

1. Due to student misunderstanding of the land value chart, land values on the residential and commercial tables should be stated in terms of dollar values. (2)

2. Since some students were unfamiliar with the mechanics of plotting, the concepts to be taught by the activity were obscured by mechanical problems. Seven teachers suggested an optional activity on graphing to familiarize their classes with the process.

3. The relationship of commercial and residential land values might be better visualized by students if maps and graphs were transparencies that could be superimposed. One set of transparent maps supplied for the teacher to show to the entire class could accomplish this purpose. (1)

Activity 18: Density Gradient Exercise (39 teachers reporting)

Activity 18 is a discussion centered around the population density of cities. Students plot the population density of Chicago in order to determine the effects of accessibility, land values, and land uses on density, to compare daytime and nighttime densities, and to relate Chicago's population density pattern with that of other American cities.

Almost all of the teachers found the activity effective in stimulating student interest and in helping students learn what was intended. Approximately two-thirds of the teachers would retain the activity without revision and the others would revise the activity before retaining it in the unit.

None of the test questions is directly related to this activity.

1. Several teachers suggested giving the students a piece of graph paper that was already labeled. This would save time, facilitate graphing, and ensure the students' use of the entire page rather than a small segment in the left-hand bottom corner. As in the previous activity, the need to teach plotting to students presented one of the greatest difficulties.

2. Since population density was defined in terms of where people live rather than where they are at a particular time, many students were confused by the distinction between daytime and nighttime densities. (5)

3. Graphs of the daytime and nighttime population densities of other cities could be supplied for comparisons between "old" and "new" cities. (4)

4. Since discussions of familiar surroundings always generated the most student interest, teachers might be urged to compare Chicago's densities with those of their local area. (6)

5. Because of student questions, one teacher suggested telling them what area of Chicago each letter on the map represents.

Activity 19: Discussion of Land Use Patterns in Anglo-American Cities, with Focus on Local Community (32 teachers reporting)

Activity 19 is a teacher-led discussion of land use patterns in Anglo-American cities based on a map of the students' home city and a United States map showing the location of cities.

Approximately 90 per cent of the teachers felt that the activity was effective in stimulating student interest and in helping students learn what was intended. However, one-half of the teachers would revise the activity before retaining it in the unit.

Fourteen questions bear a direct relationship to the ideas and information emphasized in activities 19 and 20. The mean per cent of students answering each question correctly on the pretest was 48. On the posttest this figure increased to 61 per cent, a gain of only 13 per cent.

1. The greatest problem was that the teachers were given little direction for this activity. Six teachers had difficulty obtaining maps of other cities to illustrate the comparisons of land use patterns. One teacher suggested including the information from Kiang's "Land Use in Cities" in the Teacher's Guide.

2. If the students were assigned the readings for Part III before this activity, the class discussion might become more meaningful for them. (2)

3. A structured outline of a suggested method for presenting the material could assist the teacher in directing the discussion. The teacher might be encouraged to list the different types of land uses on the board to facilitate the students' ability to discuss the materials. (2)

Activity 20: Readings in The Geography of Cities, Part III, and Discussion of Readings (36 teachers participating)

Activity 20 is the discussion of the readings for Part III of the unit. They include a summary of concepts learned in Part III, an article illustrating how land use patterns are affected by accessibility, one describing the relationship between land values and land uses, two articles on the internal patterns of land uses, and a final selection on population densities.

Approximately 80 per cent of the teachers felt that the activity was effective in stimulating student interest and in helping students learn what was intended. However, over 60 per cent of the teachers suggested revising the activity before retaining the activity in the unit.

The test results for activity 19 are appropriate for this activity as well.

1. The difficulty many students encountered in reading the selections, even those that were intended for all students, presented the greatest problem. (7)

2. Several teachers suggested that the readings be assigned in connection with appropriate activities in Part III rather than at the end of the part. They found that some students were reluctant to read so much material at one time, and one assignment of all readings tended to discourage some students from reading them at all. (8)

3. Three teachers mentioned that their students found Ratcliff's article more clearly written than Proudfoot's, and since the two are similar they suggest eliminating the latter.

4. One teacher noted that the chart in the September 1965 issue of Scientific American comparing land value use in major American cities might be helpful for making comparisons in class.

