

1960

## A Survey of Ellensburg Public School Teachers' and Students' Attitudes Concerning the Use of Television as an Observation Instrument

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A SURVEY OF ELLENSBURG PUBLIC SCHOOL TEACHERS'  
AND STUDENTS' ATTITUDES CONCERNING THE USE  
OF TELEVISION AS AN OBSERVATION INSTRUMENT

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A Thesis  
Presented to  
the Graduate Faculty  
Central Washington College of Education

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Education

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by  
Frank G. G. Nelson

June 1960

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5771.3

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SPECIAL  
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U-110-3

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APPROVED FOR THE GRADUATE FACULTY

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## ACKNOWLEDGMENTS

The author wishes to express his deep appreciation to Dr. Eldon Jacobsen for his assistance and encouragement in directing this study to its successful completion.

Special acknowledgments are gratefully accorded to the other members of the writer's committee, Dr. A.H. Howard, Jr. and Mr. Charles Wright.

The investigator is also very appreciative of the help given by Mr. Robert P. Slingland.

To my wife Ruth, without whose help this study would have been impossible, a very special thank you.

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## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

#### I. INTRODUCTION

With the advent of television, a new force is at work in the world. In ten short years it has profoundly affected our way of life, making deep inroads into leisure, shaping tastes, affecting outlooks, and modifying social relations both in and outside the family (50:1). If we regard television as the most powerful medium for the dissemination of ideas yet created by man, we will have a better perspective as to what its structure should be (12:16).

This new medium of communication has been greeted with both fear and enthusiasm. Those who are enthusiastic realize that there is a tremendous job of adapting this medium to education. Currently a great deal of experimentation and research is being conducted to discover how television may be used most effectively to extend educational opportunities and improve the quality of the educational process.

Fears expressed by many educators are rapidly being dispelled. No experiment to date has shown that television can or will displace all other means of education.

Instead, they have shown that television must be used only as a tool in education--as a means to an end, not as an end in itself.

A distinguished professor once remarked that it took about fifty years for a new idea to gain general acceptance in American education (48:413). This seemed very true until about five years ago, when many people began changing their attitudes as a result of a restless stirring in the nation's schools and colleges. Educators began looking for methods of instruction via television, one medium which, properly used, can meet the needs of mass education. One of the newest considerations is the use of closed circuit television in demonstrations and observations in teacher education programs (52:2).

Observation of public school classes in session, with selected teachers demonstrating certain teaching techniques, is one of the basic requirements in the Central Washington College of Education sequence of professional courses. This college has adapted a closed circuit television system to help students have more and better observations.

## II. THE PROBLEM

### Statement of Purpose

It was the purpose of this study to survey the

Ellensburg public school teachers' and students' attitudes toward the television observation program in use at Central Washington College of Education. Of specific interest were attitudes toward the equipment used in this program.

### Need for the Study

There has been a great deal of research concerning television as a teaching tool, and how effectively students learn through its use. No research has been conducted, however, in the area of teacher and student attitudes regarding television cameras and equipment in the classroom as an observation instrument. There also has been no study made of the attitudes of these persons towards a program such as this. Central Washington College's problem in the observation program is an unusual one, as very few colleges in the United States use television as an observational tool in the teacher training program.

It was hoped that, partly as a result of this experiment, this college might improve not only its relations with the public schools but also its observation program through a better understanding of the attitudes towards television expressed by the students and teachers of the public schools of Ellensburg.



### Scope of the Study

The study was limited to the Ellensburg Senior High School and the ninth grade of Morgan Junior High School. As so many of the television observations in the Ellensburg schools are done on the secondary level, it was felt that the survey should be limited to these levels. This limitation was due to the accessibility and heavy use of direct observations in the lower grades of the College Elementary School.

The study was further limited to a large sample of these four grade levels, as conflict in class schedules made it nearly impossible to have all students at all grade levels respond to the attitude scale.

This study was concerned only with the attitudes of the persons mentioned toward the program and the equipment. No attempt was made to evaluate the learning effectiveness of television observations.

### III. DEFINITIONS OF TERMS USED

The following terms need defining within the scope of this study.

#### Educational Television

This term refers to educational or commercial television broadcasts, by the use of a freely radiated signal,

of courses for classroom instruction or special-interest programs for children and adults in the fields of hobbies, recreation, community welfare, and related topics. It relates to specific stations and their programs, operated under special reservations made by the Federal Communications Commission (33:15).

### Instructional Television

This term refers to an important phase of educational television. Any use of television for formal courses for any age group, with or without credit, can be called instructional television. This term may refer to courses presented on commercial or educational stations, or by closed circuit television (33:16). Instructional television is the formal guided classroom approach to learning. It consists of an orderly, systematic sequence of educational experiences, planned and presented by an educational institution to meet the needs of a specific group of learners. Lessons are based on a curriculum, and results are measured in terms of goals. Examples of instructional television are college courses for credit and in-school viewing programs (33:17).

### Closed Circuit Television

This term implies the pickup and use of a television program without broadcasting it in the usual sense of

the word. It might be used in classrooms, laboratories, theaters, or almost any group assembly. Closed circuit television can be piped to the receiving points by wire or transmitted on a strictly local basis by low-power radiating devices. It may also be transmitted by a microwave relay system (1:46). Closed circuit television is designed for a captive audience.

### Open Circuit Television

At an opposite pole from closed circuit television, open circuit television is broadcasting a video signal and audio signal into the air as a free agent (52:7).

### Teacher Education Program

This term is used in the study to denote a pattern of professional educational work planned to prepare the college student for service as a teacher.

### Observation

The term observation means the "laboratory experience of a student ... where the intent is to watch procedures and techniques of teaching that have not been prepared especially for his viewing" (52:7).

### Demonstration

A demonstration is interpreted to mean a "laboratory experience of a student in a teacher education

course where the actual subject matter from a course of study is presented to fit the request of the viewer" (52:8).

### Attitudes

This term means a way of looking at things and persons, forms of readiness to respond, approaching and withdrawing behavior, feelings of rightness and wrongness, and liking or disliking for objects or values. They differ from emotions though they are related to them (47:1).

### Television Equipment

For the purpose of this study, the term "television equipment" will refer to the equipment used by Central Washington College of Education in its' observation and demonstration program.

## CHAPTER II

### BACKGROUND FOR THE STUDY

Educational television has experienced tremendous popularity since its inception by the Federal Communications Commission (FCC) in 1952. Broadcasting can be an emotional force in the creation of desirable attitudes (34:10). It is doubtful that any other type of mass communication medium has caused such excitement among educators. Its potential for education is being loudly proclaimed by educators, for it provides sound, sight, motion, actuality, and immediacy for the teachers' use.

Porterfield and Reynolds, enthusiastic about televisions' potential, say:

We who live in this era, harrassed though we may be by swift social change and bitter international strife, are nevertheless fortunate in witnessing the birth of a new social instrument of vast significance (45:43).

Television, particularly educational television, is growing very rapidly. Since writers have published thousands of articles and books on this medium, it was impossible to survey all of the literature available.

This chapter will deal with four major aspects of television. First, it will give a brief history of television itself, so that the reader might better understand the years of work that have gone into developing it.

Second will be an overview of the literature on educational television. This section, because of the volume of literature available, can only touch upon the highlights of Educational Television (ETV). Third will be a section dealing with closed circuit television, a new and growing idea in education. Fourth, a detailed history of closed circuit television at Central Washington College of Education will be presented. Central Washington College of Education's television observation program created the need for this study, and because of this, careful consideration will be given to this section.

## I. HISTORY OF TELEVISION

Television, in its fullest sense, is not sight alone, but sight plus sound (32:3). It is understandable, then, that we must consider wireless and radio in the history of television. These were the forerunners of video, the source for the development of television. To attempt a sharp division without going back to the roots is like building a skyscraper and overlooking the foundations and basement. A few authors have traced television back thousands of years, while others contend that television began when Nipkow perfected his spiral perforated disk (32:3). Still others look upon John Logie Baird as the father of television, while some insist that television

began with the development of Zworykin's iconoscope and Farnsworth's image dissector.

Television is a composite of a thousand inventions and discoveries, most of which, seemingly without relation to the electrical transmission and reception of what we see, were ultimately related to one another (45:15). Television borrowed from many sources in its creation: from nature for selenium, from the science of optics and light, and from communications methods. One might say that the real beginning of television was with the isolation by Baron Jons Jakob Berzelius in 1817 of a new element named selenium. This metal, with its ability to convert light energy to electrical energy, later became useful as the "eyes of television" (32:7). Men such as Morse, Volta, Faraday, Wheatstone, Edison, and many others made important discoveries and inventions that were necessary steps to the development of a successful television system.

Experiments in sending still and moving pictures by wire during the nineteenth century led to the subsequent development of the wire-photo service, often called photo-telegraphy. This process was the art of sending photographs, with all their half-tones and fine detail, over a wire and through space. Line by line a photograph at the transmitter was scanned, and line by line the receiver reproduced the photograph on sensitized paper

(45:18). This process of scansion was to be the basic method of transmitting a picture. However, all early attempts at devising a practical television system were stymied because of the problem of achieving a sufficiently precise and rapid scansion of a large number of picture lines (26:154).

On December 24, 1883, the solution of the general idea for television was achieved with the creation of a perforated spiral distributing disc or scanner. This scanner, called a Nipkow Disk, was invented by Paul Nipkow, a German scientist educated at Laurenberg and Berlin. His disclosure of the scanning disk principle was a great step toward realizing practical television by transmission of successive picture-element values. It proved that pictures in motion could be flashed over wire and radio. He lacked, however, the radio amplifier, light sensitive cells, neon lamps, photo electric cells, cathode ray, and electron tubes (32:110). Nipkow's mechanical scanning disk could not achieve high definition because of limits on the number of lines it could scan and on the amount of light that could get through the scanning holes.

The transition from the mechanical to the electronic era of television begins in 1923 when Vladimir Zworykin applied for his first patent on the iconoscope. The development of this tube, along with the kinescope, marked



the end of mechanical scansion television systems.

Developments in electronic television came so rapidly after this that it would be virtually impossible to cover them all within this study. A list of the pioneers during this period would have to include such men as Peter C. Goldmark, E.F.W. Alexanderson, W.R.G. Baker, Lee DeForest, Allen B. DuMont, and many others.

On April 30, 1939, the Radio Corporation of America and the National Broadcasting Company introduced television as a service to the public with the opening ceremonies of the New York World's fair. This program featured President Roosevelt as the first chief executive to be seen by fully developed television (32:30). Pirates of Penzance, the first musical production in NBC's regular television service, was presented on June 20, 1939.

Monochrome television standards as we know them today in the United States date from a decision by the FCC in May, 1941, establishing a 525 scansion line standard, adopting Frequency Modulation rather than Amplitude Modulation for the audio component of the signal, and leaving three synchronizing methods to compete (25:157). After all the long years of research and experimentation, television seemed at last ready to come into its own. But the end of delays had not yet come. Before manufacturers could tool for mass production and before new stations could be built

and put into operation, the United States entered World War II. On April 22, 1942, all production on such civilian goods as radio and television sets came to a halt. Only six pioneer stations operated during the war years, with only about ten thousand receivers in use (25:157).

The postwar shortage of materials made it nearly impossible to build stations or manufacture sets when licensing of television stations was resumed in 1945. It was not until the fall of 1947 that television began to grow again, and in 1948 it emerged as a mass communication medium. Networks began regular service, and important advertisers began to use this new medium. By the fall of 1948 the FCC became aware that (1) the current allocation plan, adopted before a great deal was known about Very High Frequency (VHF) propagation characteristics, was resulting in interference between stations, and (2) the twelve channels then allocated to television were going to be entirely inadequate to handle the demand for stations (25:161).

Realizing these facts, the FCC suspended all applications on September 29, 1948, and there began what has been called the "freeze." It permitted only already authorized stations to go ahead with construction.

The FCC's historic Sixth Report and Order, issued on April 14, 1952, provided for establishment of channels

in both the VHF and UHF bands. This order was especially important to education, for it reserved about ten per cent, or 242 channels, for non commercial or educational use. The Joint Committee (now Council) on Educational Television, formed in 1950, was very influential in getting these educational channels established. Today there are 256 channels reserved for non commercial or educational use.

These assignments were one of the first recognitions of television's place in education.

## II. RELATED LITERATURE ON EDUCATIONAL TELEVISION

At the present time, approximately twenty years after the beginnings of television in the United States, the medium is confronted with the dual responsibility of furnishing education as well as entertainment (26:431).

Until quite recently the schools and colleges of our nation have been able to keep abreast of changing conditions fairly well, but there is a growing amount of evidence that this time is running out. As Stoddard has stated: "Some rather dangerous storm clouds are gathering for possible trouble ahead" (56:13).

Figures published in October, 1959, show that this nation's school and college enrollment increased for the fifteenth consecutive year and will reach 46,480,000 in

the school year 1959-60. This means that one person in every four is attending school or college in the United States, an increase of 1,940,000 over 1958-59. In many communities, over crowded classrooms, employment of teachers without adequate training, or both will be necessitated by a deficit of 195,000 appropriately trained teachers for this school year. The Commissioner of Education, Lawrence G. Derthick, warns that "swelling enrollments and their attendant problems are likely to continue for many years" (46:1). In the face of these developments educators are becoming restless, for they are afraid our educational machinery will become outmoded in a rapidly changing world.

Three problem areas of special significance show themselves: (1) the size of the educational job, which includes the phenomenal and continuing growth in the number of persons to be educated in our country and the rapid change in the amount and nature of what people must learn, (2) adequate school personnel, the necessity of finding and training good teachers, finding aids and other personnel to meet this need, and building enough school buildings of the right kind, and (3) utilization of educational television, the use of television not only to help meet both the teacher and building shortage, but in such a way that it has a permanent place as an integrated part of

the regular instructional program (56:14).

The first effect on the educational program will be felt in the shortage of qualified teachers for schools operated on the present basis. Stoddard says: "By 1965 there will be needed nearly 350,000 more teachers than there are now" (56:17). At present there are no signs that such a needed increase in teacher supply will be met by the total of all present or planned training programs throughout the nation.

In the midst of these crises, television is only waiting for the ones who will take it "as a sculptor takes his block of marble and will shape it into a new beauty and a new reality" (45:282).

As far back as 1952, Hazel Cooley commented:

Television, a consequence of contemporary technology, must be utilized as a teaching device if contemporary man is to understand the circumstances under which he lives (12:25).

### Development of educational television

For the last twenty years educators have been participating in various kinds of television activities. Probably the most extensive of early endeavors in educational television programming were the more than four hundred programs transmitted over a mechanical scanning system at the State University of Iowa's experimental station, W9XK, between 1932 and 1939. The station used

a transmitter constructed by the electrical engineering department. The University's radio outlet, WSUI, transmitted the sound accompanying the pictures (13:1).

The telecasts done by W9XK included lectures in art, engineering, shorthand, botany, and astronomy, among others, as well as entertainment events. On one occasion, an oral hygiene demonstration showed the proper techniques for brushing one's teeth. For his master's thesis, a dramatic arts student wrote and directed a TV drama over W9XK.

In May, 1938, C.C. Clark in one of the early educational programs, demonstrated the principles of electronic television for about 250 students from New York University. NBC transmitted this 45 minute program (13:1).

The first TV station owned by an educational institution was Iowa State College's commercial outlet, WOI-TV, in Ames, Iowa. This was the only college to have obtained a license by 1948 when the FCC froze channel assignments in order to re-examine the allocation picture (9:209).

With its Sixth Report and Order the FCC cleared the road for non-commercial channel assignments. On July 24, 1952, Kansas State College in Manhattan, Kansas, became the first school to be issued a construction permit.

During this first year of the Sixth Report and

Orders' existence, a massive effort against non-commercial stations was exerted by the commercial interests, who wanted the channels reserved for education turned over to commercial interests. The National Citizens Committee on Educational Television and the Joint Council on Educational Television (JCET) waged a continuous battle with these persons to keep them from taking over the non-commercial assignments. In June, 1953, the FCC issued a public notice that it would support the educational assignments on the basis of their original policies. This action gave non-commercial television a tremendous boost. By this date, 47 applications had been filed, construction permits had been granted, one station (in addition to Iowa States' WOI-TV) was on the air, one state had passed legislation providing funds for a state network, and the FCC's original allocation of 242 channels had been upped to 244 (13:6).

Financing of these non-commercial stations was the major stumbling block, both then and now. By 1953, several foundations had pledged approximately eight million dollars for educational television use. Needless to say, these funds helped immensely.

Two years after it had become a possibility, Educational television had been formally endorsed by many national organizations. It had not progressed much

after the initial surge, however, and now became destined to experience only a slow, steady growth for several years, until today there are approximately 250 colleges and universities utilizing television for instruction (29:53).

Perhaps at this point it would be wise to take a closer look at educational television to see just what it is, what we may expect of it, and how to use it most effectively. Robert T. Rock, Jr., of Fordham University, addressing the American Council on Education (ACE) stated that:

Two of the primary requirements for educational television are (1) that it educate and (2) that it make maximally effective use of the visual component of the television medium (42:177).

When these requirements are met, it has been found that television can (1) influence large audiences, (2) utilize people and properties to a fuller extent than usual classroom approaches, (3) adds effectiveness via its simultaneity, (4) teach. This last point has often been a controversial one, but many studies have shown that teaching by television results in measureable learning. Dr. John Richards of the Western Interstate Commission for Higher Education claims that he has found areas where teaching is being done more effectively by television than in the direct classroom situation (58:10).



Chester and Garrison (9:198) have listed several major types of educational television programs that will work within the limitations of television and still capitalize on the unique characteristics of the medium. They are (1) direct classroom teaching, (2) supplementary classroom teaching, (3) intra-school broadcasting, (4) informal pre-school and out of school education, (5) formal adult education, (6) informal adult education, and (7) integrated education and entertainment.

If these are the types of programs that can be presented, what characteristics of television make it effective in a presentation of this type? Several authors have made various claims. Dunham, Lowdermilk, and Broderick (17:21) have summarized these listings and claim that television possesses (1) a value of immediacy, (2) low per capita cost of audience coverage, (3) advantages of a front row seat at demonstrations or any event, (4) ease of film reproduction, (6) photographic extension of the visual scene, (7) the virtue of intimate contact with the minds, methods, and personality of the most competent living teachers, (8) the advantage of using one set of apparatus in the laboratory, saving duplication of materials, (9) close relation to texts, following meticulously certain courses of study already available in schools or obtainable for home use, and (10) the power of

a blackboard where maps, symbols, models, or moving objects may be displayed with a verbal description for identification. It is interesting to note that every audio and visual tool the teacher has at his disposal can be carried by television (18:5)

Like all other materials or tools for teaching, television should contribute to the overall goals of education. Dale (14:335), referring to the National Education Associations' Educational Policies Commission, has said that these may be stated as the goals of (1) self-realization, (2) human relationships, (3) economic efficiency, and (4) civic responsibility. Certain elements inherent in the television form of teaching which will lead to the achievement of these goals are: (1) appeal to the emotions, (2) appeal by parallels to pre-conceived concepts already established in the mind, (3) appeal to the sense of enjoyment and pleasure associated with past experiences or feelings of a similar nature, and (4) appeal by suggestion of new concepts laid down in the fuller field of receptivity established by the first three conditions present in the television lesson (18:5). Television teaching is very similar to regular classroom methods of teaching in several respects. It requires careful planning and attention to every detail. A television lesson, as a regular classroom lesson,

cannot be tossed together haphazardly the day before the telecast. It requires a logical master plan that must be followed from start to finish (44:6).

### Pros and Cons of Educational Television

Prior sections of this chapter have shown the development of educational television and what is required of it by educators. An attempt has also been made to show what features of television lend themselves best to education. It follows, then, that some understanding of what educators think and feel about television in education might indicate how well it has adapted itself to education.

Arthur S. Adams, president of the ACE, when addressing the council in 1952, said: "Television is to communication precisely what atomic energy is to science" (42:6).

This statement seems to open the door for educational television, to indicate that many schools would begin to experiment in its usage. This, however, has not been the general trend in our schools. The economics of television is one of the major factors which have confounded and delayed school and college experimentation. To bring the cost of television down to a level that will be comparable with straight classroom teaching, the

viewing has to be spread over a large number of students (29:53). That this fact is not widely recognized is apparent in the number of universities and colleges which are pioneering in granting degrees by television. Included in these schools are Western Reserve University, the University of Michigan, Michigan State University, Wayne State University, the University of Washington, Iowa State University, and San Diego State College (17:10).

Another stumbling block in the development of television has been the feeling of many uninformed teachers that television will replace them. Numerous experiments around the country have proven this to be a misconception; in reality, television requires more teachers. An example of this is shown in the Washington County Schools at Hagerstown, Maryland, where an extensive five year study is being conducted. They have adopted a "team teaching" technique (3:15). In this method, the room teacher and the television teacher work together to plan a specific lesson.

Other problems in the development of educational television are of a more technical nature. The audio portion, especially, has been criticized. Many persons have said that the lack of interpersonal relationship between the student and teacher result in a lowering of

communication.

Classroom design has also been a tremendous problem in the past, but more and more of the new schools are being designed to accomodate TV teaching. Factors that need to be considered in a television classroom would include ventilation arrangements, lighting, and seating of the students.

A point that has been belabored since the birth of educational television is the question, "Can television teach?" E. DeAlton Partridge, president of State Teachers College, Montclair, New Jersey, had this to say when speaking at an ACE conference:

I think the question, "Is TV effective?" has been demonstrated amply. Our experiments clearly demonstrate that whatever it is a good teacher has--and it never is the same in two individuals--cannot be standardized. It is carried into the TV medium and that is an important fact (10:51).

Doctor Partridge hits upon a crucial point in educational television. It can be of tremendous benefit to education by bringing to the children the best teachers available. This point alone may increase the quality of education many times.

#### Summary of Related Literature in Educational Television

In the few short years of television's life it has advanced from the status of an electronic novelty--"one of those scientific wonders of the post war era" (18:1)--to

the position of an unusually heralded medium of instruction. The growth of educational television appears to be surpassing the pace set by the development of educational films and educational radio in the thirties and forties (26:431).

Harry Newburn stated in 1959:

I have definitely become convinced over the years that television is going to play a very important part in the education of the future -- in higher education, in elementary and secondary education, and in adult education (58:6).

No one can predict the form that educational television will assume, for a local option must prevail. Its uses should vary in terms of the local situation, but regardless of the form, we certainly should make better use of television for education than we have so far. Schools are just waking up to the wonderful possibilities of this new tool for teaching (23:5).

Edgar Dale, a well known authority in audio-visual methods of instruction, has said that television can (1) change attitudes and values, (2) increase information gained by the students, and (3) help people learn new skills (14:155). He further states that television can provide the know-how, the show-how, and the motivation, the want-to (14:156).

The importance of educational television can be viewed in the context of a demand for higher education and

an increasing shortage of qualified instructors (4:296). The problem of getting the nation's superior teachers to our students must be solved jointly by the Federal Government and the states, working in cooperation with educational institutions. This position is based on two premises: (1) the strengthening and extension of education is as essential and as urgent for national survival as is the development and deployment of military forces, and (2) the magnitude of the educational problem facing the United States will require action on such a sweeping scale that the task must be undertaken in the spirit of a national emergency (29:59).

To quote Edgar Dale once again:

Education will surely benefit from television. Let's not be afraid of the excellence of television; let's not be afraid of the future (14:157).

### III. RELATED LITERATURE ON CLOSED CIRCUIT TELEVISION

#### History of Closed Circuit Television

A few years ago, educational television was understood to mean the operation of educational broadcasting stations on reserved channels set aside by the Federal Communications Commission. A great deal of emphasis has shifted to closed circuit television (CCTV) within the educational establishment (28:64).

Closed circuit television has two very important

advantages over the open or commercial television apparatus: it is less expensive and any number of broadcasts of different courses may be made at the same time (57:229). CCTV implies that some form of televised education or other material is syndicated by whatever means to a special receiving group, usually a captive audience.

E.A. Hungerford, Jr. has suggested two primary reasons for the growth of CCTV. These are (1) a scarcity of top quality teachers and (2) the fact that many secondary schools and colleges offer courses in television studio technique in which television equipment is operated (28:65). These two ideas merely scratch the surface of this new field, for while television has been used in the classroom during the last few years much as the film and radio were used in past decades, the full possibilities of in-class, closed circuit television are just beginning to be examined (26:435). To better understand the whole picture, it might be said that "telecasting by closed circuit expands the four walls of a classroom to include an entire educational institution or a public school district" (33:63).

Closed circuit telecasting has lent itself nicely to education for several reasons, two of them being the small size of the equipment and the relatively low cost, both initial and maintenance. Education has adopted a



television camera, the vidicon type, that was originally designed for use in various industries. This camera is considerably smaller than the Image-Orthicon type used by commercial broadcasters and requires only a very few pieces of equipment to operate it.

Harvey Zorbaugh, in his report on school experiments, stated that:

The evidence already indicates that facts, principles and basic motor skills can be taught to young adults as effectively via television as with the instructor facing students in the classroom (28:69).

These two facts, plus the intimacy and immediacy of television, the low cost and small size of the vidicon camera, bring television, as used in a CCTV system, within the reach of many schools.

After a year's experience with closed circuit television, Martin Silverman proposed the following objectives for CCTV to be workable within an educational system:

1. All teachers share in the planning.
2. All pupils in the receiving classes are prepared by their own teachers before a television lesson.
3. Every opportunity is made to provide for participation of a class in the lesson.
4. The viewing classes should be given an opportunity for some follow up activity.
5. The telecast should be related to a pupil's own experience.
6. Subject matter in a telecast must be related or

adapted to interests and abilities of the particular school population.

7. A constant effort must be made by all concerned to improve both the content and presentation techniques.
8. The television tail should never be allowed to wag the curriculum dog (51:47).

The versatility of CCTV, as evidenced by these objectives, has caused much confusion when educators discuss the many-sided facility. Keith Tyler divides the field as follows: (1) total teaching by television, (2) television teaching supplemented by classroom instruction, (3) classroom instruction supplemented by television, and (4) television as a teaching aid (36:476).

To meet the objectives of CCTV and also fit within the categories of CCTV teaching, Phillip Lewis (36:472) has suggested that the following equipment arrangements be employed: (1) an adequate magnification system within a given room or area, such as shops and laboratory science, (2) equipment able to pick up from the originating room and distribute the signal to any number of viewing rooms, such as might be needed in an observation program in teacher education, (3) certain studio facilities available for training in TV production and also to give journalism students an opportunity to do some script writing, (4) a campus and community system for telecasts from a laboratory school in a teacher education program or for in-service

programs within a school district, and (5) a monitoring system to act as a safety check and supervise playgrounds, study halls, etc., or for industrial surveillance.

