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Title of Study: A PROGRAM FOR QUALITY CIRCLE TRAINING IN DATA COLLECTION

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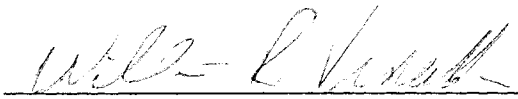
Scope and Method of Study: This report describes the activities involved in an internship that consisted of the development of slide/tape training programs in data collection for Quality Circle members. The objectives of the internship were: 1) to develop expertise in the planning, production, and editing of audiovisual materials; and 2) to prepare a program for quality circle training in data collection within a university setting. A model is outlined for the planning and production of an audiovisual program and a variety of quality circle training programs are described.

Conclusions and Recommendations: The selection of a theory of adult learning is described as a necessary step in planning any training program. The development of objectives that limit the length and complexity of the training program is presented. The need for expertise in developing visuals is recommended. An orderly arrangement of steps for production of audiovisual programs is discussed as necessary for a timely completion of similar programs. The range of skills required by such a broad internship leads to the recommendation that a similar internship should either be narrowed in scope or should involve a team approach of more than one intern.

Adviser's Approval 

A PROGRAM FOR QUALITY CIRCLE TRAINING IN DATA COLLECTION

By

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Bachelor of Science in Nursing

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Submitted to the Faculty of the Graduate College
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A PROGRAM FOR QUALITY CIRCLE TRAINING

IN DATA COLLECTION

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Report Adviser

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

A quality circle is a small group of employees from similar work areas who voluntarily meet on a regular basis to identify, analyze and solve problems. The major purpose of the quality circle is to improve the total organization, including the quality of worklife, products, and services. An integral component of any quality circle program is the training of its members.

The training process involves various steps and learning activities for the quality circle participants. These steps and activities include 1) "brainstorming" techniques that generate ideas and approaches to solving identified problems, 2) data collection to verify that a problem exists, 3) generation of ideas about the cause(s) of the identified problem, 4) development of a plan of action to solve the problem, 5) data collection to support the plan of action, and 5) a presentation before management. If management accepts the recommendations from the quality circle participants, the activities to solve the problem are initiated.

The quality circle provides for a high degree of participation among circle members. The selection of an appropriate adult learning theory that incorporates provisions for such participation is the basis for a successful quality circle training program. Three groups

of learning theories can be utilized with adults. Each theory makes different assumptions about the learner and the role of the educator.

One learning theory interprets man's behavior as connections between stimuli and responses (Skinner, 1968; Thorndike, 1928). Individuals who view man as mechanistic fall within the so-called behaviorist or connectionist group. Each reaction from a learner is an exact response to a specific sensation or stimulus that is usually provided by the educator.

A second group of theories is referred to as organismic or cognitive. The common feature of this theory is that it assumes cognitive processes like insight, intelligence, and organizational abilities, are the fundamental characteristics of human behavior (Gagne, 1965; Bruner, 1966). Learners are seen to possess a quality of intelligence and the ability to create relationships. The role of the educator is one of encouraging the learner to perceive the stimuli in organized wholes using prior experience. This differs from the mechanistic theory in which learners perceive the stimuli in disconnected parts.

The humanistic approach to adult learning is the third major theory group, which includes such theorists as Carl Rogers, Allen Tough, and Malcolm Knowles. Humanistic theorists view the learner as a capable individual who desires to know why learning is needed, how prior experience fits into the learning, and what application the learning will have. Learners are allowed a high degree of participation in the development of their own learning situations. Humanists consider their role as that of facilitators of learning. The facilitator role includes providing a supportive environment in which learners function as resources to one another.

Each learning theory makes assumptions about the learner's role and abilities and the role of the individual leading the educational activity. Since quality circle programs require a high degree of participation among the members, it is imperative to utilize a theory that allows this to occur. A humanistic theory of adult learning is appropriate for planners of quality circle training programs. This theory is based on the view that learners are intelligent, capable individuals who can both add to and gain from a highly participatory learning environment.

It is also important to utilize techniques and methods that adult learners prefer. Adults enjoy the learning experience and learn with greater ease when techniques and methods they prefer are employed.

Galbraith and James (1985) address this issue in a recent research study. They examined the preferred learning style for processing information among 319 adults. They worked with two age groups, one from 20 to 49 years of age and another from 50 years of age and older. They found that the dominant preferred learning modality was visual for both groups. Implications of their study indicate that success in program planning and instruction may depend on the facilitator's awareness of the preferred perceptual learning styles of adults in specific educational activities.

Statement of the Problem

Oklahoma State University has initiated a quality circle pilot program which included the development of a training handbook. The Staff Development and Training Office expressed a need to have audiovisual programs developed to supplement the training handbook.

It was felt that the best audiovisual program for the University would be one that was produced with its own audience in mind, utilizing the format and techniques outlined in the quality circle handbook.

Purpose of the Study

The purpose of this study was to develop slide/tape programs in data collection techniques for training quality circle participants. These programs were to include methods of data collection, summarization and display, and a case study in data collection. This purpose was to be achieved through an internship with the Staff Training and Development Office at Oklahoma State University.

Objectives

The objectives were:

a) to develop expertise in the planning, production, and editing of audiovisual materials, and

b) to prepare a program for quality circle training in data collection within a university setting.

Definition of Terms

1. Brainstorming: a method for generating a large number of ideas within a group. It includes specific steps for developing a consensus of opinion about any topic addressed.

2. Column Graph: a graph with vertical columns.

3. Educator: one who imparts knowledge or skills by the process of instruction or training.

4. Histogram: a form of column graph which displays the distribution of values obtained when numerical data is collected.

5. Learning Facilitator: one who assists in helping others learn.

6. Line Graph: a graph used to plot occurrences.

7. Pareto Chart: a chart which systematically separates the important few from the trivial many items. Data is based on 100 percent and plotted on a graph in descending order.

8. Pie Chart: a circular chart which demonstrates how several parts make up a whole. It is based on 100 percent.

9. Quality Circle: a small group of employees from similar work areas who voluntarily meet on a regular basis to identify, analyze, and solve problems.

10. Quality Circle Participants: members of a quality circle.

11. Quality Circle Leader: the individual responsible for guiding the quality circle members in their activities. This person may also facilitate the training for quality circle members.

CHAPTER II

REVIEW OF LITERATURE

This chapter is organized into three sections. The first deals with identification of the need for development of a program for quality circle training in data collection. The second addresses the planning and production of audiovisual materials. The final section reviews materials related to quality circle training on the subject of data collection.

Identification of the Need for a Quality Circle Training Program Within a University Setting

Fifteen universities and school systems form the Quality Circle University network. This network was established by the Staff Training and Development Office at Oklahoma State University. The purpose of this network is to share information among its members. This information is shared by newsletters.

Twelve members of the Quality Circle University Network submitted information through a survey about the quality circle training programs they are using. Seven of the respondents to the survey reported that they had developed or were currently developing their own training programs. Four have purchased training programs. Three of these have had to adapt the training materials to fit their work settings. One university reported that it did not have a formalized training program (Quality Circle Newsletter, 1984).

The Planning and Production of Audiovisual Materials

Kemp (1968) outlines an approach to any audiovisual program from starting the project through writing an instruction guide. The steps involved in the process he recommends include:

1) starting with an idea,

2) expressing the idea as a general purpose,

3) translating the general purpose into objectives for the planned learning,

4) considering the audience's educational level and experiences with the subject,

5) utilizing a team approach in the planning and production,

6) locating and examining materials already prepared on the general topic or closely related topics,

7) preparing a content outline.

8) determining the media to carry the objectives and content,

9) selecting the approach to present the information,

10) designing a storyboard,

11) developing a script,

12) outlining the specific needs for completion of the project,

13) making the pictures, and

14) completing the project.

The first six steps involve planning for the audiovisual production. Kemp (1968) emphasizes planning as the key to desirable audiovisuals. He recommends keeping the objectives to a minimum of one or two when planning for the program.

Steps 7 through 11 involve the preparation of the script, which is the basis for the entire program. This series of steps includes several checkpoints and revisions before actual production takes place.

Steps 12 through 14 address activities involved in the production and completion of the project. These steps include more checkpoints as the program is produced and final editing takes place.

Floyd (1979) suggests an approach to media production similar to Kemp's. He does point out that most trainers do not understand how to produce a media program and most producers are not particularly interested in training design so a gap often develops between media production and training.

The author recommends adding one step after defining the objectives. This step involves conceptualizing a model for presentation of the material. The planner may choose from models involving lecture, illustration, broadcast, audience participation or a combination of these approaches.

When structuring the program he recommends a format which shows the audience what they will be shown, shows them, and then shows them what they have been shown. By following the steps he has recommended, the gap between training and media production can be narrowed.

McClain (1981) essentially offers the same guidelines as the previous two authors. He divides the development of the sound/slide program into preliminary stages, production planning, and post-production and final details.

