A SUBJECTIVE AND OBJECTIVE EVALUATION OF THE USE OF MOTION PICTURES AS A TEACHING DEVICE IN PUBLIC SPEAKING WITH SPECIAL REFERENCE TO TRANSITIONS AND LOSS OF EYE CONTACT

Thesis for the Degree of M. A.

MICHIGAN STATE COLLEGE

Gordon Lawrie Thomas

1941

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by

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A THESIS

Submitted to the Graduate School of Michigan State College of Agriculture and Applied Science in partial fulfilment of the requirements for the degree of

MASTER OF ARTS

Department of Speech

1941

THESIS

This study was conducted

under the direction of

Dr. Donald Hayworth

The writer wishes to express his gratitude to the following people for their cooperation in this study: Mr. William L. Shea and Mr. Hubert Cordier for aiding in the collection of the data; Dr. W. D. Paten for his assistance and suggestions concerning the statistical calculations; Mr. Frank Linn for his generous donation of necessary motion picture equipment; Mr. Walter Kendzierski for his aid in the taking of pictures; and Miss Phyllis M. Lenzner for her suggestions and proof-reading.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES (Cont'd)

CHAPTER I

INTRODUCTION

In recent years much work and experimentation have been done in the use of motion pictures as a teaching device in both the high school and college levels. Such a visual aid has been utilized in almost every academic subject, although its major use has been in the field of science. Most of these motion pictures have been commercial productions, but now that necessary equipment has become economical and simplified in operation many institutions are producing their own films, both silent and sound.[1] For the most part, such films have been concerned with school news and public relations.[2] Lately, however, school-made films have invaded even the field of speech, particularly in dramatics.

Investigation and experimentation on motion pictures as a visual aid in public speaking have been sporadic and largely unscientific. Little has been published and much has been guessed at. Since studies have been made in other fields of the value of motion pictures as a

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[1]According to H. R. Finch, over two hundred schools in the United States are engaged in the production of films. H. R. Finch, "Film Production in the Schools," Educational Screen, XVII, 216-218.

[2]A list of such school-made films can be found in Educational Screen for March and April, 1940. This list was compiled by H. R. Finch who had made an investigation of this type of production. Since that time Educational Screen has published a special column entitled "School-made Motion Pictures."

teaching device and the results have proved positive,[3] the analogy has evidently been drawn by some in the speech field that a similar result would occur if films were used in that subject.

Indeed, at first glance, it might seem that motion pictures would be especially applicable in the field of speech since they can be used as a direct and immediate aid in helping the individual student recognize and solve his problems. Such subjects as geography and the social sciences are "knowledge" subjects which may be taught successfully through textbooks and lectures; speech, on the other hand, is a "skill" or "performance" subject and requires more than textbook reading. Speech not only demands actual practice but it also requires the establishment of a tangible standard by which the individual student may evaluate his own speaking ability. This standard, heretofore, has been supplied by various elements such as criticisms and speeches by instructors and students.

These methods have their shortcomings, however, since criticisms, although helpful, are often meaningless and sometimes make little im-

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[3] "In the majority of the topics in General Science, as well as in Geography, instruction with the aid of the films proved to be superior to instruction without the films." Wood and Freeman, Motion Pictures in the Classroom. Boston: Houghton Mifflin Company, 1920. P. 216.

"During the early period of enthusiastic use of educational pictures and the period of the slump which followed, certain experimental psychologists and educators had given attention to the possible uses and values of the motion picture in educational procedure. Experiments were conducted in various parts of the country by such pioneers as Weber, Freeman, Johnson, Rusch, McClusky, and others. It was found that there were certain definite values to be expected from the proper use of the motion picture." Ellsworth C. Dent, The Audio-Visual Handbook. Chicago: Society for Visual Education, Incorporated, 1938. P. 87.

pression upon the student. As Utzinger has pointed out, "We can criticize the student repeatedly for the lack of physical vitality, bodily action, or correct posture, but in many cases to no avail."[4]

Likewise speeches by instructors or by other students are helpful to the individual in many ways but they do not supply him with a concrete picture of his own speaking habits, both good and bad. In other studies the student's weak points can be easily discovered, analyzed, and demonstrated. In geography or social science, tests can be administered to show the student his weaknesses; in art and natural science the student can actually see his own work, his own accomplishments; but not so in speech. Here the individual must rely on other people's subjective evaluation of his speaking qualities; he must gain knowledge of them entirely through inference, comparison, and instruction.

Motion pictures, then, either silent or sound, would seem to be the solution for this problem. Such pictures could be in one of two classifications. Either they may be pictures of speakers other than the individual being considered (perhaps of a model speaker or a successful, well-known speaker); or they may be pictures of the individual student himself. The former type, however, would be of little value, for they would contribute nothing to the class that either instructor or students could not contribute. This is one of the criticisms that can be made of Utzinger's use of motion pictures, for in his work with them the films were shown to all members of the fundamentals course at Carroll. This method would be valueless, or almost so, except

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[4]V. A. Utzinger, "The Use of the Moving Picture Machine and the Recording Instrument in Teaching Speech," The Quarterly Journal of Speech, XXV (February, 1939), 12.

when each individual saw his own picture, for in all other cases the pictures would be merely a reduplication of the classroom situation. The films and recordings would not add to what the students had already observed while in class. Showing these films two or three times would not supplement the classroom situation since in the latter the individual could be observed by the others in many speeches given throughout the course. Indeed, the motion pictures would cover only a very limited view of one individual speech. For a student who has perfect eye contact with his audience, it would be a waste of time to watch a number of films taken of other students whose eye contact was poor. This fact is one of the basic tenets for the use of motion pictures as a teaching device.[5] Their use cannot be justified--either as to time consumed or money expended--if they do not supplement the techniques already in use in the classroom.

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[5]The first advantage for motion pictures as listed by McClusky carries this warning with it: "It is, however, an expensive visual aid and for that reason should be resorted to only when necessary (1) to show activity which no other pictorial aid can actually portray and (2) to provide such vicarious experiences as may be brought to us because we cannot get them in any other way." McClusky et al, "Visual Instruction in the Modern School." Syllabus of a proposed text.

CHAPTER II

PROBLEMS TO BE INVESTIGATED

The only method, then, of using motion pictures as a teaching device in public speaking classes that would be satisfactory and contribute something new to the students' knowledge would be to take pictures of the individual student using them as a supplementary device to point out observable weaknesses which otherwise could not be demonstrated.

Limited, therefore, to this particular method of using motion pictures in public speaking, four problems naturally arise which should be answered:

(1) Can a reliable objective testing device be set up to evaluate ability in public speaking?

(2) If such a device can be formulated, does the use of motion pictures, when utilized as a supplementary device, improve the students' ability to speak?

(3) Is there a subjective value in the use of motion pictures as a supplementary device?

(4) Is the objective and subjective value of motion pictures significant enough to justify the necessary expenditure of time and money?[6]

The purpose of this thesis is to attempt to answer these four questions. The results of this investigation are especially important

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[6]These are similar in content to the questions studied by Wood and Freeman. See Wood and Freeman, Motion Pictures in the Classroom, p. xix.

in view of the fact that special facilities were incorporated in the new public speaking classrooms at Michigan State College to take motion pictures easily and unobtrusively, and plans are being considered to take such pictures in all of the beginning speech classes.

In considering the first of the problems noted above, it is interesting to observe that testing devices have been set up in other fields. Wood and Freeman, in their exhaustive experiment to measure the value of motion pictures as a supplementary aid, were able to formulate comprehensive objective tests in geography and general science.[7] Naturally in factual subjects such as geography and general science, it is comparatively easy to test objectively for improvement. In speech, a skill subject, the problem, however, becomes more difficult and elusive. What specific item or items can be used to measure improvement? Obviously a written test of knowledge would be entirely unsatisfactory, for knowledge of and ability in speaking are not necessarily correlated. A rating by instructors or students on "general effectiveness" might be used but such an evaluation would be too subjective to be scientific. Not only would the ratings be entirely subjective and dependent upon the individual philosophies of the observers, but such a device would not be accurate enough to determine, closely enough, significant changes in status.

Then, too, "general effectiveness," a rather vague and loose term in itself, includes many elements such as organization, subject matter, fluency, etc. which could not possibly be influenced by the use of

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[7]See the discussion of comprehensive tests, Wood and Freeman, op. cit., pp. 47-57.

motion pictures. A testing device therefore must be formulated which will measure objectively and accurately those elements of speech which can be taught and observed through the medium of films. In short, such elements must possess two characteristics: (1) That they can be objectively counted and recorded and (2) that they can be observed in the pictures when projected for the individual student.

Instructor evaluations then are not sufficient. Too many general statements and guesses have been made in regard to the value of motion pictures not only in the field of speech but in other fields as well.

Utzinger, without any objective basis, hastily generalizes as follows:

> Many students expressed themselves as being highly elated over the opportunity to see and hear themselves speak. Many of them were made to realize for the first time how stiff and awkward they looked while making a speech. Some of the postures were humorous, of course, and the student who stood on the platform on one foot, leaning over the reading stand, looking down at the floor, was certainly impressed with his inadequate speaking manner. I am sure that, as those fifty-six students saw themselves as others see them while making a speech, many made silent resolutions to develop a more pleasing platform personality. . . . I have discovered in my classes that those students whose physical manner was faulty have corrected these faults since they have seen their pictures.[8]

Again, at the 1939 meeting of the National Association of Teachers of Speech, a special conference on the use of motion pictures for speech training found that motion pictures served three teaching ends: (a) As an aid to mass cultivation of better speech, incidental to motion picture appreciation work; (b) As a direct teaching medium giving correct pronunciation and delivery, recording dialect and

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[8]Utzinger, op. cit., 12.

other speech patterns, and aiding in the vitalization of drama teaching; (c) As a recording instrument for the research worker.[9]

Such blanket statements are without objective foundation and are but guesses, although perhaps correct guesses. These all-inclusive evaluations should be avoided, however, unless based upon objective data.[10]

In view of the prerequisites given above, what phenomena in public speaking can be used as a measuring stick of ability in public speaking if silent motion pictures are to be employed? Content, organization, and fluency cannot be included since they cannot be affected or improved by a teaching device such as motion pictures, while facial expression, posture, use of notes, and personal appearance, although capable of being observed, are too vague and indefinable to permit accurate recording even by trained observers. With this in mind, only four elements that contribute to the total physical activity of a speaker would meet satisfactorily the two prerequisites. These four are (1) loss of eye contact, (2) transitions, (3) gestures, and (4) head movements. Two of these, loss of eye contact and transitions, are to be dealt with in detail in this paper.

It might be argued that these elements are not an accurate picture of the "whole" speaker, that they are not an adequate measure of his ability. In this respect I think it is apt and helpful to

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[9]"Case of the Motion Picture in Speech Training," Educational Screen, XIX (January, 1940), 76-7.

[10]Ellsworth Dent in The Audio-Visual Handbook warns of this possibility saying that such attitudes have actually retarded the use of visual-sensory aids. P. 3.

quote an example as used by Adrian Rondileau in A Research into the Teaching of Public Speaking:

> When an automobile dealer evaluates a second-hand car to determine how much he will allow for trade-in value, he seldom inspects the car thoroughly. That would take hours, and it would be necessary for him to look inside the transmission, differential, and many other parts. The dealer knows by long experience the predictive value of a few obvious items. One dealer based his whole estimate on a quick glance over the car plus a careful examination of the upholstering of the driver's seat. He did not even consider it necessary to start the motor. From thousands of appraisals he came to believe that he could tell with predictable accuracy from the general appearance and the amount of wear on the upholstering of the driver's seat what kind of treatment the car had been given. In the same way, it is conceivable that a few items, such as fluency or random movement or eye contact, might enable us to appraise the effectiveness of a public speaker.[11]

It is more than conceivable, then, that if an individual's eye contact and use of gestures, transitions, and head movements have improved over a certain period of time his total ability in delivery would likewise have improved. Conversely, if an individual had lost ground in respect to these isolated phenomena, it would follow that his total ability would have decreased.