5. If the key to Pendleton's Figure 3 were on the same page as the figure itself, students could more easily interpret the data. (1)

Part IV of the Unit: The Importance of Local Planning

Activity 21: Planning Board (36 teachers reporting)

In Activity 21, groups of students assemble a city on the basis of land values and land uses, discuss the land use patterns of the assembled cities, and examine the problems of land use associations and the feasibility of urban planning to prevent undesirable associations.

Almost all teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. In general, students indicated tremendous interest in the Planning Board. However, 40 per cent of the teachers would make some revisions in the activity before retaining it in the unit.

Questions 4, 37, and 43 seem to measure the outcomes expected of this activity. The mean for students on the pretest was 50 per cent compared with a mean of 71 per cent on the posttest. This increase of 21 per cent is somewhat greater than that obtained for the test as a whole.

1. If a teacher is using the materials in more than one class he might be given a different set of materials for each class. Since the activity often took more than one day to complete, these teachers were forced to disassemble and reassemble the board for each class.

2. The packs of land-use and land-value cards did not always contain enough of one or more types of cards for students to assemble the city as they wanted. A teacher noted that one group's pack did not contain any Number 5 land value cards, and the students in this group were displeased. The difference in cards often accounted for different land-use patterns, and a fair comparison of the boards was difficult. (5)

3. The construction of the planning sheets and boards took so much time that discussion was by necessity curtailed in some classes. Either an extension of time for the unit or a less complicated activity seems necessary in order to impress the students with the importance of the activity as a learning tool rather than merely a game. (6)

4. Several minor suggestions for improving the planning board were made. For example, if streets were indicated by lines, this would add realism to the board and might make its assembly easier for students. (2) Since some students questioned the lack of such municipal services as hospitals and parking lots, these might be included in the land-use cards. (1) If the color-coding sheet were reproduced on the planning sheets, student errors could be reduced. (1) Each land-use card for a park or an industry might state that it is to take up four squares on the planning sheet. (1)

Activity 22: Readings in The Geography of Cities, Part IV, and Discussion of Readings and Local Problems (33 teachers reporting)

Activity 22 is the last discussion of readings. The selections are meant to serve as a basis for a class discussion of urban problems and planning and include an excerpt from President Kennedy's "Message to Congress," an article describing suburbs and cities, a discussion of the need for permanency in city building, two articles on the consumption of urban space, and a selection which illustrates the connection between flight and blight.

Approximately three-fourths of the teachers found the activity to be effective in stimulating student interest and in helping students learn what was intended. Almost half of them would revise the activity in one or another of the ways suggested below.

On the pretest, 37 per cent of the students correctly answered the five questions relevant to this activity (13, 19, 25, 28, 55). This increased to 50 per cent of the students on the posttest, for a 13 per cent gain. This relatively poor increase probably reflects insufficient attention to those parts of the readings emphasized in the test questions.

1. In general, teachers thought the readings for Part IV were relevant to the discussion and among the best in the text. However, 7 teachers reiterated their comments about the readings in general, that the sentence structure and vocabulary were above the reading levels of many students.

2. The following suggestions were made by fewer than 5 teachers:

   a. Include more readings on such planning procedures as zoning.

   b. Disperse the reading assignments throughout Part IV.

   c. Some of the readings could have helped the students in constructing the Planning Board and might be assigned before Activity 21.

   d. The teacher's guide might suggest that the teacher or students scan local newspapers for articles on urban planning. This was done in one class and proved to be a valuable contribution to the discussion.

   e. Several working solutions to the problem could be identified for the teacher or discussed in the students' text to familiarize students with contemporary plans for the replanning of some cities.

Activity 23: Talk by Guest Speaker on Local Problems and/or Planning (16 teachers reporting)

Activity 23 is an optional activity in which a guest speaker addresses the class on urban problems and/or the need for city planning. The classes were addressed by such people as the mayors of local towns, real estate agents, and members of urban redevelopment or planning departments.

All of the 16 teachers reporting found this activity effective in stimulating student interest and in helping students learn what was intended, and all felt the activity should be retained in the unit without revision.

The test results gave little indication of the effectiveness of the activity.