### Uses of Closed Circuit Television

The uses to which closed circuit television can be put are many and varied. It appears that the only limiting factor is the imagination (43:2).

A comprehensive listing of twenty-two applications of closed circuit television has been compiled by Mayers and Chipp. The applications are in broad area fields:

1. business meetings
2. sales meetings
3. sales training
4. sales promotion
5. merchandising broadcast TV programs by closed circuit
6. management training and communications
7. stock holders meetings and plant tours
8. overflow audiences
9. fund raising by closed circuit television
10. entertainment, public relations and information
11. medical education: post graduate
12. medical education: institutional
13. general education
14. military applications

15. industrial uses: hazardous operations
16. industrial uses: surveillance of material handling
17. industrial uses: production supervision
18. industrial uses: tests, inspection and research
19. remote surveillance and communications
20. bank administration and protection
21. advertising production and communication
22. human relations (39:7-94).

Noll divided all of the above categories into two major areas. The first, monitoring, refers to the use of CCTV in viewing remote or hazardous operations. It implies a constant and unchanging observation of one scene. The second category listed by Noll was that of communication. In this use, the emphasis is placed on the transmission of information (43:2). As this study was concerned only with the educational aspects of CCTV, the monitoring uses of it were omitted. The next concern is the communications category.

Transmission of information implies an educational use of some nature. The convenience of closed circuit television makes its use in instructional instances almost always quite suitable. Among the earliest uses of CCTV for instruction were those applications in the medical and dental professions. The detailed nature of the

training in these professions called for some type of magnification, which the television camera does very well. Several schools across the country have been and are using closed circuit television for direct teaching. These early uses of CCTV for instructional purposes caused many educators to take notice of this new medium and experiment with various methods of using it in education.

A very extensive study conducted by Pennsylvania State University brought out several important facts:

1. Television teaching is as effective as direct classroom teaching.
2. Television is acceptable to students.
3. It was found to be practical to use vidicon closed circuit television equipment for teaching.
4. Faculty members are willing to accept CCTV on an experimental basis.
5. The potential of using single or multiple systems of closed circuit vidicon television for channeling excellent instruction from a single source or sources to very large numbers of students was very great (6:1).

Another study, conducted at Pittsburg with the fifth grades, pointed out these items:

1. Students enjoy TV teaching.
2. It proved that TV will never replace the classroom teacher.
3. The teachers enjoyed this method of teaching, for they could check their own methods against those of the master teacher (28:66).

Chicago Teachers College has conducted some interesting experiments on the use of closed circuit television. Some of their applications were (1) in laboratories and shops, especially in demonstrations, where it allowed each student to get a close up of the demonstration, (2) to transmit slides and motion pictures from a central audio-visual room, (3) to speed registration by sending the latest information about closed and open classes instantly to registering students on the campus, (4) to take new students on a tour of the buildings (the students remained in the view room while the camera moved about the campus), (5) in adding sight to the inter-com system, such as showing on the CCTV system the Dean making an announcement, (6) to transmit uniform directions to a number of classrooms during mass testing, and (7) to handle the over flow of visitors at athletic events (37:46-48). The teachers' reaction has been generally enthusiastic. However, when the classrooms were being wired for two way television, some began worrying that the Dean was going to spy on them. When they were convinced that it was simply an experiment in education, they relaxed and began to enjoy it (37:48).

One of the main objections to teaching by closed circuit television has been the absence of personal contact between the television teacher and the students (57:229). Continuing experiments with CCTV at the State University

of Iowa have shown that in general television has proved to be a successful substitute for face to face teaching, inhibiting neither the instructor nor the students to any important degree (4:299).

The work being done in the Washington County Schools at Hagerstown, Maryland, is probably one of the most extensive experiments being conducted. A few serious questions came up when the program was inaugurated, but after a year of operation, Jean Moses says:

We are convinced that in using television teacher-classroom teacher teams, we are providing better instruction in the subject matter fields than we provided by the traditional methods (40:156).

The teaching team she refers to here is being accepted as one of the best methods employed when using CCTV for direct teaching. In this technique, the television teacher is responsible for the work best done by television while the classroom teacher is responsible for teaching done best in direct contact with the students.

A typical television lesson at Hagerstown would take only the first half of the class, with the regular classroom teacher using the second half. The objective behind this method is this: the television teacher introduces a topic and gives the major facts in the lesson. The classroom teacher then sums it up, evaluates the lesson, and generally reinforces the learning in the

lesson (40:156).

Closed circuit television also seems to be one way to meet the crisis in higher education. It may prove the best medium for a considerable part of the instruction (36:70). Faculty acceptance of this medium will be very important. However, these persons will undoubtedly swing toward television (10:1).

A study conducted by Dewey B. Stuit, Dean of the College of Liberal Arts at the State University of Iowa, set out to evaluate college faculty opinion on CCTV teaching. By questionnaire, each member of the faculty was asked:

Do you believe that students could get as much from your courses as they do now if they viewed them on a closed circuit television system while being proctored by a graduate assistant? (55:340).

Of the respondents to this question, fifteen per cent said they could get as much; eighty-one per cent did not think so, and four per cent made no reply (55:340).

Most of the professors felt that television could be used only for straight lecture and demonstrations. The reduction in or elimination of class participation was the most often cited criticism of television. Other thoughts expressed by the professors were: (1) CCTV would be good for enlarging things within a particular classroom, (2) the initial cost was excessive, and (3)



we must move forward cautiously in establishing a CCTV system for teaching. One professor summed up what seemed to be the feeling of a large number of the faculty:

I believe that television is a good substitute for a poor teacher and a poor substitute for a good teacher (55:353).

Carlos DeZafra, Jr., a practicing teacher in New York State, said that he has read many editorials on the coming of TV and because he feels it will become the concern of all educators, he expresses the following ideas for closed circuit television: (1) Increasing school enrollments and teacher shortages call for the use of CCTV in the teacher training program as an observation instrument; (2) it may be used to observe cadet and probationary teachers for evaluation purposes; (3) it does a better job of enlarging demonstrations, for it cuts out all distractions; (4) television can transmit the projection of a film so that several classrooms may view it simultaneously; (5) good telecasts hold the pupils' attention quite well; (6) the quality of teaching improves because of an exchange of effort; (7) pupils are more conscious of speaking clearly in a two way (talk back) communication system; and (8) evaluation indicates that there is little difference in the quality of learning (15:152-53).

DeZafra then expressed these ideas against closed circuit television: (1) the teacher and pupils in the

originating room work under several handicaps, such as the cumbersome equipment, very hot lights, the microphone the teacher must wear, and the fact that the teacher must play to the camera by not moving too rapidly, etc., (2) a teacher must think of his lesson plan as a television script, (3) a lesson twenty minutes by direct teaching would take twenty five minutes over CCTV, (4) because of the sense of "show," the teacher tends to pay more attention to the camera than the students, (5) closed circuit television installations and operation are costly, (6) pupils will proceed at different rates, so there will be some trouble of overlapping classrooms, (7) color films can do a good job at less cost, and (8) the tendency in television teaching is toward the lecture and demonstration, with a moving away from teacher-pupil planning (15:153-54).

#### Closed Circuit Television for Observations and Demonstrations in Teacher Education

Throughout this chapter, the thought of using closed circuit television for observations in teacher training has appeared. A more intimate look at this particular use of CCTV is necessary at this point for further understanding of Central Washington College of Education's program.

A college now is dissatisfied and finds it difficult to secure approval for its teacher education program if it does not provide ample opportunity for observation of good

teachers to its students in professional education courses (2:25). The number of students in teacher education is increasing so rapidly that it has become difficult to find places for everyone to observe. When these students do go to a classroom to observe, they must go in large numbers, and the true value of this type "live" observation is questionable (2:26).

Speaking before an ACE conference, E. DeAlton Partridge said:

We in teacher education see many other possibilities in television, especially closed circuit. We have talked about the use of television for teaching. There are many other uses: observation of good teaching on the part of teachers in preparation; the possibility that we might change our approach through laboratory schools, the feeling that we can eliminate the expensive laboratory schools by setting up situations beyond those possible in laboratory schools and projecting them into teacher training (10:51).

The use of closed circuit television for observations and demonstrations was started by Kansas State Teachers College at Pittsburg, Kansas, in 1954. Since that time, more than two dozen colleges have moved into this area. Included among the schools either using this medium or experimenting with it are the University of Chicago, the University of Minnesota, San Jose State College, and Abilene Christian College.

A typical installation of CCTV for observations and demonstrations, such as that used by Chicago Teachers

College, contains three basic parts: the program origination facilities, the distribution system, and receiving or viewing facilities.

Methods and equipment used vary a great deal from school to school, as each one is attempting to meet their own particular needs. In general, however, the vidicon camera, because of its small size, ruggedness, and relatively low cost is used in the program origination facility. Coupled with this, usually, is an audio-mixer and a camera chain.

The distribution system can be handled two ways: via coaxial cable or micro-wave link. Receiving facilities can include regular classrooms, auditoriums, laboratories, or special rooms designed for this purpose.

Vidicon CCTV cameras have been used in two basic ways in the classroom: stationed in a fixed position or moving around the classroom for a variety of shots. A recent innovation is the remotely controlled camera, which, by the use of various motors and electronic devices, can be moved up and down and sideways and can exercise complete control over the lenses.

Several workshops sponsored by the American Association of College for Teacher Education (AACTE) during the summer of 1957 indicated the importance that was being attached to the use of CCTV for observations and

demonstrations in teacher education programs.

At one of these workshops held at Albany, New York, Mary E. Conklin, of the State University College for Teachers, cited the following advantages based on seven months of experience with this kind of observation:

1. Eliminates the distractions created by the presence of observers in the classroom.
2. Both the demonstration teacher and children prefer this system after their initial self-consciousness of classroom cameras is overcome.
3. The instructor in charge of the observing group can emphasize pertinent events as they occur in the demonstration classroom, or immediately after the observation period, thus focusing attention on a common observation experience.
4. The observing group has a front view of the children in the demonstration class, which increases the value of an observational experience.
5. Observers are not only able to raise questions and discuss aloud during the observation by television, but they are permitted to dress informally, which improves their attitudes toward this kind of activity (11:2).

Additional advantages which seemed significant to members of the workshop were:

1. Prospective teachers can observe not only child development principles but also learning principles and teaching methods. If the observing instructor uses a control console for the camera selection, he can regulate which picture will appear on a single screen, thereby drawing his students' attention to the particular situation he wishes to emphasize.
2. Television observations can be used to prepare trainees for "live" classroom observations.

3. Prospective teachers can observe student teachers as well as supervising faculty at work.
4. Kinescope recordings of an observation can be made for use with student teachers and with other classes (11:2-3).

Howard Kiefer, reporting at this same workshop, referred to television as "another tool with apparent significance worthy of exploration, but definitely not a panacea to all our problems in teaching" (11:5). He also advanced these comments and observations on CCTV for observations and demonstrations:

1. Where TV is used for observations it seems best not to restrict the demonstration teacher and class.
2. The demonstration teacher often asked for opportunity to discuss her work with the observers to clarify what she was attempting to achieve by using various methods.
3. Since the camera can be directed to specific areas it is particularly valuable in the teaching of methods.
4. Children adjust readily to the equipment and operating personnel in the room -- especially in the case of primary groups.
5. With advance planning most methods techniques can be observed without structuring the demonstration teacher's plans (11:5).

#### IV. HISTORY OF CCTV

##### AT CENTRAL WASHINGTON COLLEGE OF EDUCATION

Educational television was first mentioned at this college in 1954, when the Washington Statewide Committee on

Educational Television recommended that Central be a key spot in a state wide ETV program. The committee, appointed by Governor Langlie, proposed the statewide link with stations at Seattle (University of Washington), Pullman (Washington State University), and Ellensburg (Central Washington College of Education). The Senate Rules committee had the bills, introduced in the 1955 session of the State Legislature for this "State of Washington Plan," in its possession at adjournment time.

Problems of providing enough observations and demonstrations in teacher education appeared about this time, when Central's enrollment increased from 1443 to 1685 (52:117). Several courses requiring observations in the teacher education sequence were experiencing larger enrollments, necessitating the addition of more sections. The school years of 1953-54 to 1957-58 saw an increase of sixty per cent in all teacher education courses.

The objectives of the Teacher Education Program at Central are to:

1. Broaden comprehension of the role of education for the individual and society.
2. Develop the ability to critically evaluate the major trends and philosophies in American education.
3. Develop standards of personal character and professional ethics of the highest order.
4. Enlarge knowledge of the status, function, and

administration problems of school systems and institutions.

5. Develop competence in the various subject matter areas and understanding of good teaching techniques in these areas.
6. Acquire knowledge and understanding of human development, the learning processes and their practical application to teaching.
7. Develop abilities to work cooperatively and creatively with others.
8. Develop practical teaching competencies.
9. Develop a professional attitude toward self improvement as a teacher (8:67).

With these objectives in mind, and knowing the growth problems of the college, the reader can begin to understand some of the problems confronting the college. The objectives required more observations for teachers in training, there were many more students enrolled in the teacher education program, and the Ellensburg Public Schools were experiencing problems of room space due to their increasing enrollments.

During this period, the Ellensburg Public Schools began having problems of providing for the requested observations. Edward K. Erickson, Superintendent of schools in Ellensburg, had notified the college that a way had to be found to reduce the number of interruptions caused in classroom programs. At one point in the 1956-57 year, all observations had been temporarily suspended because of the interruptions (52:121).



The problem became acute for the college. As a consequence, a television committee was appointed to discuss the feasibility of a CCTV system and to draw up a budget request for 1956-57. This committee was made up of Maurice Pettit, Chairman, Department of Education and Psychology; A.H. Howard, Jr., Director of the Office of Visual Education; J.Wesley Crum, Dean of Instruction; and Kenneth Courson, Business Manager. In the spring of 1956, this committee requested permission from the Board of Trustees to go ahead with plans for CCTV and the preparation of a budget request.

The 1957 State Legislature approved a request for nearly \$50,000 for Closed Circuit Television at Central Washington College of Education.

A careful screening of all available equipment for CCTV was now begun by the CCTV coordinator, Robert P. Slingland, and the new Director of Visual Education, Charles W. Wright. Their progress was reported to the television committee before final specifications were drawn up.

The city of Ellensburg granted the college a franchise which allowed coaxial cable to be strung on city light poles from the campus to each of the five public schools.

The State Purchasing Department at Olympia advertised for bids on the final specifications, and early in

1958 awarded the bid to Jerrold Northwest of Seattle.

Workmen began installing the cable on campus upon official notification of the bid award.

### System and Equipment

The system in use by Central Washington College of Education was designed with an ultimate capacity of ten channels. Only channels 2, 4, and 6 are currently being used as originating channels. The system could be expanded to its full capacity with the addition of certain electronic equipment at the present amplifier locations without making the present equipment obsolete.

Below is a description of the general plan for closed circuit television in Ellensburg, as stated by Mr. Slingland in an informational brochure:

Basically it consists of a closed circuit, loop system of cable and equipment connecting viewing rooms on campus with all public schools in Ellensburg. Portable cameras and control units may be operated anywhere within the six schools and the images sent along the closed circuit system to a view room on campus. Between the pick up point and viewing room is the master control center, located in the Office of Visual Education. At the appointed hour for observation the cameras pick up the image in a public school classroom, this is transmitted over cable to the control point on campus which has connected a view room into the system, thus allowing college students located there to observe a lesson being taught many blocks away in a public school classroom. This is closed circuit television and no one receives the video signal unless they are within the proper viewing room on campus (53:3).

A detailed description of the program origination

equipment is in order here, for this study was primarily concerned with attitudes towards the equipment used in the public school classroom. As it is presently used, channels two and four are used together to originate a program and channel six is used independently as an originating system.

Both sets of equipment have the same basic components with the exception of one still or fixed camera, which is usually placed at the front or rear of the room for an overall shot of the classroom.

Channels four and six use seven inch viewfinder cameras for video pickup. These cameras are equipped with a four lens turret, fitted with the following size lenses:  $\frac{1}{2}$  inch, 1 inch, 2 inch, and 3 inch. These lenses are controlled from the rear of the camera housing and may be changed at any time during the observation.

For ease of movement, these cameras are mounted on Houston-Fearless hydraulic pedestals specially built for educational television. Two Houston-Fearless professional model cradle heads are used for panning and tilting, and the entire unit is supported by three five inch rubber tires.

Camera control units are mounted in custom built carts which are approximately four feet high, two feet wide, and eighteen inches deep. Both the dual camera and the single camera systems require two carts for their operation.

Besides the camera control, intercom and audio mixers are mounted in these carts. Figures 1 and 2 illustrate the two channel system and Figure 3 illustrates the single camera chain.

Audio from the classroom is carried over a maximum of four Shure 55-S stand microphones and one lavalier microphone worn constantly by the teacher. Microphone cords are run from the camera control carts to the microphone. These cords when in use, are covered with a black rubber mat. The lavalier microphone is worn around the neck and may be clipped to the teacher's clothing to hold it more steady.

A typical operation, as described by Mr. Slingland, would be as follows:

A college class is assembled to view a classroom in the Ellensburg system. The instructor in the college classroom talks to the camera man in an elementary school classroom via his intercom. He directs camera #1 to move in for a tight shot of the elementary teacher. Meanwhile, camera #2, a non view finder camera, is focused on the class in general, at this point the college instructor can view both cameras in small portable television receivers in his switching console. When the pictures contain information that he would like his class to see, he merely switches one or the other to the two 21" viewing sets at the front of the room for his class to see. He can use camera #1 to show closeups of how the lesson is being presented and camera #2 to show class reactions, etc. Beside the switching control the college instructor also has the facility to turn student and public school teacher responses over an audio-system directly under each 21" set (53).

The equipment, and techniques of its use described

Library  
Central Washington College  
of Education



FIGURE 1  
TWO CHANNEL CAMERA CHAIN IN A CLASSROOM  
(FRONT VIEW)

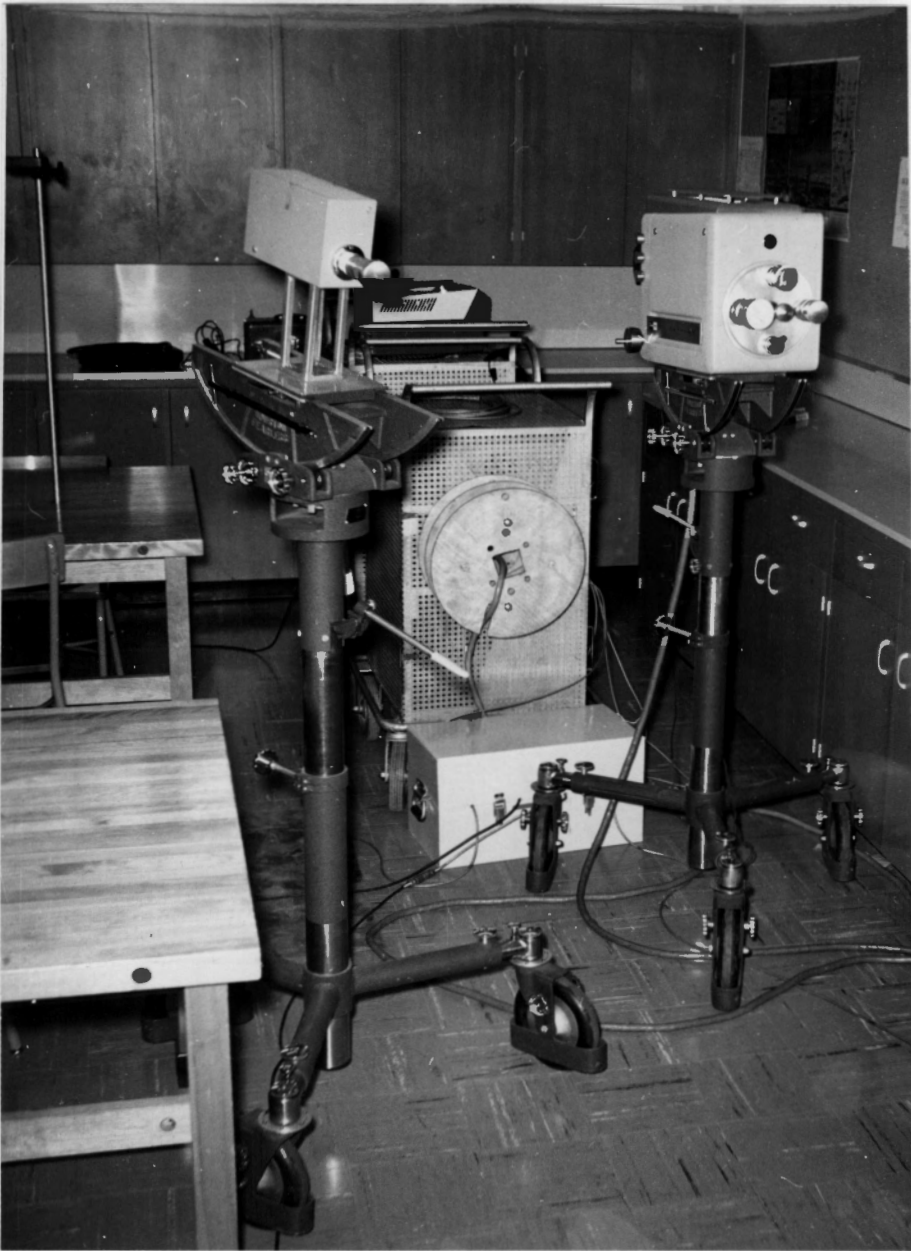


FIGURE 2

TWO CHANNEL CAMERA CHAIN IN A CLASSROOM  
(SIDE VIEW)



FIGURE 3  
SINGLE CAMERA CHAIN  
IN A CLASSROOM



are used to meet the objectives of observations and demonstrations. Observations of demonstrations by experienced teachers in actual classrooms to enrich the study of professional practices carried on in education courses at the college is the basic objective. The college believes that teachers-to-be must see as well as hear and read about teaching in order to prepare adequately for their student teaching and ultimately their first teaching position. It is through such observations that facts make more sense, skills develop more quickly, and professional attitudes are more readily achieved.

#### V. SUMMARY OF RELATED LITERATURE

In reviewing the history of educational television presented in this chapter, we have seen that the principles of television can be traced back hundreds of years. Commercial television was born in 1939 in New York City, but was slowed in its development by World War II.

In 1948 the Federal Communications Commission froze all applications for construction permits to study the allocation picture. The FCC's Sixth Report and Order was published in 1952. This order was the first stepping stone in educational television, for it set aside 242 reservations for non-commercial or educational use. This number has since been indreased to 256 reservations. The Joint



Council on Educational Television, formed in 1950, has been a powerful force in the support of educational television.

As yet, the full potential of educational television has not been realized. John Brugger, Chief Engineer for the Hagerstown, Maryland, project has stated:

As an instrument of communication, television can assist educators in many ways. Some of the contributions are as follows:

1. Efficient use of specialists.
2. Brings the "outside world" to students in the classroom.
3. Permits redeployment of teachers to achieve better utilization of personnel.
4. Reduces administrative communicative problems.
5. Up-grades teachers through teacher training, teacher techniques, etc.
6. Enables administrators to make better use of community resources.
7. Provides enrichment of the curriculum.
8. Spreads talent of the best teachers over wider areas.
9. Reduces equipment costs through demonstrations usage, film distribution, etc.
10. Directs attention of student through camera application (such as microscopic examinations etc.)
11. Gives the (studio) teacher more authority.
12. Serves effectively in the teaching of skills.
13. Through a broadcasting facility, so much

(educationally) can be done for so many (6:1).

The growth of ETV has been rather slow because of financial problems experienced by educational institutions; however, by January of 1959, thirty-six educational television stations were on the air with seven more soon to be completed.

Development of a new type camera, the vidicon, opened the door for closed circuit television in education. C.R. Carpenter, Director of the Instructional Research Program at Pennsylvania State University, stated:

Closed circuit is a little like sand in the oyster: It can produce cancer or pearl, depending upon the complex internal biochemical processes of the organism -- the institution (10:43).

This has been the case with closed circuit, for it has taken many forms. One of the latest, and most discussed uses, is that of observations and demonstrations in teacher education. Central Washington College of Education adopted such a program in 1958. This step was necessary for the college, as the saturation point for observations and demonstrations had been reached in the Ellensburg junior and senior high schools (52:121).

Central's program has grown considerably since its inception, both in scope and amount of equipment necessary to maintain the program. This growth created the need for this study.

## CHAPTER III

### PROCEDURES FOLLOWED, MATERIALS USED, AND THE GROUPS STUDIED

As the television observation program depends so heavily on the cooperation of the Ellensburg public schools, it seemed that some information should be gathered concerning the attitudes of the students and teachers of these schools toward this program.

The procedure used in this study involved five major steps:

First, to become better acquainted with the established uses of television in education, the literature was surveyed for information on the history of television itself; on television in education; on closed circuit television; and on the history of television at Central Washington College of Education. This search for information regarding television helped to give the writer a broad background of the history and uses of television, which in turn helped him to understand the problems encountered in using this medium for this type of observation program.

The construction of the student attitude scale was the second step in the study. The method of construction was chosen following a rather extensive survey of the

various attitude scaling methods in current use.

A third major area in the procedure of this study was the construction of an instrument to evaluate the attitudes of the teachers concerned. The sentence completion type of scale was chosen as this instrument.

The description of the groups studied and the techniques for evaluating the attitude scales comprised the final two areas in the procedure.

### I. CONSTRUCTION OF THE ATTITUDE SCALE

The basic purpose of a carefully defined approach in constructing an attitude scale is to obtain an instrument which reflects attitudes as clearly and with as little semantic confusion as possible. The extreme opposite of this is shown by merely asking a person his attitude towards a given issue and, once stated, noticing the disagreement between others when they try to interpret what he meant by his statement. Attempts to reduce the problem of communicating meaning when sampling attitudes have been made by research in the behavioral sciences over the past forty or so years. These methods of scaling attitudes have been compiled in two recent sources by H.H. Remmers, (41), and Alan L. Edwards, (5).

The classical scaling techniques of L.L. Thurstone and Rensis Likert were used in the construction of the

attitude scale used in this study. Thurstone's method of equal-appearing intervals was used in the development of the statements for the scale, and Likert's method of summated ratings was the form used for the students' expressions of their attitudes.