It is upon this assumption, and a justifiable one, I think, that the following investigation was based. It remained only to find a method of counting these elements. Fortunately a very helpful background in this connection had been laid by the investigation and findings of the Committee on Cooperative Research of the National Association of Teachers of Speech in its report on the teaching of public speaking.[12] That investigation established basic techniques

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[11]Committee on Cooperative Research of National Association of Teachers of Speech, A Research into the Teaching of Public Speaking. P. 53

[12]Ibid.

for counting and recording speech phenomena, techniques which were, in the main, followed in this experiment. The first problem, therefore, seems to have been answered. A reliable, objective testing device can be set up to measure certain speech phenomena.

If a test can be devised, it follows that improvement in speaking ability can be measured accurately and objectively and thereby the exact value, if any, of the use of motion pictures as a teaching aid can be determined. This, then, would meet the second problem.

The third problem was not a difficult one, for the subjective evaluation of the motion pictures by and the reactions of both student and instructor were recorded both at the time the student watched himself on films and also after the experiment was over in the form of a written questionnaire.

The fourth problem depended, of course, entirely upon the results obtained from solving the previous questions. Statistically, it can be determined whether there is a significant difference between the classes in which motion pictures were used and those in which none were used. If no significant difference is apparent, the use of motion pictures as a teaching device can hardly be justified. Motion pictures are expensive both to the institution using them and to the individual student. Then too the taking of such pictures and showing them to the students occupy much valuable time which could be used to advantage in other activities.

However, even if no objective value is found in the use of motion pictures, there may be subjective advantages which would justify such an expenditure of time and money.

In passing, one other consideration might be mentioned. At all times, simplicity was the keynote of this experiment. It was felt that by limiting the data observed to a few definite, tangible elements the accuracy and validity of the experiment would be greater. A large number of phenomena, some of them intangible, would serve only to complicate and obscure the findings. As has been noted previously, if substantial improvement can be demonstrated in a few, clear-cut items by the use of motion pictures, it would be justifiable to conclude that their value as a teaching device was proved.

For the same reason, that of simplicity, acetate or aluminum recordings were not made of the speakers over the portions of the speeches being filmed. Here again it was felt that, by introducing more elements, further complications would result when analyzing the results. Moreover, without special and expensive equipment it is difficult, if not impossible, to synchronize perfectly a silent film and an independent recording of the voice.

Not only would such recordings complicate the experiment but recent findings seem to show that recordings are of little value as a teaching device.

One such study was made by Nystrom and Leaf at Wheaton College. This investigation was similar in general procedure to the procedure used in this study. Two beginning speech classes, a control and an experimental group, were selected. Both groups were rated objectively at the beginning of the term by five instructors on their ability to read orally and interpret three minute selections of poetry and prose. In the following week recordings were made in the experimental section of each student reading the same material as he had read previously.

Recordings were then made approximately every two weeks, the student being required to spend one half hour each week listening to his own recordings. No help or instruction was given to the individual in respect to these recordings.

At the end of the course both groups reading the same material as previously were again rated by the same judges. Averages and improvement for each group were then calculated. From this study, Nystrom and Leaf concluded that "the recordings and their subsequent study by the experimental group under the conditions of the study had not significantly stimulated the group to greater progress in achievement over the group not so stimulated."[13]

It should be added that the investigators point out that this study is not conclusive and that a contribution may possibly be made by recordings. This conclusion, of course, is merely a conjecture. Until an objective evaluation proves otherwise, we must conclude that recordings have little value as a teaching device.

It must be admitted, however, that, presupposing motion pictures are helpful, the use of a synchronized recording or of sound film would be desirable in that it would present a more natural and meaningful picture of the total speech characteristics of an individual. It would also enable the student to study more effectively certain elements, such as fluency and composition, not observable with a silent motion picture. For the purposes of this experiment, however, such devices were avoided.

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[13]C. L. Nystrom and Roberta Leaf, "The Recording Machine as a Teaching Device," Quarterly Journal of Speech, XXV (October, 1939), 437.

CHAPTER III

CHARACTERISTICS OF GROUPS STUDIED

The students used for the purposes of this experiment were those enrolled in eight classes in Public Speaking at Michigan State College during the winter term of 1940-1941. This course in Public Speaking is an introductory or fundamentals course with the major emphasis being placed on delivery rather than content. During the term approximately fourteen speeches, varying from one to seven minutes in length, are presented by each student. These speeches are not memorized and with the exception of two of the longer speeches the students are not allowed to use notes. These factors were particularly desirable in the taking of motion pictures since, for the most part, students were unhampered by notes or a speaker's stand. This permitted the greatest freedom on the part of the students while speaking, and furthermore made it possible to take motion pictures in which nothing interfered with or obscured the students' activities.

Two instructors divided the eight classes between them, each having two control and two experimental groups.

The method used in selecting the persons involved was as follows. At Michigan State College, all students desiring to take Public Speaking at a particular hour register as one section. On the first day on which this section meets, it is divided into two or three permanent groups, each consisting of a maximum of eighteen students.

For the purposes of this experiment it was felt highly desirable to create control and experimental groups which would be almost identical in composition. Therefore, on the first day on which the entire

section met, the details of the experiment were outlined to the students. They were told what the experiment intended to prove, the benefits they might receive from motion pictures, and the approximate cost to each individual. While it was urged that they enter the experiment, it was made clear to them that they were under no compulsion to participate and, of course, that it would in no way affect their term marks. Those interested in having motion pictures taken of them while speaking were then asked to sign their names on a paper handed out for that purpose.

These students, generally about fifty percent of the entire group, were then divided equally into two sections, others not desiring to enter the experiment making up the complement of eighteen in each class. Those signing up for the experiment were divided, as closely as possible, on the basis of the college division in which they were enrolled, the class or year to which they belonged, and their sex. Though this method did not result in a perfect division, it was surprisingly close for such a heterogeneous group as would be found in an introductory speech course.

Of the two sections or groups thus created at any particular hour, one was designated as a control and the other as an experimental group. It would have been possible, of course, to take pictures of all those who wanted them and compare these with students who showed no desire to have them taken. However, the results might justifiably be open to criticism since the experimental group might differ in some fundamental respect from the other. The very fact that one group chose to have motion pictures might indicate that they differed from the others in regard to financial status, intelligence, speech back-

ground, introvert-extrovert behavior, etc. Tests, of course, might have been made over such factors but this would have been almost impossible since, if data was to be gathered over the first few speeches, the groups had to be determined the very first day of meeting.

Statistical data, then, were gathered not for all the students in each class but rather only for those who had indicated a desire to have motion pictures taken. This unfortunately reduced the number of students available for study, but, at the same time, it made for a much closer similarity between control and experimental groups.

Tables I and II show the composition of the control groups and experimental groups, while Table III summarizes and compares these two. It can readily be seen from the latter table how similar the groups were in respect to sex, division, and year of attendance. It may also be noted how close are the respective means of the decile ratings obtained from scores made on the psychological examination given to all freshmen upon entering Michigan State College. This test, the American Council on Education Psychological Examination edited by L. L. and T. G. Thurstone, unfortunately was not identical for each of the four years in which the students involved in this experiment may have written it. Since each test had a different maximum score, a direct comparison and average were impossible to obtain. It was felt sufficient, however, to average the decile ratings by which each of the students had been classified according to his score on the test. When this was done, the mean of such ratings for the control group was found to be 5.2, and that for the experimental group, 5.6, a very negligible difference being present.

TABLE I

COMPOSITION OF CONTROL GROUPS

Student	Teacher	Decile Rating	Sex	Year	Division
C1	T	8	M	2	A. S.
C2	T	6	M	2	L. A.
C3	T	7	M	2	Eng.
C4	T	8	M	2	Eng.
C5	T	8	F	1	L. A.
C6	T	6	M	3	Ag.
C7	T	2	F	1	H. E.
C8	T	5	F	1	H. E.
C9	T	6	F	1	H. E.
C10	T	3	M	2	Eng.
C11	T	2	F	1	H. E.
C12	T	2	M	1	Ag.
C13	T	2	M	1	Ag.
C14	T	7	F	1	H. E.
C15	T	10	M	3	Eng.
C16	T	3	M	1	Eng.
C17	T	9	M	2	Eng.
C18	T	2	M	2	Ag.
C19	T	2	M	2	Ag.
C20	L	10	F	3	H. E.
C21	L	1	M	2	Eng.
C22	L	5	M	3	Ag.
C23	L	3	M	2	Eng.
C24	L	2	M	1	Ag.
C25	L	4	M	1	Ag.
C26	L	7	M	2	Eng.
C27	L	8	F	2	H. E.
C28	L	8	M	2	Eng.
C29	L	8	M	2	Eng.
C30	L	1	F	1	H. E.
C31	L	5	M	2	Ag.
C32	L	2	F	2	H. E.
C33	L	8	F	1	A. S.
C34	L	7	F	1	L. A.

TABLE II

COMPOSITION OF EXPERIMENTAL GROUPS

Student	Teacher	Decile Rating	Sex	Year	Division
X1	T	4	M	1	Ag.
X2	T	9	M	1	Ag.
X3	T	3	M	2	Eng.
X4	T	5	M	3	Ag.
X5	T	*	M	1	Eng.
X6	T	10	F	3	H. E.
X7	T	9	M	1	Eng.
X8	T	2	F	1	H. E.
X9	T	4	F	2	H. E.
X10	T	6	M	2	Eng.
X11	T	7	M	2	Eng.
X12	T	7	F	1	H. E.
X13	T	2	F	2	H. E.
X14	T	1	F	1	A. S.
X15	T	8	F	1	L. A.
X16	T	7	M	3	L. A.
X17	L	5	M	3	A. S.
X18	L	3	F	4	L. A.
X19	L	5	M	4	Ag.
X20	L	10	M	1	Ag.
X21	L	2	F	1	H. E.
X22	L	*	F	3	H. E.
X23	L	*	M	1	Ag.
X24	L	8	M	2	Eng.
X25	L	*	M	1	Eng.
X26	L	6	F	1	A. S.
X27	L	4	M	1	L. A.
X28	L	5	F	1	H. E.
X29	L	1	F	1	L. A.
X30	L	8	M	1	A. S.
X31	L	10	M	2	Eng.
X32	L	9	M	3	Eng.
X33	L	5	F	1	H. E.
X34	L	8	M	2	Eng.
X35	L	8	F	1	H. E.

*Not available

TABLE III

COMPARISON OF CONTROL AND EXPERIMENTAL GROUPS

	Control	Experimental
Sex		
Male	22	20
Female	12	15
Year		
Freshman	15	17
Sophomore	14	10
Junior	5	6
Senior	0	2
Division		
Agriculture	9	6
Applied Science	2	4
Engineering	11	10
Home Economics	9	10
Liberal Arts	3	5
Mean of Decile Rating	5.2	5.6

CHAPTER IV

DEFINITIONS AND RECORDING OF PHENOMENA

As noted previously, four different phenomena of delivery were statistically recorded for each student involved in order to determine the initial and final status of the control and experimental groups and thereby determine relative improvement of the two groups. These phenomena were (1) loss of eye contact, (2) transitions, (3) gestures, and (4) head movements. This thesis is concerned with the first two of these only.

In order to count loss of eye contact and transitions objectively and accurately, it was, first of all, necessary to establish definitions of these elements. It was here that the research done by the Committee on Cooperative Research of the National Association of Teachers of Speech was extremely helpful, for in this study definitions had not only been set up but had been tried as well. Therefore, problems, questions, objections concerning the collection of such data had already been met and worked out.