A point of difference in his article involves the production planning stage. The author recommends completing the art slides prior

to taking the live shots because the art slides take longer to prepare. This step helps ensure that all production is completed in a timely manner.

Farace (1984) recommends ten steps for developing better slide programs. These steps concur with those suggested by Kemp, Floyd, and McClain. Farace provides guidelines for the length of a slide/tape program which are not addressed specifically by the others. He states that a slide/tape program should ideally be less than fifteen minutes in length.

Will (October, 1981) examines eight guidelines from media psychology useful for organizing information viewers will remember. The author feels that the mental needs, desires, and limitations of the viewers should be respected. The easier the planner makes it for the viewer to learn, the more they will remember.

His guidelines are consistent with these other writers. Additional points he discusses include providing useful encoding retrieval cues for each topic, relating new facts and ideas to familiar ones, and summarizing the material to strengthen the viewer's memory of the important parts of the program.

Witt deals with techniques which can make a program more meaningful for the viewers. These techniques provide the planner with guidelines for ensuring that learning will occur.

Witt (November, 1981) also outlines techniques for producing an audiovisual program which viewers will remember. These techniques include relying on the visuals to lock in the facts, maintaining a slow pace, and repeating major points more than once through both visual and aural channels.

Anderson (1979) discusses the importance of relying on the visuals to carry the weight of the information in an audiovisual program. But if it is necessary to emphasize the audio presentation the visuals must not conflict with what is presented verbally and the visuals must be meaningful and should not challenge the viewers.

The author recommends allowing time for the viewer to read words that are visually displayed before the narrator comments or rephrases the projected message.

Materials Used for Quality Circle Training

Chase (1983) states that in certain stages of the quality circle process, data collection and verification become very important. At these times, circle members call on any and all appropriate data gathering tools and techniques. Which tools and techniques are chosen depends on the data that are needed to analyze a particular problem. Data gathering typically involves the use of check sheets and check lists, surveys, sampling techniques, graphs, and simple statistical techniques like mean, median range, frequency distribution and inferential data analysis.

Chase feels that while most educators have taken a course in statistics as part of their graduate preparation, few are trained in the routine application of statistical analysis techniques within their own jobs. One of the indirect benefits of quality circle involvement is the opportunity to relearn useful statistical analysis, data analysis, and data gathering methods at a practical level.

Dewar (1980) deals with data collection techniques as they are addressed during quality circle training sessions. He provides a

rationale for sampling, describes what sampling is, gives examples of sampling that the audience can relate to, and recommends six sampling steps to follow. These steps are learning the facts about the population, learning how large the population is, using a sampling table to determine the sample size, selecting the sample, asking questions of the sample, and making a prediction based on the results of the sample.

The author emphasizes care when selecting a sample to prevent bias. Three common methods of selecting samples which prevent bias are random selection, systematic selection, and stratification. A brief description of how quality circle members can use the information they have collected is presented.

The information can be placed in a variety of charts and graphs. The types of charts and graphs explained include the Pareto Chart, the histogram, the pie chart, and the line graph. Dewar provides examples of how graphs can mislead and how to emphasize care when developing charts and graphs. The program is concluded with a brief review of the topics discussed.

Ingle (1982) discusses the key statistical techniques that should be used in training quality circle members. He lists the five steps generally used in applying statistical methods as defining the problem, collecting relevant information, investigation, analyzing the data, and presentation of the findings.

The author divides quality circle statistical techniques into three groups. In the first group are techniques used for data collection. It includes the types of sampling described by Dewar (1980) plus consecutive sampling.

The second group of statistical techniques are those used for data analysis. These techniques include brainstorming, Pareto analysis, and cause and effect analysis.

The third group of techniques includes advanced techniques that are mainly useful for analyzing more complex problems in management areas. These can be taught to the more experienced quality circle members as well as to managers.

Bellanca (1983) recommends the development of a formal plan for data collection before beginning any phase of the data collection process. His plan is different from Dewar's (1980) as it includes determining the exact type of data needed, identifying the individuals who will collect data and what their responsibilities are, arranging for obtaining data, and preparing a timeline for data-collecting activities.

Bellanca lists sampling decisions as part of the data collection plans. The author discusses random sampling using a table of random numbers. A list of instruments for data collection is provided. The selection of the instruments depends on whether achievement, performance, attitudes, or the size/number of objects are to be measured. Once the data has been collected, the recommendations for displaying data are similar to those suggested by the previous authors.

BNA Communications, Inc. (1982) addresses data collection through the use of check lists, which provide all possible checks to be made to avoid a problem, check sheets which are used to list consequences or results of a particular activity, and check drawings which can be used to mark errors or defects in a product.

Christensen and Gognat (1984) deal with data collection and data collection formats as they are addressed during quality circle training sessions. The lesson on data collection is introduced by providing a definition of the purpose of collecting data.

The participants are instructed to decide on the exact type of data needed with examples of where to search for it. The steps involved in data collection are similar to Dewar's (1980). Three methods of sampling addressed are random selection, planned selection, and stratified sampling.

The lesson on data collection formats suggests using tools and charts similar to those outlined in the previous program (BNA Communications, Inc., 1982). The lesson is concluded with a practice sheet for the participant to use for developing several charts and graphs.

The film Inferential Statistics (1980) deals with a business application of statistical methods in order to conduct a survey of a market for a particular product. It recommends that the population be thoroughly defined. Once the population is defined, sampling techniques are explained.

Van Dalen (1979) states that no universal rules about how to obtain an adequate sample have been developed. Each situation presents its own problems. If the population under study is a like or similar group, a small sample is sufficient. But if the population under study is unlike or dissimilar, a larger sample is necessary.

The author suggests a sample of 10 to 20 percent. Regardless of size, the sample must be representative of the population.

Van Dalen describes random sampling similarly to the other authors previously cited. To do stratified sampling it is

recommended that the population be divided into strata by characteristics that might affect the results of the study. From each of the smaller groups a predetermined number of units is randomly drawn. Proportional stratified sampling is defined as a selection of units randomly drawn from each stratum in proportion to the actual size of the group in the total population.

Bartz (1981) writes that there are two generally acceptable ways to obtain a random sample. The random table is the preferred method. A "counting-off" method in which every second, seventh or whatever sequence is selected is also acceptable.

Bartz describes stratified random sampling similarly to Van Dalen. He also discusses cluster sampling which is composed of different variables. From each cluster a random sample can be drawn. He concludes that a sample more accurately reflects the characteristics of the entire population as the sample increases in size.

Summary

This chapter addressed the need for a quality circle training program within a university setting by reporting the number of programs in development at other universities. It also reported the number of universities which have purchased and adapted programs.

Steps involved in planning and producing an audiovisual program were described. Several models were introduced. Using these models as a guide, an appropriate model for this internship can be developed. This model would be specifically for the planning and production of

the slide/tape programs in data collection techniques for quality circle members.

A review of training programs in data collection for quality circles was presented. Other materials relating to data collection were also reviewed. These materials provided ideas for the subject matter to be presented in the slide/tape programs.

CHAPTER III

REPORT OF INTERNSHIP ACTIVITIES, SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This Chapter is divided into three sections. The first describes the activities involved in the internship. The second summarizes the internship activities. The final section addresses conclusions regarding the internship and recommendations for the development of similar programs.

Report of Internship Activities

The purpose of this internship was to develop slide/tape programs in data collection techniques for training quality circle participants. The objectives for this internship were:

a) to develop expertise in the planning, production, and editing of audiovisual materials, and

b) to prepare a program for quality circle training in data collection within a university setting.

This section describes the activities involved in meeting these objectives. A detailed description of the internship can be found in the Log of Activities in Appendix E.

The internship was initiated in response to an expressed need by the Staff Development and Training Office at Oklahoma State University for audiovisual programs to supplement their quality circle training handbook. A survey of a previously established network of

universities and schools was planned in order to assess the need for a university appropriate quality circle training program.

Based on the models for planning and producing audiovisuals by Kemp, Floyd, Farace, and McClain described in Chapter II, a model was designed for use during the internship. This model consisted of the following steps:

1. identifying the subject matter,
2. describing the audience,
3. developing a general purpose,
4. writing the objectives,
5. reviewing similar training materials,
6. preparing a content outline,
7. selecting the media,
8. reviewing the first seven steps with subject matter and audiovisual experts,
9. developing a storyboard,
10. writing the narrative script,
11. reviewing the script with experts,
12. writing the visual script,
13. reviewing the entire script with experts,
14. planning for production,
15. providing a trial run of the program to an audience similar to audience described in Step 2,
16. completing a final review, and
17. editing.

Planning was then started for two slide/tape programs in data collection. The first script addressed data collection techniques and the second detailed a case study in data collection.

The potential audience participants were described. The purpose of the programs was identified. Objectives were developed from the general purpose. A timetable for planning and production was outlined.

Training materials were reviewed as they were received. A content outline was developed. The objectives and the content outline provided a basis for developing a storyboard.