### Preliminary Opinion Survey

Thurstone's method of equal-appearing intervals was an application of a well known psychophysical technique to the problem of attitude scaling, and represented an attempt to develop a "rational" scale based on psychologically defined units (41:87).

This method was first used to scale human sensations, such as perception of the level or pitch of a sound. In this technique, a person was asked to listen to a sound, which was reduced in pitch to the lowest level audible by this person. He was then asked to listen to the sound while it was raised to the highest audible level. Another sound was then presented, which was at the exact mid-point of these two sounds.

The person taking part in the experiment now had defined for him both the upper and lower limits as well as the middle sound. Other sounds were now presented, and the person was asked to place them at intervals which would bisect either the upper half of the sound continuum

or the lower half. These were placed according to his perception of them. More sounds were presented, each bisecting the range of two already defined points. This process could continue indefinitely, with each new sound bisecting two already established points.

Thurstone now thought that if the technique could be efficiently used in scaling human judgments of sensation, it would be logical to apply a similar approach to persons' perception of the meaning of other persons' stated attitudes.

The initial step in the development of this type scale is to collect a large number of sample statements or propositions (150 or more) which express some kind of opinion about the attitude object under study. It is important that these statements express an opinion rather than a matter of fact. They should all refer rather directly to the one attitude object in question and should be as unambiguous as possible (double-barreled statements, for instance, are unsatisfactory for this purpose). These statements should also cover the entire continuum of attitude toward the object in question, from extreme favorableness to extreme unfavorableness (41:88).

To satisfy this initial requirement, a questionnaire was distributed to the students involved in the study. This questionnaire was a very simple form upon which the

students were to respond with any feelings or attitudes they might have towards the observation program or the television equipment. No other stimuli were provided. No names were required on the forms. Only two questions were asked: (1) their grade level and (2) if they had taken part in a television observation. It was expected that by keeping this questionnaire (Appendix A) as unstructured as possible, the students would respond with a wide range of attitudes.

Tabulation of this initial survey proved very fruitful. A total of 163 different statements was obtained. The wide variety of responses met the requirement of covering the entire continuum from extreme favorableness to extreme unfavorableness.

### Rating Techniques

After the statements had been collected, it was necessary to have them rated by a group of judges. For this study, four advanced psychology classes at Central Washington College of Education were used. It should be pointed out that persons used as judges need not be experts in attitude measurement, but should be persons who are willing to give some care to this task. In Thurstone's approach the personal attitudes of these judges toward the attitude object has been found to be inconsequential.

A preliminary inspection by the writer of the original 163 statements eliminated those statements that were trite, statements of fact, as well as those that were obviously ambiguous. The collection finally given to the judges contained 118 different statements.

In the original method developed by Thurstone, each statement of attitude was printed on a separate card. The judges were then asked to place each card in one of three separate compartments. These compartments, or boxes, represented the extremes, in the judges' opinion, of attitude and the mid-point of these extremes. Using extreme and mid-point statements as guiding points of reference, the next step in the rating was achieved by asking the judge to place each of the cards in one of 11 boxes, which were to represent equidistant points, in his opinion, along the attitude continuum. Research has shown, however, that this rating could be accomplished much faster, with little loss in reliability, by the use of lists of statements rather than separate cards.

The task assigned the judges in the current study was to sort these statements of opinion into nine separate categories or groups along a scale from one through nine, with one representing extreme favorableness toward the attitude object and nine representing extreme unfavorableness toward the attitude object. A statement given a



rating of five was regarded as a completely neutral statement by the raters.

To accomplish this rating, the judges were first asked to read the entire group of statements and to find a statement they felt was extremely favorable, a statement they felt was extremely unfavorable, and a statement that was neutral and then label these statements as one, nine, and five respectively. They were then asked to place the remaining statements along this attitude continuum from one extreme to the other, at each of the numbered intervals that were in their opinion, equal. This is the reason for the name "method of equal appearing intervals" (41:88). They were to place a number from one through nine in a space provided at the beginning of each statement. A copy of this collection of statements may be seen in Appendix B.

### Statement Selection

Upon completion of the rating by the judges, distributions were tabulated for each statement, showing the frequency with which the given statement was placed in each of the nine categories by the judges. Two statistics were required from each of the distributions of judged intensity of how the statement was perceived in reflecting favorableness or unfavorableness. The median and the dis-

tance between the first and third quartiles or Q values served this purpose.

The median shows the point of greatest agreement in terms of its meaning to the judges. The Q value shows the consistency or lack of consistency in conveying that meaning to the majority of people (assuming that judges interpret the statements as would people in general). The methods used in calculating the median and Q values of the tabulations are shown by example in Appendices C and D.

The next step in developing the scale was noting those statements which had a median value of from 1 to 2.5 and from 7.5 to 9. Statements with these median values show a high degree of favorableness or unfavorableness respectively. Further refinement of the statements with high or low medians was accomplished through the use of each statement's Q value.

The Q value tends to point out ambiguity within the statement by showing the extent to which the judges agreed on its meaning, reflected by their placement on the scale of that particular statement. The smaller the Q value, the greater the agreement on meaning and consequently the less ambiguity of that statement. Statements which had a Q value near .50 were considered to be the most valuable for use in the final scale. This means

that the middle twenty-five per cent of the judges agreed within one scale point (2 times .50) of the possible nine, suggesting high consistency of meaning.

The two statistics thus obtained for each opinion statement served as the final major criteria for selecting the final attitude scale items. In the Thurstone approach the median value for an item is assigned as the scale value or position along the attitude continuum for that item (41:88). Ten statements, having low medians and the smallest Q values, along with ten statements of high median and small Q value, comprised the final scale. Appendix E shows the medians and Q values for each of the statements used. Once this stage of scale construction is gained, the Thurstone scale value is now ignored, since the Likert approach was to be used for scoring of attitude intensity.

### Assembly of the Scale

The final step in the construction of the attitude scale was the actual assembly of the scale. There were four basic parts: (1) the title and purpose of the scale, which showed the respondents the reason for the study; (2) a method of determining in general terms the category of the respondent, such as age, grade, or sex; (3) directions for completing the scale; and (4) the statements of the

scale itself. The statements were ordered in the final scale on the basis of random selection. A copy of the final scale is found in Appendix F.

## II. CONSTRUCTION OF THE SENTENCE COMPLETION FORM

The sentence completion technique is a method designed to permit a more verbal outlet in response to the controlled stimulus. This was deemed necessary for use with teachers. Here the subject is requested to complete a partially formed sentence. The direction, length, and nature of the completion serve to supply clues to latent attitudes of the subject (41:99). There are two serious shortcomings to this type of test: there is an inability to see how a person really feels about the topic and an inability to reveal any attitudinal changes (53:217). Lindgren (53:217) called the incomplete-sentence test a "non directive opinionaire." It was used in this study to allow teachers considerable latitude yet conserve time. Also, freely expressed teacher attitudes might well suggest points of departure for improvement of the TV observation program.

### Selection of the Stimulus

The stimuli for this sentence completion scale were selected somewhat arbitrarily. The basic requirements for

the stimuli in this type of scale are that each should provide the beginning of a complete sentence and that the group of stimuli be somewhat structured around the attitude subject being surveyed (38:220; 41:200). Examples of two stimuli used are: (1) "My greatest fear . . .," which was considered a negative stimuli; and (2) "I feel proud when . . .," which was considered a positive stimuli.

An attempt was made to evaluate each of the stimuli on a positive, neutral, or negative scale. Using this rating, an equal number of positive and negative stimuli were placed in the scale.

The requirement that they be structured around the attitude subject being surveyed was adhered to in the positive and negative statements, with a certain degree of freedom being allowed in the neutral stimuli.

#### Assembly of the Scale

The stimuli (initial words of incomplete sentences) were arranged in random order on the final form. Various studies have shown that there is a certain amount of transference toward the attitude subject from the stimuli. This means that regardless of the nature of the stimulus, whether it is positive, neutral, or negative, the subject will tend to respond in the area of the subject being surveyed (here TV Observations). This transference will

hold true regardless of the nature of the stimuli or the order in which they are presented. A copy of the completed form will be found in Appendix G.

### III. GROUPS STUDIED

Earlier in this research the groups studied were listed. In this section each of these groups as well as the method used in selecting them is explained in greater detail.

#### Preliminary Opinion Survey and Attitude Scale

At the Ellensburg High School, a free selection of groups to be studied was allowed. In attempting to obtain as diverse and random a sample as possible, both in grade level and the number of TV observations participated in, the following classes were selected; one tenth grade history class in which very few of the students had participated in a television observation; one tenth and one eleventh grade English class, each of which had taken part in a television observation shortly before the study was begun; and one high school class in band. The band students, from grades ten, eleven, and twelve, were divided quite evenly as to those who had participated in a television observation and those who had not.

The degree of selectivity was somewhat more limited

at Morgan Junior High School. At this school, the criteria for selection of the groups were explained to the building principal who in turn made the selection of the groups. The students from the Junior High School were members of the ninth grade class; however, they were all from different sections. Those studied were two English classes that had not taken part in a television observation and one social studies class and one science class that had both been observed by television.

It was impossible to find a class in which all of the students had or had not taken part in a television observation. As a result, there was a slight intermixing of the students on the basis of this criterion. The groups listed were assumed to be a representative sample of the students from the two schools and were given both the preliminary opinion survey as well as the attitude scale.

### Reliability Sample

Since this scale was constructed for specific use in this research, a check on its reliability was necessary to show its likelihood of revealing consistent findings. The procedure followed was relatively simple, yet quite effective.

Each of the groups studied was assigned a block of

thirty-five numbers. These numbers were then placed on a form, allowing space for a name to be written by each one. Before the attitude scale was administered, this form was circulated around the room and each student was asked to sign his name next to a number. He was instructed to remember this number, and to place it in the space provided on the scale.

After all of the groups had completed the scale, the writer referred to a table of random numbers in Edwards, "Statistical Analysis." From this table, twenty-five numbers falling within the total numbers assigned (1-250) were chosen. Each of these twenty-five numbers, 49, 167, 248, etc., were then placed on a copy of the attitude scale, and this second, identical scale given to the teacher of the group within which this number fell. The room teacher then administered the second attitude scale. This allowed for a test-retest calculation of its reliability coefficient. High reliability was found, as will be shown more extensively in Chapter IV.

### Sentence Completion Groups

As there were fewer than ten teachers in the High School and Junior High School who had participated in the television program, it was felt that all of the teachers in these two schools should become a part of this study.



By incorporating all of the teachers, it was expected that any range of existing attitudes could be found. These expressions could help the college establish a basis for better relationships with the public schools, in that the college could alter its program or explain in more detail some of the problems expressed by the teachers.

#### IV. EVALUATION TECHNIQUES

The Likert method of allowing expressions of varied attitude intensities was adaptable to statistical techniques. Also, assigning positive, negative, and neutral values to the sentence completion responses allowed a quantitative expression of findings. The use of statistics led to a common descriptive standard that could be applied to each of the scales completed.

##### Scoring the Attitude Scale

Following the Likert technique, an assigned scale of one through five was used to give values to the various answers: "Strongly Agree, Agree, Uncertain, Disagree, and Strongly Disagree," on the attitude scale. One was used to show unfavorableness and five to show favorableness. A score of three showed an uncertain attitude. Using this scale for scoring, a "favorable toward TV observations" statement would be scored SA-5; A-4; ?-3; D-2; SD-1. An

"unfavorable" statement would be scored in this manner:

SA-1; A-2; ?-3; D-4; SD-5.

Responses from the various classes on the attitude scale were then scored on the above noted basis. The lowest possible score, assuming completion of all twenty items, was 20. This would indicate extreme unfavorableness toward television observations. The highest possible score would be 100, indicating extreme favorableness. A score of 60 would indicate neutrality or uncertainty of attitude.

#### Scoring the Sentence Completion Scale

An arbitrary scale was used to give quantitative value to the various answers. Through the writer's interpretations, each completed statement was assigned a positive, neutral, or negative value. These values were further assigned a numerical value of +1 for a positive response, 0 for a neutral response, and -1 for a negative response. The use of 0 for a neutral response tended to eliminate its effect on the total score. Thus a positive score would indicate favorableness towards the use of television in their classroom, while a negative score would indicate unfavorableness.

The completed sentence completion forms are on file in the Office of Visual Education, Central Washington

College of Education, Ellensburg, Washington. They may be inspected upon request.

### Determination of Median Scores

When the tabulations were complete and each response on the attitude scale had been assigned a numerical value, the median score of the entire set was calculated. This procedure was also followed for the teachers' responses on their sentence completion form. This score places a certain intensity of response in the most frequent category and leads to a better interpretation of the scales by showing a measure of central tendency of student and teacher attitudes.

## CHAPTER IV

### RESULTS OF THE STUDENT EXPERIMENT

Before an analysis of the attitude scale results is accomplished, it would be well to have a better understanding and description of the student groups that participated in the experiment. The general placement of their scores will also be valuable in evaluating the results of this experiment.

As was mentioned earlier, the study was limited to the ninth, tenth, eleventh, and twelfth grades of the Ellensburg Public Schools. A total of 194 students answered the attitude scale. Of these, 65 were ninth grade boys, 35 of whom were fourteen years old, 22 were fifteen years old, and 9 were sixteen years old. Nine of these boys scored above 90 on the scale, while 14 scored between 80 and 89. Nineteen scored between 70 and 79, 17 scored between 60 and 69, and only 3 scored in the fifties. The reader is reminded that a Likert score of near 60 represents neutrality, thus pointing out that the ninth grade boys were generally very favorable towards being observed by television.

Forty-eight ninth grade girls responded to the questionnaire. Of these, 21 were fourteen years old, 24 were 15 years old, and 1 was 16 years of age. Five of

the ninth grade girls scored 90 or above, while 14 had scores between 80 and 89, 19 had scores between 70 and 79, 7 scored from 60 to 69, and 2 scored between 50 and 59. Girls then, are favorable but somewhat less so than the ninth grade boys.

Thirty-one tenth grade boys completed the scale. One tenth grade boy was 14 years old, 14 were 15 years old, 15 were 16 years old, and 1 was 17 years old. These boys scored the attitude scale as follows: three were 90 or above; 9 scored 80 to 89; 10 scored 70 to 79; 5 scored 60 to 69; and 3 scored 50 to 59.

Of the 23 tenth grade girls who completed the scale, 12 were 15 years old and 11 were 16 years old. Five of these girls scored between 80 and 89, 8 between 70 and 79, 5 between 60 and 69, and 1 between 50 and 59, 3 between 40 and 49, and 1 between 20 and 29. This last was the lowest score recorded on the scale. Tenth grade girls seem to have a more uncertain attitude toward television observations.

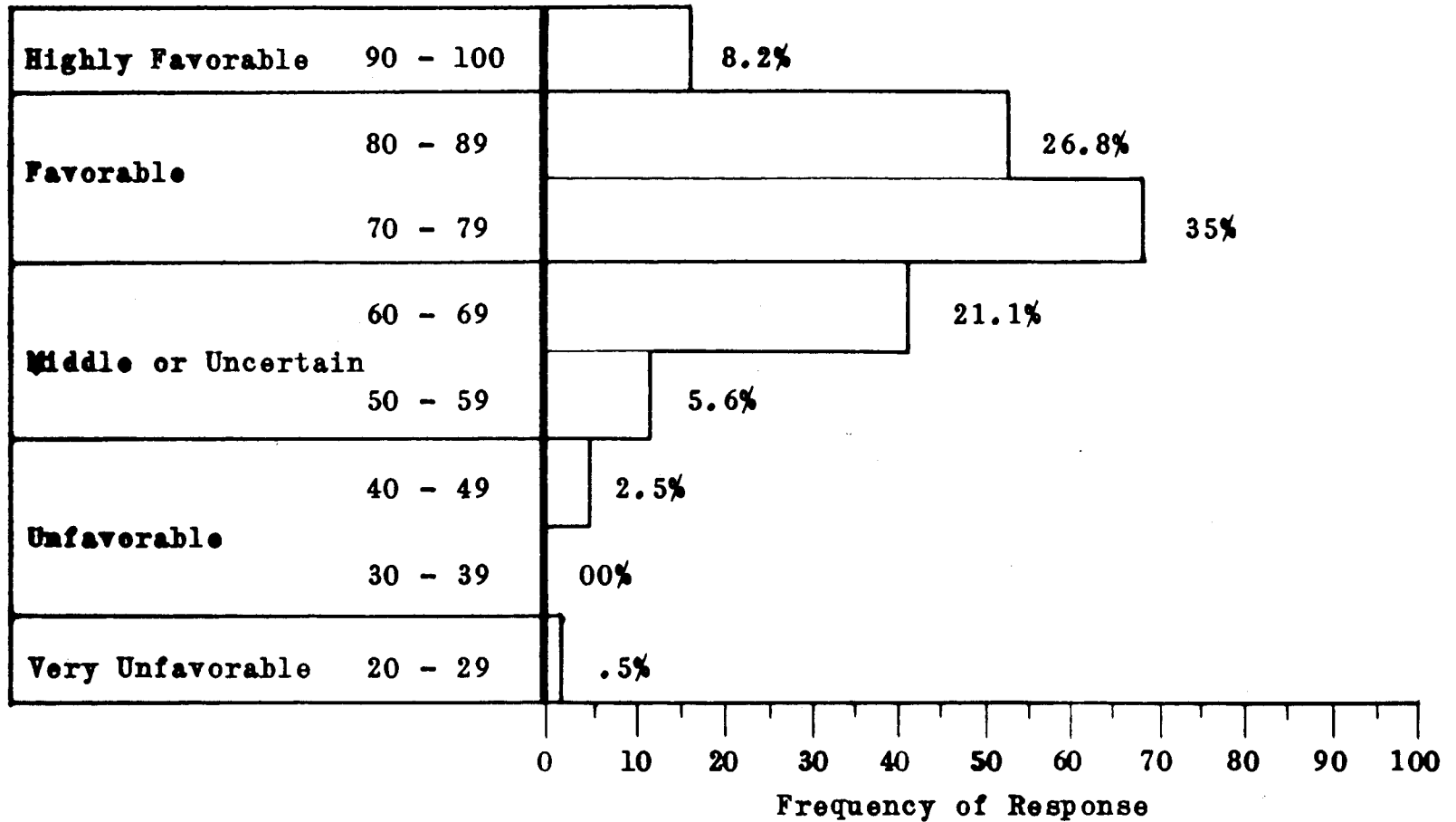
From the eleventh grade there were 15 boys participating in the experiment. Of these, 7 were 16 years old and 8 were 17 years old. None of these boys scored above 90. Four scored between 80 and 89, 4 between 70 and 79, 3 between 60 and 69, 1 between 50 and 59, and 2 between 40 and 49. Only 8 eleventh grade girls were sampled by

this experiment. Six of them were 16 years old and 2 were 17 years old. Four scored between 80 and 89, 1 scored between 70 and 79, 2 between 60 and 69, and 1 scored between 50 and 59.

Fewer seniors participated in the experiment than students from any other grade level. Only 3 boys participated, 1 being 17 years old and 2 being 18 years old. One boy scored between 80 and 89, and 2 scored between 70 and 79. Six twelfth grade girls completed the attitude scale. One of them was 16 years old, 3 were 17 years old, and 2 were 18 years of age. As a group, these girls scored relatively lower, with 5 scoring between 70 and 79 and 1 between 60 and 69.

Keeping in mind that the range of the attitude scale was from 20 to 100, with 20 indicating extreme unfavorableness, 60 an uncertain attitude, and 100 extreme favorableness, the following statistics will be of some value: the median of all students was 75.39 and the mean of all the students was 74.57.

It can be seen that there is a definite tendency toward favorableness by the students as a whole. Figure 4 shows a graphic percentage distribution of the scores. It can readily be seen that the large majority are either favorable or highly favorable with only three per cent being unfavorable or very unfavorable. No major



**FIGURE 4**  
**DISTRIBUTION OF SCORES FOR ALL STUDENTS**  
**ON THE ATTITUDE SCALE**

differences are found between sex groups or grade groups. The somewhat elaborate breakdown presented is made to illustrate the consistency of the findings which gives some support to the overall reliability of the attitude scale results.

### I. RELIABILITY SAMPLE

To statistically check the reliability of the attitude scale, it was given to a random sample of twenty-five students a second time one week after the first administration. A product moment correlation between the first and second administration of the scales was found to be .922 with a standard error of .03. This correlation shows that the attitude scale is highly reliable over a short period of time, and further led to the assumption that the information obtained from the analysis is dependable. The computation of the correlation coefficient may be seen in Appendix H.

In constructing the scale, it was noted that each of the statements originally created by the students had certain implications for problems of which the college was aware but did not have the answers. In order to emphasize these problems and how the students felt about them, each statement is evaluated in terms of the problem it presented. The response of the students toward each statement



may readily be seen by referral to the histogram that accompanies each statement. The statements are presented in two groups, those rated as favorable by the judges in setting up the attitude scale and those rated unfavorable. It is recognized that there is little proof of the reliability of each separate statement despite the high overall scale reliability. However, some indication of the factors entering into the general attitude toward TV observations can be gained by analyzing each of the component statements.

## II. FAVORABLE STATEMENTS

On the basis of the ratings done earlier by the judges, the following statements were determined to be favorable towards having classroom TV observations. The median rating and the Q score were used to establish the degree of favorableness and its consistency in meaning, which in turn led to the statement's inclusion in the final attitude scale.

Student favorableness towards being observed by TV in this group of statements is indicated by more respondents in the "Strongly Agree" or "Agree" categories. The number of the statement as it appeared in the final scale appears to the left of each of the statements.

1. I think it is wonderful that we can take part

in this program.

This statement tends to give an overview of the student's attitudes toward the entire program. Evidenced by their responses, as shown in Figure 5, the great majority of the students are willing and happy to take part in a closed circuit television observation program. The remaining statements show that this first statement sets the theme for the remainder of the scale.

4. It is easier to participate in class activities when the television is here instead of live observers.

This statement helps to answer several problems that have come up. First, it indicates that generally the students are satisfied with the television because of its impersonal nature. It also suggests that a television observation is less restrictive to the students than a live observation. Because of the low median value for this statement, 3.922, its meaning is less definite. Figure 6 illustrates their response, generally favorable but with some divergence of attitude.

6. I think the presence of the television camera helps a person gain confidence in himself.

This statement deals with concomitant learnings that most teachers would like all students to attain. It deals with an item, self-confidence, that is difficult if not impossible to teach or measure accurately. The

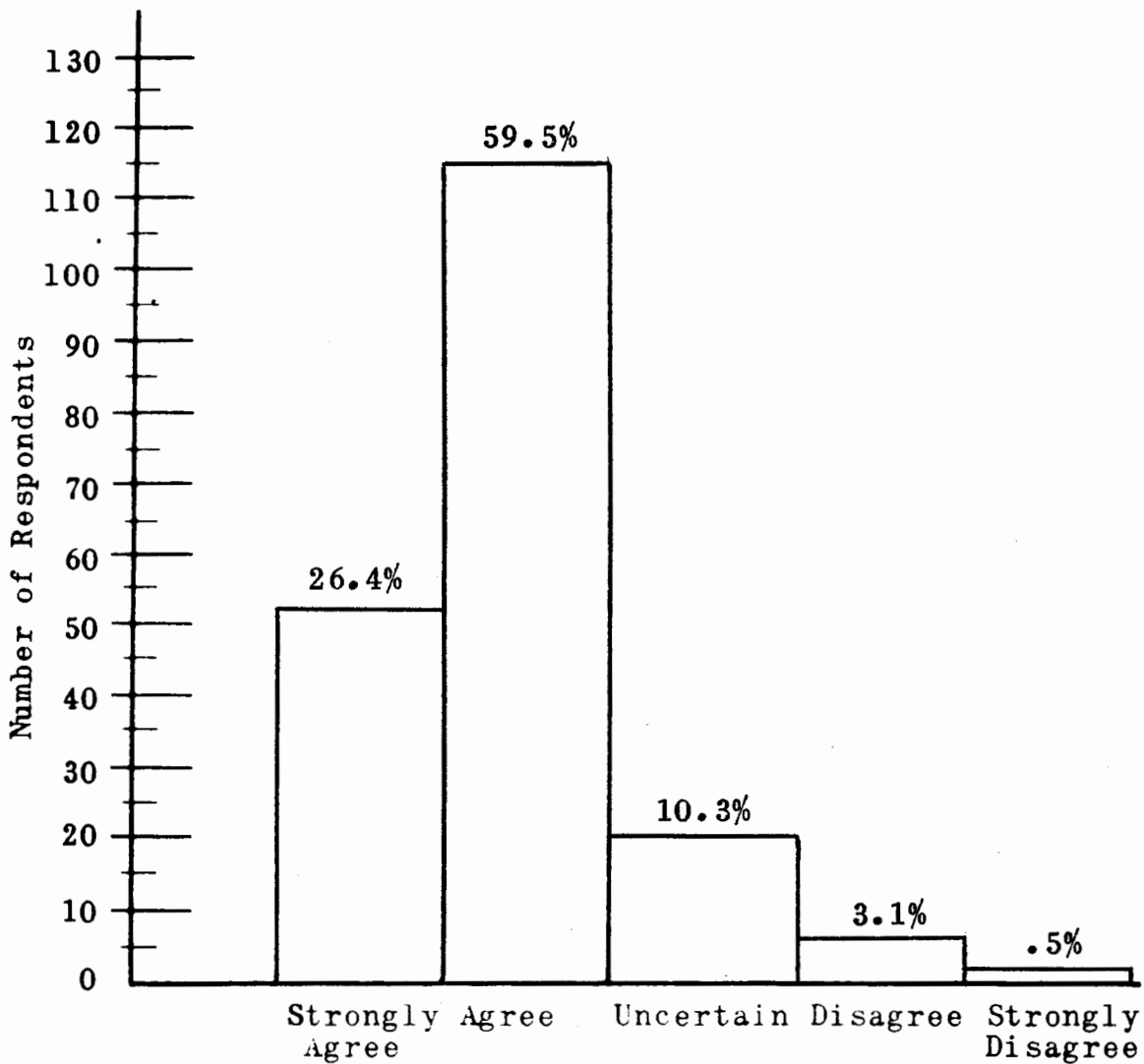


FIGURE 5

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 1; I THINK IT IS  
 WONDERFUL THAT WE CAN TAKE PART  
 IN THIS PROGRAM