For the purposes of this experiment loss of eye contact was defined as an unnecessary, meaningless looking away from the audience. This would not include, therefore, a break in eye contact accompanying a gesture such as might happen when pointing out a direction; nor does it include looking at visual aids or a loss which occurs during a meaningful transition. Likewise, in one of the speeches in which a speaker's stand and notes were employed, needed reference to such notes were not recorded. When the speaker continued looking down at his notes though obviously not using them as an aid, such a break was recorded. Also

such obvious losses of eye contact as looking out of the window, down at the floor, toward the ceiling, or even noticeably not focusing the eyes directly on the audience were all counted. While such definitions or limitations do not cover every imaginable situation, exceptions to the above explanations are so rare that they would make little if any difference to the final computations. Too fine a discrimination in deciding what constitutes loss of eye contact and what does not would only tend to confuse and complicate recordings.

In defining transitions it is well to note at the outset that only meaningful transitions were counted. For the definition of such movements it is simple enough to quote the comments concerning them as given by the Committee on Cooperative Research.

> There are several good reasons for meaningful transitions (walking on the platform). A few of these might be: They serve as a method for defining the large divisions of a speech; they suggest to the audience a shifting of position thereby relaxing the audience; and they aid the speaker in securing the attention of his audience.
>
> Each time a movement of the foot is made by the speaker and the weight of the body is shifted, it is considered a transition, except in case of a gesture which requires movement of the foot. There are at least four kinds of transitions that should be considered <u>meaningful</u>:
>
> 1. Transitions on taking up new phase of speech.
> 2. Transitions to demonstrate something, as at the blackboard.
> 3. If speaker is using blackboard for illustration and leaves blackboard and comes to his audience and returns to the blackboard again, each such movement is considered a transition. If speaker steps about at the blackboard in explaining illustration, without leaving the blackboard, it is not considered a transition.
> 4. Transitions for special description--such as "At the end of the motor car is the crank, and" (transition) "at this end is the transmission."
> 5. Transitions that serve <u>none</u> of the above purposes and seem to be for no other reason than that the speaker is nervous or

> restless should be considered meaningless. Each change of direction when the speaker is pacing about is considered an additional meaningless transition.[14]

Having defined the phenomena to be counted, observers were selected for the purpose of recording this data. These observers included two graduate assistants and six college students several of whom had previously been enrolled in a beginning speech course. In addition, the two instructors themselves helped in recording some of the material.

After explaining to the observers the nature of the experiment and of the phenomena as outlined above, several practice sessions were held in order to familiarize them with this material, to give them practice in recording the data, and to answer any problems or questions that might arise.

At first each of the four factors was taken up separately, various persons giving speeches emphasizing a certain factor. All of the observers recorded these phenomena individually and the results were then compared at the end of each speech. From the very beginning the correlation among the separate recordings was encouragingly high and as more speeches were given, the correlations were often as high as .90 or .95. In a few cases some of the observers seemed to have a little difficulty in recording one of the elements as indicated by a very high or very low number when compared with the others. When this occurred, the individual was not allowed to record that particular element for the purposes of the experiment. Indeed, a decided effort was made to have each observer count only the factor or factors for which he had showed the greatest aptitude in the trial tests.

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[14]Committee on Cooperative Research, op. cit., p. 26.

When each person had been assigned his specific "task," several speeches were given combining examples of the four phenomena to be counted. This enabled the observers to obtain further practice in their particular "fields." For each class, either experimental or control, one observer was assigned the task of counting loss of eye contact and another the task of counting gestures and head movements. Since the number of transitions in any given speech would be few, the instructor took it upon himself to record these, thus eliminating the necessity of using an extra observer for each class. A student, one not involved in the experiment, was asked to record the time of each speech given by persons included in this study. Such a task, of course, was relatively simple requiring no special training or skill.

The actual counting was now ready to begin. The observers sat in the back of the room behind the class as unobtrusively as possible. No mention was made by the instructor as to who they were. Since every member in each of the classes was generally unknown to the others, the presence of the observers was not questioned; indeed, they may have been taken for regular members of the class for the first few meetings. After that time the classes became used to their being in the room and also became accustomed to the speech situation so that the observers were, for the most part, ignored or forgotten.

This fact, particularly at the beginning, was felt highly desirable since students in the first few meetings of a speech class are extremely self-conscious. Any very noticeable and unusual occurrence would easily upset them and make the classroom "atmosphere" unnatural and tense. All in all, from comments made later by many of the students, the presence of the observers had little, if any, effect upon the speakers.

This was still true even at the end of the term when the observers once more appeared in each of the classes. By this time the members of the classes were far more self-confident and undisturbed by the appearance of new faces. In only one case was this not true and this exception would hardly be enough to affect the results of the experiment.

The observer who recorded loss of eye contact was supplied with an electric clock which could be turned on by pressing a push-button switch. When a speaker lost eye contact, the switch was turned on until the speaker resumed looking at the audience. In this way, the cumulative time was easily recorded.

Since the highest number of transitions for any one speech given during the term was fifteen, it was not too much extra work for the instructor to count these. The length of the speech was recorded to the nearest second and was clocked by means of a stop watch.

All this data were placed on special forms supplied for the purpose, samples of which are included at the end of this chapter. The names of the students for a particular section were written in alphabetical order beforehand to simplify the work of the observer and to expedite the work of transferring the data to tables. These forms were handed in to the instructor immediately after the class period.

Data were recorded for the first three speeches of the term and for three of the last four speeches. The first three were given on topics assigned from several chapters contained in Hayworth's Public Speaking although an unusual personal experience could be used on the first speech.

The last three speeches consisted of a five to six minute persuasive speech, a six to seven minute persuasive speech, and a one to

four minute speech of any type given during the final examination period. One speech assigned in the syllabus used in this course and appearing between the two persuasive speeches was not recorded in the experiment since it called for the use of visual aids. Such a speech would have and did interfere with the speaker's gestures, eye contact, and even transitions so that it would not have given a true picture of the final status of an individual in the use of such elements of delivery.

Altogether a minimum of sixteen minutes and a maximum of twenty-four minutes of speaking for each student were assigned.

No specific criticism was made on any of the first three speeches. In order to determine initial status it was felt best to record the phenomena as present in each speaker's delivery uninfluenced in any way. Indeed throughout the entire term the students were never aware of what items were being counted nor was any special classroom instruction given to the individuals in either control or experimental groups beyond that usually given in this course. No difference was made between the two groups as far as instruction or criticism was concerned since the use of motion pictures was intended as a supplementary device and not a substitute for instructor criticism. Emphasis was placed upon delivery but to no greater extent than is usually done in such a class.

BLANKS USED FOR COLLECTING DATA ON TRANSITIONS AND LOSS OF EYE CONTACT

OBSERVER_____

SEC.___DATE_____SP.NO.___

Name	Transitions
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

OBSERVER_____

SEC.___DATE_____SP.NO.___

Name	Loss of Eye Contact(Sec.)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

BLANK USED FOR COLLECTING DATA ON
LENGTH OF SPEECHES

OBSERVER_____

SEC.____DATE_____SP.NO.___

	Name	Length of Speech(Sec.)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

CHAPTER V

METHOD OF TAKING THE MOTION PICTURES

The classroom set-up for the taking of motion pictures was admirable. The keynote during the whole experiment was to make the class atmosphere as natural as possible and to avoid any obvious and distracting factors while taking the pictures or while recording the phenomena.

Such a purpose was greatly aided by the fact that the classrooms for public speaking at Michigan State College had been designed with the idea in mind of taking motion pictures in them. The room in which each experimental group always met was approximately eighteen feet by twenty-four feet with a ceiling of ten feet. At one end was a raised platform running the entire width of the room and extending six feet from the front wall.

In the center of the back wall next to the ceiling was an aperture, eighteen inches by eighteen inches, cut through into the next room but closed off from it by two panes of glass. Through this opening the pictures were taken, thus eliminating the necessity of setting up equipment in the room itself.

The glass window made the operation of the motion picture camera soundless to the student giving the speech. Indeed, the sound was only faintly perceptible at the back of the room and even then would hardly be recognized as a camera in operation.

In order to keep the actual taking of pictures as unobtrusive as possible, the window itself was entirely covered with heavy paper except for a small opening just large enough for the lens and view finder.

The room was lighted naturally through three large windows at one side and artifically by six 250 watt overhead lights. Although this amount was hardly sufficient on dark, cloudy days, it was excellent on very bright days. A Super-X panchromatic film was used to insure the greatest amount of sensitivity possible. In only a few cases was any extra artificial equipment used. At one time a 500 watt spotlight was thrown on the ceiling just in front of the head of the speaker; at another time a 1000 watt floodlight was added but was found impractical since the electrical circuit in the room was not sufficient to carry such a load; again, a white sheet was utilized as a background instead of the regular blackboard background. In all such cases the addition of such equipment improved, to a lesser or greater extent, the clarity and sharpness of the subject but at the same time introduced elements which obviously called attention to the fact that pictures were being taken. If sufficient natural and ordinary overhead lighting could be obtained without resorting to extra equipment, the speech situation would be far more natural and desirable.

Some experimental shots were taken under the above conditions to determine just how satisfactory the pictures would be. The pictures, however, were taken late in the afternoon and were not very conclusive evidence of the results that might be obtained during the middle of the day. Still, since these trial pictures were discernible even though taken under the worst possible conditions, it was felt that they would be quite satisfactory under more normal conditions.

During the previous term some sixteen mm. experimental pictures had been taken as well as an acetate recording to be synchronized

with the film. Objections were apparent in both aspects of this trial, however, and no further work was done with these.

The decision was finally made to use eight mm. equipment for the purposes of this experiment. Since the pictures were to be shown to individuals in a small room and not to large audiences, a large projected image would not be necessary, and ratio of the comparative costs of sixteen mm. and eight mm. pictures was about four to one. At first an f 2.7 lens was used but later an f 1.9 lens was employed and found to be far more satisfactory. The distance from speaker to camera was approximately thirty feet.

The taking of the pictures was now ready to begin. The first series were taken of the sixth speech given during the term, a two to three minute expository or persuasive speech. No indication was given nor mention made of the fact that pictures were to be taken during that particular speech. A signal had been arranged whereby the instructor could notify the camera operator exactly when to take a shot. This signal was simply a hand operated switch plugged in at one end to an electrical circuit and at the other end to an outlet in the back wall appearing again on the other side of the wall in the next room, where operator and camera were situated. To this outlet was attached an electric alarm clock with the alarm turned on. When the switch was pressed in one room the alarm rang in the other, informing the operator that he should start taking pictures.

The shots of an individual student were not selected in any way. Once the operator was signalled, he continued to "shoot" until the student's allotted twelve feet of film had been used up. Indeed, in this first series there was no possibility of selecting the shots,

for after every four or five feet of film the camera had to be rewound, and since the speech itself was short, the operator was forced to waste as little time as possible in order to get the entire twelve feet taken. In one or two cases where the student spoke a little less than the minimum time suggested, taking the full twelve feet was not accomplished. In such cases an attempt was made in the second series to adjust these deficiencies.

Since the camera held but twenty-five feet of film, only two students could be taken consecutively. Then a minute or two had to be allowed for the operator to remove the film and reload. In order to save time, a speaker not in the experiment was therefore placed between each pair of students who were in the experiment. Because of this necessary arrangement, it was not possible to "shoot" all the subjects in one day, two days being devoted to this task.

The second series of pictures were taken during the ninth speech of the term, a four to five minute expository or persuasive speech. Unfortunately this happened to be one in which a speaker's stand and notes were used. There seemed to be no way of avoiding such conditions, however, unless the syllabus employed in this course was completely changed. So despite the rather handicapping nature of these elements, they were left in the assignment. It was felt also that they would not interfere too greatly with the phenomena being examined and that an absence of such traits in a speaker's delivery would still be apparent even when that speaker was using notes and a stand. The second series was taken in exactly the same manner as was the first. Again care was used to keep the students from knowing what was happening and to keep the speaking situation as natural as possible.

The original plan was to use a motor driven camera, thus eliminating the necessity of having an operator and of rewinding and reloading the camera. Such a system, however, is not available for eight mm. equipment. This fact necessitated the training of several operators who could be available at the times at which the experimental classes were held.