Activity 24: Film About Urban Problems (20 teachers reporting)

For Activity 24, the students viewed one or more of three suggested films about urban problems. The three films were: "The Changing City," by Churchill Films; "Urban Sprawl," by Arthur Barr Productions, Inc.; and "Our Changing Environment," by Encyclopedia Britannica.

All of the 20 teachers reporting found the activity to be effective in stimulating student interest and in helping students learn what was intended. "The Changing City" was especially well received, and all teachers who used it found it to be an invaluable summary device. Only 10 per cent of them felt the need to make minor revisions before retaining the activity in the unit.

The test results gave little indication of the effectiveness of the film.

1. Since 2 teachers had no time to preview the film, a summary of each film and its major points could aid the teacher in the discussion.

2. A questionnaire to be completed by students might direct their attention to the films' major points and could also serve as a basis for discussion, thus assisting teachers as well as students. (1)

3. One teacher showed the film "The City" narrated by Lewis Mumford. Despite its early date of production, he thought that it effectively demonstrated the major concepts of the unit.

4. In view of the enthusiasm generated by this activity, several teachers suggested the use of a film or filmstrip to introduce the unit, and perhaps 1 or 2 more to perk up those activities that seemed to be less interesting for the students.

V. Summary of Recommendations

1. The test results and the enthusiastic response of both teachers and students suggest that the unit is a successful teaching instrument in approximately its present form.

2. To the extent that the generation of student interest in geography is a goal, group activities involving the manipulation of objects should be retained.

3. A greater variety of readings should be provided in the unit, especially readings suitable for poor readers.

4. The success of the several activities centering on the local community suggests that, whenever possible, attention should be centered on the students' own communities.

5. The unit is too long. Certain activities will need to be dropped, put on an optional basis, or combined.

6. Teachers indicated that class discussions, especially those based on the unit readings, were relatively ineffective in helping students learn what was intended.

7. The value of retaining the student exercises requiring extended computations should be seriously considered.

8. Some questions on the unit bear little direct relevance to the unit concepts. Therefore, the unit test should be analyzed and revised to provide a more precise measurement of all the unit concepts.

APPENDIX A

TEACHER EVALUATIONS OF THE INTRA-URBAN UNIT*

	Very positive response	Positive response	Negative response	Very negative response
Reading Materials				
1. Do you believe the reading materials are clearly written and understandable for the majority of the students? **	-	67%	33%	-
2. Do you believe the reading materials are well-organized from an instructor's point of view?	-	93	7	-
3. How would you rate the author's use of questions in terms of stimulating student thought and furthering learning?	17	68	15	0
The Concepts Developed in the Unit				
4. How appropriate is the number of concepts in the unit?	-	72	21	7
5. How would you rate the sequence of the concepts?	36	62	2	0
6. How would you rate the manner in which the concepts are developed (i.e., the kind and amount of explanation)?	30	56	14	0
Teacher's Guide				
How helpful was the teacher's guide in regard to each of the following aspects of teacher preparation and instruction?				
7. Clarifying the objectives of the unit	70	30	0	0
8. Suggesting a variety of learning activities	49	44	7	0
9. Providing needed geographical background, including suggested reference books	40	48	12	0
10. Suggesting supplementary reading materials for students	12	42	44	2
11. Providing guidelines for continuous evaluation of student progress	9	26	46	19
12. Providing for flexibility in meeting individual learning needs	24	41	33	2

* Evaluations of the unit are based on responses of 42 teachers to questions in the Teacher Unit Evaluation Form. The percentages indicate the proportion of the 42 teachers who responded to each question in one of the specified ways.

** When 2 responses are indicated they are "yes" or "no"; when 3 responses are indicated, they are "about right," "too few," or "too many"; when 4 responses are indicated, they range from excellent or very helpful to very poor, definitely inadequate, or definitely inappropriate.