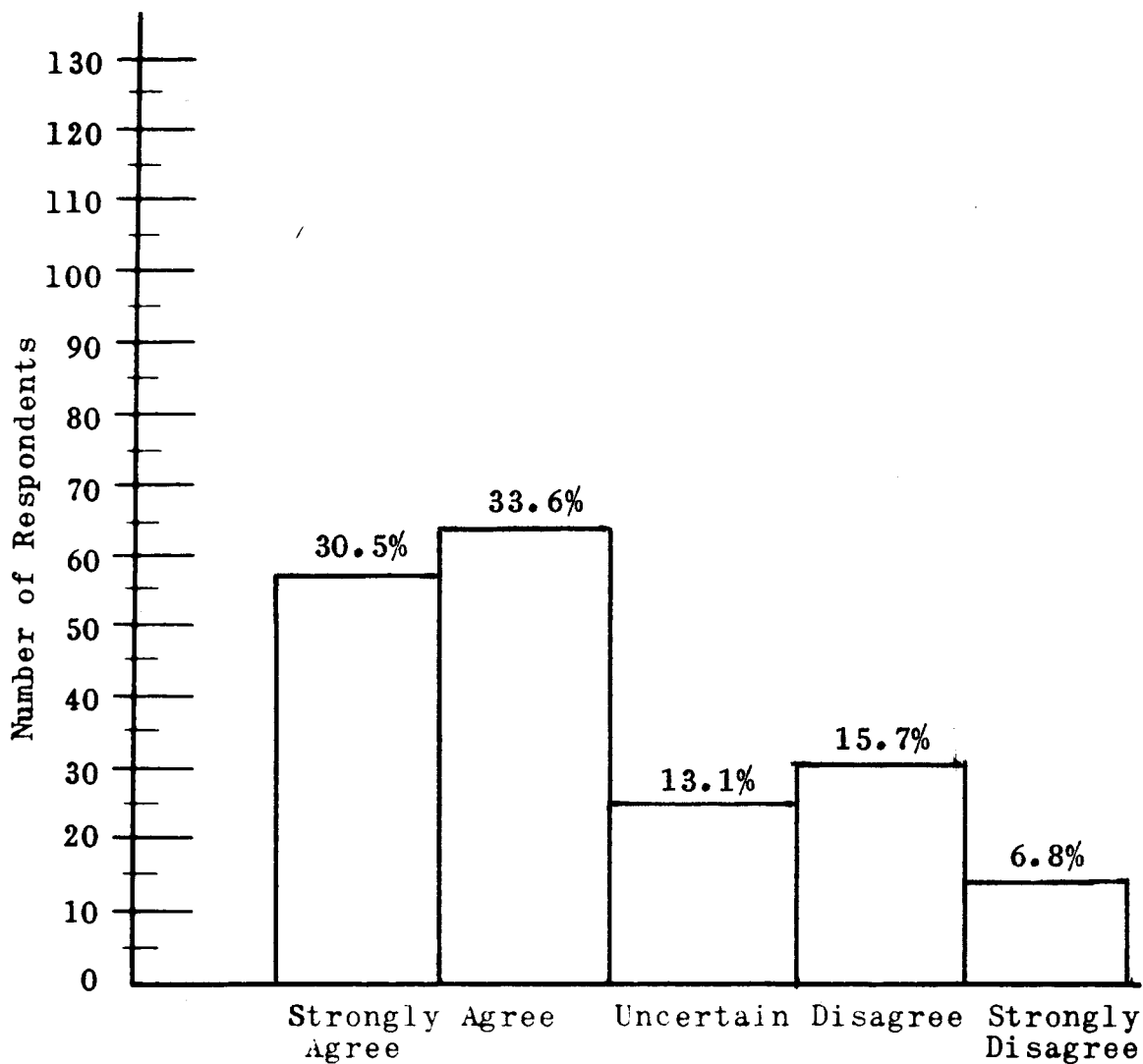


FIGURE 6

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 4; IT IS EASIER  
TO PARTICIPATE IN CLASS ACTIVITIES  
WHEN THE TELEVISION IS HERE  
INSTEAD OF LIVE OBSERVERS

students' response, Figure 7, indicates that not all of them agree with this statement. While it was included as a positive statement, the low median, 3.336, derived from the students' response reveals considerable uncertainty. It would be difficult to classify this one as definitely positive or favorable.

7. I didn't mind having the television equipment in the room.

This statement is crucial to the study as it strikes at the very core of the experiment. Its median score, 3.984, places it very near "Agree," which further points out the students' favorable attitude toward closed circuit television. Figure 8 illustrates the number of respondents to various categories on the attitude scale with less than twenty per cent uncertain or in disagreement.

8. I often feel that the television makes me do better in class.

It is difficult to associate any particular problem with this statement. From spontaneous student comment, it appears that their interpretation of the statement is that the television equipment places them under a slight pressure, but perhaps in turn causes some of them to be more alert. Figure 9 shows the students' variety of responses. This illustration indicates that about thirty-five per cent of the students rejected the thought that

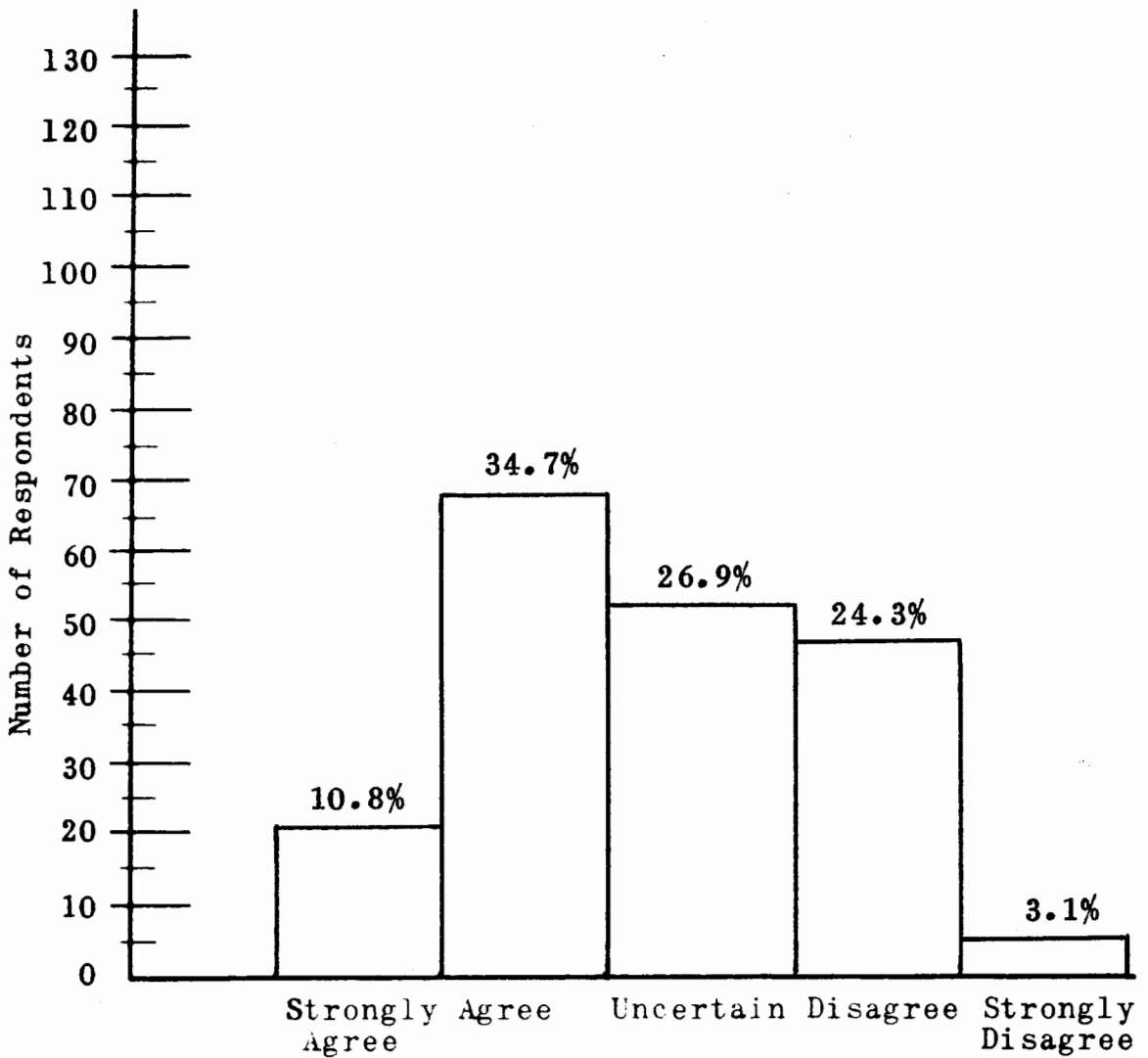


FIGURE 7

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 6; I THINK THE  
 PRESENCE OF THE TELEVISION CAMERA  
 HELPS A PERSON GAIN CONFIDENCE  
 IN HIMSELF

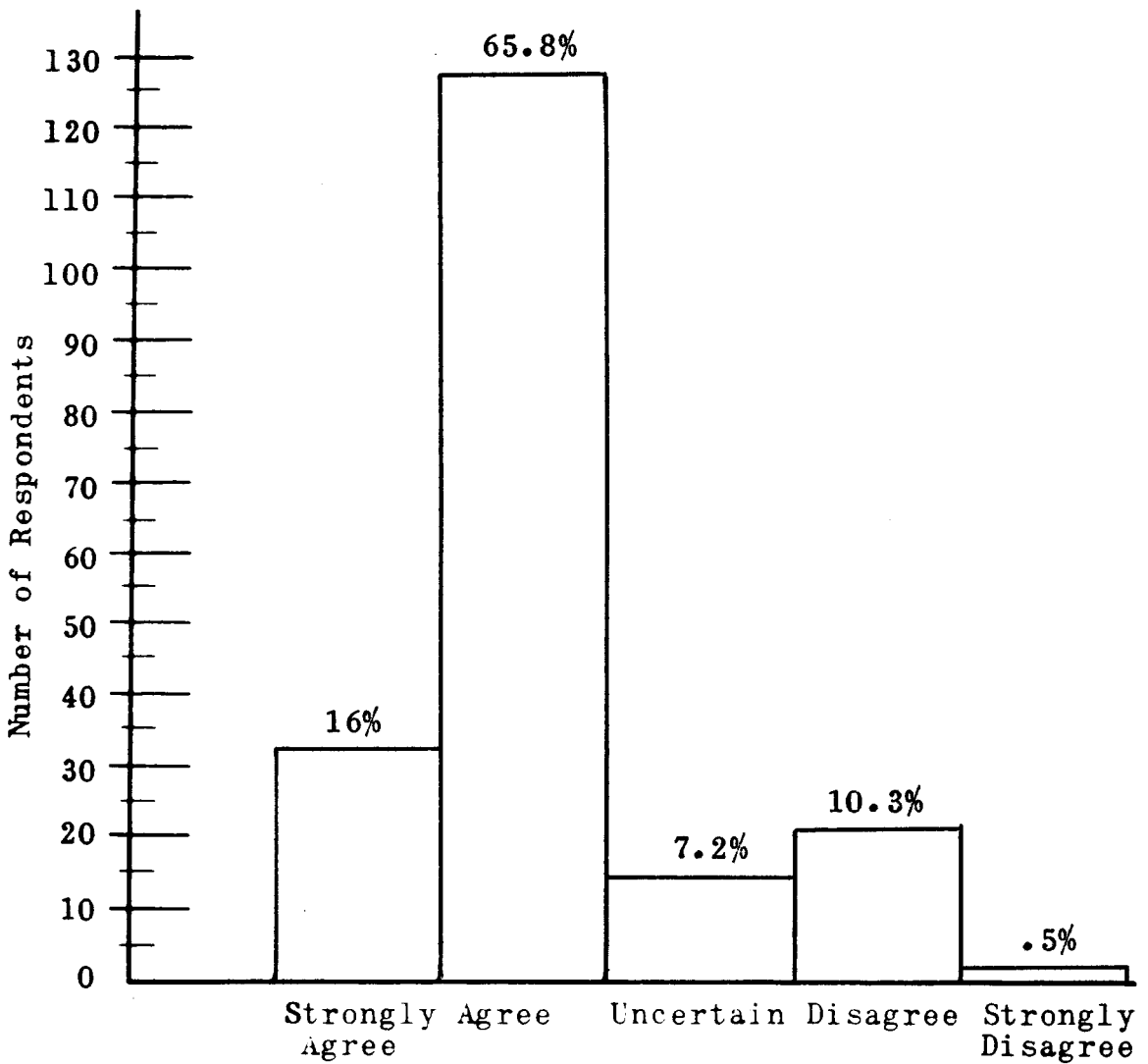


FIGURE 8

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 7; I DIDN'T MIND  
HAVING THE TELEVISION  
EQUIPMENT IN THE ROOM

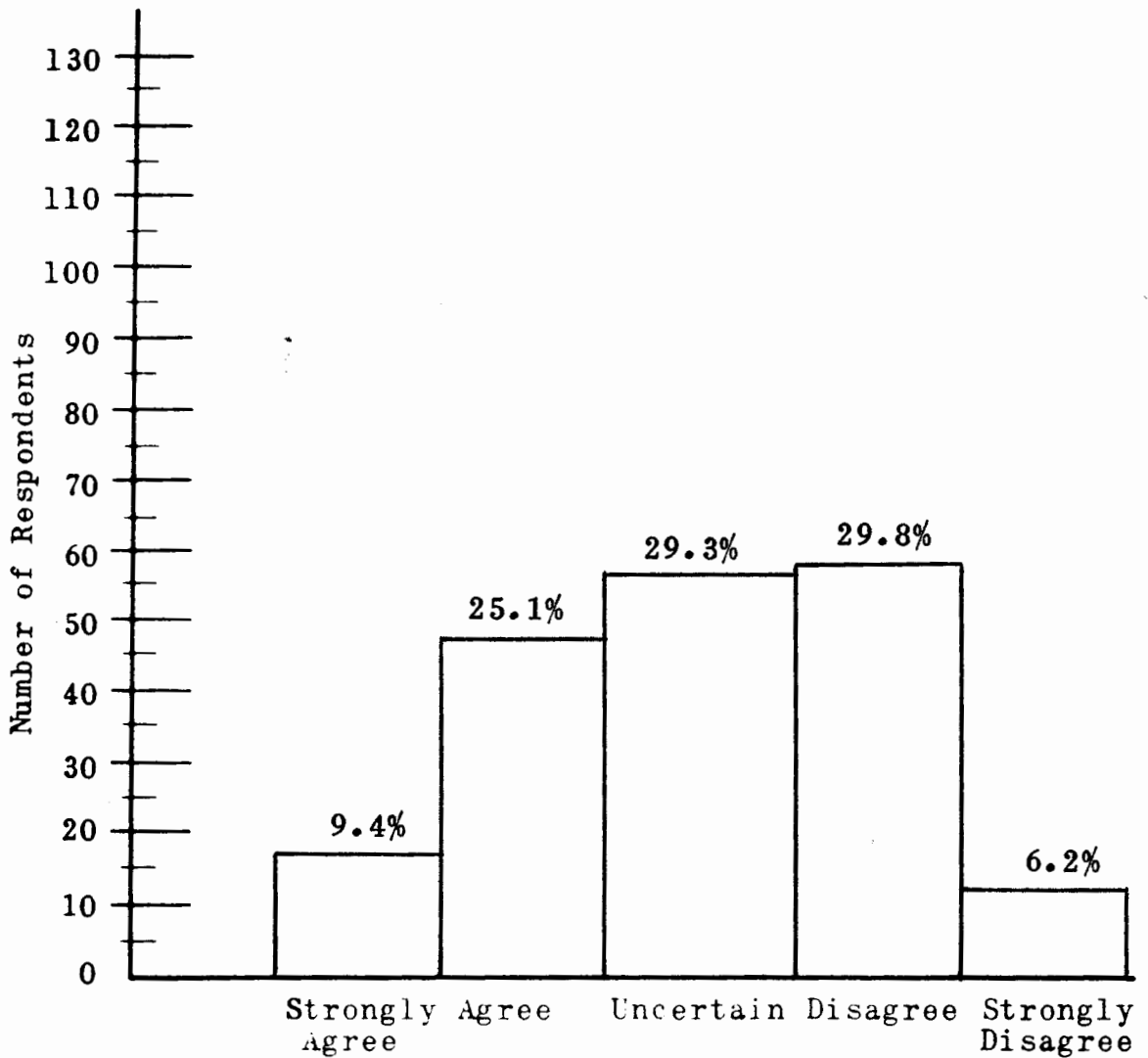


FIGURE 9

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 8; I OFTEN FEEL  
THAT THE TELEVISION MAKES  
ME DO BETTER IN CLASS



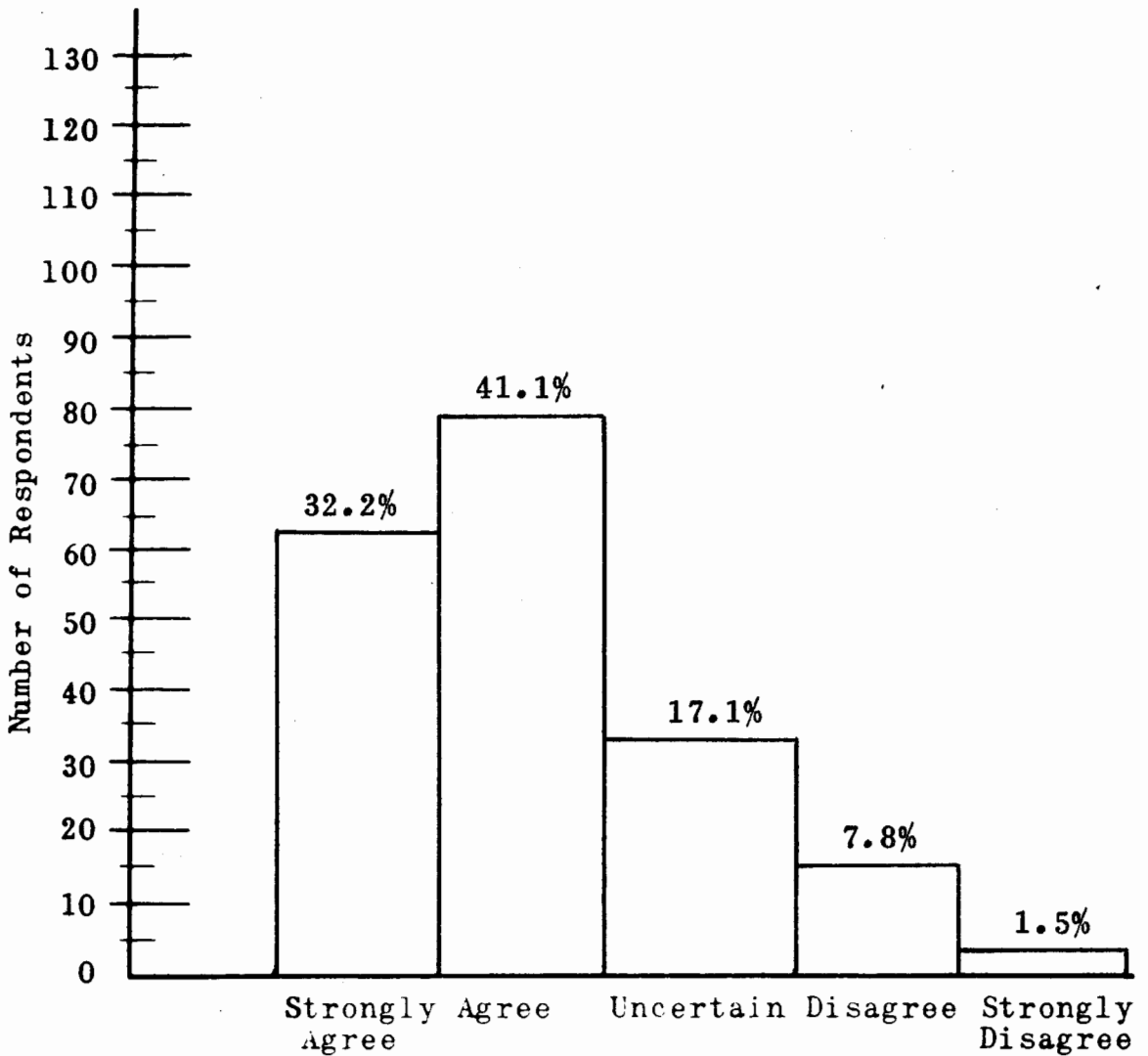
television improves their classroom work.

14. I think closed circuit television is the best way of showing college students teaching methods in the schools.

A broad interpretation may be placed upon this statement. Ratings by the judges showed it to be a favorable statement and the median score, 4.082, as expressed by the respondents shows that students are strongly in favor of the idea expressed. From this statement, the writer inferred that the students preferred television observations to live observations. Completely objective evaluation of this statement is impossible, for high school students cannot possibly know all of the methods or media available to demonstrate teaching methods, and as a result, could not know if this were the best method. Figure 10 portrays the students' response to this statement, with the weight heavily towards agreeing or strongly agreeing that teaching methods can best be shown by closed circuit television.

16. I prefer the camera to live observers in the room, as this way we are not bothered by their private discussions.

Statement number sixteen brings to light a problem that has been stressed by college professors for many years. Observers in the classroom should not, of course, be talking during an observation. Despite directions to this effect, many observers still insist on discussing



**FIGURE 10**

**STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 14; I THINK CLOSED  
CIRCUIT TELEVISION IS THE BEST WAY  
OF SHOWING COLLEGE STUDENTS  
TEACHING METHODS  
IN THE SCHOOL**

certain teaching techniques, classroom behavior, or even unrelated topics, while still in the classroom. This apparently is quite distracting to the public school students. Their general reaction to this statement was one of agreement, implying that they had been distracted by college observers. This statement once again brings out the impersonality of the television camera and how this relative obscurity leads to a better atmosphere in the classroom. Figure 11 illustrates that over sixty per cent of the students prefer TV to live observers while only about twenty-one per cent disagree.

17. Participating in a television demonstration gives you a feeling of importance.

Statement number six suggested that some learnings from being observed by television are difficult to measure. Feelings are, of course, difficult to measure, but their statements of feeling are suggestive. Figure 12 shows the wide disparity of responses, with nearly fifty per cent agreeing that being observed by TV gave them a feeling of importance. Over thirty per cent, however, disagreed with this, while twenty-two per cent were uncertain.

18. I think it is of value to us as well as the college students.

The median score, 4.095, on this statement and Figure 13 indicate a high degree of acceptance by the

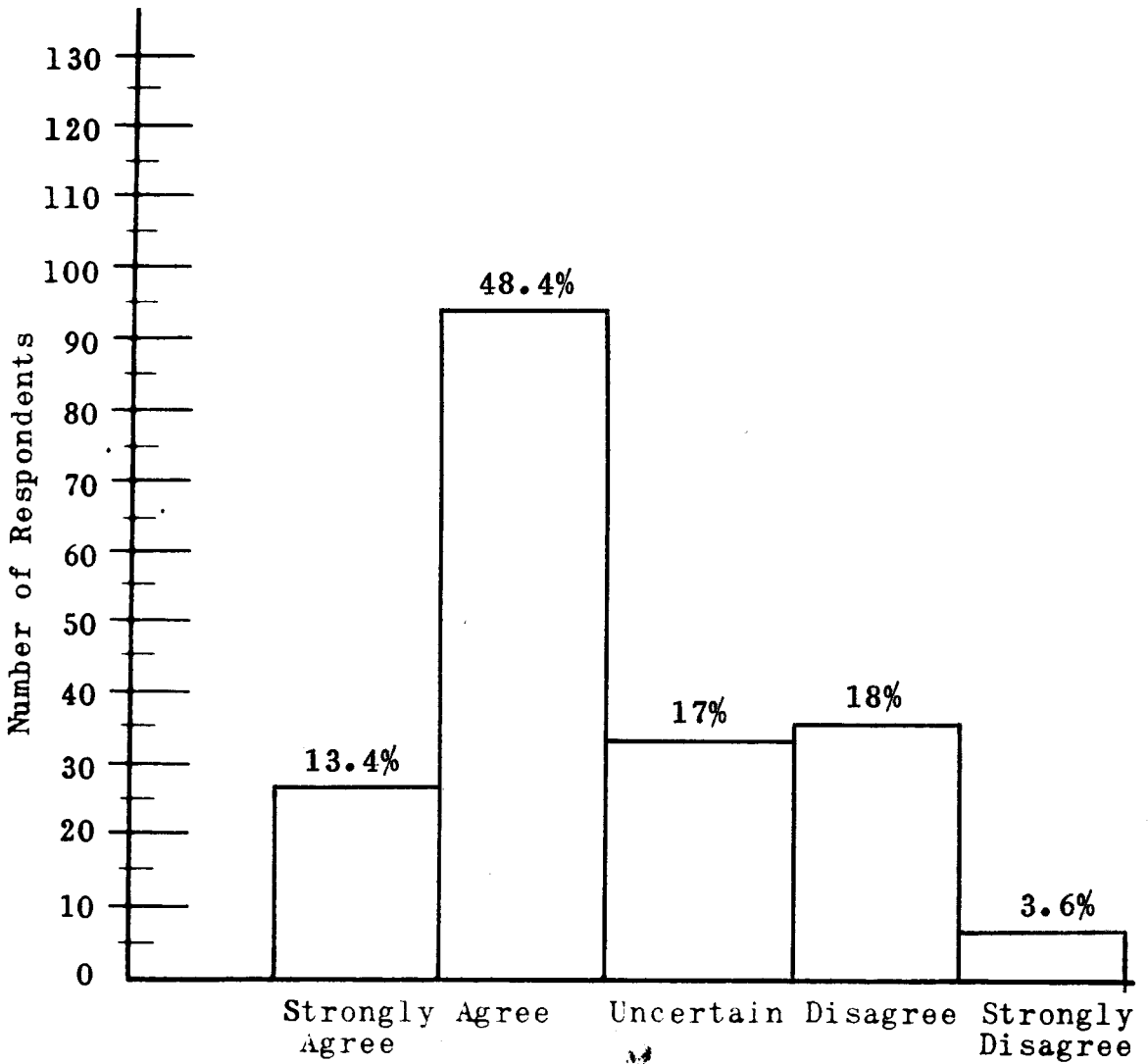


FIGURE 11

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 16; I PREFER THE  
CAMERA TO LIVE OBSERVERS IN THE  
ROOM AS THIS WAY WE ARE NOT  
BOtherED BY THEIR PRIVATE  
DISCUSSIONS