CHAPTER VI

PROJECTION OF THE PICTURES

As soon as the films were processed, arrangements were made to show the pictures to the students. A small conference room located in the Speech Clinic and containing no windows was used for this purpose, and because light could be eliminated from it completely, it was well suited to the requirements of projecting films. No projection screen was available so, instead, a sheet of white cardboard about three feet square was utilized. Although this substitute undoubtedly was inferior to a beaded or other surface screen, it was found adequate for this particular situation where an especially large image was not needed. Indeed, the distance from projector to screen was only six to eight feet in most cases. A shorter projecting distance was imperative at times when the film was dark.

Fifteen minute conferences were held with each student on the first series of pictures. Previous to this, the instructor viewed all of the films and made careful notes concerning the four phenomena being investigated. In addition, notes were also kept of other elements of speech not being counted, such as posture and aimless movements.

During the conference itself, the student was shown his own film and comments based on the notes were made by the instructor with some elaboration. Because many details are lost in the first showing through the novelty and complexity of the film, it was run through a second time and on this occasion special notice was paid to only the four elements of delivery involved in this study. Despite Utzinger's statement that comments "seem unnecessary for all of the faults are so easily observed

by the students themselves,"[15] in my opinion such an assumption cannot be taken for granted since many faults, even when seen on the screen, look perfectly natural to the individual and arouse no criticism in his mind. Care must be taken, then, to point out such shortcomings even though, to the instructor, they may seem quite obvious and inescapable.

Since, during the processing of the films, the shots of four different students would be spliced together, each student was obliged to observe the pictures of the other three on that particular reel. Although mention has already been made that there is little, if any, advantage over the classroom situation for the individual in looking at films of speakers other than himself, as much benefit as was possible was obtained from this situation, which was more or less impossible to eliminate. Attention was called to other speakers on that reel who had the same shortcoming as the conferee; or a comparison was made between a speaker free from a certain bad habit and the conferee in whose delivery this habit appeared, showing how much more poised and effective the former looked. The use of other pictures in conjunction with the shots of the individual himself was felt justifiable since that person always had his own picture as a basis for comparisons and contrasts.

For the second series of shots, the same method was followed in the conferences except that half hour rather than fifteen minute periods were arranged with the students. In this series it was possible to compare the first and second groups of pictures and to point out to the student where he had improved or where he failed to improve his faults as had been suggested in the previous conference.

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[15]Utzinger, op. cit., 12.

Besides mere suggestions being given, the film was thoroughly discussed with the student and any questions he had in mind were answered. At this time a questionnaire covering all phases of the experiment was given to the conferee who was requested to fill it out and return it to the instructor.

CHAPTER VII

MOTION PICTURE EQUIPMENT

Cameras.--As has been mentioned previously, an eight mm. camera was used in this experiment. Although it is to be admitted that a sixteen mm. camera would result in a larger and perhaps clearer image, a large picture was hardly necessary since the films were shown to individuals rather than to large groups. The eight mm. size has in its favor most of the features to be found in a larger camera plus the fact that it is considerably cheaper. Twenty-five feet of double eight mm. film (this can be reversed giving a total of fifty feet) is approximately one-third the price of 100 feet of sixteen mm. film. Both will run the same length of time, about four minutes.

In general, the sixteen mm. camera does have the advantage in that it will run a little longer on one winding up of the spring and that a faster lens can be obtained. There are exceptions, of course, but in most cases an eight mm. camera will operate for six feet (equal to twelve feet on a sixteen mm. camera) before running down, while a sixteen mm. camera will run from fifteen to forty feet on one winding. Also, an f 1.5 lens can be obtained in sixteen mm. equipment and only an f 1.9 lens in eight mm.

The exception to both factors is to be found in the Bolex cameras, distributed by the American Bolex Company. A fast f 1.5 lens can be obtained in their regular eight mm. camera as well as a fourteen foot run (equal to twenty-eight feet of sixteen mm.) on a single winding. The cost of such an instrument, however, would be prohibitive for most educational institutions, although it does have the added feature of threading the film automatically. Then, too, for an additional price a motor can

be attached to either the eight mm. or sixteen mm. model, enabling 100 feet of either type film to be exposed continuously, an ideal set-up, it must be admitted, for taking pictures of speakers.

For the average institution and for ordinary purposes, an eight or sixteen mm. camera with a fairly fast lens (f 1.9 or faster) and a magazine load would be the most practical and economical purchase. The magazine load, obtainable in various makes of cameras, enables the operator to reload the camera instantaneously without the delay and danger of threading a new film. When "shooting" one speaker after another, this feature would be especially helpful, since no time need be wasted between every two speeches.

Other special features can be found in individual camera models but they would not contribute enough as teaching aids to warrant the added expense. Simplicity coupled with efficiency in operation and accuracy in results should be the guiding factors in the selection of a camera.

Tables IV and V list available eight mm. and sixteen mm. cameras respectively, together with the outstanding features of each one.

Film.--Unless excellent lighting facilities are available without resorting to numerous floodlights, which are not only expensive but are far from natural, the fastest (most sensitive) film obtainable is recommended. For eight mm. equipment a Super or Super-X panchromatic film with a fine grain can be obtained, while an even faster and finer grained film is to be found for sixteen mm. cameras.

The use of color film doubtless would make the pictures more attractive, but not only would it add absolutely nothing to the educational value of the pictures, but it would increase the expense and demand at least twice as much lighting equipment.

Projectors.--While an inexpensive projector would be satisfactory for most situations, such an instrument lacks three important features very helpful in projecting educational films. One factor is an adequate and powerful enough lamp. For best results a 500 watt lamp at least is necessary. This can be obtained only in the medium and higher priced machines.

The second desirable factor is a fast projection lens which will transmit a large amount of light. Here at least an f 1.85 lens would be acceptable.

The third factor is that of a still picture or single frame device. In the use of motion pictures in speech this would be very helpful, for awkward postures, loss of eye contact, peculiar movements could be "held" on the screen as long as desired. Judicious use should be made of this device since, unless the projector has an excellent cooling system, the heat of the lamp will soon burn and scorch the film.

A list of the available eight mm. projectors now on the market appears in Table VI, and of sixteen mm. projectors in Table VII.

Sound Equipment.--Two possibilities present themselves in considering sound equipment in conjunction with motion pictures. The first of these is the use of regular professional equipment which would record sounds on a film track. While this would be by far the most satisfactory and expedient method, the expense is high, running close to a minimum of $300 for the camera and about the same cost for projector. Not only would the equipment be expensive but the cost of the film would be doubled since a separate film track is needed for both the picture and the sound in most sound recording systems. From these two tracks a positive, composite print is made, synchronizing the two perfectly. It is possible,

of course, to secure a camera that would record both sound and picture on the same film, but again the initial cost would be prohibitive, approaching $2000 for the camera alone.

The other method of using sound would be synchronizing the motion picture film and an independent recording of the voice. Here the synchronization may be done either by means of judgment and "trial and error" or by means of special machinery designed to keep recording and film together.

The first method, that of "trial and error," might present serious difficulties particularly when the operator attempted to "play" film and record simultaneously. The first difficulty would be encountered in starting the two at the same place in the speech, for without a mechanical method of starting the camera and recording machine at precisely the same instant there would undoubtedly be a difference of one or two seconds between the times at which the two machines were put into operation. Even supposing that this were accomplished satisfactorily--and unless it were done perfectly there would be little value in using such a technique--there would be no assurance that film and record would stay together throughout the length of a particular shot. Slight variations in the speed of a spring-driven motor as used in most motion picture cameras would do much to keep the two from coinciding, thereby rendering such a method impractical.

The second method would be by far the most satisfactory. A motor can be obtained that synchronizes perfectly the speed of the camera and that of the recording machine, thus eliminating the necessity of guesswork and constant readjustments of the speed of the recording instrument. Such a system is manufactured by the Presto Recording Corporation, New

York City, and consists of three Syncro-Sound attachments, a camera drive unit, a dual speed turntable unit, and a projector attachment. The turntable unit, designed for a speed of 78 RPM or 33 1/3 RPM, operates synchronously with either camera or projector unit making possible "perfect synchronization between sound-on-disc recordings and silent films." By means of the camera drive unit the camera itself takes exactly sixteen frames a second and the sound is recorded at one of the two speeds indicated above. At the time of showing the pictures, the projector unit drives the projector again at a speed of sixteen frames a second while the sound disc is played at exactly the same speed as recorded. Thus the two coincide perfectly.

The above units, retailing at $155 for the three, can be adapted to any camera, projector, and recording machine with very little trouble. A five minute recording can be produced for a cost of $1.00 to which, of course, must be added the cost of the motion picture film.

TABLE IV

8 MM. CAMERAS

Make	Model	Lens	Footage Run*	Features	Price
Bolex	H-8	f 1.5	14	Automatic threading	$275.00
Cine-Kodak	Magazine	f 1.9	6	Film in magazine	95.00
Cine-Kodak	20	f 3.5	5½		28.50
Cine-Kodak	25	f 2.7	5½		41.00
Cine-Kodak	60	f 1.9	5½		65.50
Cinemaster	E-8	f 3.5	6		27.50
Cine Perfex	Double Eight	f 2.5	6		59.50
Eumig	C3	f 2.7		Single frame release	59.50
Eumig	C4	f 2.5		Battery driven	42.50
Excel	39	f 3.5	7½		24.50
Filmo	Aristocrat	f 2.5	5	Single exposure device	109.50
Filmo	Companion	f 3.5	5	Single exposure device	49.50
Keystone	K-8	f 1.9	5		57.00
Revere	88	f 3.5	5		32.50
Revere	99	f 2.5	5	Rotating turret head	65.00
Univex	C-8	f 1.9	6		47.25
Univex	C-8	f 2.7	6		27.50
Univex	C-8	f 3.5	6		21.50
Univex	C-8	f 4.5	6	Turret mount	25.00
Univex	True View	f 5.6	6		9.95

*Number of feet camera will run on one winding

TABLE V

16 MM. CAMERAS

Make	Model	Lens	Footage Run*	Features	Price
Bolex	H-16	f 1.5	24	Automatic threading	$275.00
Bolex	H-16	f 1.4	24	Automatic threading	295.00
Cine-Kodak	Special	f 1.9	39	Single exposure device	417.50
Cine-Kodak	E	f 3.5	16		39.50
Cine-Kodak	E	f 1.9	16		67.50
Cine-Kodak	K	f 1.9	13		76.50
Cine-Kodak	Magazine	f 1.9	11	Film in magazine	112.50
DeVry	77	f 3.5		Single exposure device	70.00
Excel	38	f 4.5	6		19.50
Excel	40	f 3.5	10		22.50
Filmo	Auto Load	f 2.7		Film in magazine	115.00
Filmo	Auto Master	f 1.9		Film in magazine	195.00
Filmo	Auto Load Speedster	f 1.5			160.50
Filmo	70-DA	f 2.7	24	3-lens turret mount	193.00
Irwin	Imperial	f 4.5		Film in magazine	22.50
Irwin	Moderne			Film in magazine	12.95
Keystone	A-3	f 3.5	15	Motor lock	35.00
Keystone	A-3	f 1.5	15	Motor lock	67.50
Keystone	B-1	f 3.5	15		29.95
RCA	Sound	f 3.5	30	Film in magazine	275.00
Victor	3	f 1.6	25	Single exposure device	59.50
Zeiss	Movikon	f 1.4	20	Single exposure device	385.00

*Number of feet camera will run on one winding

TABLE VI

8 MM. PROJECTORS

Name	Model	Single Frame	Footage Capacity	Lamp Wattage	Lens	Price
Ampro	A-8		200	500	f 1.6	$ 98.00
Bolex	G-816	x	400	750	f 1.5	235.00
Excel	110		200	500	f 1.85	44.50
Filmo	Master 8	x	200	500	f 1.6	99.50
Filmo	Master 400	x	400	500	f 1.6	112.50
Irwin	Zephyr 8		200	250	f 2	29.95
Keystone	A-8	x	400	750	f 1.6	72.50
Keystone	R-8		400	500	f 1.85	55.00
Keystone	M-8		400	300	f 1.85	39.50
Keystone	C-8			200	f 2	24.75
Kodascope	20				f 2.5	23.00
Kodascope	50				f 2.0	37.20
Kodascope	70		200	500	f 1.6	61.50
Kodascope	70A		400	500	f 1.6	71.50
Revere	80	x	300	500	f 1.6	65.00
Revere	De Luxe 85	x	300	500	f 1.6	75.00
Univex	P-500	x	200	500	f 1.6	42.50
Univex	PU-8		200	150		18.95
Univex	P-8		200	50AC		16.50