The survey for the Quality Circle University Network was completed and sent to all Network members. A deadline for responses was included. The main focus of the survey was to gather information regarding the numbers of programs in development. If a training program was purchased, the survey was designed to find out if the program had to be adapted to fit a university setting.

The storyboard for the first script on data collection techniques was started. This was accomplished by taping cards with the objectives and content outline on the wall. Below these cards were columns for cards containing ideas for both visuals and narration. The narration was the first part of the storyboard to be completed. Once the narration was completed, ideas were generated for the accompanying visuals.

The ideas for the narration were then developed into a script. The script required several revisions before finalization. It was initially developed as a script which would require one narrator and evolved into a script that consisted of a narrator, a quality circle leader and four participants. This change in the original script was an effort to make the subject more interesting and to demonstrate the participatory style of quality circle training sessions. This change

in the program presentation demonstrated the use of techniques evolved from the humanistic learning theories. The program was divided into three separate programs due to excessive length and the complexity of the subject matter.

A storyboard for the second script was then developed. This script was a case study of a quality circle's experience with data collection. This slide/tape program was developed in order to demonstrate the practical application of data collection techniques in a university setting described in the first slide/tape program. The same process described with the first script was followed when writing the second script.

Check points were included with both programs upon completion of 1) the content outline, 2) the narrative storyboard, 3) the visual storyboard, and 4) each of several drafts of the script. A final revision of both scripts was made after the recording specialist read and critiqued the narrative.

Planning next involved the visuals. Shots were divided into live photographs, word slides, and graphic slides. A professional photographer agreed to do the majority of the photography. A list of shots was provided for the photographer as well as a detailed description of the shots during the photography session. After learning to use the photographic equipment several more shots were taken without the assistance of the photographer.

The slides were then edited with input from the photographer. A list of graphic slides needed was then developed. Several graphic slides were developed under the direction of the University Audiovisual Graphics personnel. The remainder of the graphic slides

requiring drawing, computer graphics and more complex graphic skills were turned over to the Graphics Department to complete.

A final editing of the live slides was completed. This was important in order to list the necessary copies of slides as well as have slides combined as outlined in the visual script.

Plans were made to record the script while the graphics were in process. Professional readers were selected for the narrator and leader voices. Acquaintances were selected as readers for the participants' voices and a schedule for recording was established. Once the recording was completed, the tapes were edited with the recording specialist. Other post-production activities were not completed due to budgetary problems which prevented the completion of the graphic slides.

Summary

In the first section of this chapter, a model for planning and producing an audiovisual program was provided. This model was based on the literature reviewed in Chapter II. It was followed by a description of the activities involved in the internship.

The steps actually utilized included:

1. selecting the medium,
2. identifying the subject matter,
3. describing the audience,
4. developing a general purpose,
5. writing the objectives,
6. reviewing similar training materials,
7. preparing a content outline,

8. reviewing the first seven steps with subject matter and audiovisual experts,

9. developing a storyboard,

10. reviewing the storyboard,

11. writing the narrative script,

12. reviewing and revising the script,

13. selecting an adult learning theory,

14. writing the visual script,

15. reviewing the visual script,

16. planning for production,

17. initiating the production including live photography, graphic art work, and recording of script,

18. completing the live photography, and

19. editing.

This model included more than the original planned model. It involved the selection of an adult learning theory, experience in photography, graphic artwork, and recording of the script. Steps not included were a trial run of the program and final revisions and editing.

Conclusions and Recommendations

Although the intern was familiar with adult learning theories prior to the development of the slide/tape programs, the actual selection of an adult learning theory did not occur until the script revision step. The selection of an adult learning theory needs to be one of the first steps in planning any audiovisual program for adults. This step is necessary in order for methodologies to be developed

which will ensure the production of audiovisuals which are in agreement with the style of the particular training program.

It is recommended that before undertaking a similar project the planner becomes knowledgeable about the various adult learning theories. The planner then selects an appropriate theory of learning as part of the planning stage.

The development of objectives is an integral step in planning for audiovisual programs. The literature suggests limiting the objectives to one or two for each program. Limiting the objectives as stated prevents the program from becoming too complex and too lengthy.

The first slide/tape program involved six objectives. The second program involved only one objective. The first program became so complex and lengthy that it was necessary to divide it into three modules.

It is recommended that the planner of audiovisual programs limit the objectives for each program to one or two. If more objectives are needed to address the subject matter, decisions need to be made regarding what material can be deleted. If it is imperative to include several objectives, division points need to be identified in order that the objectives can be developed into separate programs.

The literature emphasizes the importance of writing the visual script prior to the narrative script. If the narrative script is written first, the program may become "a lecture with slides." Writing the visual script first ensures a more visually than aurally oriented program.

The narrative script was written first when developing both slide/tape programs. The intern was most comfortable planning the

script in this manner and felt that the objectives could best be met if the program was approached first from the narrative standpoint.

It is recommended that the services of a communications specialist be utilized for this portion of the planning phase. This would ensure the planning of a visually oriented script.

The steps utilized for the planning and production worked well overall. However, as was cited in the literature, graphic art work needs to be initiated prior to live photography.

The live photography preceded the graphic artwork resulting in a delay in the completion of the project. If the graphic artwork had been started during November, when the live photography was initiated, all parts of production could have been completed at approximately the same time.

The amount of time required for graphic artwork is difficult to estimate. It is recommended that the planner allow for enough time for the completion of artwork by initiating that portion of production first, before taking live photographs.

This internship incorporated a range of responsibilities. It involved planning an audiovisual program, writing and producing the program, and post-production activities. This process was completed for one program with three modules in one and a second program with one module.

An internship of this magnitude enables a student to develop a wide range of skills for planning and producing audiovisual training materials. These skills involve the planning and development stage of audiovisual programs which includes preparing a content outline, developing a storyboard, and writing the narrative and visual scripts.

Other skills which are developed involve the technical production stage of audiovisual programs including photography, graphic artwork, recording, and editing the recordings and slides.

In retrospect, it is obvious that too many programs requiring too many skills were attempted for this internship. Therefore, it is recommended that students working as interns on similar projects limit the number of objectives to one or two per program and that they develop no more than two programs. If a similar internship to the one described were to be initiated, or a series of programs were desired, this type of internship could work well as a collaborative effort for several students.

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APPENDIXES

APPENDIX A

QUALITY CIRCLE SURVEY AND CORRESPONDING NEWSLETTER

QUALITY CIRCLES SURVEY

Date:_____ Name:_____

Institution:_____

1. Did you develop your own training program for Quality Circle members?
   Yes___ No___

   A) If your answer is "no", what training program is your organization using?

   _____

   _____

   B) Did the program which you are using require adaptation in order to be applicable to an educational setting?
   Yes___ No___ Please explain:_____

   _____

   _____

   C) How did you select your training materials?_____

   _____

   _____

   D) Overall, how would you rate the quality of the training materials you have purchased/rented? Excellent___ Good___ Fair___ Poor___
   Comments:_____

   _____

   _____

2. How much time does your member training require and how is it scheduled?

   _____

   _____

3. What subjects are covered in the members' training programs?

   _____

   _____

4. How much time does your leader training require and how is it scheduled?

   _____

   _____

5. What problems have you encountered in training individuals to be Circle members and or leaders?_____

   _____

   _____

6. What suggestions do you have for improving training?_____

_____

_____

_____

7. Would you be interested in sharing training materials? Yes___ No___
How would you suggest this be accomplished?_____

_____

8. Would there be any interest among the "Circle of Friends" in meeting together sometime in the future, perhaps during 1985?
Yes___ No___ Comments:_____

_____

A) What should be the outcome if such a conference could be arranged?

_____

_____

_____

9. How do you evaluate your training?

_____

_____

_____

10. What other evaluation do you use for the program?

_____

_____

_____

11. Is it necessary to adapt training materials from one occupation/profession to another? Yes___ No___ Comments:_____

_____

_____

12. How do you maintain enthusiasm throughout the process, or is this a problem?_____

_____

_____

13. Is dropout from Circles a problem, and if so, how do you handle it?

_____

_____

_____

QUALITY CIRCLE NEWSLETTER

SEPTEMBER 10, 1984

This is the third Quality Circle Newsletter for Quality Circles in educational settings. During July, surveys were mailed to fifteen individuals who had indicated an interest in being a part of this network. These surveys addressed the subject of training i.e., the types of training materials currently available, how well these meet the needs of Quality Circles in educational settings, and descriptions of the training programs used by each member of this network.

I want to take this opportunity to thank the eleven individuals who responded to the survey. The information you have shared has been helpful to me and I hope will be of interest to you.

Among the respondents to this survey was Melinda Bain of Purdue University. Jo Ann Stoddard of the University of Cincinnati suggested contacting Ms. Bain about joining this network. We would like to welcome Ms. Bain and also to thank Ms. Stoddard for assistance in helping this network grow. If anyone knows of others in educational settings who are starting Quality Circle programs, please submit their name and we will invite them to join.

Dorothy O'Connor of the Miami-Dade Community College reports that they are using a training program from Jeff Beardsley and Associates. This program, geared to blue collar business organizations, did require adaptation in order to be more applicable to an educational setting.