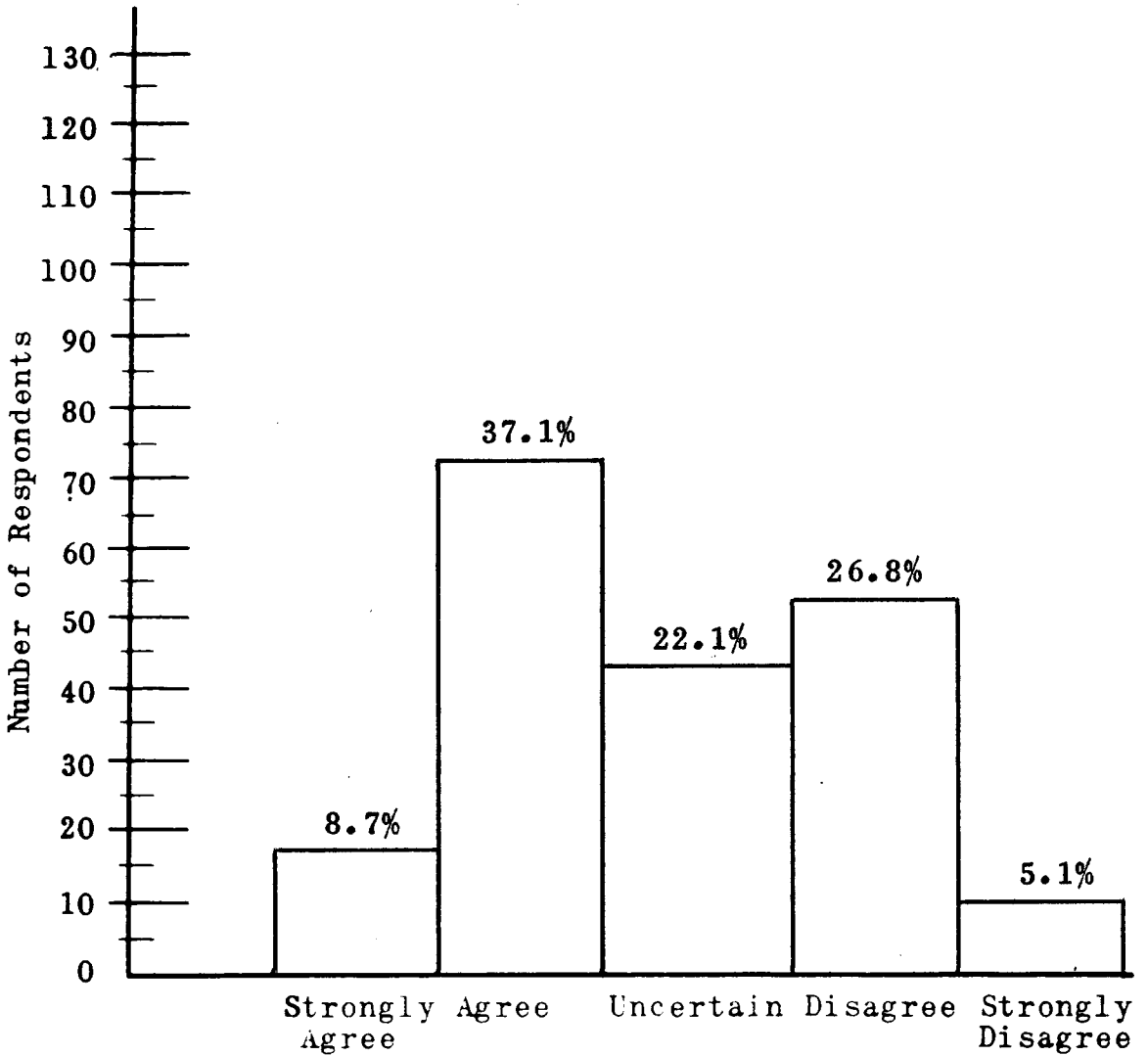


FIGURE 12

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 17; PARTICIPATING IN  
A TELEVISION DEMONSTRATION GIVES  
YOU A FEELING OF IMPORTANCE

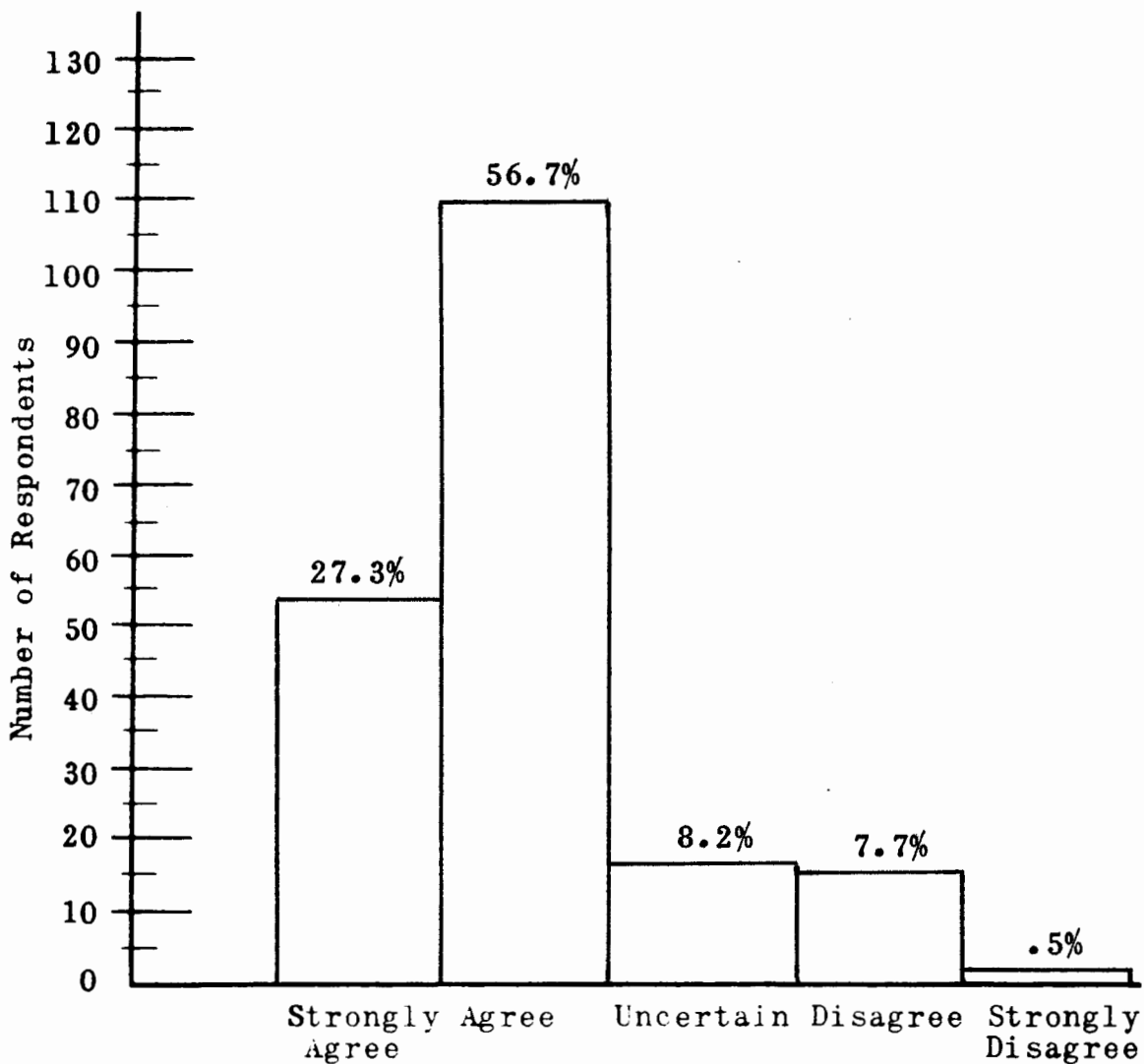


FIGURE 13

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 18; I THINK IT IS  
OF VALUE TO US AS WELL AS  
THE COLLEGE STUDENTS

students. The importance of their acceptance of the statement would appear to be in that they place a certain personal value upon television observations as well as values for others. This being the case, they should be willing to do a better job, during a television observation, in such areas as class participation, willingness to speak clearly into the microphone, and generally to be cooperative.

19. After a while I forget about the television equipment and it seems like fun.

While this is a positively expressed or favorable statement, it seems to imply that there is some nervousness at the beginning of an observation. This implication is supported by the fact that this statement, as all others, was originally taken from spontaneous statements by the students. Figure 14, depicting student response, shows that the students soon forget about the television camera being in their room. It supports the hypothesis that students become adjusted to television equipment more rapidly than to live observers.

### III. UNFAVORABLE STATEMENTS

The following statements were determined to be unfavorable towards TV observations on the basis of the earlier ratings by the judges. Student favorableness

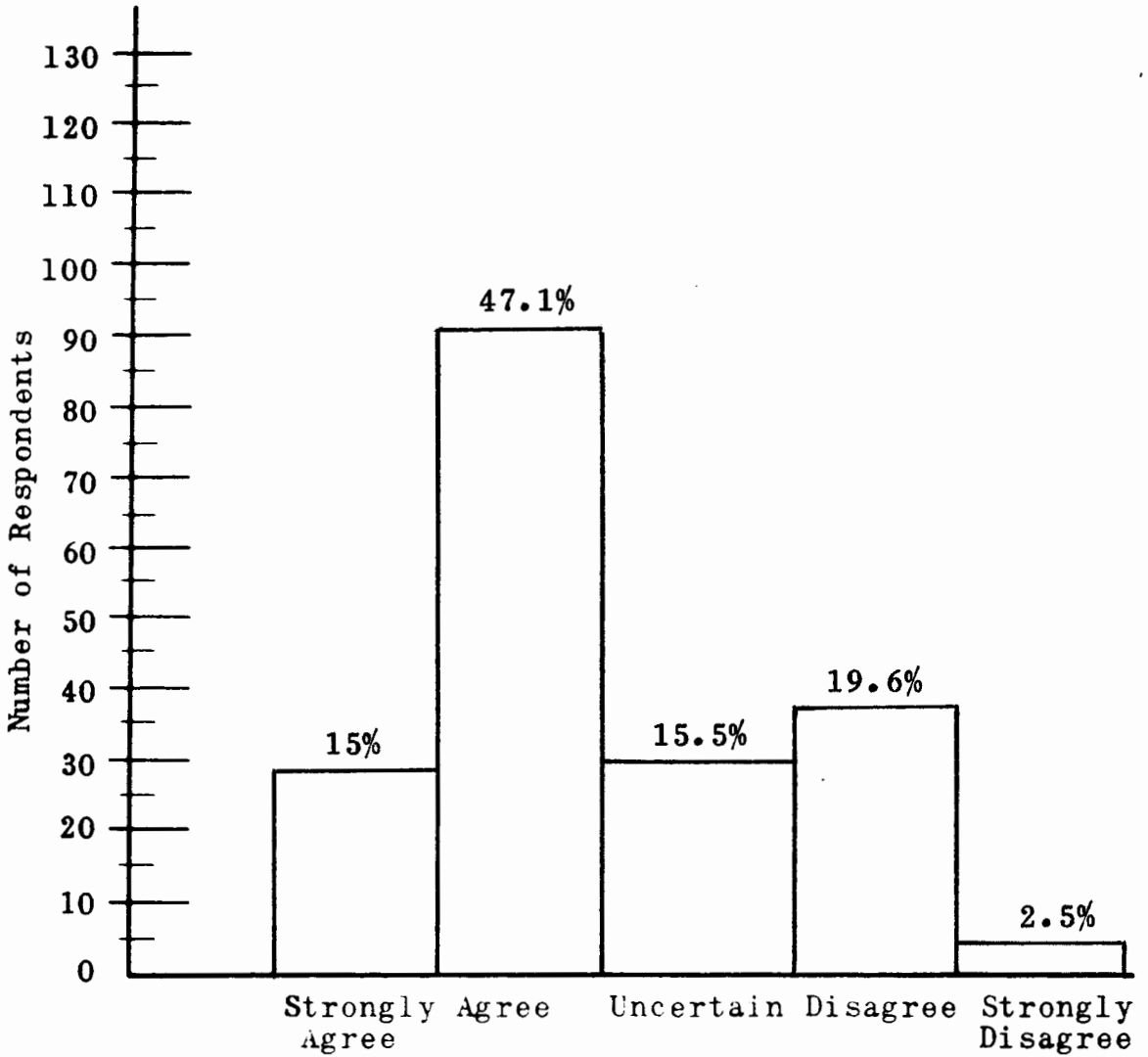


FIGURE 14

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 19; AFTER AWHILE I  
 FORGET ABOUT THE TELEVISION EQUIPMENT  
 AND IT SEEMS LIKE FUN



toward television observations in this group of statements is indicated by the number of respondents in the "Strongly Disagree" or "Disagree" categories. It should be noted at this point that both positively and negatively worded statements were used in this scale to avoid the halo effect or the encircling of responses without reading them. Failure to conscientiously complete the scale would be easily detected by their lack of consistency when they, for example, encircle "Strongly Agree" on the entire scale. Such a practice would show complete self disagreement or unconcern with the task.

2. Television costs a lot of money and doesn't improve anything.

The connotation of this statement would appear to be that even with the expensiveness of the television equipment, it does not improve the observation program. An expression of favorableness toward this statement by the students would show acceptance of this connotation. This was not the case, however, as the students showed strong unfavorableness toward this statement. This indicates they feel that television does improve something, whether it be the observation program, the method of doing an observation, or the observation itself. Figure 15 shows that over ninety per cent of the students disagree that TV does not improve some features of the observation

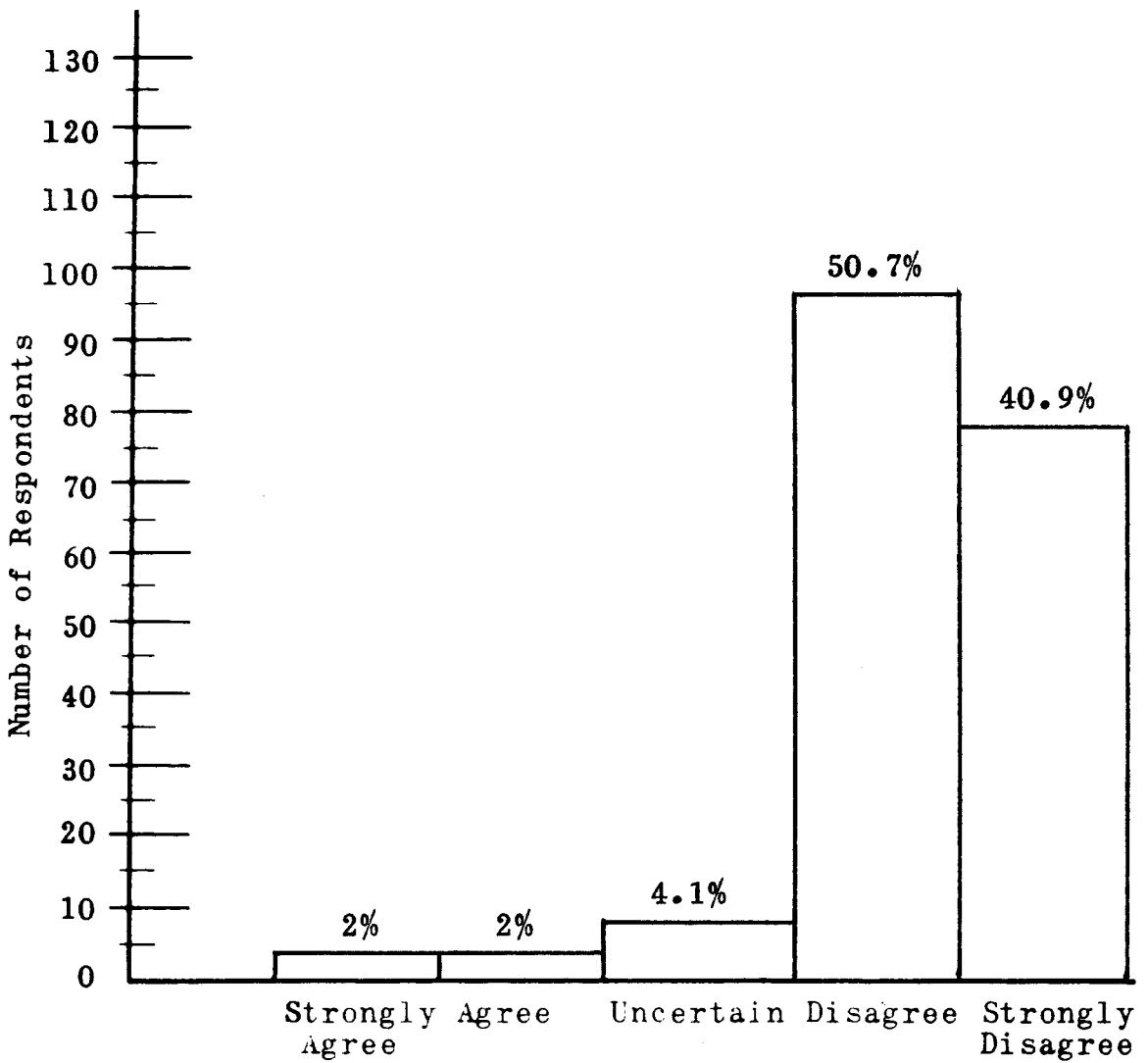


FIGURE 15

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 2; TELEVISION COSTS  
A LOT OF MONEY AND DOESN'T  
IMPROVE ANYTHING

program and over forty per cent feel strongly about this attitude.

3. After the class was over, I felt relieved and hoped we would not be on television again.

Figure 16 shows a great deal of disagreement which, on this negative statement, indicates that they are generally not under pressure during a television demonstration. It could be said that either they do not mind television demonstrations or that they look forward to taking part in them.

5. I would rather have live observers.

Statements number four and five are nearly direct opposites, one stated positively, the other negatively. The responses offered by the students, Figure 17, clearly illustrate the fact that they are generally in favor of television observations. Only about sixteen per cent seem to favor live observers over TV observations. This statement is very important to this study, for if the general consensus had been agreement, such would show unfavorableness, just as would its positively worded counterpart. This could reflect in a negative manner on the television observation program that is being carried on by Central Washington College of Education, which, after purchase of equipment and entering into an extensive program, would certainly prove to be problematic.

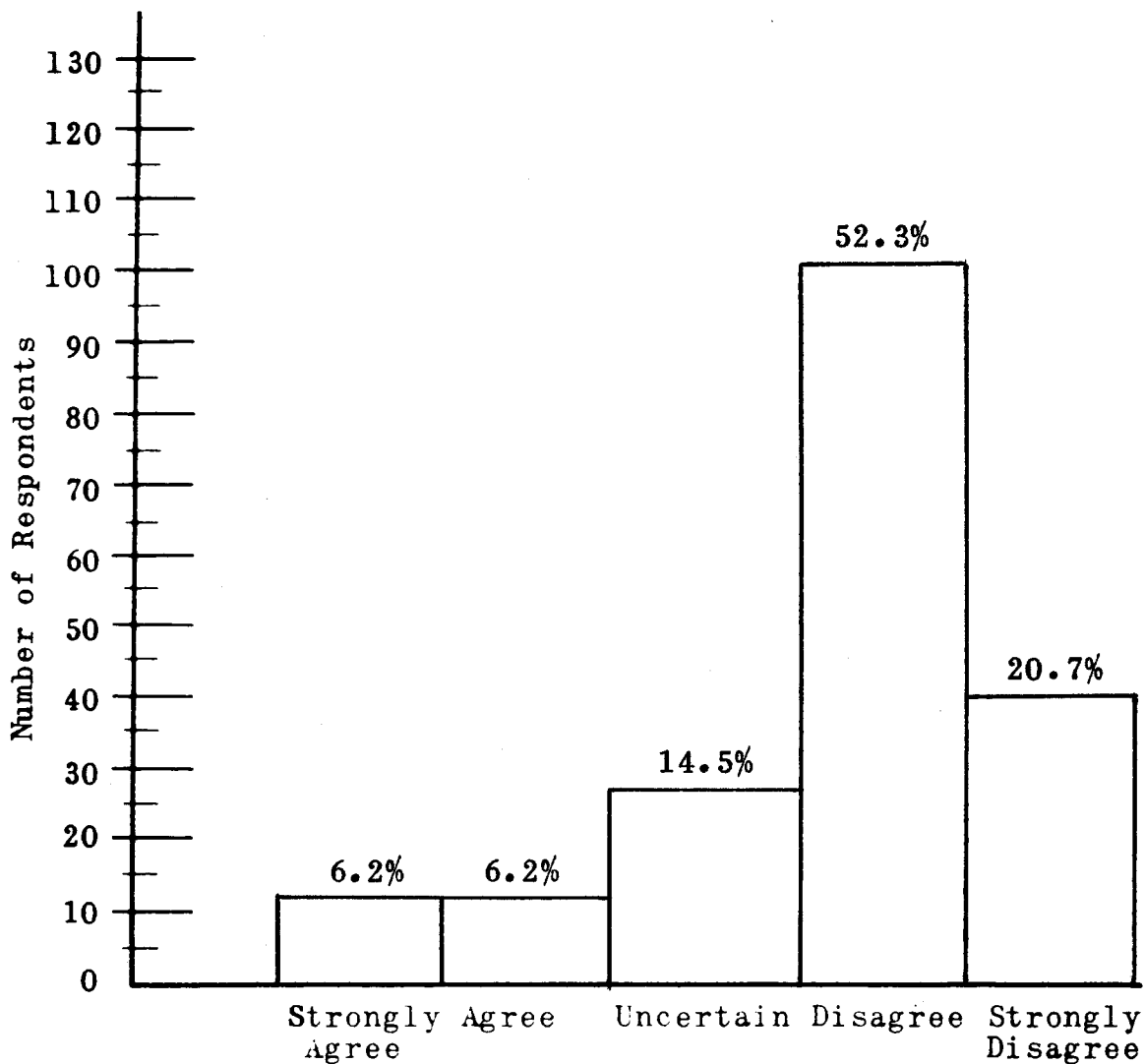


FIGURE 16

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 3; AFTER THE CLASS  
WAS OVER, I FELT RELIEVED AND HOPED  
WE WOULD NOT BE ON TELEVISION AGAIN

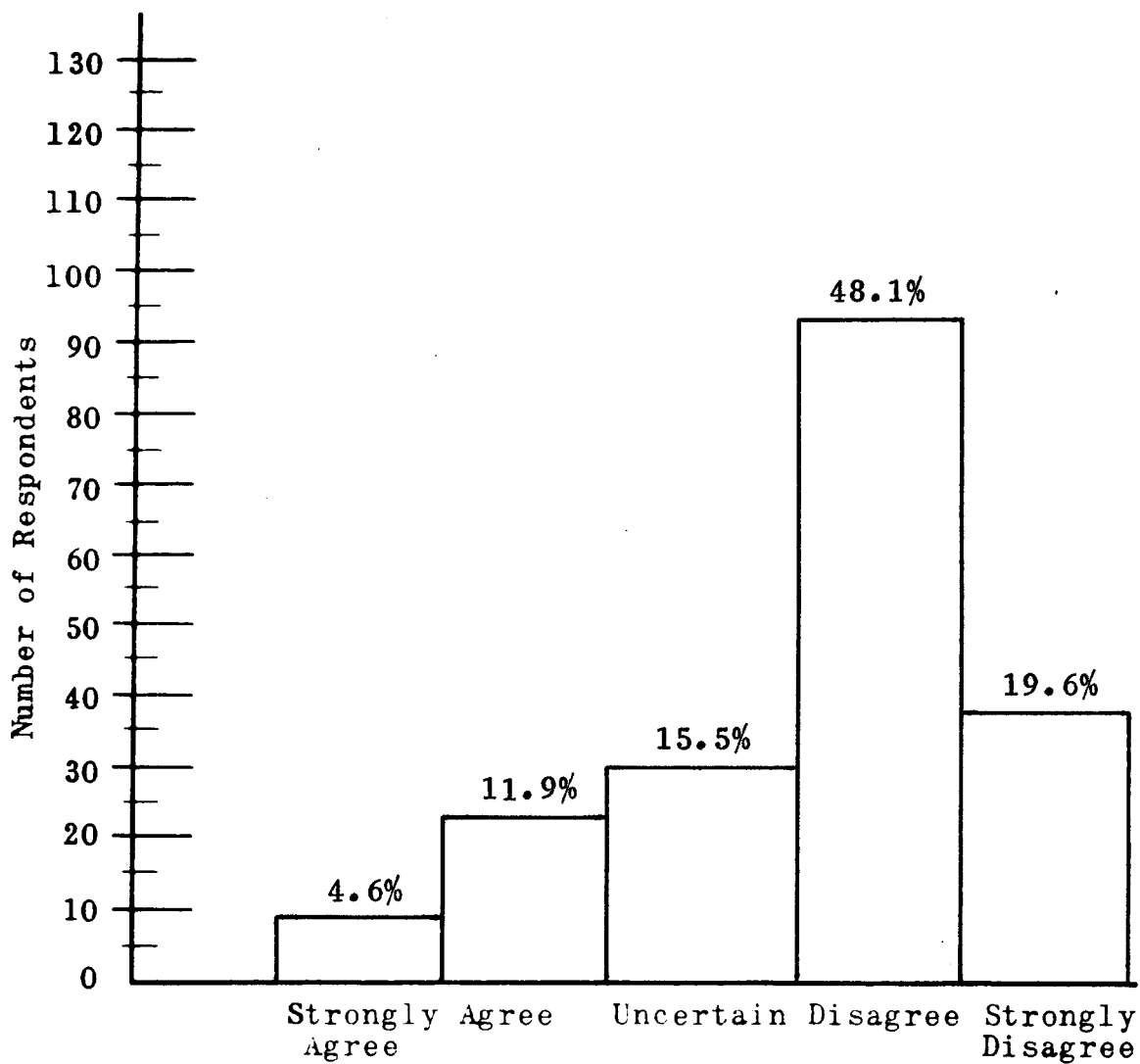


FIGURE 17

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 5; I WOULD  
RATHER HAVE LIVE OBSERVERS

9. During the TV observation, our room was under a great deal of pressure and the students were not participating as usual.

An important question for the college to have answered is: "Is the classroom procedure altered because of the television equipment that is brought in?" An evaluation of the students' response to this statement will not answer this question, as there was too much uncertainty in their attitudes. This could have resulted from their not actually knowing if the procedure was altered because of the equipment. Figure 18 illustrates the great variability in the student response.