TABLE VII

16 MM. PROJECTORS

Name	Model	Single Frame	Footage Capacity	Lamp Wattage	Lens	Sound	Price
Ampro	KD	x	400	750	f 1.6		$135.00
Ampro	UA		1600	750	f 1.6	x	345.00
Ampro	UC	x	400	750	f 1.6		175.00
Ampro	YA		1600	750	f 1.85	x	295.00
Bolex	G16	x	400	750	f 1.5		225.00
DeVry	G-5	x	400	500	f 1.65		75.00
DeVry	Interpreter		1600	1000	f 1.65	x	390.00
Filmo	Diplomat	x	400	750	f 1.6	*	198.00
Filmosound	Commercial		2000	750	f 2	x	276.00
Imperial	3		1600	1000	f 1.65	x	395.00
Irwin	39		400	250	f 2		23.95
Keystone	A-81	x	400	750	f 1.6		69.50
Kodascope	EE		400	750	f 2.5		62.10
Kodascope	G	x	400	750	f 1.6		118.10
Kodascope	FS-10		1600	750	f 1.6	x	295.00
Kodascope	Special		1600	750	f 1.6	x	620.00
Mogull-Duplex	17	x	2000	750	f 1.65	x	410.00
RCA	PG-170		1600	1000	f 1.65	x	300.00
Victor	Silent 16		400	750	f 1.60		137.50
Victor	Animatophone	x	1600	750	f 1.6	x	295.00

*Can run sound track film

CHAPTER VIII

OBJECTIVE EVALUATION

The statistical data as gathered by the different observers were compiled in several tables and calculations were made from these. It was possible then to determine objectively whether any significant improvement had been made by the experimental groups in respect to loss of eye contact and use of transitions. If such an improvement had been made, the use of the motion picture-conference technique as a teaching device would be justified.

In Tables VIII and IX, the length of time used by each speaker in the control group for the first three speeches and for the last three speeches will be found; in Tables X and XI the speaking time is shown for the experimental group. The total length, in seconds and minutes, was calculated for each individual.

In Tables XII and XIII the amount of eye contact lost by each student in the control and the experimental sections is recorded for the initial speeches. In the last column, the percent of eye contact lost is indicated for each student; these figures were obtained by dividing the total amount of eye contact lost by any individual speaker in the first three speeches by the total amount of time used during those speeches by that individual. The same method was followed in obtaining the data for loss of eye contact during the final speeches. This data will be found in Table XIV for the control group and in Table XV for the experimental group.

Similar calculations were made for the use of transitions. The number used by individual students for both control and experimental groups will be found in Tables XVI and XVII. The number of transitions

used per minute was obtained by dividing the number made during the three initial speeches by the total length of those speeches. This was also done for the final speeches, the figures for both being given in Tables XVIII and XIX.

Before deciding how beneficial--if at all--the use of motion pictures had been to the experimental group, it was necessary, first of all, to determine whether there was any difference at the beginning of the term between the two groups in their use of transitions and also in the amount of eye contact lost. As has already been noted, the control and experimental groups were very similar in composition, but this fact would not necessarily preclude the possibility of their being significantly different in their speech characteristics.

Loss of Eye Contact.--The averages of the two groups for loss of eye contact were quite close to each other, the control section having an average loss of 35% and the experimental group an average of 30.5%. Is this difference of 4.5% large enough to prove that, for some reason, the two groups at the beginning of the experiment were not similar in their speech habits? The formula[16] used to determine whether a significant difference exists between the means of two sets of variants was employed and no such difference was found.

Since the homogeneity of the classes was now established, the important fact to determine was whether there was any significant difference at the end of the term between the average loss of eye contact of the control group (10.40%) and that of the experimental group (5.70%).

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[16]This formula is fully explained in the section entitled "Comparison of Two Means" in R. A. Fisher, Statistical Methods for Research Workers. London: Oliver and Boyd, 1936. Pp. 128-133.

Because two influences--that of different instructors and also that of different methods of instruction--had acted upon both control and experimental groups, the effect of the individual instructor had to be eliminated in order to obtain a clear picture of the influence of motion pictures alone. Excluding the effect of the instructors,[17] a difference or F value[18] of 5.9 was found to exist between the two groups. This difference, in favor of the experimental group, is significant for the number of students involved.

A further test was made between the average improvement of loss of eye contact made by one group and that made by the other. The improvement made by each student, as shown in Table XX for the control group and in Table XXI for the experimental group, was calculated by subtracting the percent of eye contact lost during the last three speeches from the percent lost in the initial three speeches. The average improvement was 24.85% for the control group and 25.20% for the experimental group. The difference or t value[19] was negligible and therefore not significant. This may seem to be a direct contradiction of the statement made previously that a significant difference did exist between the final scores of the two groups in respect to loss of eye contact.

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[17]In order to do this, the formula for the analysis of variances was used. This formula is discussed in Chapter 14, "Analysis of Variance," W. D. Baten, Mathematical Statistics. New York: John Wiley and Sons, Inc., 1938. Pp. 249-262.

[18]For the number of students involved (69) the value of F must be greater than 3.98 to be significant.

[19]The t value, used to determine significant difference between two means, must be greater than 2.00 for the number of cases involved in order to be significant.

Upon careful examination, an explanation of this seeming paradox can be found. Even though the difference was not large enough to be significant, the control group started out 4.5% higher than the experimental group. The expected improvement of the control group would, then, be greater than the expected improvement of the experimental group since the former had a larger amount of eye contact lost upon which to improve. However, as has been pointed out, the improvement of the two groups was almost identical, indicating that the control group lagged behind the experimental group, the two being almost exactly the same distance apart (4.70%) at the end as they were at the beginning. This, therefore, explains the apparent contradiction of the answers obtained from the two tests.

From this data, then, the conclusion may be drawn that the use of motion pictures as a teaching device aided students in decreasing their loss of eye contact.

Transitions.--Similar formulas to those above were applied to the data gathered on the number of transitions used by both groups. Again the question may be asked: Were the two groups similar in their use of transitions at the beginning of the term? The very close averages, .16 per minute for the control sections and .12 per minute for the experimental sections, would indicate that they were similar in respect to this particular speech phenomena. Upon application of the formula this fact was established, no significant difference being present.

Were they significantly different in the use of transitions at the end of the term? After eliminating the influence of the instructor, a difference or F value of 5.7 was found to exist between the mean of the control group (.48 per minute) and the mean of the experimental group

(.64 per minute). This figure was significant for the number of students involved.

As in the case of loss of eye contact, a further test was made between the averages of the improvement made by the control and by the experimental group. The figures for the control group are given in Table XXII and for the experimental group in Table XXIII. The average improvement made by the former was .32 transitions per minute and by the latter, .53 transitions per minute. A difference or t value of 4.6 existed between the two means, indicating that in the improvement as well as in the final scores, there was a significant difference in favor of the experimental group.

From this, the conclusion may be drawn that the use of motion pictures aided students in learning to make transitions during a speech.

TABLE VIII

LENGTH OF INITIAL SPEECHES FOR CONTROL GROUP

Student	Speech 1 (sec.)	Speech 2 (sec.)	Speech 3 (sec.)	Total length in seconds	Total length in minutes
C1	123	130	64	317	5.28
C2	144	155	69	368	6.13
C3	177	140	57	374	6.23
C4	253	252	75	580	9.67
C5	112	150	72	334	5.57
C6	155	130	65	350	5.83
C7	180	185	70	435	7.25
C8	117	165	67	349	5.82
C9	80	105	70	255	4.25
C10	140	122	75	337	5.62
C11	*	150	52	202	3.37
C12	442	175	174	791	13.18
C13	110	157	60	327	5.45
C14	119	93	58	270	4.50
C15	268	189	93	550	9.17
C16	282	165	63	510	8.50
C17	104	135	71	310	5.17
C18	110	88	115	313	5.22
C19	255	135	*	390	6.50
C20	133	109	73	315	5.25
C21	142	112	56	310	5.17
C22	73	96	70	239	3.98
C23	193	115	61	369	6.15
C24	58	67	69	194	3.23
C25	94	157	63	314	5.23
C26	96	72	59	227	3.78
C27	144	75	51	270	4.50
C28	196	176	71	443	7.38
C29	188	154	64	406	6.77
C30	54	92	59	205	3.42
C31	157	175	114	446	7.43
C32	101	109	57	267	4.45
C33	101	84	64	316	5.27
C34	111	146	69	326	5.43

*Not recorded

TABLE IX

LENGTH OF FINAL SPEECHES FOR CONTROL GROUP

Student	Speech 12 (sec.)	Speech 14 (sec.)	Speech 15 (sec.)	Total length in seconds	Total length in minutes
C1	385	305	95	785	13.08
C2	380	485	140	1005	16.75
C3	260	289	120	669	11.15
C4	485	520	160	1165	19.42
C5	350	420	145	915	15.25
C6	350	335	103	788	13.13
C7	300	450	144	894	14.90
C8	300	375	128	803	13.38
C9	315	415	137	867	14.45
C10	310	475	106	891	14.85
C11	320	*	86	406	6.77
C12	263	340	153	756	12.60
C13	275	380	140	795	13.25
C14	280	370	133	783	13.05
C15	443	410	130	790	13.17
C16	443	410	90	943	15.72
C17	290	360	95	745	12.42
C18	430	412	88	930	15.50
C19	325	300	73	698	11.63
C20	375	370	130	875	14.58
C21	422	360	180	962	16.03
C22	208	475	219	902	15.03
C23	300	240	250	790	13.17
C24	145	390	155	690	11.50
C25	280	390	195	865	14.42
C26	320	595	325	1240	20.67
C27	370	324	220	914	15.23
C28	455	395	222	1072	17.67
C29	280	540	308	1128	18.80
C30	255	410	197	1103	16.72
C31	465	391	311	1167	19.45
C32	405	445	282	1132	18.89
C33	190	510	341	1041	17.35
C34	330	427	155	912	15.20

*Not recorded

TABLE X

LENGTH OF INITIAL SPEECHES FOR EXPERIMENTAL GROUP

Student	Speech 1 (sec.)	Speech 2 (sec.)	Speech 3 (sec.)	Total length in seconds	Total length in minutes
X1	88	103	77	268	4.47
X2	121	95	108	324	5.40
X3	75	135	75	285	4.75
X4	189	108	90	387	6.45
X5	177	150	60	387	6.45
X6	127	105	70	302	5.03
X7	149	98	81	328	5.47
X8	133	85	74	292	4.87
X9	78	75	79	232	3.87
X10	65	85	58	208	3.47
X11	152	137	49	338	5.63
X12	171	98	60	329	5.48
X13	145	134	65	344	5.73
X14	126	112	61	299	4.98
X15	176	*	*	176	2.93
X16	175	72	66	313	5.22
X17	180	187	95	462	7.70
X18	145	155	71	371	6.18
X19	153	128	80	361	6.02
X20	120	98	70	288	4.80
X21	112	96	65	273	4.55
X22	110	161	70	341	5.68
X23	231	174	72	477	7.95
X24	121	135	69	325	5.42
X25	155	166	76	397	6.62
X26	58	101	60	219	3.65
X27	298	73	102	473	7.88
X28	76	130	65	271	4.52
X29	160	80	45	285	4.75
X30	109	64	67	240	4.00
X31	197	313	76	586	9.77
X32	97	75	57	229	3.82
X33	86	99	76	261	4.35
X34	182	89	70	341	5.68
X35	61	108	70	239	3.98