They selected their training materials by reviewing and evaluating programs offered by four different national Quality Circle consulting firms. Ms. O'Connor rates the program as excellent. Member training requires eight to ten hours and is scheduled by the employee's supervisor. Subjects covered are: group interaction, brainstorming, cause and effect analysis, data gathering, charts and graphs, problem and solution identification and

management presentations. The employee uses materials provided in the Audio/ Visual Media Center as a self study project.

There is no formal leader training. Each leader is trained by his/her facilitator.

Some problems they have encountered training individuals to be Circle members and leaders are: resistance to the Quality Circle process; middle management's reluctance to release members for meetings; an attitude of "don't bother me, it is management's task to solve problems"; and supervisor resistance to loss of power.

Ms. O'Connor feels training should be as short and sweet, and as applicable to the job as possible. She has not noted a problem in maintaining enthusiasm throughout the training process since member training is self-taught in the A/V Center.

They have not encountered problems with dropout from Circles. When dropout occurs it is usually a non-productive member. That individual must discuss this with his/her department head as Quality Circle membership is part of the work assignment. Evaluation of their program involves the use of the "Survey of Organizational Climate".

The Miami-Dade Community College would not be able to share their training materials due to copyright laws.

Donna Tartagni of the Racine Unified School District reports that they are using a manufacturing manual and instruction guide for Quality Circle training. These materials did not require adaptation to their setting.

Because there were no suitable programs available for education, Ms. Tartagni selected the manual used during her facilitator training. She gave these materials a rating of "good".

Member's training is offered once a week for one hour, over a five month period of time. Subjects covered are: problem prevention; data collecting;

formats; brainstorming; decision analysis using Pareto; basic cause and effect analysis; and the managment presentation. Training and problem solving operate at the same time, so a management presentation occurs at the end of five months.

Leader training requires two full days. Ms. Tartagni feels four half-days might be better for a small group of potential leaders.

The biggest problem they have encountered is training newcomers after the first management presentation has taken place. The use of a "buddy system" has not been adequate. Attempts to improve their training involves training one full day, breaking one day, and completing training with another full day.

Maintaining enthusiasm has not been much of a problem. When this is noticed, time is taken to share thoughts, concerns and ideas for revitalizing the group.

Training is evaluated with a question/response format using a Likert-type scale. Other evaluation includes a self-assessment based on a section of their manual entitled "Evaluating the Training".

Dropout has not been a major problem although it does occur. Dropouts are never replaced with a new volunteer until the end of a management presentation.

Ms. Tartagni indicated an interest in sharing training materials. She would be interested in members of this network meeting together to share materials.

Don Tank of the Oregon City School District reports that they developed their own training program for Quality Circle members. They adapted materials gathered from corporations, etc., to develop their program.

Member training requires approximately twenty hours and is accomplished during regular Quality Circle meeting times. They attempt to cover all of the Quality Circle techniques recommended by the International Association of

Quality Circles.

Leader training requires approximately thirty hours. Individuals are released from work to attend training. They have had some difficulty working the training time into their schedules.

Mr. Tank feels materials do need to be adapted from one occupation/profession to another. Updating and making changes in their training is a continuous process because Quality Circles are new to education.

Evaluation of training is based on Circle performance as well as individual evaluations of training by Circle members. Other evaluation includes interviews with participants and pre/post-questionnaires dealing with attitudes, knowledge, and skills regarding the Quality Circle program. Maintaining enthusiasm has not been a problem.

Dropout has occurred with only a few individuals. They do not attempt to "talk anyone out" of dropping because this is a voluntary program.

Mr. Tank is interested in sharing training materials. He also indicated an interest in meeting with the members of this network in the future.

Julie Aspinwall-Lamberts of Lane Community College reports that they developed their own training program for Quality Circle facilitators. This training requires 16 to 20 hours and is presented in 1 1/2 to 2 days. Other "mini" sessions of 1 to 2 hours are also provided.

Subjects covered in the facilitators' training are: effective meeting skills; Quality Circle process and techniques; group dynamics; and STP/force-field. Facilitators train leaders as they work with them through one to two problem cycles.

There has been some problem in gaining mid-management support. Scheduling adequate release time for facilitators who are members of the classified (support) staff is also a problem.

Ms. Aspinwall-Lamberts feels training materials need to be adapted from

one occupation/profession to another. "The example/sample problems should deal with issues or concerns that are real to people in that field." She suggested including training on participatory management as a method of improving training.

Maintaining enthusiasm has been a problem which they have not completely solved. Attempts at solving this problem include short "breaks"; parties; and the use of smaller subgroups to work on specific aspects of the problem.

Training is evaluated by gathering periodic feedback from Quality Circle facilitators and members regarding their Quality Circle experiences and needs. Other evaluation has included monitoring Quality Circle meeting minutes; holding bi-weekly facilitator meetings for discussion of Quality Circle progress; and a third party evaluation conducted by a University intern.

Dropout has not been an issue. It has generally occurred due to changes in the work force or staffing patterns.

Lane Community College is unable to share training materials with this group due to copyright laws. However, they are interested in a meeting of this group depending on the location and cost.

Janice Daman of the University of Texas at Austin reports that they developed their own Quality Circle training program. This program requires a one hour session each week for six weeks. Subjects covered are: introduction to circle process; communication; brainstorming; problem solving and decision making; information gathering; resources; research; preparation for management presentation; and evaluation. They do not have separate leader training.

Problems they have encountered in training have involved members who have a lack of verbal and written skills. There has also been a lack of commitment over a long period of time.

Ms. Daman feels it is necessary to adapt training materials from one occupation/profession to another. She found that personnel in custodial and

food service operations require different training than resident services personnel.

To improve training, they plan to: expand the brainstorming session to include creative thinking processes; conduct the management presentation and evaluation when the Circle is near completion; and focus on individual styles and how each operates in a group during the communication session.

Ms. Daman requests suggestions from others on maintaining enthusiasm throughout the Circle process. She feels a special need to get more supervisors involved and supportive of the Circles.

Training is evaluated by members at the end of the process. Other evaluation is conducted after each series of training classes. Materials and content are then updated. This information is discussed with the Director and facilitators.

Periodic absenteeism has been more of a problem than dropout. Members are reminded that each contributes to the process and that they are needed at each meeting. However, this problem is not yet resolved.

Ms. Daman is interested in sharing training materials. She suggests developing a list of who has what, and sending this list to all members so they can contact one another. She is also interested in a meeting at a central location for members of this network.

Chris Holmes from Bay de Noc Community College reports that their first facilitator was sent to the International Association of Quality Circles annual conference where she attended several workshops and sessions. She had the advantage of also being a member of the first Circle on campus which was started by a visiting instructor who had received training at another institution.

Since that time two additional faculty have been sent to Productivity Development Systems in Florida for a week-long training session to become

facilitators. The only training materials Bay de Noc Community College has on campus are: 1) a slide/tape program which is a general overview of Quality Circles given to them by Productivity Development Systems, and 2) some overhead transparencies possibly developed by the U.S. Navy and left by the visiting faculty member. These transparencies also serve as a general introduction to Quality Circles. The overhead transparencies are good but require a speaker who knows the subject. The slide program is fair.

Doris McIlwain of Central Piedmont Community College reports that they are utilizing a training program from Productivity Development Systems. This program's examples and exercises required adaptation to fit an educational setting. Ms. McIlwain attended a PDS training program and then compared their materials to several other companies' materials before making a choice.

She feels PDS materials are excellent. "Unlike many materials PDS deals with group dynamics; skills i.e.; listening, communication, handling conflict, etc."

The first eight weeks of meetings are devoted to member training. Training is then continued as needed. Subjects covered are: steps in the Quality Circle process; group dynamics; and listening skills. Leader training consists of two 1/2 day sessions. This training is continued individually as needed.

They have not needed to adapt training materials from one occupation or profession to another. They have not had any problems training members or leaders. Ms. McIlwain recommends allowing more time to do the training.

Maintaining enthusiasm can be a problem. Referring to literature available on this subject has been helpful.

Evaluation of training is accomplished through the use of a subjective questionnaire completed by participants. Other evaluation involves the use of an attitude survey.

Central Piedmont Community College would be unable to share their training materials due to copyright laws. However, they are interested in this network meeting together, possible at the National IAQC conference.

Lynda Brown of the University of Montana reports that they developed their own Quality Circle leader training program. This program was initially an informal one which was offered half-time for two days. It is now more formalized and is offered for two days full-time or four days half-time.

They cover all topics from the International Association of Quality Circles plus conflict management and group dynamics. Ms. Brown feels they need to provide more information on group dynamics.

To improve training, Ms. Brown plans to do more member training and more leader training. Presently, leaders meet with her once a month for advanced topic discussion, audiovisual aids and conducting a management presentation. She feels it is necessary to adapt training materials from one occupation/ profession to another.

Enthusiasm has been high in the pilot project. There is concern that this enthusiasm might wane. One dean will only allow one Circle in her organization.