10. I think too much confusion arises with the television equipment in the classroom.

The amount of equipment brought into the classroom will tend to cause some confusion, for occasionally it is necessary to rearrange the room slightly or make some adjustments on the equipment. It becomes apparent from the student response that these matters are not distracting to their regular classroom procedure. This particular point has been of major concern to the college because of the size of the television equipment and the amount of maintenance required to keep it in operation. Figure 19 shows rather definitely that only a relatively small proportion feel that the equipment causes much confusion.

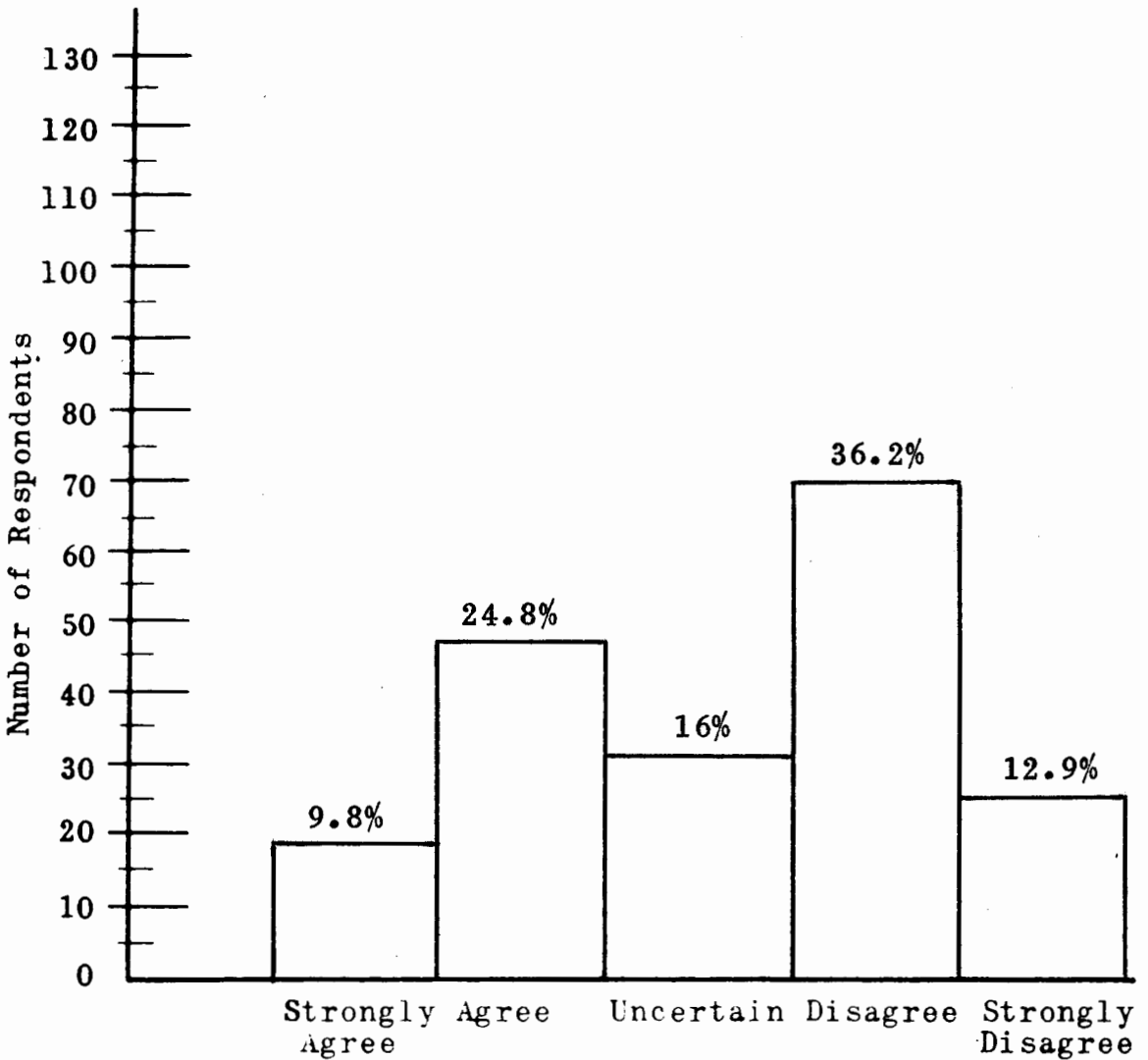


FIGURE 18

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 9; DURING THE TV  
 OBSERVATIONS, OUR ROOM WAS UNDER A  
 GREAT DEAL OF PRESSURE AND THE  
 STUDENTS WERE NOT  
 PARTICIPATING  
 AS USUAL

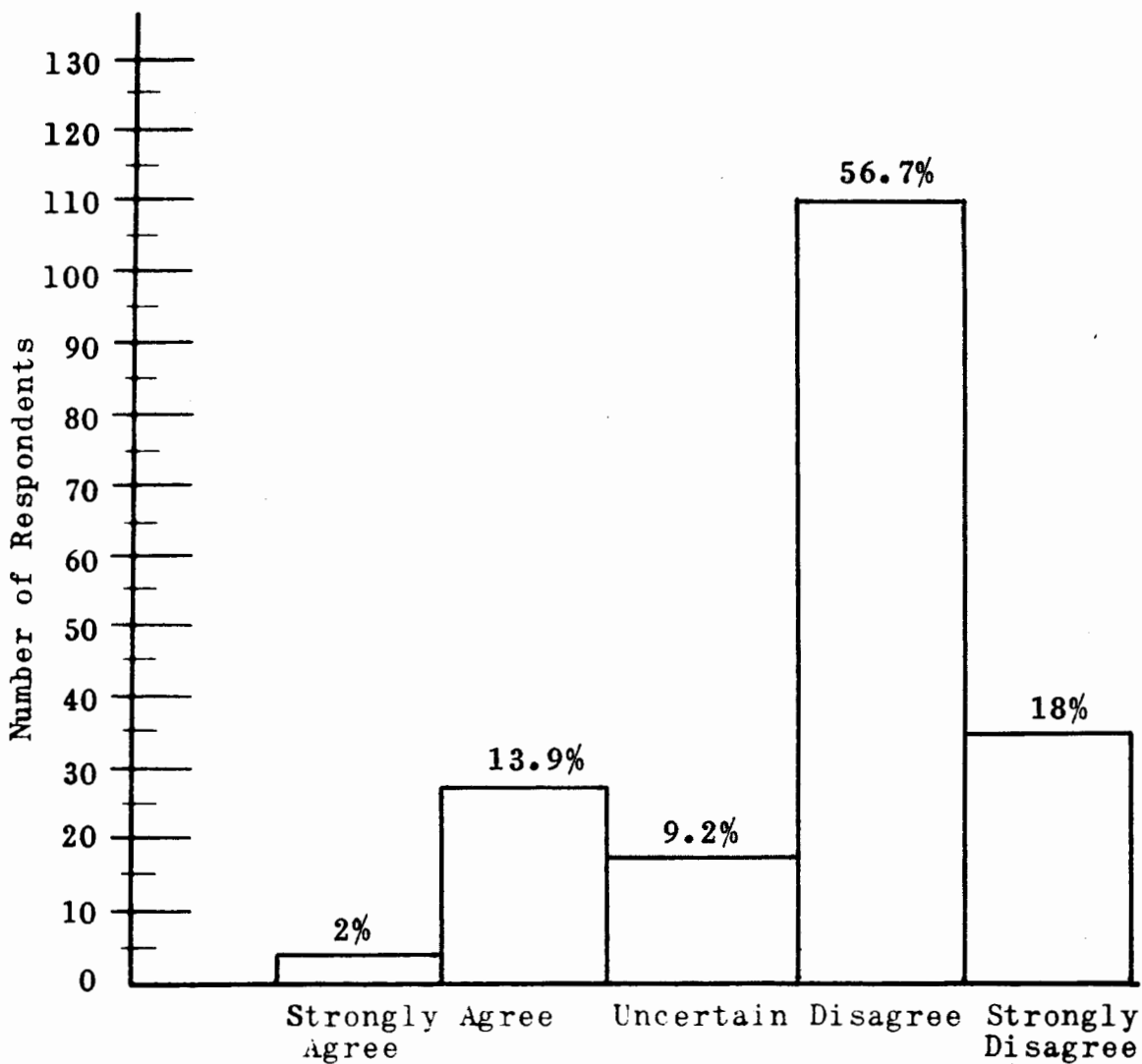


FIGURE 19

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 10; I THINK TOO MUCH  
CONFUSION ARISES WITH THE TELEVISION  
EQUIPMENT IN THE CLASSROOM



11. I don't think there is any point to TV observations.

This statement, while brief and concise, is very important. If a student felt there was no value in taking part in observations by television, he could have indicated it very readily here. As shown in Figure 20, the great majority of them disagreed with this statement, pointing out that they felt television observations are of some definite value, either for them or for the college.

12. The noise the equipment makes is very distracting.

Another important problem is brought out in this statement. Since a considerable amount of heat is generated by the television equipment, a series of fans is used to dissipate this heat. Changing the lenses on the view finder camera also makes a very audible click. At one time it was feared that these noises would prevent the students from working in their usual manner in the classroom. Figure 21 illustrates the students' response to this statement. Examination of this illustration reveals that the overwhelming majority of students do not mind the noise made by the television equipment.

13. I think it is a waste of time and effort of the students and teachers being observed.

The student reaction to this statement was one of disagreement. This reaction tends to show that they do

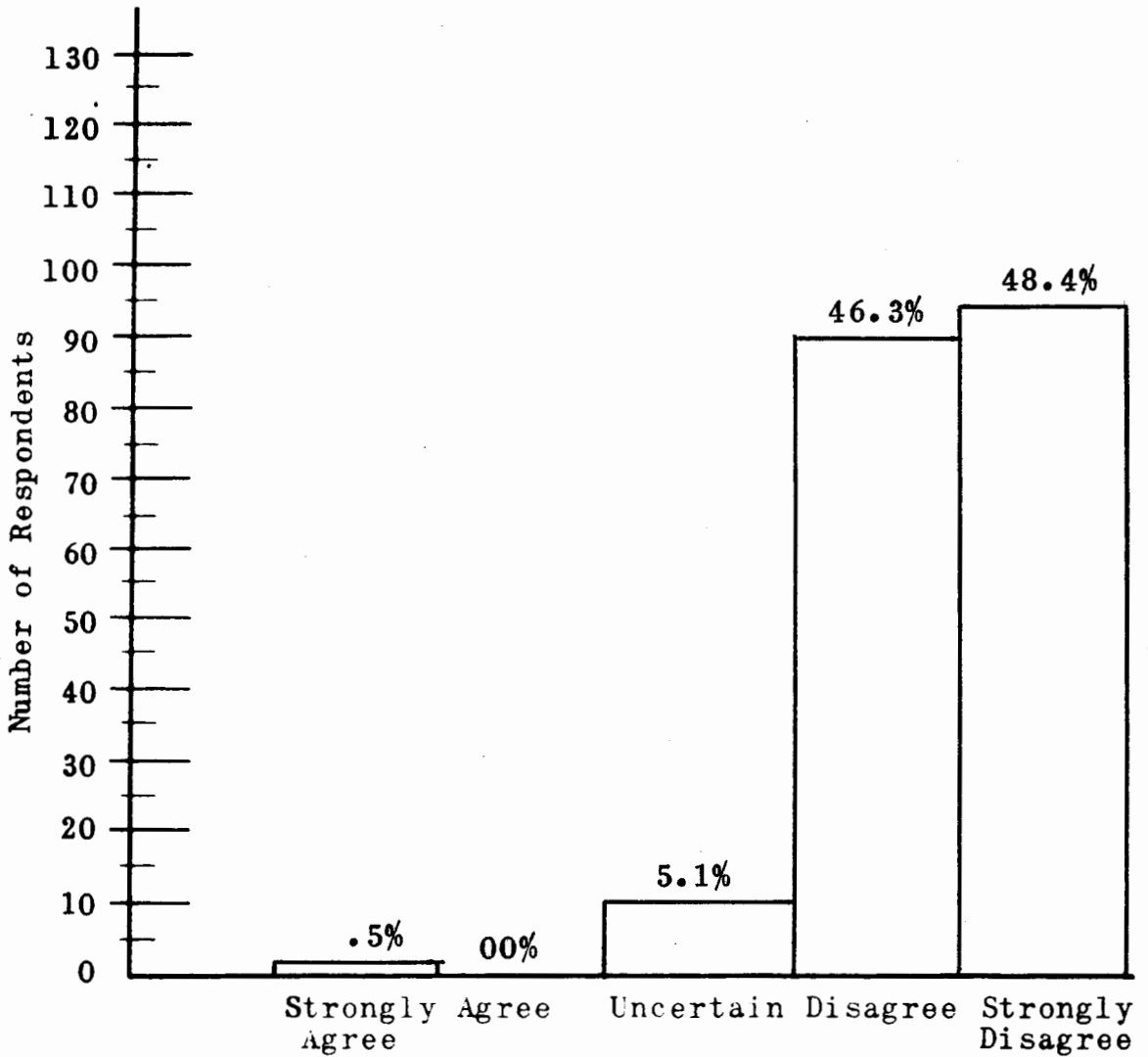


FIGURE 20

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 11; I DON'T  
 THINK THERE IS ANY POINT  
 TO TV OBSERVATIONS

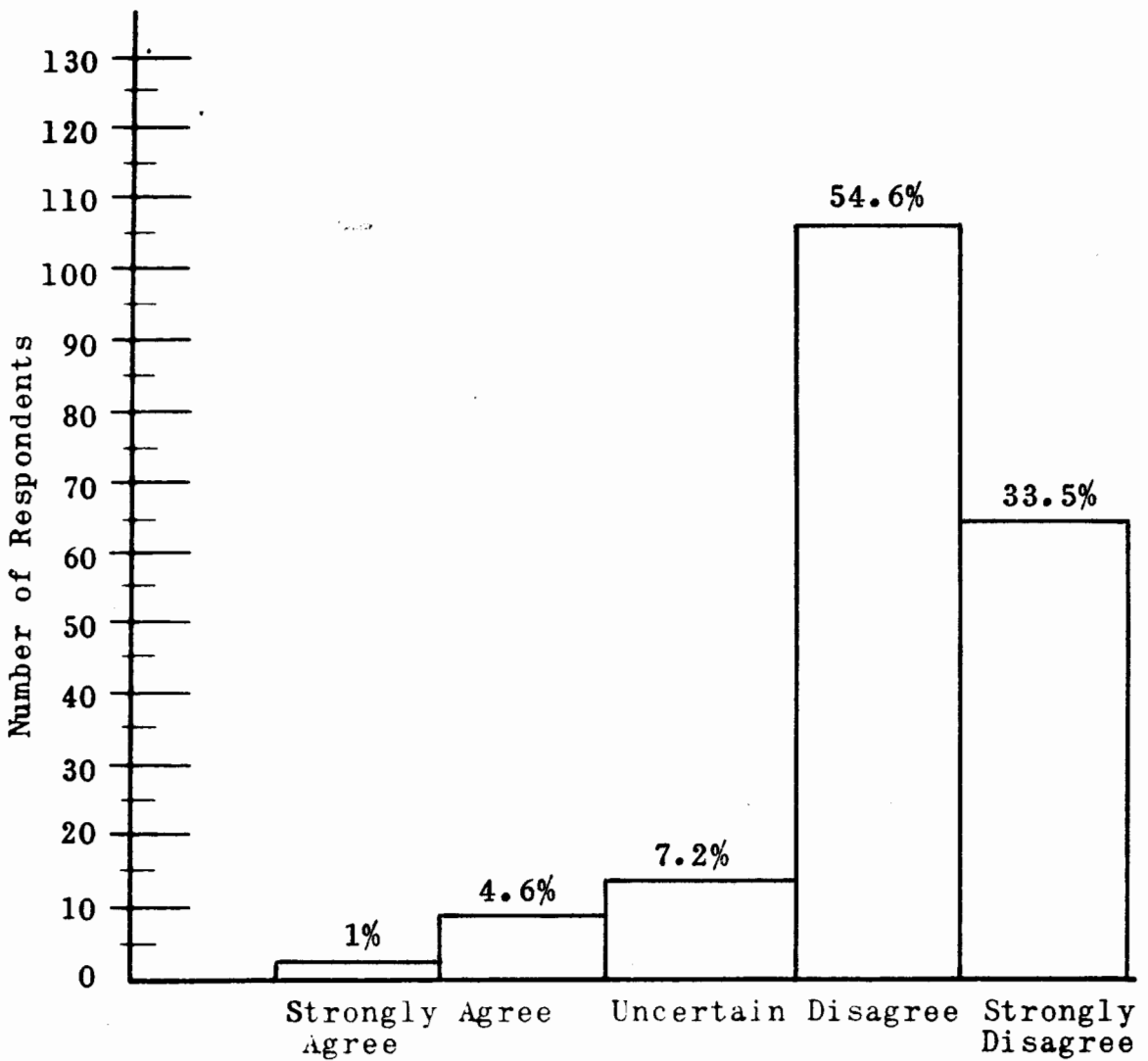


FIGURE 21

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 12; THE NOISE THE  
EQUIPMENT MAKES IS VERY DISTRACTING

not feel television observations are a waste of time and effort. Special importance can now be attached to this statement, for if they feel there is some value to these observations, they will not mind participating in the program. Figure 22 shows that nearly ninety per cent of the students do not feel TV observations waste their own or their teachers' time.

15. I have found that you never get used to the cameras in the room.

A degree of uncertainty was shown in the student response to this statement. Two factors, neither in anyone's control, could have caused this uncertainty. These are that the program is not very old, and as a result, few of the students have had an opportunity to participate in more than one or two observations. Also, many of the students taking part in this study had not had any contact with the television cameras in a classroom. Little else can be said about this statement because of these two factors. Some uncertainty is clearly shown in Figure 23 by the disparity of the students' response to this item. However, near sixty per cent do clearly adapt to cameras in the room.

20. When the television camera is on me I am so nervous I can hardly read or talk.

Some uncertainty was also shown in this statement. This could possibly have resulted from the fact that the

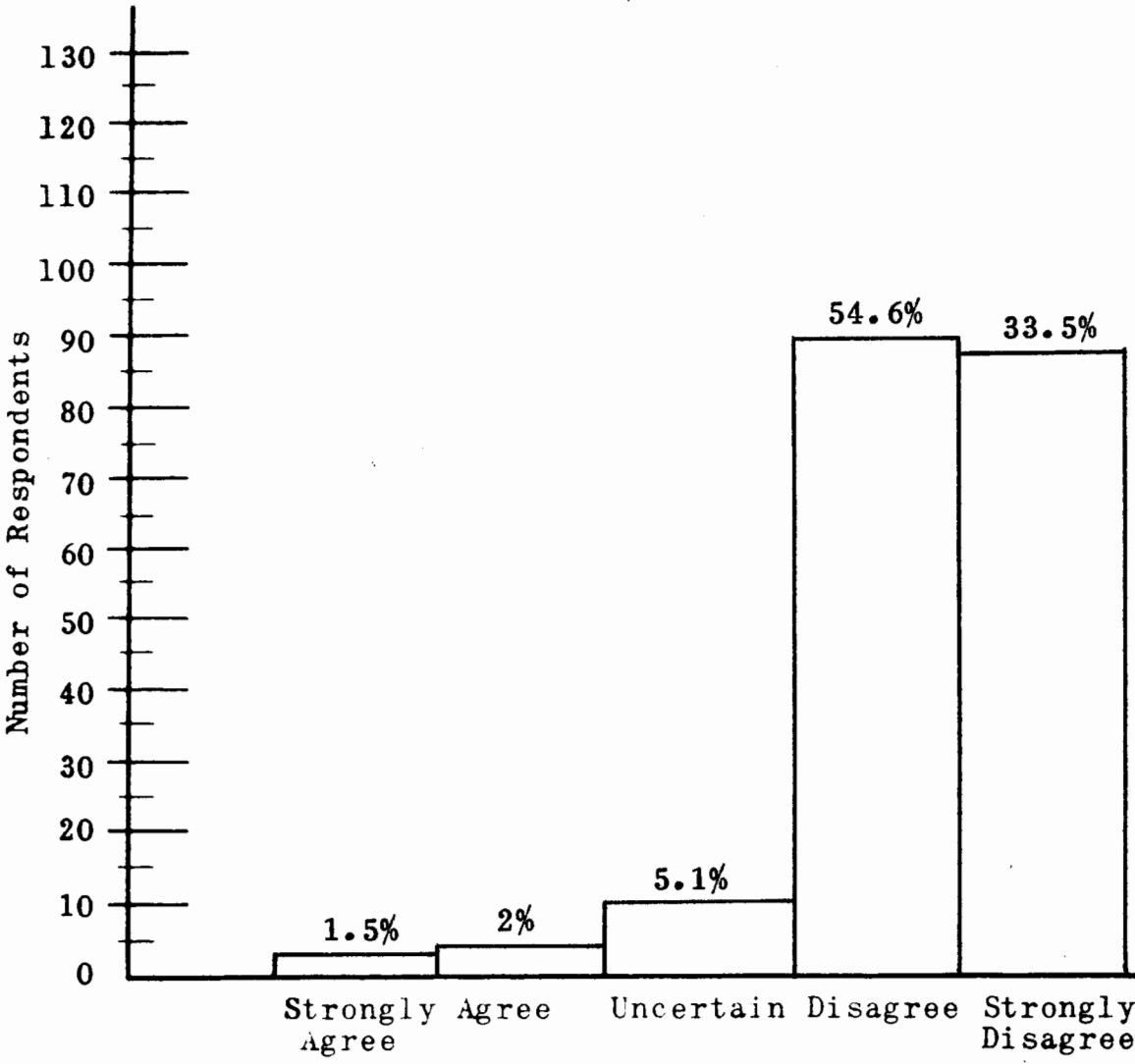


FIGURE 22

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 13; I THINK IT IS A  
WASTE OF TIME AND EFFORT OF THE  
STUDENTS AND TEACHERS  
BEING OBSERVED

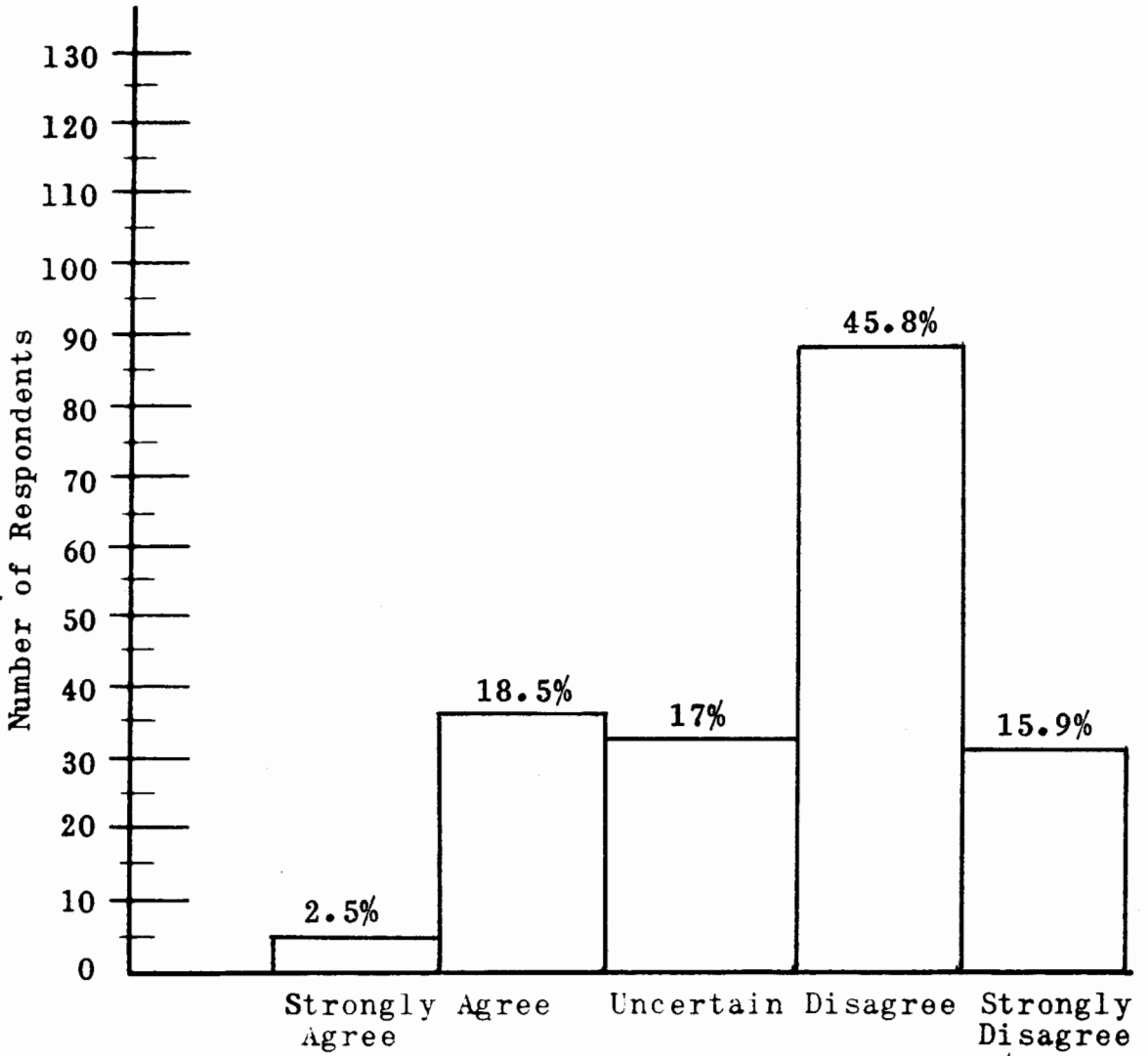


FIGURE 23

STUDENT NUMBER AND PER CENT OF RESPONSES  
TO STATEMENT NUMBER 15; I HAVE FOUND  
THAT YOU NEVER GET USED TO THE  
CAMERAS IN THE ROOM

students have no way of knowing positively if the camera is trained upon them. Partly because of this, considerable disparity is shown. Figure 24 illustrates that although about sixty per cent are apparently not bothered by the camera, a very important twenty-six per cent respond that not only do they get nervous but apparently nervous to the point that reading and talking is difficult. This may suggest a problem needing some work at alleviation.

#### IV. SUMMARY

In attempting to determine the degree of favorableness or unfavorableness toward television observations in the classroom, the writer turned first to the median values of student response for each statement. Seven statements had median values of 4 or above, seven had median values of 3.76 to 4.00, five had median values between 3.00 and 3.75. Only one statement had a median value of less than 3. These medians, as well as the method of computation, may be seen in Appendix E and Appendix C respectively.