*Not recorded

TABLE XI

LENGTH OF FINAL SPEECHES FOR EXPERIMENTAL GROUP

Student	Speech 12 (sec.)	Speech 14 (sec.)	Speech 15 (sec.)	Total length in seconds	Total length in minutes
X1	377	398	155	930	15.50
X2	210	470	120	800	13.33
X3	440	390	175	1005	16.75
X4	370	463	190	1023	17.05
X5	564	400	135	1099	18.32
X6	362	375	95	832	13.87
X7	360	555	140	1055	17.58
X8	*	265	140	405	6.75
X9	311	430	115	856	14.27
X10	370	340	95	805	13.42
X11	360	278	80	718	11.97
X12	360	310	115	785	13.08
X13	390	260	135	785	13.08
X14	355	240	100	695	11.58
X15	330	386	110	826	13.77
X16	300	210	95	605	10.08
X17	440	380	282	1102	18.37
X18	485	480	287	1147	19.12
X19	410	590	255	1255	20.92
X20	240	590	186	1016	16.93
X21	240	435	242	917	15.28
X22	410	435	300	1145	19.08
X23	490	315	300	1105	18.42
X24	380	395	268	1043	17.38
X25	480	310	145	935	15.58
X26	100	476	140	716	11.93
X27	175	530	220	925	15.42
X28	280	511	210	1001	16.68
X29	280	409	137	826	13.77
X30	240	301	295	836	13.93
X31	320	417	266	1003	16.72
X32	300	364	220	884	14.33
X33	257	405	180	842	17.03
X34	320	328	209	857	14.28
X35	415	311	187	913	15.22

*Not recorded

TABLE XII

AMOUNT OF LOSS OF EYE CONTACT IN INITIAL SPEECHES FOR CONTROL GROUP

Student	Speech 1 (sec.)	Speech 2 (sec.)	Speech 3 (sec.)	Total amount in seconds	Percent of eye contact lost
C1	34	13	4	51	16.09
C2	75	56	25	156	42.40
C3	44	13	1	58	15.50
C4	96	84	18	198	34.14
C5	21	25	1	47	14.07
C6	14	13	2	29	8.29
C7	7	6	1	14	3.22
C8	8	17	0	25	7.16
C9	1	0	0	1	0.39
C10	25	14	1	40	11.87
C11	*	24	1	25	12.38
C12	25	15	9	49	6.19
C13	64	50	22	136	41.59
C14	47	42	29	118	43.70
C15	191	125	33	349	63.45
C16	44	9	2	55	10.78
C17	46	71	20	137	44.19
C18	69	58	29	156	49.84
C19	86	110	*	196	63.23
C20	20	3	73	96	34.76
C21	29	26	56	111	35.81
C22	54	18	63	139	58.16
C23	135	55	61	251	65.31
C24	40	36	69	145	74.74
C25	32	61	63	156	49.68
C26	27	6	59	92	40.53
C27	101	13	51	165	61.11
C28	24	9	71	104	23.47
C29	35	70	64	169	41.62
C30	5	20	59	84	40.97
C31	75	85	114	274	61.43
C32	24	35	57	116	43.45
C33	21	15	64	100	31.64
C34	25	36	69	130	39.88
				Average	35.00

*Not recorded

TABLE XIII

AMOUNT OF LOSS OF EYE CONTACT IN INITIAL SPEECHES FOR EXPERIMENTAL GROUP

Student	Speech 1 (sec.)	Speech 2 (sec.)	Speech 3 (sec.)	Total amount in seconds	Percent of eye contact lost
X1	68	51	33	152	56.72
X2	14	7	5	26	8.02
X3	4	17	2	23	8.07
X4	71	6	2	79	20.41
X5	28	73	15	116	30.00
X6	27	18	5	50	16.56
X7	24	10	0	34	10.37
X8	9	0	2	11	3.76
X9	13	10	7	30	12.93
X10	30	23	6	59	28.37
X11	34	39	3	76	22.48
X12	6	17	15	38	11.55
X13	62	33	20	115	33.43
X14	21	39	12	72	24.08
X15	20	*	*	20	11.36
X16	31	6	10	47	15.01
X17	55	48	95	198	42.86
X18	25	55	71	151	40.70
X19	18	24	80	122	33.79
X20	120	74	70	264	91.67
X21	30	39	65	134	49.09
X22	21	51	70	142	41.64
X23	35	57	72	164	33.96
X24	15	33	69	117	36.00
X25	41	57	76	174	43.83
X26	1	5	60	66	30.14
X27	11	1	102	114	24.10
X28	10	23	65	98	36.16
X29	39	24	45	108	37.90
X30	10	5	67	82	34.17
X31	30	57	76	163	27.82
X32	25	5	57	87	38.00
X33	5	10	76	91	34.86
X34	70	35	70	175	51.32
X35	15	14	70	99	41.42
				Average	30.50

*Not recorded

TABLE XIV

AMOUNT OF LOSS OF EYE CONTACT IN FINAL SPEECHES

FOR CONTROL GROUP

Student	Speech 12 (sec.)	Speech 14 (sec.)	Speech 15 (sec.)	Total amount in seconds	Percent of eye contact lost
C1	19	6	25	50	6.37
C2	28	12	31	71	7.06
C3	4	7	16	27	4.04
C4	36	18	69	123	10.56
C5	33	12	22	67	7.32
C6	11	7	5	23	2.92
C7	12	3	8	23	2.56
C8	23	7	6	36	4.48
C9	5	1	11	17	1.96
C10	4	2	9	15	1.68
C11	32	*	14	46	11.33
C12	43	214	22	279	36.90
C13	79	102	19	200	25.16
C14	44	76	7	127	16.22
C15	32	34	9	75	9.49
C16	25	1	0	26	2.76
C17	31	53	7	91	12.21
C18	152	62	0	214	23.01
C19	28	19	5	52	7.59
C20	19	66	1	86	9.83
C21	16	12	1	29	3.01
C22	1	250	2	253	28.05
C23	35	5	3	43	5.44
C24	47	19	3	69	10.00
C25	27	29	0	56	6.49
C26	26	12	4	42	3.39
C27	46	2	2	50	5.47
C28	56	21	0	77	7.18
C29	67	62	120	249	22.07
C30	11	63	18	92	8.34
C31	97	14	52	163	13.97
C32	61	8	77	146	12.89
C33	13	42	12	67	6.44
C34	48	75	14	137	15.02
				Average	10.40

*Not recorded

TABLE XV

AMOUNT OF LOSS OF EYE CONTACT IN FINAL SPEECHES

FOR EXPERIMENTAL GROUP

Student	Speech 12 (sec.)	Speech 14 (sec.)	Speech 15 (sec.)	Total amount in seconds	Percent of eye contact lost
X1	23	10	1	34	3.66
X2	23	24	1	48	3.60
X3	3	9	0	12	1.19
X4	22	5	0	27	2.64
X5	18	33	1	52	4.73
X6	65	8	1	74	8.89
X7	47	21	0	68	6.45
X8	*	2	1	3	0.44
X9	23	15	2	40	4.67
X10	8	11	25	44	5.47
X11	12	3	2	17	2.37
X12	10	7	1	18	2.29
X13	27	8	7	42	5.35
X14	48	20	12	80	11.51
X15	15	7	0	22	1.59
X16	3	7	21	31	5.12
X17	23	20	1	44	3.99
X18	138	46	1	185	16.13
X19	40	95	1	136	10.84
X20	49	145	2	196	19.29
X21	30	40	3	73	7.96
X22	64	45	2	111	9.69
X23	58	50	6	114	10.32
X24	100	53	1	154	14.77
X25	38	25	9	72	7.70
X26	2	5	1	8	1.12
X27	4	1	1	6	0.65
X28	146	64	17	227	22.68
X29	2	1	0	3	0.36
X30	3	2	0	5	0.60
X31	3	0	0	3	0.30
X32	8	4	0	12	1.36
X33	4	6	2	12	1.43
X34	5	3	2	10	1.17
X35	1	0	0	1	0.11
				Average	5.70

*Not recorded

TABLE XVI

NUMBER OF TRANSITIONS IN INITIAL SPEECHES

FOR EXPERIMENTAL GROUP

Student	Speech 1	Speech 2	Speech 3	Total	Number per minute
X1	0	0	0	0	.00
X2	0	0	0	0	.00
X3	0	0	0	0	.00
X4	2	2	0	4	.62
X5	0	0	0	0	.00
X6	1	1	0	2	.40
X7	0	0	0	0	.00
X8	0	0	0	0	.00
X9	2	1	0	3	.78
X10	1	0	0	1	.29
X11	0	0	0	0	.00
X12	0	0	0	0	.00
X13	0	0	0	0	.00
X14	0	0	0	0	.00
X15	0	0	0	0	.00
X16	0	0	0	0	.00
X17	1	0	0	1	.13
X18	0	0	0	0	.00
X19	0	0	3	3	.49
X20	0	0	0	0	.00
X21	0	0	0	0	.00
X22	0	0	0	0	.00
X23	0	0	0	0	.00
X24	0	0	0	0	.00
X25	0	0	0	0	.00
X26	0	0	0	0	.00
X27	0	0	0	0	.00
X28	0	0	0	0	.00
X29	0	1	0	1	.21
X30	0	0	0	0	.00
X31	0	0	1	1	.10
X32	0	0	2	2	.52
X33	0	0	1	1	.23
X34	0	0	0	0	.00
X35	0	0	0	0	.00
				Average	.12

TABLE XVII

NUMBER OF TRANSITIONS IN INITIAL SPEECHES

FOR CONTROL GROUP

Student	Speech 1	Speech 2	Speech 3	Total	Number per minute
C1	0	1	0	1	.19
C2	0	0	2	2	.32
C3	1	4	0	5	.80
C4	0	0	0	0	.00
C5	0	0	0	0	.00
C6	0	0	0	0	.00
C7	0	0	0	0	.00
C8	0	0	0	0	.00
C9	0	0	0	0	.00
C10	0	0	0	0	.00
C11	*	0	0	0	.00
C12	0	0	0	0	.00
C13	0	0	0	0	.00
C14	1	0	1	2	.44
C15	0	0	0	0	.00
C16	3	2	1	6	.70
C17	0	0	0	0	.00
C18	0	0	0	0	.00
C19	2	0	*	2	.31
C20	0	0	0	0	.00
C21	0	0	0	0	.00
C22	0	0	5	5	1.26
C23	0	0	0	0	.00
C24	0	0	0	0	.00
C25	0	0	1	1	.19
C26	0	0	1	1	.26
C27	0	1	0	1	.22
C28	0	0	0	0	.00
C29	0	0	0	0	.00
C30	0	0	3	3	.88
C31	0	0	0	0	.00
C32	0	0	0	0	.00
C33	0	0	0	0	.00
C34	0	0	0	0	.00
				Average	.16

*Not recorded

TABLE XVIII

NUMBER OF TRANSITIONS IN FINAL SPEECHES

FOR CONTROL GROUP

Student	Speech 12	Speech 14	Speech 15	Total	Number per minute
C1	6	5	0	11	.84
C2	4	0	0	4	.24
C3	4	2	0	6	.56
C4	3	4	0	7	.27
C5	7	7	0	14	.92
C6	4	5	0	9	.69
C7	0	0	0	0	.00
C8	4	5	2	11	.82
C9	4	6	1	11	.76
C10	5	6	0	11	.74
C11	3	*	0	3	.44
C12	1	0	0	1	.08
C13	1	0	0	1	.08
C14	2	6	0	8	.61
C15	2	1	0	3	.23
C16	2	3	0	5	.32
C17	4	0	3	7	.56
C18	4	10	1	15	.96
C19	4	2	0	6	.52
C20	0	2	3	5	.34
C21	3	3	0	6	.37
C22	1	0	3	4	.27
C23	2	1	0	3	.23
C24	0	2	4	6	.52
C25	1	2	1	4	.28
C26	0	4	2	6	.29
C27	7	4	3	14	.92
C28	0	2	0	2	.11
C29	4	8	0	12	.64
C30	3	2	5	10	.59
C31	0	3	0	3	.15
C32	4	4	6	14	.74
C33	4	5	5	14	.81
C34	2	7	0	9	.59
				Average	.48