Evaluation of the training is obtained from leaders and members. Dropout from Circles has not been a problem.

The University of Montana is interested in sharing materials through this network. Depending on the location they might be interested in meeting with others from this network. The outcome of such a meeting should be: training; use of Quality Circles i.e.; what modifications in Q.C.'s are being made as new management techniques are used.

Melinda Bain of Purdue University reports that they are currently in the process of developing training for their Quality Circle program. Materials from commercial packages, Lockheed California Company training, and other

university training programs were reviewed prior to initiating the development of their own program. Examples used to explain problem solving tools and techniques will reflect a university environment. Ms. Bain found the material from the American Productivity Center in Houston, Texas to be very good.

Tentatively their leader training program is scheduled for three consecutive days. The member training has not yet been determined.

They plan to utilize a pretest measure to determine attitude and levels of performance. Quality Circle members, supervisors and a comparable control group will participate in this evaluation. Measurements will be taken again at six and eight months. These details have not been finalized.

Ms. Bain is interested in meeting with the members of this network. Possible outcomes of such a meeting could be: sharing of training ideas; inviting universities who may be interested in starting employee involvement programs and possibly beginning a clinic for this group; discussing do's and don'ts, problems the group has had, hints on how to help others avoid the same kinds of problems, and advertising the conference as a learning and sharing experience. This meeting or conference would rely on mutual contributions to the overall program.

Jo Ann Stoddard of the University of Cincinnati reports that they developed their own Quality Circle training program. The first program was developed with the assistance of a local General Electric plant, using old and new materials. The second training program they offered was developed using materials from the first program plus the University Associates Quality Circle materials and their own personal experience.

The University Associates materials did not require much re-work. However, the materials from the G.E. plant required adaptation to a higher-education, non-profit focus. The University Associates materials are structured for the team leader to train the team. However, they use this program

for both members and leaders. Ms. Stoddard feels this material is excellent. She was referred to this resource by the person who initiated the University of Cincinnati pilot program.

Their program consists of 2 1/2 consecutive days of team training for members, leaders and facilitators. Subjects covered are: group communication issues/process; constructive feedback for role-playing; team consensus exercises; explanation and practice of Quality Circle techniques (brainstorming, multi-voting, selection matrix, etc.). In the future most emphasis will be on communication, team building, and feedback.

Leader training takes place one day prior to team training. They discuss the leader's role and problems he/she is likely to encounter. They also give an overview of the Quality Circle process.

Some problems they have encountered involve the hospital Quality Circles. Because the hospital operates 24 hours a day, it is difficult for managers to schedule time out for members, and to get adequate coverage and cooperation from non-members. Members feel 2 1/2 days of training were not adequate for them to feel comfortable. In the future they will focus their training on group communications, constructive feedback, team building, with less training on techniques. Then they will work with members during regular meetings to train on each step as they approach it. Dropout has not been a major problem.

They have found it is necessary to adapt training materials from one occupation/profession to another. "The educational background and professional level of the group affects their area of need, e.g.; group communication processes, task comprehension, or speaking and writing skills etc."

Evaluation involves the use of a questionnaire given to participants immediately following training. This questionnaire asks for identification of areas of the training that were confusing, and what the members want or need more of, etc.

Every six months, the program is further evaluated by a personal interview and a questionnaire. The interview focuses on feelings/frustrations, and hindsight. The questionnaire is used as a pre-test, and again as a post-test at the end of one year. It focuses on job satisfaction issues and is an attempt to determine if circle activities have improved the work environment.

The University of Cincinnati is interested in sharing some of their training materials with this network. However, they will not be able to share copyrighted materials from University Associates. Ms. Stoddard also indicated an interest in meeting with other members of this network depending on the structure of such a meeting. (Would have to have budget approval).

Her suggestions for possible outcomes of such a meeting include: sharing problems common to Quality Circles in service industries (especially civil service), and sharing training successes and problems in order to help make Quality Circles as effective as possible in service organizations.

Roberta Gifford of Arkansas Tech University reports that they are utilizing a training program from BNA Communications, Inc. She reviewed several sample copies of training materials for non-manufacturing settings and selected this program. It did require adaptation to their setting. Ms. Gifford rated this program as fair.

Leader training was incorporated into member training and is offered one hour per week for eight weeks. Subjects covered include: Introduction to Quality Circles; Teamwork; Brainstorming; Pareto Diagram; Cause and Effect Analysis; Activity Analysis; and the Management Presentation. Ms. Gifford feels it might have helped to teach some of the problem-solving skills on an as needed basis. To improve their program they would intensify it, especially Circles involving students. They have found that training materials need to be adapted from one occupation/profession to another.

Their Quality Circle program is evaluated with pre- and post-surveys

assessing job satisfaction and quality of campus life. During their one year pilot program, dropout has not been a problem.

Arkansas Tech University is interested in sharing their training materials with members of this network. Ms. Gifford would be interested in a meeting of this network in order to share ideas.

Gail Christensen of Oklahoma State University and I have developed a Quality Circle handbook and training program. Training for the pilot program consisted of nine sessions, meeting once a week for 2 1/2 hours.

Subjects covered during this program were: Introduction to Quality Circles; Brainstorming; Problem Identification; Verification through Data Collection; Cause and Effect Analysis; Data Collection Techniques and Formats; Solution Identification; Cost/Benefit Analysis; and the Management Presentation. An actual problem was worked on throughout this training. The pilot program leaders were trained off-campus during a 3 1/2 day program. This training was facilitated by Dr. Jim Bellanca of the Illinois Renewal Institute, Inc.

Problems encountered in training have been middle management's reluctance to release members for meetings; and leaders who were managers, resulting in some intimidation of the members. (This was resolved by the leaders gradually decreasing their role in the Circles and new leaders emerging.) Members have also encountered resistance to this program from their peers.

Improving this program would probably involve intensifying training into a 2 1/2 to 3 day program. This would allow the members to gather baseline information and skills in order to better work toward solving the problem. We feel it would be necessary to adapt training materials from one occupation/profession to another.

Maintaining enthusiasm has been a problem in one of the Circles. This appears to be the result of some managerial and staffing problems. Members

have had difficulty working Circle meetings into their schedules and have not had the support of their supervisors. This has, in turn, affected their level of enthusiasm.

Dropout has been a minor problem. In the most cases, it has been the result of carpooling problems or it has been due to employees resigning from their jobs. Recruitment for new members will begin only after a complete cycle of Circle activities.

Dr. Christensen is interested in meeting with the members of this network. She feels sharing training materials, practical experiences and resources could be mutually beneficial.

By the end of this year we will have developed two slide/tape programs on data collection and possibly a video tape of one of the Circle's management presentations. We feel these audiovisual programs will contribute to the training materials developed during the spring.

If any of you have suggestions for future newsletter topics, please submit them to Dr. Christensen.

Linda Gognat
Graduate Research Assistant
Oklahoma State University

APPENDIX B

OBJECTIVES AND CONTENT OUTLINE FOR

SLIDE/TAPE PROGRAMS

SLIDE/TAPE PROGRAM

OBJECTIVES AND CONTENT OUTLINE

Introduction

A Quality Circle is a small group of people from the same work area that voluntarily meet on a regular basis to identify, analyze and solve problems in their area. Circle members receive training during their first meetings. Training is an essential first step in a Quality Circle program.

This internship will supplement Quality Circle training through audiovisual programs. Two slide/tape programs will be e developed for Quality Circle training. The first program will be on data collection and the second will be a case study in data collection.

Purpose

An integral part of Quality Circle training is learning to collect data in order to verify the results of brainstorming. At each step in the Quality Circle process brainstorming is used to: 1) identify a problem, 2) analyze the problems, and 3) solve the problem. Upon completion of brainstorming, Quality Circle members collect data in order to verify that: 1) the problem is a real problem, 2) the cause is the most likely cause, and 3) the solution can best solve the problem.

A slide/tape program will be developed which will help the participants to understand data collection techniques. It will also help the participants learn ways to organize the data into understandable formats.

A second slide/tape program will be developed which will demonstrate practical application of data collection techniques.

Audience

The major audience will be support staff in a university setting. It is assumed that most will have completed high school and that their background in data collection is limited.

Objectives

Upon completing the lesson and slide/tape program, Data Collection, the learner will be able to:

1) Describe the purpose of data collection.
2) Identify appropriate ways to collect data in order to identify, analyze and solve problems.
3) Define the steps involved in data collection.

4) Discuss the difference between a population and a sample.
5) Choose appropriate data collection formats.
6) Make decisions regarding the best ways to display data.

Upon completing the lesson and slide/tape program, A Quality Circle Case Study in Data Collection, the learner will be able to:

1) describe the activities involved in verifying a problem and its solution.

SLIDE/TAPE PROGRAM
CONTENT OUTLINE
DATA COLLECTION TECHNIQUES

Objective #1 - Describe the purpose of data collection.