In the scoring system used, a score of three indicated uncertainty of attitude. The higher the score, the more favorable the attitude, with the opposite being true for unfavorableness. With this in mind, a definite trend toward favorableness can be seen in the students'

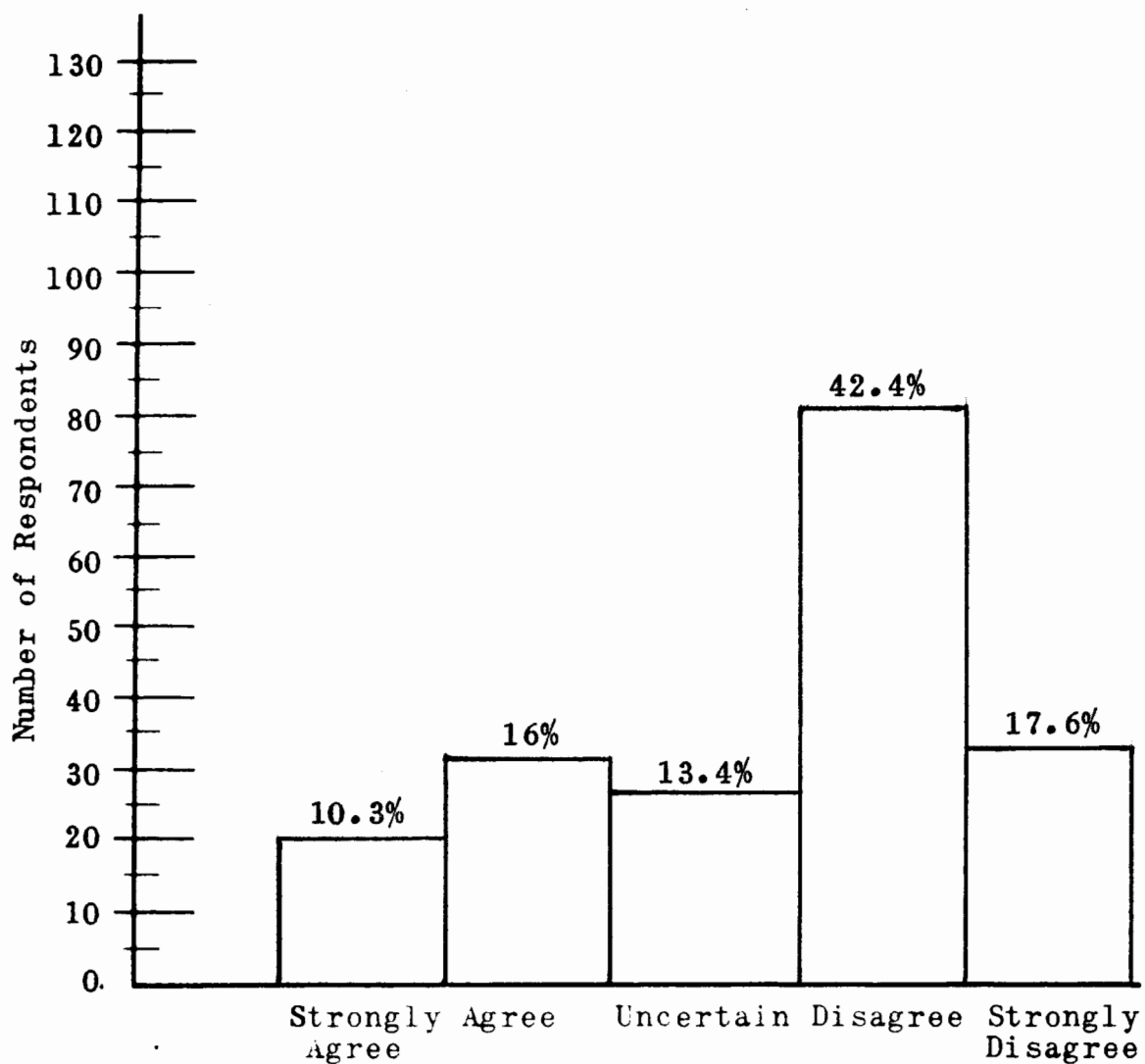


FIGURE 24

STUDENT NUMBER AND PER CENT OF RESPONSES  
 TO STATEMENT NUMBER 20; WHEN THE  
 TELEVISION CAMERA IS ON ME I  
 AM SO NERVOUS I CAN HARDLY  
 READ OR TALK



attitudes.

Several interesting points came out in the tabulation of the scores. One of these was that boys in all grade levels appeared to be somewhat more favorable toward television observations and the television equipment. This could, among other reasons, be due to the boys' interest in the electronic and mechanical functions of the television equipment. In support of this idea, often when preparing for a television observation the boys of the class being observed will gather around to ask questions on the functioning and operation of the equipment.

Another interesting observation was the relationship of grade level to favorableness. On the ninth grade level, 12.5 per cent scored above ninety, on the tenth grade level, 5.5 per cent scored above ninety. No one from the eleventh or twelfth grades scored above ninety. These high scores show that some ninth grade students either are more favorable towards television observations or else are more willing to express their sentiments in stronger terms. Otherwise, on an overall basis, little difference is shown from grade to grade since nearly the opposite relationship, grade by grade, was achieved on scores between seventy and seventy-nine. While 33.6 per cent of the ninth graders were in the seventy to seventy

nine range, 77.7 per cent of the twelfth graders fell in this area. On the tenth grade level, 33.3 per cent of the students scored in this range, and 21.8 per cent scored in this range at the eleventh grade level. This places relatively more of the twelfth grade at the only somewhat favorable position on the scale.

It was pointed out earlier in this chapter that each of the students' statements in the attitude scale coincidentally reflected some problem or question that had been expressed by the college. The study appears to bear out beliefs that have been held by television and administrative personnel from Central Washington College of Education, such as that

1. The students do not mind having the closed circuit television in the classroom.
2. The students prefer television observations to live observations.
3. It is easier for the students to adjust to the television equipment than to the live observers.
4. The noise made by the equipment is not distracting.
5. Television observations do not lead to any more confusion in the classroom than do live observers.
6. Students participate freely in class activities during television observations.
7. A television observation does not create more "pressure" on the students.
8. Closed circuit television is a feasible way of

conducting demonstrations.

9. The cost of the television equipment seems justified in the returns gained from its use.
10. The students enjoy having the opportunity to participate in this program.

Generally, the students express a definite trend toward favorable attitudes about being observed by television. The implications of this study of public school students tend to support an observation program by closed circuit television.

## CHAPTER V

### RESULTS OF THE TEACHER EXPERIMENT

Chapter III pointed out that because of the small number of teachers who had participated in the television observation program, the entire faculty of both the Ellensburg Senior High School and Morgan Junior High School would be asked to express their attitudes toward closed circuit TV as a part of this study. Twenty-five teachers in the high school and twenty-eight teachers in the junior high participated. From this total of 53 sentence completion type attitude scales distributed, 30 were returned, giving a 56.5 per cent return of questionnaires from the teachers.

Examination of the respondent group showed the range of ages to be from 25 to 64 and a teaching experience range of 3 to 30 years. Male respondents numbered 11, while 10 women teachers completed the scale. Only 7 of the teachers completing the scale had previously taken part in a television observation. The number of television observations per teacher ranged from 1 through 8. Several teachers did not complete the information section of the scale, as a result, there are some differences in the total. This data has been presented as a table in Appendix J.

## I. EVALUATION PROCEDURES

It became apparent during the administration and evaluation of this sentence completion scale that the teachers of the Ellensburg High School are not ready for some of the latest innovations in attitude measurement, such as the scale used in this study or that more work needs to be done in open style scaling to elicit more favorable reception. This fact was evidenced by the amount of hostility shown by these teachers, not toward television, but the scale. Several teachers were quite vehement in the expression of their dislike for this type of questionnaire.

Completion of the scoring, explained in the chapter on procedure, showed a range of 27 numbers. This range extended from a positive 11 to a negative 16. The median score was zero; however, this may not be very accurate because of 11 teachers who did not complete any of the sentences. These teachers said they had no experience in this field and felt they were not qualified to participate in the experiment. A score of zero (neutrality) was assigned scales that were not completed.

The mean score of this scale appeared to present a more accurate description of the attitudes of the teachers. This score was calculated to be a negative

.875. The importance of understanding the scoring system used cannot be stressed too strongly. The figures that are being used here do not give concrete values, rather they are suggestive and show only the relative degree of favorableness or unfavorableness.

## II. INTERPRETATION OF THE RESULTS

The results of the teacher experiment, as shown by Figure 25, indicate a relatively strong dislike for television observations by a slight majority. Of the twenty-three teachers who had not participated in a television observation, only three, numbers one through three, expressed any real favorableness for this type of program. Further investigation of these three responses showed that one woman and one man had less than four years of experience and one woman had fifteen years of experience. This small sample indicates that further study should be done to determine if age and number of years of teaching experience have any influence on the degree of favorableness or unfavorableness expressed. The highest positive score achieved by these three teachers was two, from a theoretically possible 24.

An uncertain attitude, indifference, or no expression of an attitude was shown by the eleven teachers, numbers four through fourteen, who were scored

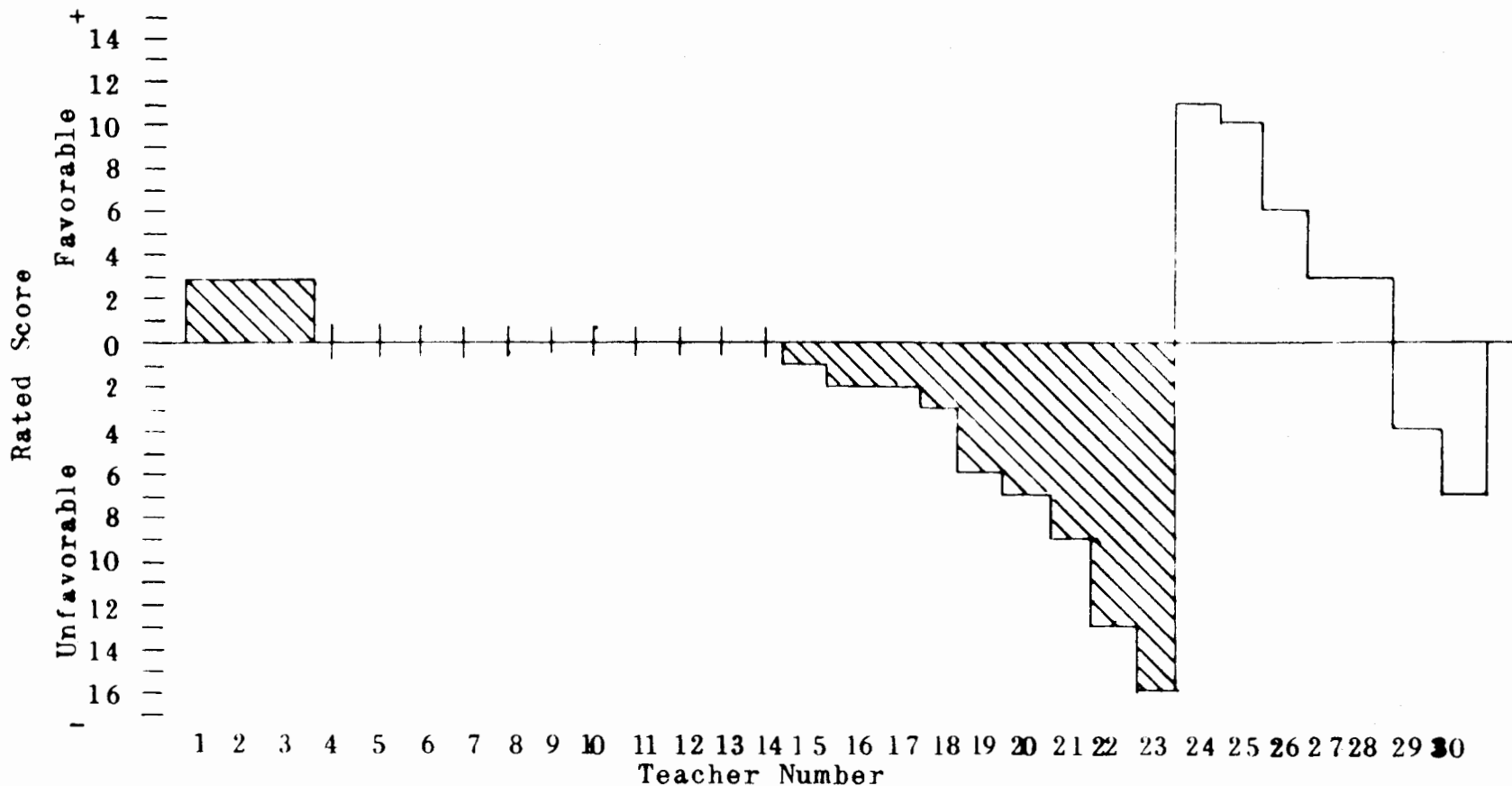


FIGURE 25

TEACHER SCORES ASSIGNED TO  
THE SENTENCE COMPLETION  
FORM

Lined scale - teachers who have not had TV observations  
White scale - teachers who have had TV observations

zero. These teachers made up 47.8 per cent of those who had not participated in the television observation program.

The remaining nine teachers, numbers fifteen through twenty-three, expressed a dislike for television observations. No particular age, grade level, or length of teaching experience group dominated this category. These teachers comprised 39.1 per cent of the teachers who had not participated in a television observation.

A total of seven teachers who had put on a television observation completed the scale. An interesting point was that the majority of these, five out of seven, expressed a favorable attitude toward television observations. This possibly is a significant factor, for it shows that those teachers who had participated in a television observation were favorable, while those who had not participated either expressed an attitude of uncertainty, no expressed attitude, or varying degrees of unfavorableness. The training that teachers may have had in television was not shown on the scale and could have had a strong influence on any expression of favorableness or unfavorableness.

A sample of teacher attitudes expressed on the Sentence Completion Scale serves to further illustrate the type of response received from the teachers. Two categories of respondents, favorable and unfavorable, can



be clearly distinguished from the attitudes expressed. Each stimulus will be listed, followed by several selected, typical statements. Admittedly, some showing the greatest hostility have been, as a matter of reasonable taste, omitted. All forms have been filed with the Office of Visual Education.

1. Television for observations:

is fine.

should not be the duty of an Ellensburg classroom teacher.

is a limited medium that should, where possible, be followed by live observations.

is a logical supplement to our present techniques.

is just as unnatural as live observations.

has many possibilities.

can be, if properly planned, a valuable experience.

does not replace live observations.

2. My greatest fear:

is that students won't be heard.

is that the college observers will not understand the total picture.

is of college evaluation of my program.

falling over equipment

a wasted hour

who evaluates my work

## 3. The best time:

is in the morning when students are fresh.

to plan for observations is at the beginning of a unit.

is when you have your best class.

none!

for teaching is during the school day without interruptions.

## 4. Teaching during a TV observation:

is a stimulating experience for all concerned and doubtless good experience for all who put on the program.

is exhilarating.

is easy; student attention is high

is stilted and not realistic.

is an experience I can do without.

would have to be repeated the next day.

## 5. Television cameras:

are unobtrusive.

are cumbersome, space consuming and limit the observation.

arouse student curiosity.

have difficulty in our crowded classrooms.

belong in a studio.

tend to bother pupils.

have no place in my classroom.

## 6. I do my best when:

there is a bit of a challenge.

relaxed.

live observers are with me for one week and I feel they really get the feeling of the room.

left alone.

I am working with my children uninterrupted.

7. What annoys me:

is the crowding of chairs together in an unnatural way to make room for the moving camera.

is that the teacher must be less mobile. Would enjoy using a new cordless mike.

is not knowing what's going on at the other end.

television observations

is misunderstanding of lesson by college students. The follow up lesson is unknown.

is to know that the college seeks our aid but gives none in return.

8. A procedure:

that might help would be to tape record the observations from the view room and include the college students' discussion and questions.

that I would continue is the question and answer period after the observation.

of talking with the college teacher helps you feel more secure.

9. I feel:

we need another conference of college and building staff to suggest improvements and encourage school staff members to try TV observations.

at home in front of TV.

that teachers should be paid.

the big responsibility and success of the observation is more dependent upon the college teacher.

TV observations are an extra demand and teachers should be compensated in some way.

live observations, when properly arranged, can be more beneficial.

I am doing some one else's job and should be paid for it.

that I should receive TV actresses' pay if I am to perform.

10. I most enjoy:

working on ways of improving this medium.

critique by college class when I am present.

talking to the college students after the observation to help answer their questions.

being left alone to teach my students without observers.

11. TV equipment in the classroom:

could be explained to the students a day or two before an observation.

is generally ignored when the room is large enough.

is educational for students.

limits space and can be distracting.

takes up my precious space; I have none to spare.

12. Criticism:

is necessary if progress is to be made.

should be two way.

often leveled at TV is unjust and unfair.

of television observations should be expected because it is a new thing and nothing is ever perfect.

from a person who has no idea why I treated one child differently from another does not appeal to me.

13. I was happy:

that I was not asked to participate.

to be of service.

before TV observations came into existence.

to have college instructors contact me in advance.

14. If I had my way:

I wouldn't change anything.

we would soon have reciprocal programs.

the observing class would always be briefed on the lesson plan of the observation.

only selected teachers would be used.

I'd prefer two or three college students observing for two or three days in the same room.

television would not be allowed in the classroom.

the observation would be live, with time for teacher questions.

15. Evaluation:

can be very good if observers are briefed in advance.

is essential by college instructor and classroom teacher.

teachers appreciate comments of college students of the class being observed should be available to the teacher.

a must to be sent to the classroom teacher of the teaching must be rather difficult for the college.

16. I become disgusted:

at the thought of being asked to prepare all these extras without compensation.

when college student's "judge" a teacher they have observed.

when people try to push something [television] because they like it with no real evaluation of its benefits.

when arrangements are not made amply ahead of time.

17. I feel proud when:

college students find theory in workable practice.

I know I am doing a worth while job in helping college students.

I can be of help to prospective teachers.

18. I want to know:

the purpose of each observation.

if live observation isn't more profitable.

why they continue [CCTV observations].

in what ways TV observations are superior to live observations.

why must the technicians do so much talking on inter-com during an observation. This is much more distracting than the presence of the equipment.

something of the procedure in the observation class.

what people learn from a particular observation.

how room teachers can know of an observation so they may observe from the viewing room.

what instructors would like to see.

19. Central Washington College:

can be proud of its program.

is cooperating and deserves support.

seems to improve with experience.

classes will be able to profit more from live observations.

has gone too far in expecting this sort of thing from us.

20. An observation program:

where a few students come into the room occasionally to watch procedures is not too far out of line.

should be after specific situations.

is of value only when both instructors have worked out plans in personal conference.

should bring together, at some time, the teachers and observers.

21. My students:

are curious about the equipment.

enjoy the experience after the initial shock.

are informed of procedures and sometimes aid in plans.

have expressed that they feel less distracted by the presence of a TV camera than by a group of college students in the classroom.

are eager for TV observations and enjoy them.

don't like television.

are generally apprehensive to TV observations.

experience a thrill from it.

22. I object:

to television observations.

to Central's continuing the program.

to teaching without pay.

to telephoned arrangements for an observation.

to criticism based on ignorance of the purposes of the lesson.

23. My classroom:

should be larger for a TV observation.

is well arranged for TV.

is so poorly lighted that we are severely handicapped.

will remain un-televised.

is too small to be effectively used for TV observations.

was placed in an abnormal situation.

24. I become embarrassed:

when the technical aspects go wrong after every one has prepared for the event.



very seldom

if cameras focus on some area of the room not a part of the planned observation and attention of observers rouses their criticism of something they do not understand. Due to a lack of time, the room teacher has no opportunity to correct mis-interpretations.

An interesting additional point brought out by one teacher was this:

TV observations, direct observations and student teachers should be expected as a part of a teaching position in the Ellensburg Public Schools and teachers in this system should be expected to cooperate as much as possible with the college programs.

### III. SUMMARY AND IMPLICATIONS OF THE CHAPTER

In expressing their attitudes about the television equipment and the television observation program, the teachers pointed out many items that may assist the college towards better relationships with the schools. One item that occurred quite frequently concerned evaluation of the teaching lesson by the college observers. Teachers expressed a particular concern that a misunderstanding by the college students might occur about the use of certain teaching methods. This seemed to be true for both television and live observations. Many teachers felt that closer cooperation between the college instructor and the teacher would lead to better understanding, better evaluation of the observation, and to improvement

in the quality of the observation itself. One suggested plan was to give all of the observers a copy of the lesson plan being followed, with a question and answer period at the end of the observation. This question period could allow the teacher to explain the techniques used as well as the reason for selecting these techniques. Several teachers stated they felt the observation was useless without this question and answer period.

Another point mentioned quite frequently, showing the fine professional attitude of some of the teachers, was that they were proud to be of service to future teachers. They expressed a personal satisfaction at being able to do something to improve the quality both of the training of future teachers and the potential of these college students as prospective teachers.

Several teachers stated they were doing a service for the college by taking a television observation. These teachers felt they were doing the college instructor's teaching, and as a result, should be paid for doing a television demonstration. One teacher went so far as to say that if he wanted to be an actor he would have gone to Hollywood. Further investigation into pay for teachers doing television observations is needed to be more specific at this point.

Other items, appearing less frequently, but of

concern to college programming were (1) the use of a cordless microphone for more teacher freedom during an observation; (2) there is too much equipment for the size of the classrooms; (3) the technician was doing too much talking over the inter-com; and (4) that the camera should stay with the parts of the classroom that were planned to have been part of the observation.

Many of the ideas expressed would be relatively simple to expedite and could help the college a great deal towards better relations with the schools, and consequently to easier scheduling of television observations.

## CHAPTER VI

### SUMMARY AND CONCLUSIONS

#### I. SUMMARY

The purpose of this study was to determine students' and teachers' attitudes toward closed circuit television used by Central Washington College of Education in its observation program. Specifically, it was concerned with the attitudes these persons have toward the equipment and to what extent it affects the atmosphere and freedom of the classroom. The nature of the study made it necessary to include to some degree the total observation program.

Several sources were tapped for information for inclusion in this study. First, for background, the literature on educational television, closed circuit television, and television at Central Washington College of Education was reviewed. Writings in attitude measurement were also reviewed to assist in determining the best method for making the survey. Second, two attitude scales were developed, the major one for student reactions and the other for teacher reactions. Third, results of the responses to the attitude scales were analyzed. Last, implications and conclusions were drawn

from the study.

### Background

A great deal of literature has been published on educational television, with most of it revealing the tremendous growth television has experienced in the last few years. History traces television back hundreds of years, but it was not until the development of Zworykin's iconoscope that any practical use of television was perceived. The year 1939 saw the introduction of commercial television by the Radio Corporation of America and the National Broadcasting Company at the New York World's fair.

Following World War II, the schools and colleges of the United States experienced a tremendous surge in enrollment. These enrollments have continued to grow, with predictions showing even greater numbers of students in our schools of the future. This rise in school population created the need for a new method of instruction that could help alleviate both the teacher shortage and the classroom shortage. Television appeared to be one method for helping in this area, and at this time, TV assumed the dual responsibility of furnishing education as well as entertainment.

In the eyes of many authors, educational television

was born in 1952 when the FCC published its Sixth Report and Order. This order established 244, now 256, non-commercial or educational channels. Kansas State College in Manhattan, Kansas, became the first college to receive a permit to build an educational television station.

Finances were a major stumbling block in the development of educational television, but large contributions by several national organizations have helped to relieve this problem. Among the units contributing to the development of educational television were the Joint Council on Educational Television, the American Council on Education, and the Fund for the Advancement of Education, sponsored by the Ford Foundation.

The two primary requirements for educational television are (1) that it educate and (2) that it make maximum effective use of the visual component of the television medium. As shown by several studies, television appears to be meeting these requirements, for occasionally the television teacher does a better job of teaching than is done by conventional methods of instruction. Two characteristics of television, its immediacy and intimacy, have often been influential in this.

Several items are peculiar to television teaching, among them are (1) a low per capita cost; (2) the front row seat it provides at demonstrations, such as in lab-

oratories and shops; (3) the ease and economy of film reproduction; (4) an intimate contact with the minds and personalities of the world's greatest living teachers; (5) savings on the duplication of equipment in laboratories, etc.; and (6) the close relationship it maintains with a text book.

A recent and popular trend in television teaching techniques is the team teaching approach. This method recognizes the need for close cooperation between the classroom teacher and the television teacher and allows each to present the teaching best suited to his particular method. This approach helps each student receive the benefit of the best teachers available. Team teaching can, of course, be done without television, but TV seems to have accelerated the movement.

Development of the vidicon camera permitted a more extensive use of closed circuit television. This system, originally designed for use in industry, was soon adopted by education. The first to recognize its potential were the medical and dental schools of this country. The detailed nature of the training in these professions called for some type of magnification, which the television camera does very well. Due to its versatility, CCTV soon enjoyed widespread use in educational circles. One of the uses was in the observation of skilled

teachers by college students training to become teachers. This use was a boon to teacher training institutions, for most of them were experiencing difficulties in securing enough observations. Higher enrollments in the colleges as well as the need for more teachers were both responsible for this lack of adequate observations.

Central Washington College of Education was no exception, for it too was experiencing problems in its observation program. A closed circuit television system was proposed as a solution to this problem, and in 1957, the State Legislature appropriated money for the installation of a closed circuit television system to be used for observations and demonstrations. Workmen began installing the system in 1958, and at present there are two camera chains in use.

The growth of the television observation program at this college soon made it apparent that an understanding of the attitudes of the students and teachers being observed was necessary for better relations with these persons.

#### Development of the Attitude Scales

To accomplish this attitude survey, a scale for use by students was developed through a combination of the Thurstone and Likert techniques. Thurstone's procedure



was followed in developing the scale and Likert's method of scoring and evaluating the final scale was followed. The resulting scale was comprised of 20 statements of attitude, divided evenly between favorable towards and unfavorable towards TV observations. Students encircled one of five attitude intensities: Strongly Agree, Agree, Uncertain, Disagree, or Strongly Disagree. A check of the scale's reliability, completed with the help of 25 of the students, showed a correlation of .922.

This scale was distributed to certain students in the ninth through twelfth grades of the Ellensburg schools. Results are shown by scores ranging from 20 to 100 with 60 regarded as uncertain.