*Not recorded

TABLE XIX

NUMBER OF TRANSITIONS IN FINAL SPEECHES

FOR EXPERIMENTAL GROUP

Student	Speech 12	Speech 14	Speech 15	Total	Number per minute
X1	7	2	0	9	.58
X2	1	0	1	2	.15
X3	7	3	1	11	.65
X4	2	4	3	9	.53
X5	0	4	0	4	.22
X6	4	1	0	5	.36
X7	4	3	0	7	.39
X8	*	1	0	1	.15
X9	3	5	0	8	.55
X10	5	5	2	12	.89
X11	1	3	0	4	.33
X12	0	2	1	3	.23
X13	2	2	2	6	.46
X14	4	3	0	7	.60
X15	2	3	1	6	.44
X16	3	3	0	6	.59
X17	4	4	2	10	.54
X18	8	7	6	21	1.10
X19	3	3	3	9	.43
X20	1	3	0	4	.24
X21	3	5	6	14	.92
X22	6	6	6	18	.94
X23	4	8	3	15	.81
X24	4	5	1	10	.57
X25	5	4	7	16	1.03
X26	2	5	3	10	.84
X27	2	8	3	13	.84
X28	4	7	3	14	.84
X29	8	6	3	17	1.45
X30	3	8	3	14	1.00
X31	4	4	3	11	.66
X32	2	5	2	9	.63
X33	4	9	2	15	.88
X34	2	3	3	8	.56
X35	4	5	4	13	.85
				Average	.64

*Not recorded

TABLE XX

IMPROVEMENT OF LOSS OF EYE CONTACT BETWEEN INITIAL AND FINAL SPEECHES FOR CONTROL GROUP

Student	Loss of eye contact in initial speeches (%)	Loss of eye contact in final speeches (%)	Improvement
C1	16.09	6.37	9.72
C2	42.40	7.06	35.34
C3	15.50	4.04	11.46
C4	34.14	10.56	23.58
C5	14.07	7.32	6.75
C6	8.29	2.92	5.37
C7	3.22	2.56	0.66
C8	7.16	4.48	2.68
C9	0.39	1.96	-1.57
C10	11.87	1.68	10.19
C11	12.38	11.33	1.05
C12	6.19	36.90	-30.71
C13	41.59	25.16	16.43
C14	43.70	16.22	27.48
C15	63.45	9.49	53.96
C16	10.78	2.76	8.02
C17	44.19	12.21	31.98
C18	49.84	23.01	26.83
C19	63.23	7.59	55.64
C20	34.76	9.83	24.93
C21	35.81	3.01	33.80
C22	58.16	28.05	30.11
C23	65.31	5.44	59.87
C24	74.74	10.00	64.74
C25	49.68	6.49	43.19
C26	40.53	3.39	37.14
C27	61.11	5.47	55.64
C28	23.47	7.18	16.29
C29	41.62	22.07	19.55
C30	40.97	8.34	32.63
C31	61.43	13.97	47.46
C32	43.45	12.89	30.56
C33	31.64	6.44	25.20
C34	39.88	15.02	24.86
		Average	24.85

TABLE XXI

IMPROVEMENT OF LOSS OF EYE CONTACT BETWEEN INITIAL AND FINAL SPEECHES FOR EXPERIMENTAL GROUP

Student	Loss of eye contact in initial speeches (%)	Loss of eye contact in final speeches (%)	Improvement
X1	56.72	3.66	53.06
X2	8.02	3.60	4.42
X3	8.07	1.19	6.88
X4	20.41	2.64	17.77
X5	30.00	4.73	25.27
X6	16.56	8.89	7.67
X7	10.37	6.45	3.92
X8	3.76	0.44	3.32
X9	12.93	4.67	8.26
X10	28.37	5.47	22.90
X11	22.48	2.37	20.11
X12	11.55	2.29	9.26
X13	33.43	5.35	28.08
X14	24.08	11.51	12.57
X15	11.36	1.59	9.77
X16	15.01	5.12	9.89
X17	42.86	3.99	38.87
X18	40.70	16.13	24.57
X19	33.79	10.84	22.85
X20	91.67	19.29	72.38
X21	49.09	7.96	41.13
X22	41.64	9.69	31.95
X23	33.96	10.32	23.64
X24	36.00	14.77	21.23
X25	43.83	7.70	36.13
X26	30.14	1.12	29.02
X27	24.10	0.65	23.45
X28	36.16	22.68	13.48
X29	37.90	0.36	37.54
X30	34.17	0.60	33.57
X31	27.82	0.30	27.52
X32	38.00	1.36	36.64
X33	34.86	1.43	33.43
X34	51.32	1.17	50.15
X35	41.42	0.11	41.31
		Average	25.20

TABLE XXII

IMPROVEMENT IN NUMBER OF TRANSITIONS BETWEEN INITIAL AND FINAL SPEECHES FOR CONTROL GROUP

Student	Number of transitions in initial speeches	Number of transitions in final speeches	Improvement
C1	.19	.84	.65
C2	.32	.24	-.08
C3	.80	.56	-.24
C4	.00	.27	.27
C5	.00	.92	.92
C6	.00	.69	.69
C7	.00	.00	.00
C8	.00	.82	.82
C9	.00	.76	.76
C10	.00	.74	.74
C11	.00	.44	.44
C12	.00	.08	.08
C13	.00	.08	.08
C14	.44	.61	.17
C15	.00	.23	.23
C16	.70	.32	-.38
C17	.00	.56	.56
C18	.00	.96	.96
C19	.31	.52	.21
C20	.00	.34	.34
C21	.00	.37	.37
C22	1.26	.27	-.99
C23	.00	.23	.23
C24	.00	.52	.52
C25	.19	.28	.09
C26	.26	.29	.03
C27	.22	.92	.70
C28	.00	.11	.11
C29	.00	.64	.64
C30	.88	.59	-.29
C31	.00	.15	.15
C32	.00	.74	.74
C33	.00	.81	.81
C34	.00	.59	.59
		Average	.32

TABLE XXIII

IMPROVEMENT IN NUMBER OF TRANSITIONS BETWEEN INITIAL AND FINAL SPEECHES FOR EXPERIMENTAL GROUP

Student	Number of transitions in initial speeches	Number of transitions in final speeches	Improvement
X1	.00	.58	.58
X2	.15	.30	.15
X3	.00	.65	.65
X4	.62	.53	-.09
X5	.00	.22	.22
X6	.40	.36	-.04
X7	.00	.39	.39
X8	.00	.15	.15
X9	.78	.55	-.23
X10	.29	.89	.60
X11	.00	.33	.33
X12	.00	.23	.23
X13	.00	.46	.46
X14	.00	.60	.60
X15	.00	.44	.44
X16	.00	.59	.59
X17	.13	.54	.41
X18	.00	1.10	1.10
X19	.49	.43	-.06
X20	.00	.24	.24
X21	.00	.92	.92
X22	.00	.94	.94
X23	.00	.81	.81
X24	.00	.57	.57
X25	.00	1.03	1.03
X26	.00	.84	.84
X27	.00	.84	.84
X28	.00	.84	.84
X29	.21	1.45	1.24
X30	.00	1.00	1.00
X31	.10	.66	.56
X32	.52	.63	.11
X33	.23	.88	.65
X34	.00	.56	.56
X35	.00	.85	.85
		Average	.53

CHAPTER IX

SUBJECTIVE EVALUATION

In order to determine the answer to the third problem--Is there a subjective value in the use of motion pictures as a supplementary device?--a questionnaire was given at the end of the term to each student in the author's two experimental sections, and notes of their comments and reactions during the taking and projecting of the films were recorded. A sample of the questionnaire will be found on the next page.

Fifteen of the sixteen students involved returned the questionnaires, one of them failing to do so because he left school at the end of the term. A discussion of the answers given to the individual questions is contained in this chapter.

Question I. Were you aware that motion pictures were taken of you? In both the first and the last series, eight of the fifteen students were not aware of the fact that motion pictures were being taken of them. Indeed, so unaware were some of them as to what was being done that several students a few days afterwards asked the instructor when motion pictures were to be taken in class. Thus, for half the students, motion pictures were taken in a situation that was, for them, perfectly natural and normal. Such an atmosphere, as has already been explained, was felt highly desirable.

Question II. What made you aware of the taking of motion pictures? In the first series four of the seven who were conscious of the taking of pictures were aware of it since, because of absence during the regular class period, they were asked to come in at a pre-arranged time other than the hour at which the class met. Likewise, two of the seven who were aware of the taking of the second series of pictures were "shot"

Name _____ Section _____

Division _____ Class _____ Age _____

I. Were you aware that motion pictures were taken of you?
The first time: Yes ____ No ____
The second time: Yes ____ No ____

II. What made you aware of this?

III. If you were aware of it, did the taking of motion pictures disturb you? Yes ___ No ___. In what way did it disturb you? Describe reaction.

IV. If such equipment was used, did the addition of extra lights or a background sheet disturb you? Yes __ No __. Describe reaction.

V. Have you ever had motion pictures taken of you before? Yes ___ No ___. If you have, state the circumstances.

VI. What were your reactions upon seeing yourself when the motion picture of you was projected? Describe in full.

VII. Do you believe the use of motion pictures helped you in respect to public speaking? Yes ___ No ___. If answer is yes, in what way did it help you?

VIII. List any suggestions you might have as to the use of motion pictures in the teaching of speech; in the taking of such pictures; or concerning this experiment in general.

during a special period devoted to this. Obviously, these students could hardly fail to know what was happening.

Of the remaining three in the first series and five in the second series, four students saw the camera lens through the small aperture in the wall, two heard the camera running, and two heard rumors from other students concerning the taking of pictures. These figures indicate that it is entirely possible to keep the students from knowing that motion pictures are being taken of them. It might be added that even in the two cases of the camera's being heard, a different--and evidently noisier--camera from the one ordinarily employed was used.

Question III. Did the taking of motion pictures disturb you? Only one student was unaware both times that pictures were being taken. Of the other fourteen, eight replied that even though they knew about it the motion pictures did not disturb them, although one student did mention that he made a conscious attempt to correct the faults that had been pointed out during the first series of pictures.

With six students, the taking of motion pictures was a disturbing factor. Such comments as "It made me nervous and I forgot my lines," "I found myself thinking of the way I would look to the camera, and meantime lost the 'thread of thought,'" and "I felt more self-conscious and consciously tried to avoid moving around and making weak gestures" are indicative of the fact that to many individuals such knowledge is undesirable and is likely to cause the student to do many things which ordinarily he would not do. This fact would seem to support the writer's previous contention that it is best to keep the classroom situation as natural as possible even though some students are unaffected by the knowledge that they are being photographed.

Question IV. If such equipment was used, did the addition of extra lights or a background sheet disturb you? Only two students had extra equipment used during the filming of their pictures. Both of these students answered that they were not disturbed by either the sheet or the light. Since so few people were involved, these comments, however, can hardly be considered indicative of how the average student would feel toward the use of such apparatus. If extra lights and a background sheet were to be used, both should be employed during every speech, regardless as to whether the speaker was being "shot" at that particular time, in order to accustom him to their use. The important point to be remembered is not to make the speaker aware of the fact that he is being photographed.

Question V. Have you ever had motion pictures taken of you before? This question was inserted partly out of curiosity and partly to discover how much experience the students had had with motion pictures. For five of them, this was their first experience. The other ten had varying amounts of connection with "movies," ranging all the way from amateur filmings of family gatherings to professional motion pictures taken in several sports. One student had even participated in a newsreel which pictured him assisting "in hurling ten automobiles over a 250 foot cliff."

In general, the experience of the students involved in the experiment was not sufficient or personal enough to influence their behavior before the camera in speech class.