	Very positive response	Positive response	Negative response	Very negative response
Student Activities				
13. How would you evaluate the appropriateness of the activities in terms of their adaptability to students with different levels of ability?	24%	55%	19%	2%
14. How appropriate is the number of activities suggested?	-	60	20	20

15. Name the student exercise which was most effective in meeting the objectives of the unit.

Portsville - 30%

Planning Board - 26%

Accessibility and Land Value Exercise - 13%

Basic Worker Discussion - 8%

Time Distance Exercise - 5%

Site Diagrams - 5%

Relationship of Accessibility and Land Values - 5%

* Guest Speaker - 3%

* Film - 3%

16. Name the student exercise which was least effective in meeting the objectives of the unit.

Density Gradient Exercise - 15%

Time Distance Exercise - 15%

Accessibility Diagrams - 13%

* Accessibility Board - 10%

Accessibility and Land Values Exercise - 8%

None - 5%

Site Diagrams - 3%

Portsville 1851-1880 - 3%

Simulation of Portsville on Graph Paper - 3%

Basic Worker Discussion - 3%

Portsville 1881-1890 - 3%

Discussion of Map of Seattle, 1950 - 3%

Discussion of Land Use Patterns - 3%

Unit Materials

How would you evaluate the unit materials other than reading materials? (For example: maps, films, pictures, special teaching devices)

17. Degree of interest for students in general	40	58	2	0
18. Degree of interest for high ability students	25	58	12	5
19. Degree of interest for low ability students	17	51	32	0
20. How would you rate the unit materials in terms of their variety?	41	54	5	0
21. Do you feel the unit test adequately measured the learning objectives of the unit?	-	88	12	-

* Approximately 20 teachers used this activity. Consequently the percentage indicated is lower than could be expected if all teachers had used it.

APPENDIX B

TEACHER EVALUATIONS OF THE INTRA-URBAN UNIT ACTIVITIES (CHART I)*

Activity	Effectiveness in Stimulating Student Interest				Effectiveness in Helping Students Learn What Was Intended				Opinion on Whether Activity Should be Retained in Unit				Number of Teachers Reporting
	Very Effective	Generally Effective	Generally Ineffective	Definitely Ineffective	Very Effective	Generally Effective	Generally Ineffective	Definitely Ineffective	Yes, Without Revision.	Yes, With Minor Revision	Yes, With Major Revision	No	
1	36%	59%	2%	0%	51%	41%	8%	0%	69%	31%	0%	0%	40
2	71	29	0	0	73	22	5	0	78	22	0	0	37
3	57	40	3	0	55	35	4	0	87	13	0	0	40
4	24	65	11	0	26	58	16	0	57	35	8	0	38
5	63	29	5	3	51	46	3	0	50	42	8	0	41
6	55	35	7	3	43	54	0	3	64	31	5	0	41
7	30	57	10	3	46	49	5	0	60	35	5	0	41
8	46	49	5	0	46	54	0	0	61	34	5	0	42
9	45	47	8	0	42	55	3	0	61	33	5	0	41
10	26	58	13	3	19	69	12	0	52	39	7	2	38
11	42	52	0	6	33	61	0	6	77	14	3	6	36
12	18	58	21	3	25	61	14	0	49	38	11	2	38
13	48	52	0	0	49	44	7	0	66	29	5	0	42
14	40	43	14	3	43	48	9	0	43	43	11	3	37
15	36	60	2	2	38	52	10	0	70	25	2	2	42
~~16~~	68	11	16	5	50	33	6	11	56	11	22	11	19
17	39	51	7	3	42	50	5	3	53	39	3	5	41
18	35	57	8	0	33	59	8	0	66	31	3	0	39
19	25	59	16	0	50	40	7	3	50	40	7	3	32
20	15	61	21	3	15	64	21	0	39	49	12	0	36
21	72	25	3	0	51	43	3	3	60	23	14	3	36
22	15	58	27	0	19	56	25	0	52	33	15	0	33
~~23~~	69	31	0	0	44	56	0	0	100	0	0	0	16
24	80	20	0	0	74	26	0	0	90	10	0	0	20

* Charts I and II of Appendix B are based on teacher responses to questions in the Teacher Activity Evaluation Form. The percentages indicate the proportion of teachers who responded to each question in one of the specified ways. The teachers who omitted the activity or the specific question are not included.