A sentence completion scale was then constructed from suggestions in the periodical literature and with the aid of several Central Washington College of Education faculty members. This was distributed to all of the teachers in the junior and senior high schools. The sentence completion method was chosen because it would allow relatively free expression with only initial words of the sentence stated to give general direction to the attitude comments.

## Results

Tabulation of the response to the student scale

showed that 194 students had taken part in the survey. Of these, 8.2 per cent were highly favorable toward television observations, scoring between 90 and 100 on the scale. General favorableness was shown by a score between 70 and 89, and 61.8 per cent of the students gave this indication. An uncertain attitude was expressed by 26.7 per cent of the students, with a score between 50 and 69. Very few of them, 2.5 per cent, showed a degree of unfavorableness, scoring between 30 and 49. Only one student, representing .5 per cent, expressed an attitude of definitely unfavorable, with a score between 20 and 29. The mean score of the entire group was found to be 74.57 with the median being 75.39, suggesting general overall favorableness toward television observations.

Tabulation of the sentence completion forms for teachers showed a 56.5 per cent return. This poor return and the answers given by some of the teachers suggested some hostility toward this method of attitude measurement.

Wide variances of teacher characteristics were shown in several areas, such as age, with a range of 25 to 64 years; teaching experience, from 3 to 30 years; the number of television observations participated in, with only seven teachers having staged this type of observation; and the scores assigned the scales, which showed a range of 27 (from +11 to -16).

The scaling system used on the teacher sentence completion scales showed only a relative, suggestive degree of favorableness or unfavorableness; however a mean score of  $-.875$  was calculated. An important fact to keep in mind when interpreting this figure was that 47.8 per cent of the respondents to this scale did not express any attitude or were uncertain in their attitudes toward television observations.

Several points, appearing quite frequently, were: (1) teachers are worried about the evaluation of their teaching by the college instructor; (2) closer cooperation between the college professor and the public school teacher is needed; (3) the teachers were happy to help new and prospective teachers; (4) teachers felt they were doing the college a service. Some went so far as to say they felt they were doing the college professor's teaching for him; and (5) many of the teachers expressed the opinion that they should be paid for doing television observations.

## II. CONCLUSIONS

Some difficulties were encountered in interpretations of the student and teacher attitude scales because of the newness of the program. Very few of the students had taken part in more than two or three observations, and

only seven of the teachers responding had put on a television observation.

Evaluation of the student scales showed the following facts: (1) the students taking part in this study were slightly favorable towards television observations, with those in the lower grades being more favorable than those in the upper grades; (2) many of the students preferred television observations to live observations; (3) most students do not mind having television equipment in their classroom; (4) it is easier for the students to adjust to the television equipment than to live observers; (5) the noise of the equipment is not distracting; (6) television observations do not create any more confusion than live observations; (7) students participate freely in class work during a television observation; and (8) some students enjoy having the opportunity to participate in this program.

It becomes apparent now that students of the junior and senior high schools generally prefer television observations to live observations, and do not mind having television equipment in their classrooms. The definite positiveness of both the mean and median scores of the attitude scale verified this observation.

The type of attitude scale completed by the teachers allowed them more freedom in their response, which had a

tendency to diversify the attitude statements received. Items that appeared to need more study for clarification were (1) the evaluation procedures used by college professors for an observation, (2) interpretations of the lesson made by the college students, (3) the cooperation and planning between the college professor and the public school teacher, and (4) the question of pay for doing a television observation. One suggestion for this last problem was the possible free use of certain college owned audio-visual materials or certain allowances on college fees if the teacher should return for more training. A possible solution for the second problem stated might be the observance of more ethical practices by the college students.

The mean score of the teacher scales showed a trend toward unfavorableness. This was especially true of those teachers that had not had a television observation. This indicates that another detailed explanation of the program should be presented to the teachers. An important factor, that was not measured, was the amount of academic training the teachers may have had in educational television.

This study was begun with the thought of airing students' and teachers' attitudes toward closed circuit television observations. Many thoughts have been presented and several new areas for investigation have been

opened. It is now up to Central Washington College of Education to instigate an aggressive research program to delve further into these problems. This research and suggested program improvements will undoubtedly lead to better relationships between the college and the Ellensburg Public Schools.

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## APPENDICES

## APPENDIX A

## STUDENT SAMPLING FORM

Your help is needed in determining what effect Central Washington College's television equipment in the room has upon your actions in class. Would you please answer these two questions?

Grade    9    10    11    12    (circle one)

Have you taken part in a television demonstration?

Yes    No    (circle one)

Now think back and try to recall any feelings you may have had when you have seen the television equipment in your classroom or school.

If you have had any feelings, particularly lasting feelings, toward the television camera or equipment when it was brought into your room, would you please express these feelings, in single sentences, in the spaces provided below.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

## APPENDIX B

## STATEMENTS GIVEN TO THE JUDGES

I am presently working on my master's thesis, which involves constructing an attitude scale. Your help is needed to judge the statements, which in turn helps judge their ambiguity and degree of favorableness or unfavorableness toward the subject--in this case "The use of Closed Circuit Television in the Public School Classroom."

You should understand that you need not be an expert in attitude measurement, and that your personal attitude toward this subject is not what is being studied. Of prime importance, however, is that you give some care to the job of rating these statements.

Before each statement, you will find a short line. You are to write on this line a number from 1 through 9, depending on the degree of favorableness or unfavorableness of that particular statement. Use the number 1 when you feel the statement reflects the most favorable attitude and 9 for the least favorable attitude towards the subject to be researched. Remember that the numbers 1 and 9 represent the extremes on this scale. A statement given the number 5 would be a completely neutral statement.

The task I am asking you to do is to rate each of

these statements, using all numbers from 1 through 9 in the above scale. The items should be mentally sorted in such a way that the opinions which the numbers represent seem to be spaced along the attitude continuum from one extreme to the other at intervals which, in your opinion, are equal. Each statement should have a number from 1 through 9 before it when you have completed the task.

Your help will be greatly appreciated, and if you are interested in the results of this experiment, sign your name and address in the space provided below. If you are not interested in the results, you need not sign the collection of statements that you have rated.

Thank you,

Frank G. Nelson

Name \_\_\_\_\_

Address \_\_\_\_\_



- \_\_\_ I don't mind it very much if they keep the equipment in one place, but it is annoying when they move it from one place to another in the room.
- \_\_\_ If it were done more often, it would be less distracting to the class.
- \_\_\_ It seems to make a person feel as if he is being watched and has a tendency to make one feel self-conscious.
- \_\_\_ At first I was curious and a little frightened by the equipment.
- \_\_\_ As a class period progresses, I tend to forget that the equipment is in the room.
- \_\_\_ I am relieved when the equipment is taken from the room.
- \_\_\_ If we were exposed to this type of observation enough, we wouldn't even notice the change from other classes.
- \_\_\_ I was horrified and couldn't have answered a question if asked.
- \_\_\_ All I did was sit and watch every move of the teacher.
- \_\_\_ I have found that you never get used to the cameras presence.
- \_\_\_ The television equipment makes me so nervous that I cannot remember the assignments for the days it is in the room.
- \_\_\_ The noise the equipment makes is very distracting.
- \_\_\_ I didn't mind having the television equipment in the room.
- \_\_\_ I feel that closed circuit television gives a view of an ideal class, not an actual class.
- \_\_\_ The presence of the television equipment seemed to keep the class more alert and conscious of the class activity.
- \_\_\_ It makes me nervous because I have never had an experience like it before.

- \_\_\_ I think it helps develop the ability to get used to being watched by many people.
- \_\_\_ I think it is better than having a lot of college students sitting in the room with you.
- \_\_\_ The first time it was in the room, I was impressed, but now it is not any different than if it were not here at all.
- \_\_\_ It kept me from talking as freely as I would have were it not in the room.
- \_\_\_ It makes me think twice before I answer a question or ask one.
- \_\_\_ At times it is distracting to watch the camera.
- \_\_\_ I can not feel as at ease in a televised class as in a regular class session.
- \_\_\_ I am afraid that someone who knows me will see me and that I will not make a good impression.
- \_\_\_ I always make sure that I don't talk to my neighbor during a demonstration because when I do they always turn the camera on me.
- \_\_\_ It is hard to think about anything but the camera; afraid that I will do something wrong.
- \_\_\_ I feel that when the television equipment is in your room you get nervous and do not learn as much in that hour as you might have.
- \_\_\_ I feel excited at being televised.
- \_\_\_ The television equipment seems to make the students keep much quieter.
- \_\_\_ The cameras distract your attention from the teacher or lesson.
- \_\_\_ I think it is a good experience for students to be on television.
- \_\_\_ I prefer the television camera to live observers.
- \_\_\_ The only time I get nervous is when the camera is

trained on me.

— I'm not so nervous when on television as when the student observers are in the room.

— I think it wastes a lot of regular time, and should not be used too much in one room.

— I think it is very interesting and educational, not only for the people watching, but also for the students.

— Whenever we have an observation, the teacher is usually different and it is fun to watch his reaction too.

— I prefer the camera to student observers in the classroom because it is less personal and it doesn't smile in condescension.

— I prefer the camera to live observers in the room as this way we are not bothered by their private discussions.

— I am not bothered very much by the cameras unless we are working individually and they are staring me in the face.

— The cameras make me nervous to the point that I can hardly do anything.

— I don't mind the equipment as long as it takes a picture of the class as a whole and not just me.

— The television equipment makes the classroom very disorganized. The students don't pay attention to the teacher, only to the television equipment.

— It bothers me more than student observers.

— I think it is a waste of time and effort of the students and the teachers being observed.

— The first time I was in such a demonstration, it made me self-conscious, but after two or three, it didn't bother me.

— I sometimes feel that the television makes me do better in class.

— Television cameras are a great advancement in carrying

the classroom situation to the college.

\_\_\_ I am unhappy about the accelerated program in class when the television cameras are in the room.

\_\_\_ I want to wear my best clothes and take a little more time grooming myself when we are going to be on television.

\_\_\_ When the television camera is in the room I always try to do my best work and use my best English.

\_\_\_ I think closed circuit television is the best way of showing college students teaching methods in the school.

\_\_\_ I prefer the television to live observations, but would like to know in advance when they are coming.

\_\_\_ When the television camera is on me I am so nervous I can hardly read or talk.

\_\_\_ I think the television camera helps a person gain confidence in himself.

\_\_\_ I would rather have live observers.

\_\_\_ Having to speak into a microphone bothers me.

\_\_\_ Television in our classrooms give me a few butterflies.

\_\_\_ After awhile I forget about the equipment and it seems like fun.

\_\_\_ When the camera looks over my shoulder, I tighten up.

\_\_\_ When I see the cameras outside a room, I get very angry if I am not in that class, as I like to take part in television demonstrations.

\_\_\_ The television camera leaves me with a feeling of talking to a blank wall or piece of machinery.

\_\_\_ The man behind the camera is the only one who makes me nervous.

\_\_\_ I can never tell for sure if the camera is on me or not, therefore, I don't pay attention to what I am doing.

- \_\_\_ Participating in a television demonstration gives you a feeling of importance.
- \_\_\_ I think it is wonderful that we can take part in this program.
- \_\_\_ I think it is of value to us as well as the college students.
- \_\_\_ I don't like being a specimen and having a bunch of would be teachers staring at me.
- \_\_\_ I think it is a good experience to be on television.
- \_\_\_ The excitement makes me more alert to the class discussion so that I could be televised to the college.
- \_\_\_ Sometimes I am afraid to answer questions because they might be the wrong answers.
- \_\_\_ When I see a class that is being televised, I usually feel that the students in that class are very lucky.
- \_\_\_ I would prefer to have the college students in the class instead of the television camera.
- \_\_\_ Before a television demonstration I feel like a proud and important person.
- \_\_\_ You feel like a guinea pig because you know somebody is gawking at you to see what is going to happen.
- \_\_\_ I feel that it makes it harder to concentrate on my work.
- \_\_\_ I usually feel that I am lucky not to be in a room that is putting on a television demonstration.
- \_\_\_ The pupils do not act at all natural in a class when the camera is on them.
- \_\_\_ It is a good program for college students because they see real situations in a classroom.
- \_\_\_ I feel that I must be extra good and take part in class discussions more than usual.
- \_\_\_ I would like very much to be observed by television.

- \_\_\_ I would feel that I could not get away with anything.
- \_\_\_ Television to me is a great experience to everyone concerned, teaching us self confidence and good work habits.
- \_\_\_ In answering questions asked by the instructor, one wants to be positive he is right or he won't answer because he is afraid of appearing foolish.
- \_\_\_ I found that it was more fun than I had first anticipated.
- \_\_\_ I was glad a class of college students were not going to be breathing down my neck.
- \_\_\_ I had the feeling that a lot of people were watching me and as I thought about that, my power to respond quickly seemed to fade away.
- \_\_\_ I try to think that there isn't any difference between the equipment and a room full of people, but I still prefer the equipment.
- \_\_\_ I prefer having observers in the class rather than the television cameras because I can forget that the observers are there.
- \_\_\_ I couldn't talk too well; it felt like I was losing my voice.
- \_\_\_ Being on television for the benefit of others was a new experience for me and I couldn't do my best.
- \_\_\_ I think my school work would suffer if the television cameras were in the classroom everyday.
- \_\_\_ When I tried to study at first I was nervous, but after awhile, it didn't bother me at all.
- \_\_\_ It made me very self conscious of what I looked like to the people watching at the college.
- \_\_\_ It made me more attentive to the teacher.
- \_\_\_ I sort of dread going to class on the day that I know we are going to be televised.
- \_\_\_ Our room was under a great deal of pressure and the

students were not participating as usual.

— I often wonder who is watching, and if there is anyone I know in the observing group.

— After the class was over, I felt relieved and hoped we would not be on television again.

— When the teacher called on me, I answered like I knew what I was talking about, but the answer was wrong and I felt like a heel.

— I had feelings of curiosity and interest, but they did not disturb me at all.

— I don't think television would help anyone at the college.

— I think it is a nuisance and I would be embarrassed to be on it.

— I don't think there is any point to it.

— It costs a lot of money, and doesn't improve anything.

— I believe we should have a television demonstration of the college, so we could see what college is really like.

— I think that television in the classroom for observers at the college is a good idea and that it makes it easier for the college students to observe.

— It is easier to participate in class activities when the television is here instead of live observers.

— I think it is very interesting to have someone observe me.

— There is nothing really startling about a television camera.

— I just act the way I always do in a classroom when we are being observed.

— I think too much confusion arises having the television equipment in a classroom

— If there was some way of keeping the students from

knowing that they were on television, the college would get a better view of an actual classroom situation.

- I think I would be less free with my thoughts in a class discussion.
- It would scare me to death and I would probably stutter and not be able to answer questions.
- I would be very liable to get my thoughts all mixed up if I felt the camera focusing on me.
- The thing that makes me nervous is the thought that if you make a mistake, you have all of those people watching you.
- I feel that the teacher tries too hard to make things go smoothly in a televised class and class procedure was altered so that the students didn't feel at ease.



## APPENDIX C

## STATISTICS USED IN CALCULATING MEDIAN SCORES

The medians of the tabulations for each statement were found using the following formula:

$$\text{Mdn} = L + \frac{\frac{n}{2} - f_b}{f_w} i$$

L - The lower limit of the class interval in which the median falls.

n - The number of cases

$f_b$  - The sum of the cases which are below the interval in which the median appears.

$f_w$  - The number of cases within the interval in which the median appears.

i - The size of the class interval.

The median score of statement number one is shown here, with the method in which this formula was applied.

$$\begin{aligned} \text{Mdn} &= 3.5 + \frac{\frac{193}{2} - 27}{115} 1 \\ &= 3.5 + \frac{69.5}{115} 1 \\ &= 3.5 + .604 \\ &= 4.104 \end{aligned}$$

## APPENDIX D

## PROCEDURES FOLLOWED IN FINDING "Q"

The following formulas were used in finding  $Q_1$  and  $Q_3$ :

$$Q_1 = L + \frac{\frac{n}{4} - f_b}{f_w} i$$

$$Q_3 = L + \frac{\frac{3n}{4} - f_b}{f_w} i$$

"Q" is calculated here to show how these formulas were applied to the statements. The example shown is statement number one.

$$Q_1 = .5 + \frac{\frac{20}{4} - 0}{13} 1$$

$$= .5 + .38$$

$$= .88$$

$$Q_3 = 2.5 + \frac{\frac{60}{4} - 15}{2}$$

$$= 2.5 + 0$$

$$= 2.5$$

$$Q = \frac{Q_3 - Q_1}{2}$$

$$= \frac{2.5 - .88}{2}$$

$$= .81$$

## APPENDIX E

## MEDIAN AND Q VALUES FROM RATINGS OF EACH STATEMENT

NUMBER	MEDIAN	Q VALUE
1	1.27	.81
2	8.50	.92
3	8.16	.59
4	2.00	.81
5	8.00	1.18
6	2.33	1.00
7	2.50	.73
8	2.33	1.25
9	7.83	.95
10	7.35	.82
11	8.50	.92
12	7.60	.95
13	8.67	.79
14	1.40	1.02
15	7.93	.88
16	2.35	.76
17	2.10	1.31
18	1.33	.81
19	2.33	1.00
20	8.00	.80

## APPENDIX F

## THE FINAL STUDENT ATTITUDE SCALE

## A SURVEY OF ATTITUDES

## TOWARDS OBSERVATIONS BY TELEVISION

We are attempting to find out how you feel about being observed in school by closed circuit television.

Grade \_\_\_\_\_ Number \_\_\_\_\_ Male or Female \_\_\_\_\_ Room No. \_\_\_\_\_

Period during which you completed this scale \_\_\_\_\_ Age \_\_\_\_\_

Please circle the letter to the left of each item which most nearly expresses your feeling on that item. The responses are Strongly Agree (SA); Agree (A); Uncertain (?); Disagree (D); Strongly Disagree (SD). Circle one of these responses for each item.

- SA A ? D SD 1. I think it is wonderful that we can take part in this program.
- SA A ? D SD 2. Television costs a lot of money and doesn't improve anything.
- SA A ? D SD 3. After the class was over, I felt relieved and hoped we would not be on television again.
- SA A ? D SD 4. It is easier to participate in class activities when the television is here instead of live observers.
- SA A ? D SD 5. I would rather have live observers.
- SA A ? D SD 6. I think the presence of the television camera helps a person gain confidence in himself.
- SA A ? D SD 7. I didn't mind having the television equipment in the room.
- SA A ? D SD 8. I often feel that the television makes me do better in class.

- SA A ? D SD 9. During the TV observation, our room was under a great deal of pressure and the students were not participating as usual.
- SA A ? D SD 10. I think too much confusion arises with the television equipment in the classroom.
- SA A ? D SD 11. I don't think there is any point to TV observations.
- SA A ? D SD 12. The noise the equipment makes is very distracting.
- SA A ? D SD 13. I think it is a waste of time and effort of the students and the teachers being observed.
- SA A ? D SD 14. I think closed circuit television is the best way of showing college students teaching methods in the school.
- SA A ? D SD 15. I have found that you never get used to the cameras in the room.
- SA A ? D SD 16. I prefer the camera to live observers in the room as this way we are not bothered by their private discussions.
- SA A ? D SD 17. Participating in a television demonstration gives you a feeling of importance.
- SA A ? D SD 18. I think it is of value to us as well as the college students.
- SA A ? D SD 19. After a while I forget about the television equipment and it seems like fun.
- SA A ? D SD 20. When the television camera is on me I am so nervous I can hardly read or talk.

## APPENDIX G

## THE FINAL TEACHER ATTITUDE SCALE

## SENTENCE COMPLETION REGARDING

## CLOSED CIRCUIT TELEVISION OBSERVATIONS

As most of you know, the closed circuit television system used for observations at Central Washington College of Education is not yet three years old. Many of you have seen the equipment used in your buildings and probably have some opinions regarding it.

I am attempting to evaluate your anonymous opinions for inclusion in my master's thesis. This sentence completion approach was chosen as it allows you a great deal of freedom in expressing your opinions, yet keeps the topic narrow enough for valid evaluation.

Please fill in the following spaces as accurately as possible.

School \_\_\_\_\_ Grades taught \_\_\_\_\_

Number of years of teaching experience \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_

Number of television observations you have taken part in \_\_\_\_\_

Complete these sentences, expressing your REAL feelings. Try to do them all. DO NOT SIGN YOUR NAME!

1. Television for observations \_\_\_\_\_
2. My greatest fear \_\_\_\_\_
3. The best time \_\_\_\_\_
4. Teaching during a TV demonstration \_\_\_\_\_
5. Television cameras \_\_\_\_\_
6. I do my best when \_\_\_\_\_
7. What annoys me \_\_\_\_\_
8. A procedure \_\_\_\_\_

9. I feel \_\_\_\_\_
10. I most enjoy \_\_\_\_\_
11. TV equipment in the classroom \_\_\_\_\_
12. Criticism \_\_\_\_\_
13. I was happy \_\_\_\_\_
14. If I had my way \_\_\_\_\_
15. Evaluation \_\_\_\_\_
16. I become disgusted \_\_\_\_\_
17. I feel proud when \_\_\_\_\_
18. I want to know \_\_\_\_\_
19. Central Washington College \_\_\_\_\_
20. An observation program \_\_\_\_\_
21. My students \_\_\_\_\_
22. I object \_\_\_\_\_
23. My classroom \_\_\_\_\_
24. I become embarrassed \_\_\_\_\_

## APPENDIX H

CALCULATION OF THE CORRELATION COEFFICIENT  
USING ORIGINAL VALUES OF X AND Y

Observation	X	Y	X <sup>2</sup>	Y <sup>2</sup>	XY
1	71	70	5041	4900	4970
2	75	73	5625	5329	5475
3	75	72	5625	5184	5400
4	59	63	3481	3969	3717
5	77	74	5929	5476	5698
6	60	77	3600	5929	4620
7	90	94	8100	8836	8460
8	62	63	3844	3969	3906
9	72	70	5184	4900	5040
10	61	64	3721	4096	3904
11	77	72	5929	5184	5544
12	76	77	5776	5929	5852
13	69	76	4761	5776	5244
14	79	86	6241	7396	6794
15	86	86	7396	7396	7386
16	77	85	5929	7225	6545
17	88	76	7744	5776	6688
18	79	81	6241	6561	6399
19	81	78	6561	6048	6318
20	92	90	8464	8100	8280
21	88	88	7744	7744	7744
22	74	70	5476	4900	5180
23	59	64	3481	4096	3776
24	87	91	7569	8281	7917
25	78	75	6084	5625	5850
Total	1892	1915	145546	148661	146717

Raw score formula for finding the correlation coefficient.

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

$$r = .922$$



## APPENDIX I

FREQUENCY OF RESPONSES AND MEDIAN SCORES FOR EACH  
ITEM ON THE STUDENT ATTITUDE SCALE

Number	SA	A	?	D	SD	Median	Total
1	51	115	20	6	1	4.104	193
2	4	4	8	98	79	4.321	193
3	12	12	28	101	40	3.940	193
4	58	64	25	30	13	3.922	190
5	9	23	30	93	38	3.871	193
6	21	67	52	47	6	3.336	193
7	31	127	14	20	1	3.984	193
8	18	48	56	57	12	2.973	191
9	19	48	31	70	25	3.451	193
10	4	27	18	110	35	3.936	194
11	1	0	10	90	94	4.461	194
12	2	9	14	106	65	4.179	194
13	3	4	10	90	87	4.388	194
14	62	79	33	15	3	4.082	192
15	5	36	33	89	31	3.758	194
16	26	94	33	35	7	3.739	194
17	17	72	43	52	10	3.314	194
18	53	110	16	15	1	4.095	194
19	29	91	30	38	5	3.758	193
20	20	31	26	82	34	3.738	193

## APPENDIX J

ANALYSIS OF RESPONDENTS TO THE  
SENTENCE COMPLETION SCALE

Respondent Number	School	Grades Taught	Years of Experience	Age	Sex	Number of TV Observations	Score (Evaluation)
1	HS	10	15	37	M	4	+ 3
2	HS						- 0
3	HS	11-12	3	29	M	0	- 9
4	HS	12	10	33	M	0	-13
5	HS						0
6	HS						0
7	HS	10-12	30	54	M	0	0
8	HS	10-12	20	43	F	0	- 2
9	HS					0	- 3
10	HS						0
11	HS	11-12	5	40	F	0	0
12	HS	12	22	43	F	0	-6
13	HS						0
14	JH	8	3	25	F	0	+ 2
15	JH	7-8	13	38	F	0	-16
16	JH	7	15	45	F	0	0
17	JH	7-8	15	53	F	0	+ 2
18	JH	7-9	17	56	F	0	- 2
19	JH						0
20	JH						0
21	JH						0
22	JH	7-9	3	28	M	0	0
23	JH	8	10	42	M	0	- 1
24	JH	7-9	5	28	M	0	+ 2
25	JH	9	14	39	M	1	- 4
26	JH	7-9	15	57	M	2	- 7
27	JH	7-9	6	36	M	2	+ 6

Respondent Number	School	Grades Taught	Years of Experience	Age	Sex	Number of TV Observations	Score (Evaluation)
28	JH	8-9	20		F	2	+ 3
29	JH	9	30	59	F	4	+11
30	JH	8-9	30	64	M	8	+10

## APPENDIX K

FREQUENCY OF RESPONSE FOR EACH VALUE ON THE  
ENTIRE STUDENT ATTITUDE SCALE

Value	f	cf	Value	f	cf	Value	f	cf
99	0	0	72	3	124	45	1	193
98	0	0	71	5	129	44	0	
97	0	0	70	7	136	43	0	
96	0	0	69	7	143	42	0	
95	1	1	68	6	149	41	0	
94	2	3	67	7	156	40	0	
93	1	4	66	5	161	39	0	
92	2	6	65	2	163	38	0	
91	4	10	64	1	164	37	0	
90	6	16	63	4	168	36	0	
89	3	19	62	6	174	35	0	
88	5	24	61	1	175	34	0	
87	3	27	60	2	177	33	0	
86	3	30	59	2	179	32	0	
85	7	37	58	1	180	31	0	
84	3	40	57	1	181	30	0	
83	2	42	56	2	183	29	0	
82	6	48	55	2	185	28	0	
81	8	56	54	1	186	27	0	
80	12	68	53	0		26	0	
79	11	79	52	2	188	25	0	
78	5	84	51	0		24	1	194
77	10	94	50	0		23	0	
76	2	96	49	1	189	22	0	
75	9	105	48	0		21	0	
74	9	114	47	1	190	20	0	
73	7	121	46	2	192			