A. The purpose of data collection is for verification
   1. that the problem is a real problem
   2. that the cause(s) are the most likely cause(s)
   3. that the chosen solution can best solve the problem

Objective #2 - Identify appropriate ways to collect data based on the problem and/or cause to be verified.

A. Decide on the exact type of data needed

Kinds of Data	Where to Look for Data
Facts or figures	records, interviews
Opinions	surveys, interviews
Observation	checklists, photos
History, trends or patterns	records, interviews, published materials
Present standards	records, checklists, interviews, policies, job descriptions
Ideal standards	books, newspapers, magazines, job descriptions, policies, library.

Objective #3 - Define the steps involved in data collection.

A. To define what you need to know before collecting data
B. To ask specific questions to help you collect meaningful data
C. To make decisions about sampling
D. Methods of collecting data
E. Summarizing and drawing conclusions from the data

Objective #4 - Discuss the differences between a population and a sample.

A. Define the population and/or sample to be used
B. Discuss the differences between a population (N) and a sample (n)
C. Population identification
D. Six steps to follow in selecting a sample
   1. Who or what is the population?
   2. How large is the total size of the population?
   3. How large a sample will we need?
   4. Select a sample
      a. three common methods of selecting samples
         1. random selection
         2. planned or systematic selection
         3. stratified random selection
      b. decide on ways to collect data
      c. delegate responsibilities for data collection

d. inform the appropriate people about the data needed
e. arrange with specific personnel to obtain records, lists, schedules, calendars, etc.
f. set up schedule to collect data

5. Gather data from sample
   a. study data
6. Based on the results of #5, a conclusions or prediction can be made

Objective #5 - Choose appropriate data collection formats.

A. Three common approaches to collecting and recording data and examples of:
   1. checklists
   2. drawings
   3. check sheets

Objective #6 - Make decisions regarding the best ways to display data.

A. Construction of charts and graphs
   1. column graph
   2. line graph
   3. bar graph
   4. pie charts
   5. Pareto chart

SLIDE/TAPE PROGRAM

CONTENT OUTLINE

A CASE STUDY IN DATA COLLECTION

Objective 1

Describe the activities involved in verifying a problem and its solution.

A. Provide background information of Quality Circle's activities in defining the problem.

B. List the steps involved in gathering data to:

1. Verify the problem
2. Verify the solution

C. Summarize the results of the Quality Circle's data collection activities.

APPENDIX C

SCRIPTS FOR SLIDE/TAPE PROGRAMS

SCRIPT 1/4/85
STEPPING THROUGH DATA COLLECTION

VISUAL	NARRATION
1. Stepping Through Data Collection (with 5 footsteps).	1. Music.
2. An Oklahoma State University Production.	2. Music.
3. Acknowledgement of authorship and assistance.	3. Music fade into....
4. Stepping Through Data Collection (with 5 footsteps).	4. NARRATOR: Stepping Through Data Collection will demonstrate how a Quality Circle can plan for and actually collect data. During this program, you will learn:
5. Show stepping chart with title: What you need to know (Step 1).	5. To define what you need to know before you collect data,
6. Chart with: Specific questions (Step 2).	6. To ask specific questions to help you collect meaningful data,
7. Chart with: Sampling (Step 3).	7. How to make decisions about sampling,
8. Chart with: Methods (Step 4).	8. Methods of collecting data,
9. Chart with: Summarize/Conclusions (Step 5).	9. and how to summarize data and draw conclusions from this data. You will see this chart frequently used as we listen in as one group of Quality Circle members takes part in a training session which addresses these topics.
10. Group with leader speaking to them.	10. LEADER: During the first three lessons you learned that Quality Circles use brainstorming to identify a problem, to analyze the problem and to solve the problem.
11. Sherlock Holmes character facing: PROBLEM (highlighted).	Once a problem has been identified, 11. we use data collection to obtain evidence that the problem selected is a real problem,
12. Sherlock Holmes character facing: PROBLEM CAUSE (highlighted).	12. to obtain evidence that the identified causes of the problem are the most likely causes, and

VISUAL	NARRATION
13. Sherlock Holmes character facing: PROBLEM; CAUSE; SOLUTION (highlighted).	13. to obtain evidence that the solutions chosen are the best to correct the problem.
14. Sherlock facing chart headlined: WHAT DO WE WANT TO KNOW?	14. Our first step in collecting data is to ask ourselves, "What do we want to know?" For example, if we had identified a problem of information not being received for scheduled dining room events, we might think it is important to know how many times the information is not received.
15. Group discussing - show male speaker.	15. SPEAKER 1: We would probably want to know how long this has been a problem.
16. Sherlock facing chart headlined: WHAT?/SPECIFIC QUESTIONS? (Questions is highlighted, What is filled in with responses).	16. SPEAKER 3: We need to know if this really is a problem. LEADER: That's right and in order to find what we need to know, we have to ask specific questions about each of those topics we listed.
17. Specific questions (chart).	17. LEADER: Our next step is to ask "What are the specific questions we need to ask?"
18. Female speaker.	18. SPEAKER 2: I know. How many times are events scheduled and we do not receive the information? SPEAKER 4: I think we would also need to ask, how many times are events cancelled and the information is not received? SPEAKER 1: We need to ask, when did the problem start?
19. Male speaker facing leader, like they are talking to one another.	19. SPEAKER 3: And, we need to ask, is this still a problem? LEADER: I think these are all good questions and they can help us to verify the problem.

VISUAL	NARRATION
20. Chart.	20. Once these questions are identified, the next step is to make a plan for sampling which is a way to obtain information from a part of the population.
21. POPULATION (title) divide into thirds, show people in middle section labeled at bottom of section - PEOPLE.	21. Many think of the word population as meaning people. However, in research the word population has a broader meaning.
22. Same as 21, first section shows labeled items and third section shows calendar of events.	22. In research, a population is defined as all of the items, people or events relating to the research project. The population is defined by the person who is conducting the research. Interviewing all employees of food service or checking all of the supplies in a department, would be examples of using a population.
23. Male speaker centered.	23. SPEAKER 1: Or checking all of the shoes made on an assembly line could be a population. SPEAKER 2: Wouldn't a population be all of the events held in a dining room?
24. Leader centered.	24. LEADER: That's right. Anyone else? SPEAKER 3: Surveying all of the people who vote would be an example of a population.
25. Different angle of group.	25. LEADER: You are all correct. Every one of the examples you have just given are different kinds of populations. In research abbreviations are often used.
26. Same as slide 23 except title: N = POPULATION.	26. The abbreviation for the number of items, people or events in a population is capital N.

VISUAL	NARRATION
	SPEAKER 2: So when we refer to the number in the population, we are studying we use the capital letter N?
	LEADER: That's correct.
	Trying to examine 100% of anything can be an exhausting experience and may not be necessary.
	Instead of studying the entire population, a part of the population is usually all you need.
27. SAMPLE.	27. This part of the population is called a sample.
	A sample is a group selected from the population and is smaller than the size of the population.
28. Use POPULATION slide #23 as guideline. Use ITEMS section and divide/show sample on right that is representative of population on left.	28. A sample can be made up of items (pause),
29. Same as 28 except show PEOPLE SECTION.	29. of people (pause),
30. Same as 28 except show EVENTS SECTION.	30. or events.
	Many times a sample of the population or the whole is just as accurate and less costly to study.
	Working with a sample requires less time and a sample can be studied in more detail than a population.
	Can any of you think of samples you have taken part in?
31. Group.	31. SPEAKER 3: I was once a part of a voting sample.
	SPEAKER 1: I answered an opinion survey about a dishwashing detergent.
	SPEAKER 2: I have had a blood test. Wouldn't that be a sample, too?

VISUAL	NARRATION
32. Group with leader talking.	32. LEADER: Yes, a blood test is a sample. Just as voting polls and opinion surveys use a sample of a whole which will give information about the entire population. In research, there is also an abbreviation for the number of items, people or events in the sample.
33. n = sample.	33. The lower case n is used to refer to the sample. SPEAKER 2: So we can refer to the number in the sample with the lower case n? LEADER: Right.
34. Sherlock facing chart headlined: WHAT?/SPECIFIC QUESTIONS?/SAMPLING DECISIONS (Sampling is highlighted).	34. Next, you need to move to Step 3, which is, to make sampling decisions.
35. Same as 34 but fill in space under SAMPLING DECISIONS with GETTING THE FACTS and highlight it.	35. To complete Step 3, you need to get the facts about the population. You need to ask yourselves questions in order to find out what the population looks like. Can you think of any questions that might help you describe the population you will study?
36. Female speaker talking to speaker 1 - male.	36. SPEAKER 4: I know. You need to find out if all of the items, or people or events or whatever make up the population, are similar or if they are different. SPEAKER 1: Do you mean, do all of the people in the population have similar jobs or different jobs? SPEAKER 4: Yes, or have all of the employees in a population worked for the same length of time.
37. Entire group.	37. SPEAKER 2: If you are studying shoes on an assembly line, then you might want to know if they are made of the same material.