TEACHER EVALUATIONS OF THE INTRA URBAN UNIT ACTIVITIES (CHART II)

Activity #	Minutes Spent on Activity by Most Teachers	% Suggesting More Time for the Activity	% Thinking Subject Matter Appropriate for Students	% Thinking Their Knowledge of Geography Adequate to Teach Activity	% Thinking Teacher's Guide Directions Adequate	% Thinking Materials and Student Directions Adequate
1	30-45	8%	100%	100%	100%	97%
2	30-45	6	100	100	100	94
3	30-45	8	100	97	100	95
4	30-45	8	97	100	97	97
5	more than 45	27	97	93	83	80
6	more than 45	12	95	95	97	92
7	30-45	9	100	92	95	92
8	more than 45	26	95	97	90	75
9	30-45	18	92	95	90	87
10	15-30	3	97	97	95	76
11	30-45	14	97	97	100	85
12	15-30	19	87	97	100	92
13	30-45	14	100	97	92	87
14	more than 45	24	87	94	87	72
15	30-45	16	97	92	92	84
16	30-45	5	90	90	95	90
17	more than 45	24	97	92	90	92
18	30-45	30	100	92	97	97
19	15-30	16	97	90	88	79
20	more than 45	25	94	97	94	85
21	more than 45	61	97	94	92	85
22	more than 45	49	97	97	100	94
23	more than 45	37	100	97	100	100
24	30-45	20	100	100	100	97

APPENDIX C

STUDENT EVALUATIONS OF THE INTRA-URBAN UNIT ACTIVITIES (CHART I)*

Per cent Omits	Activity	Extremely Interesting			Generally Interesting			Generally Uninteresting			Dull		
		Total	High	Low	Total	High	Low	Total	High	Low	Total	High	Low
1%	Unit as a Whole 1	14%	20%	9%	71%	64%	77%	10%	12%	9%	4%	3%	4%
1	Reading Materials 2	4	0	4	46	61	49	30	26	27	19	14	18
1	Student Activities 3	25	28	30	57	57	51	13	12	14	5	3	4
2	Class Discussion 4	17	23	20	56	51	56	17	20	11	8	4	11
2	Site Diagrams	20	20	24	56	55	56	17	20	11	6	4	6
2	Portsville Map	51	(64)	52	45	26	34	8	7	9	3	3	5
2	Accessibility Diagrams	19	(22)	12	54	47	54	19	27	24	6	4	7
8	Time-Distance Exercise	18	20	15	44	46	44	20	18	24	10	11	9
	Accessibility Boards**	32	40	44	45	25	40	13	15	16	11	15	-
4	Accessibility and Land Values Exercise	17	16	20	51	50	52	23	23	15	5	9	4
4	Density Gradient Exercise	16	9	14	46	41	48	26	36	22	8	6	9
11	Planning Board	47	48	43	29	30	30	8	9	9	5	3	4
34	Urban Problems Film	28	(34)	19	27	19	25	8	3	9	3	3	4

* Student evaluations are based on responses of the 20 per cent student sample. Students were to indicate their degree of interest on a Student Unit Evaluation Form. The Total columns list the percentages of the 301 sample students from California, Ohio, and New Jersey who responded in the indicated way. The High and Low columns list the responses of those sample students scoring in the High and Low quartiles on SCAT, 74 and 79 students respectively.

** The percentages for the Accessibility Board are based on responses from students in New Jersey only.

STUDENT EVALUATIONS OF THE INTRA-URBAN UNIT ACTIVITIES (CHART II)*

Activity	% of Students Who Found Activity MOST Interesting	% of Students Who Found Activity LEAST Interesting
Site Diagrams	3.8%	6.4%
Portsville Map	47.9	7.7
Accessibility Diagrams	1.7	7.7
Time-Distance Exercise	6.1	23.2
Accessibility and Land Values Exercise	5.8	12.9
Density Gradient Exercise	2.0	18.0
Planning Board	26.0	5.6
Urban Problems Film	4.4	3.0
Miscellaneous:		
Student Exercises	1.0	1.3
Readings	1.0	14.2

* Student evaluations are based on responses of the 20 per cent student sample. Students were asked to choose the activity which they found the Most interesting and the one which they found the Least interesting on the Student Unit Evaluation Form.

292 students from the 301 in the sample selected a most interesting activity; 233 selected a least interesting activity. Although restricted to the 8 activities listed, several students chose general categories and these percentages are indicated under Miscellaneous.