Question VI. What were your reactions upon seeing yourself when the motion picture of you was projected? The most frequent reaction seemed to be that of surprise. Students were totally unaware of cer-

tain characteristic habits of movement and posture and were surprised at their own actions as shown on the screen. This typical comment was made by one student: "I had never been aware of the actions and motions which I went through. As I watched the picture, I could see the favorable and unfavorable movements which I could not realize when others told me of them."

Naturally enough, most of the students were perhaps a little embarrassed when they saw themselves for the first time but quickly lost this feeling, becoming interested not in their general appearance but rather in the specific faults so obvious to them on the screen. They were extremely cooperative and good-natured during the projecting of the films and were quite willing to laugh at themselves during a scene which showed a particularly awkward movement or ungainly posture.

In general they readily observed their own shortcomings and were not only anxious but determined as well to correct such faults in the immediate future.

A few evidently were a little more than surprised, one commenting that, on first seeing her pictures, she "wanted to tear them up," while still another was "scared" when he saw a close-up of himself. By and large, however, the students reacted very favorably to the pictures of themselves.

Question VII. Do you believe the use of motion pictures helped you in respect to public speaking? Only one of the students did not believe that motion pictures had been a benefit to her, maintaining that the taking of the pictures made her self-conscious and forgetful.

The other fourteen answered enthusiastically that the use of motion pictures had been a help to them in public speaking. Perhaps

the most satisfactory method of showing their attitude toward motion pictures as a teaching device would be to quote directly from some of the questionnaires:

I believe it did help; at least I feel I improved by the time the next film was taken. It may have been because I had had more experience or because I didn't know the picture was being taken; at any rate, the picture of that last projection was still in my mind and I tried to improve.

It showed where the faults were in the movements more vividly than if I had only been told about them.

I have been able to correct several faults, and the chance to see my progress has helped too.

It gave me an opportunity to see myself in a new light. I saw that my speaking was not as forceful as it should be and brought home the point that more gestures were needed.

It has helped me because I could see myself as others see me, and not as I see myself. I was able to criticize myself as if I were another person projected on the screen.

Motion pictures brought out a lot of bad points such as aimless movement, lack of eye contact and forcefulness which I didn't realize before.

I knew better how to correct my faults for I could see exactly what I was doing wrong as far as gestures were concerned.

I think it helped me to realize my need for gestures. I think it helped me to better understand what I should do to counteract my aimless movement.

Regardless, then, of any objective value that the use of motion pictures may possess, there seems to be a definite subjective worth in their use. From the comments made by the students in the questionnaires and also to the instructors during the individual conferences, the conclusion may safely be drawn that motion pictures do aid individuals in public speaking by giving them confidence in their ability to speak, by showing them concretely how they look to other people, and by adding weight to the classroom criticisms of instructor and students.

Question VIII. List any suggestions you might have as to the taking or the use of motion pictures in the teaching of speech or concerning this experiment itself. Twelve students answered this particular question. The principal suggestion made by the majority of the students was that motion pictures should be taken more extensively in public speaking classes, either by including everyone in the class or by taking pictures on more than two occasions as was done in this study.

One student remarked, "I think this experiment is a worthy one because it shows the speaker so many of his own faults that he can't possibly realize while he is speaking. These movements are done unconsciously and motion pictures are very helpful in correcting such faults."

Still another said, "I think that pictures will help almost everyone in his method of presentation. They illustrate, better than anything that can be said, the troubles of each individual."

Some constructive suggestions were made concerning motion pictures as used in the public speaking classes. Several thought it highly desirable to keep the actual shooting of the pictures as inconspicuous as possible, thereby maintaining a natural classroom situation.

Other suggestions included the use of sound with the picture and also conferences to be held immediately after the films have been taken (hardly possible since a week must be allowed for processing).

In attempting to make a subjective evaluation of the use of motion pictures as a teaching device, care must be taken not to become too enthusiastic or glowing about the benefits that may be derived. Students, because of the novelty of seeing themselves on the screen and, perhaps, because they think they are expected to see benefits in such a teaching technique, may claim for this method advantages which do not exist.

The instructor, likewise, in the desire to "discover" a new method of teaching may be prone to do the same thing.

However, from the answers to the questions as summarized above and from observations made by the instructors, the conclusion may be drawn that the students do believe that they were definitely benefited by the use of motion pictures, that the techniques and methods employed in this experiment were, by and large, quite satisfactory, and that motion pictures supplied information to each student that could not be gained from the classroom situation alone.

Motion pictures, therefore, do supply a motivating factor by creating more interest and enthusiasm in the speech situation and through supplementing oral criticisms by means of a visual portrayal of the speaker's shortcomings. The answer to the third problem then, as determined by the students' own evaluations and by the observations of this writer, would be that motion pictures do have a subjective value as a supplementary teaching device in public speaking.

CHAPTER X

SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER STUDY

Summary.--In summarizing both the objective and subjective findings of this study, the following points can be made:

1. No significant difference, measured statistically, existed at the beginning of the term between the control group, which did not use motion pictures, and the experimental group, which did use motion pictures, in respect to loss of eye contact and number of transitions used.

2. At the end of the term, the control group lost an average of 10.4% of eye contact while the experimental section lost 5.7%. This difference of 4.7% in favor of the experimental group was statistically significant.

3. Both groups improved eye contact lost by approximately the same amount (25%) during the term, no significant difference existing between the two.

4. At the end of the term, the control group made an average of .48 transitions per minute and the experimental group an average of .64 transitions per minute. The difference of .16 transitions per minute in favor of the experimental group was statistically significant.

5. The average improvement made by the control group was .32 transitions per minute; the average improvement for the experimental group was .53 transitions per minute. The difference of .21 transitions per minute in favor of the experimental group was statistically significant.

6. The majority of students in the experimental group indicated that they felt the use of motion pictures had been a definite help to them in public speaking.

Conclusions.--Unfortunately, errors in the technique and procedure of conducting any experiment such as this one are rarely seen until after the possibility of correcting such mistakes has passed. This experiment was no exception. At all times, keeping the study as objective and scientific as possible was felt to be of primary importance. For the most part this objective seems to have been accomplished. However, in retrospect, this writer can now see several ways by which the study might have been made more objective and impersonal.

For example, conferences of the same length as those used with the experimental group to show the motion pictures should have been held with the members of the control group. This would have made the teaching procedure exactly the same for the two groups except for the fact that motion pictures would be used with one group but not with the other. As it was, the experimental group benefited not only from seeing pictures of themselves but also from the two conferences held with them in conjunction with the showing of the pictures. Thus from this study there is no way of determining which of these two factors caused this group to develop greater effectiveness in speaking than did the control group. In order to discover the most significant technique, experiments similar to this one would have to be conducted of the conference method as opposed to the non-conference method, and the conference method as opposed to the motion-picture-conference method. Thus the relative value of each of the three techniques could be determined.

Again, the number of students involved in the experiment was perhaps too small to permit an accurate, reliable comparison to be made between the motion picture group and the non-motion picture group. With only a comparatively small number concerned, statistical measurements

must, of necessity, be cruder, less delicate than they would be if one or two hundred students were used.

Keeping in mind that these and other shortcomings do exist in this study, definite answers can now be supplied for the problems as set forth in the introduction.

Problem I. Can a reliable, objective testing device be set up to evaluate ability in public speaking? As has already been pointed out, such a measuring device had already been set up by the Committee on Cooperative Research of the National Association of Teachers of Speech. This method of measuring speech phenomena objectively was found to be quite adequate and satisfactory for the purposes of this study.

Problem II. If such a test can be formulated, does the use of motion pictures when utilized as a supplementary teaching device improve the students' ability to speak? As far as the results of this experiment are concerned--limited as it was by the techniques used, the number of students involved, and the phenomena counted--all statistical findings indicate that, objectively measured, motion pictures improved the students' loss of eye contact and use of transitions as compared to those who did not have motion pictures taken. Again what has been said previously of the phenomena studied herein must be kept in mind. While loss of eye contact and transitions may be isolated speech elements, they are part of the total delivery of an individual, and improvement in these two phenomena would indicate improvement in the total speech pattern.

Problem III. Is there a subjective value in the use of motion pictures as a supplementary teaching device in public speaking? From answers given in the questionnaires and from comments made by individual

students, the conclusion can be made that students believed that motion pictures have a definite value in the teaching of speech. The use of such pictures, without doubt, created more enthusiasm and interest in the classroom situation and provided a helpful motivating force as well as a pictorial corroboration of instructor and student criticisms.

Problem IV. Is the objective and subjective value of motion pictures significant enough to justify the necessary expenditure of time and money? Despite the fact that a statistically significant improvement was made by the experimental group over the control group and despite the fact that the experimental group felt that a subjective value had been gained from the use of motion pictures, this writer does not believe that the human difference was significant enough to warrant expenditure of time and money by the student and the institution. In other words, although, mathematically speaking, motion pictures do have a value as a supplementary teaching device, not enough difference existed between the two groups at the end of the term to be discernible. A difference of 4.7% in loss of eye contact or of .16 in transitions used per minute, statistically significant though it may be, is not great enough to be observed in the total speech pattern of an individual--the difference is not humanly significant.

Suggestions for Further Study.--In the light of the experience gained and the conclusions drawn from this study, these topics for future investigation in the field of motion pictures as a teaching device in public speaking are suggested.

1. To compare, objectively, a group of speakers, using the conference-motion picture method as a supplementary teaching device, with a similar group of speakers using the conference method alone as a teaching device.

2. To compare, objectively, a group of speakers using the conference method as a supplementary teaching device with a group of speakers having only the usual classroom instruction.

3. To study the effect of using sound coupled with motion pictures in the teaching of speech.

4. To determine the value, if any, of sound pictures over silent pictures in the teaching of speech.

BIBLIOGRAPHY

American Council on Education. Motion Pictures in Education. New York: H. W. Wilson Company, 1937. Pp. 472.

Baten, W. D. Elementary Mathematical Statistics. New York: John Wiley and Sons, Inc., 1938. Pp. x + 338.

"Case of the Motion Picture in Speech Training," Educational Screen, XIX (January, 1940), 76-77.

Committee on Cooperative Research of the National Association of Teachers of Speech. A Research into the Teaching of Public Speaking. Detroit: Wayne University, 1939 (mimeographed). Pp. 233.

Dent, Ellsworth C. Audio-Visual Handbook. Chicago: The Society for Visual Education, Inc., 1939. Pp. 180.

Finch, H. R. "Film Production in the Schools," Educational Screen, XVII, 216-18.

Johnson, W. H. Fundamentals in Visual Instruction. Chicago: The Educational Screen, Inc., 1927. Pp. 104.

Koon, C. M. School Use of Visual Aids. U. S. Office of Education Bulletin, 1938, No. 4. Washington: Government Printing Office, 1938. Pp. viii + 68.

McClusky, Frederick Dean. Visual Instruction. New York: Mancall Publishing Corporation, 1932. Pp. 125.

McKown, Harry C., and Roberts, Alvin B. Audio-Visual Aids to Instruction. New York and London: McGraw-Hill Book Company, Inc., 1940. Pp. xiv + 385.

Nystrom, C. L., and Leaf, Roberta. "The Recording Machine as a Teaching Device," Quarterly Journal of Speech, XXV (October, 1939), 433-38.

Rand, Helen, and Lewis, Richard. Film and School. New York: D. Appleton-Century Company, 1937. Pp. xv + 182.

Rulon, P. J. The Sound Motion Picture in Science Teaching. Cambridge: Harvard University Press, 1933. Pp. xi + 236.

Utzinger, Vernon A. "The Use of the Moving Picture Machine and the Recording Instrument in Teaching Speech," Quarterly Journal of Speech, XXV (February, 1939), 9-12.

Visual Aids in Education. School publication No. 184. Los Angeles: Visual Education Division, Los Angeles City School District, 1929. Pp. 32.

Wood, Ben D., and Freeman, Frank N. Motion Pictures in the Classroom. Boston: Houghton Mifflin Company, 1929. Pp. xxi + 392.

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