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	SPEAKER 3: If you wanted to study the events that occur in a dining room, you would need to know if these events occur the same number of times each week or each month.
	SPEAKER 1: Or if you were studying employees, it might make a difference if they were all male, all female or a mixture.
38. Leader talking to group.	38. LEADER: You have all given good examples of the kinds of questions which help you get to know the facts about a population.
	When you are getting the facts about the population;
39. Chart with SAMPLING DECISIONS section filled in, GETTING THE FACTS and FINDING OUT THE SIZE (highlight FINDING OUT THE SIZE).	39. you will next need to find out the size of the population.
	SPEAKER 4: Can you always find out the exact size of the population?
	LEADER: Not always, but you need to be as accurate as possible in determining the size of the population. Determing the population's size is important so you can
40. Same as 39 with SAMPLE SIZE highlighted.	40. decide how large the sample should be.
	There are no rules which tell exactly how large the sample should be.
41. N = 40, show 40 shoes same size, style and color.	41. The size of the sample depends on the characteristics of the population. If the population is similar, a smaller sample can be used.
42. Show slide 41 on left, on right, N = 4, shoes four shoes.	42. A sample as small as 10% of the size of the population can be used for a population of similar items, events or people.
43. Show N = 40, several different styles and colors of shoes on left, on right show N = 8 with 8 shoes.	43. If the population has many differences then a larger sample will be needed.

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44. Leader speaking to group.	44. Earlier someone gave an example of a blood test as a sample. This sample can be a small sample because all of the blood in a person's body is similar. SPEAKER 3: Well, if I wanted to study the events that occur in the dining room, and these events are similar, then would a small sample be okay? LEADER: Yes, a small sample, approximately 10% of the population is acceptable when the population is made up of similar items, or people or events.
45. Male member talking among rest of group.	45. SPEAKER 1: Well, what if the population is made up of different items, people or events? How big does the sample need to be then?
46. Show slide 43 again.	46. LEADER: If the population has differences within it, it is usually necessary to select a larger sample. A safe figure is a sample of approximately 20% of the population. More important than the size of the sample, is the fact that a good sample needs to be representative of the population. You want the data to be valid, so you need to make sure the sample truly represents the population. Once you have made the sampling decisions,
47. Same as 39 with SELECTING SAMPLE highlighted.	47. you will then select the sample.
48. Group.	48. SPEAKER 2: May I ask a question before we go any further? LEADER: Certainly. SPEAKER 2: How do you make sure the sample represents the population?

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49. Leader talking to group.	49. LEADER: Quality Circles follow some basic principles, as do other researchers, to make sure they select representative samples. (Fade out). NARRATOR: What are your ideas on how we can be sure a sample will represent the population? Please stop the program for discussion. Music fade out. Music fade in.
50. What chart with METHODS highlighted.	50. NARRATOR: Now that you have shared your ideas on selecting samples that are representative of the population, let's listen in as the members learn four methods of sampling frequently used by Quality Circles. Music fade in. LEADER: There are four methods of sampling that Quality Circles frequently use.
51. RANDOM SAMPLING.	51. The first method of sampling used is a type of random sampling. This method of sampling is used when all of the items, people or events in the population are similar. Random sampling is used to select a representative sample from a population with similar parts. Can any of you think of populations made up of similar parts?
52. Children.	52. SPEAKER 4: A population with people of similar ages.
53. Half all female, half all male.	53. SPEAKER 1: How about a population of all males or all females?
54. Secretaries typing.	54. SPEAKER 3: Could a population of employees with similar jobs be considered?

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	LEADER: Of course. So far your examples of populations have referred to people. Can you think of other examples?
55. Shelves of products for stripping floors.	55. SPEAKER 4: Would a population of cleaning products that are similar be an example of a population made up of items?
	LEADER: Yes. That's a good example of a population of items.
56. Picture of people dining in state room.	56. SPEAKER 2: A population of dining room events that are alike would be a population made up of events.
57. Leader or a combination of slides 52 through 56.	57. LEADER: You have all given good examples...If any of these populations were to be sampled you could use a random sampling method.
	In selecting any sample, all parts of the population must have an equal chance of being selected. In the first method of random sampling, to make sure each part has an equal chance of being selected, you list all of the parts of the population. Put each part in a container.
58. Someone drawing out of container and someone writing.	58. Draw one out at a time, record it, and draw another until the entire sample is selected.
	SPEAKER 3: Oh! I see now. Every part of the population would have an equal chance of being selected just by being in the container.
59. Leader.	59. LEADER: That's right. But, there are other methods of sampling that will make sure every part of the population has an equal chance of being selected.
	It's up to those who will be gathering the data to decide which method of sampling would work best.

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	The second method of random sampling you may use requires a table of random numbers.
60. Close-up of a table of random numbers.	60. You can find these tables in any research book. I used several books and made one for us to use today. These tables are simply made up of rows and columns of numbers arranged at random. You can read it from top to bottom, left to right or in any direction you choose. As an example, say we were going to study a population of 300 employees and we decide the sample should be 10%, or 30 of these employees.
61. Show first few names and last few names on list of 001 to 300.	61. We would get a list of the 300 employees and assign numbers from 001 to 300 to the names of the employees. SPEAKER 1: Why did you add two zeros before all of the numbers from 1 to 9? LEADER: That's a good question. It's important to remember to always put zeros before a single digit number when the sample is larger than 9. All of the numbers have to be made up of the same amount of digits so we can use the table correctly.
62. Leader talking to Speaker 2, female.	62. Gail, would you help me show everyone how this table works? SPEAKER 2: Sure, just tell me what to do.
63. TABLE OF RANDOM NUMBERS with arrows pointing to right upper corner, top 3 rows.	63. LEADER: Gail, let's say you decided to enter the table in the upper right-hand corner. You will read left by using the top three rows. The first three-digit number you see is 434, then 443, 738, 610, 328, and finally 023. Since the first five three-digit numbers were all larger than the numbers of the 300 employees, they were simply skipped over.

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64. Show previous slide with circle around 023.	64. However, 023 is a number for one of the employees. This will be the first number in the sample of 30. Gail would continue reading to the left, go down to the next three rows and read to the left until she has found thirty numbers.
65. Show Speaker 2.	65. Gail, would you like to try it? SPEAKER 2: Sure. Okay, the next number is 364, then 295, 501, 911, 642, 842, 873 and finally 030. I would pick 030 as the second number of the sample of 30.
66. Show slide 63 with 023, 030 circled, but 295 highlighted.	66. SPEAKER 4: Wait a minute. You skipped over number 295, and that number is less than 300. SPEAKER 2: You're right. I made a mistake.
67. Leader talking to group.	67. LEADER: I'm glad you caught that, June. Remember, any number that you come to and is part of the population will be selected as part of the sample. In this example, we were looking for any number from 001 to 300. LEADER: Does everyone understand how to use this table? SPEAKER 3: I think so, but does it matter where we enter the table?
68. Show two tables of random numbers side-by-side. Show arrows on left table going in same direction. Show arrows going in different directions on right table with a big X through it.	68. LEADER: You can enter the table at any point, but always continue reading in the same direction.
69. Group.	69. SPEAKER 1: I can see how both of these methods of sampling work when you know how many items, people or events are in the population. But, what do you do when you want to stop people that came into a store or you're going through a large number

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	of files? Isn't there some other way to select a sample when it's hard to count the number in the population?
70. Leader.	70. LEADER: The third method of sampling that I planned to explain, will probably be very useful in these situations. You're right, Ron, there are some instances when there might be a better way than the first two methods we discussed.
71. RANDOM SAMPLING BY SEQUENCE.	71. This method of random sampling is systematic because your Circle plans to select every third, fourth, seventh, tenth or whatever sequence you want to use to select the sample size.
72. Picture of someone interviewing inside department store holding clipboard.	72. Using Ron's example, we could decide to select a sample size of 35 and interview every fourth person who walks into the store until we have interviewed 35 people.
73. File drawer.	73. SPEAKER 1: Or, using my second example, we could decide to review a sample size of 20 files and review every ninth file until we have reviewed 20.
74. Group.	74. LEADER: Correct. SPEAKER 4: So, it is really up to those who are gathering the data to decide what sequence they will use. LEADER: That is right. We can choose whatever sequence we want. Just as long as we are selecting approximately 10% of the population to be in the sample. We can also systematically select a random sample when we know how many parts make up the population.
75. 1/2 show buildings, 1/2 show list of building names, with numbers.	75. For instance, if we were going to select a sample from a population of 22 buildings, we would obtain a list of all of the buildings.

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	Then we would write a number by each building from one to 22. We would then decide what sequence we wanted to use to select the sample.
76. Show list of buildings with numbers 3, 6, 9 and 12 circled.	76. SPEAKER 3: I think I understand. If we wanted to select a sample of 4 and the Quality Circle decided to select every third number, then we would select numbers 3, 6, 9, and 12.
77. Show list of buildings with numbers 4, 8, 12, and 16 circled.	77. SPEAKER 2: Or...we might decide to select every fourth number which would be numbers 4, 8, 12, and 16.
78. Leader.	78. LEADER: That is exactly how this method of sampling works. These first three methods of sampling work in such a way that all events, people or items in the population have an equal and independent chance of being selected. These methods of sampling are appropriate for populations consisting of similar items, people or events.
79. Male speaker 1.	79. SPEAKER 1: You have told us how to select a sample when the population is similar. How can we select a sample when the population is made up of different items, people or events?
80. Leader with group.	80. LEADER: Well, you need to find out what the important differences are in the population you wish to study. Each of you gave examples of populations made up of similar parts. Can you think of differences within a population that might become important subgroups or parts of the population?
81. Children and elderly.	81. SPEAKER 4: People of different ages.
82. Typist, person sweeping, one person interviewing.	82. SPEAKER 3: Different types of jobs.
83. Shelves with different cleaning products.	83. SPEAKER 4: A variety of cleaning products.

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84. Calendar of events.	84. SPEAKER 2: A population made up of several different events. SPEAKER 1: Maybe a population of events that occur at different times of the year.
85. Key with word differences printed on it.	85. LEADER: I think all of you are aware that the key word here is differences. If you see differences in the population that could fall into separate parts or subgroups within the population, you will need to select samples from each subgroup in order for the sample to be representative of the population.
86. Show variety of shoes, N=40 on right show N=8 all the same.	86. SPEAKER 1: If we were to select a simple random sample of a population with different subgroups, the sample would no be representative of the population.
87. Leader.	87. LEADER: You're so right. A sample needs to represent the whole population whether the population is similar or different; or the data will not be valid. To sample a population with subgroups you would divide the population into the subgroups that the Quality Circle has decided are important. Let's say the Quality Circle defined males and females as 2 important subgroups within the population to be studied.
88. N=60; 18 females 30% | 42 males 70%	88. They found that the population consisted of 60 employees and 18, or 30% of these employees were women. Forty-two, or 70% of the employees were men.
89. n=20%	89. They decide to select a 20% sample size because the population had some differences or subgroups within it.

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	To select this sample, they would have to decide how many employees it would require for a 20% sample and what the proportions need to be in each subgroup.
90. N=60; 18 females | 42 males 30% | 70% N=2 | N=4	90. If the sample size is 20% of the population; 12 women and 28 men would provide a 20% sample size. This sample would be representative of the population. They would then list all of the women and place their names in a container and list all of the men and place their names in a separate container.
91. Show slide 58 with 2 containers marked male, female.	91. Finally, they would select the sample by drawing names until the correct number for the sample has been selected. SPEAKER 3: Would they draw the names out of a container like you explained for the first method of random sampling? LEADER: Yes, they would use the same technique, only this time they would be drawing from subgroups within the population.
92. Whole group with leader talking.	92. Any other questions? (pause) If not, let's review by having each one of you name a sampling method we have discussed and give an example of each method.
93. SIMPLE RANDOM SAMPLING.	93. SPEAKER 2: Simple random sampling is used when the parts of the population are similar. To use this method of sampling, you would list the parts of the population; place them in a container; and draw one at a time from the container until you have the correct number for the sample.

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94. SIMPLE RANDOM SAMPLING TABLE OF RANDOM NUMBERS (highlighted).	94. SPEAKER 1: We also discussed random sampling with a table of random numbers. Every part of the population has to have the same number of digits when you are assigning a number to the part. After you assign the numbers, you go to a table of random numbers and read through the rows in one direction until you have found enough appropriate numbers to make up the sample.
95. SIMPLE RANDOM SAMPLING TABLE OF RANDOM NUMBERS RANDOM SAMPLING BY SEQUENCE (highlighted).	95. SPEAKER 4: We also learned to select a random sample by sequence. The group decides on the sequence and then selects every 3rd, 7th or 10th or whatever sequence until the entire sample is selected. This type of sampling can be used when you have a list of the population, or, when you don't know the extent of the population. Like when you want to to stop people on the street.
96. Same as 95 plus SAMPLING BASED ON POPULATION DIFFERENCES (highlighted)	96. SPEAKER 3: The last type of sampling we discussed was based on the differences in the population. You need to study your population in order to find out if there are any important differences within it. Once you have described those differences, you divide the population into subgroups. Then you select the sample like Gail described for the first type of random sampling. LEADER: Very good examples. It sounds like you understand how to select a sample. NARRATOR: The next topic covered is methods of data collection or ways to collect information. Please stop the machine and review sampling. Music fade out. Music fade in.

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97. Chart with fourth section labeled METHODS.	97. NARRATOR: This section begins by introducing methods or ways of collecting data. This is the fourth step of data collection. LEADER: Now, the methods of collecting data have to be determined so we can obtain data from the sample. You recall the problem we discussed earlier on information not being received for scheduling dining room events.
98. Sherlock facing chart headlined: WHAT?/QUESTIONS? (highlighted) (What, Questions are filled in with responses).	98. Can you think of ways to find information on the scheduled dining room events?
99. Female speaker.	99. SPEAKER 4: We would need to get some figures from the manager of both areas involved. SPEAKER 2: Well, couldn't we just ask the manager for this information?
100. Group.	100. SPEAKER 1: I think it would be better to get permission to look through records of past events. Records would answer all of the questions and records would simplfy the search. LEADER: That's right. And looking at records would not only be the most simple way of answering these questions we asked, but it would be a valid way as well.
101. Leader talking to group.	101. Let's try another problem. What if you want to know how well employees are waxing the floors? SPEAKER 1: You could set up an ideal standard and see how well the employees meet the standard.

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102. Someone observing person waxing floors. Holding clipboard.	102. SPEAKER 2: You could then observe the person to see how well they do their job. A checksheet or some way to record the work would be needed.
103. People filling out a survey in a classroom or drawing of survey with hand and pencil.	103. SPEAKER 3: You might do a survey of the opinions of people about the cleanliness of the floors. LEADER: Let's say you want to know if employees are using the training they have received on-the-job? SPEAKER 4: You could send out a survey for the employees and their bosses to fill in.
104. Interviewer.	104. SPEAKER 1: You could interview some of the employees to get more detailed information.
105. Observation again.	105. SPEAKER 2: You could observe and count how many times the employees use the training techniques. LEADER: What if you wanted to know how many times events were scheduled for a dining room and no one showed up for the events?
106. Reading files and recording on checksheet.	106. SPEAKER 4: You could keep track of records of the scheduled events for a set period of time. SPEAKER 2: You could look at past records of those events that were scheduled 1 or 2 years ago to compare with present records.
107. Conveyor belt with shoes.	107. LEADER: One last example...What if you wanted to know how good the shoes are that are produced on an assembly line? SPEAKER 3: First, you would probably need to find some standards somewhere that tells you what makes up a good product or in this case, a good shoe.
108. Cartoon of person with checksheet on shoe assembly line.	108. SPEAKER 1: Then you would observe the product and compare it against the standards.

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	SPEAKER 3: You could also compare the shoes with shoes that are known to be of high quality.
109. Expert looking at shoes (graduation caps).	109. SPEAKER 2: You could survey the experts in the field that have seen the finished product and ask their opinions.
110. Leader.	110. LEADER: I think all of you have a good idea of methods to collect data. You have given examples for observation, surveys, interviews, records, and comparing what is observed with standards.
111. List of these words.	111. Once the Quality Circle members have decided how they can obtain the data, that is they have decided whether to look at records, send out surveys, conduct interviews or observe, they will next have to decide how they will record the information they find in order to summarize the information and eventually draw conclusions.
112. Group.	112. SPEAKER 1: Couldn't it be a problem if everyone went out and collected different information. LEADER: It can be a real problem. That's why it's so important for you to decide on a form for everyone to use when you are collecting data. We need to make sure everyone is asking the same questions, or observing the same products or even looking for the same information in the files.
113. Different checksheets.	113. Quality Circles often use checksheets. I think you will find checksheets to be an organized way of recording and summarizing data.

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	Each of you gave me examples of ways data could be collected. Let's refer back to those examples and discuss how we could develop a check sheet to make the data collection more systematic. One example was observing employees waxing floors and comparing what they did against ideal standards. Does anyone have any ideas for a check sheet for this?
114. Show this checksheet.	114. SPEAKER 2: You could list the standards or the procedure for waxing the floor and number each one on one side of the sheet. Then you could have a column for yes and a column for no and indicate with a mark which procedures were followed and which were not. This sheet would be used to observe several people and the results would be summarized as they are recorded.
115. Group.	115. SPEAKER 4: Who would decide on the standards? SPEAKER 2: I think the people who know the job would have to make the final decision. Well..you would probably need the input of the supervisors, too.
116. Different angle of group-leader.	116. LEADER: That's a good point. Also, don't forget to get permission before you attempt to collect data in any form. That was an excellent example of a check sheet. Let's try one more. If you planned to look through records of past events that were scheduled for a dining room and you wanted to know how many no shows you had, how would you design this checksheet? SPEAKER 3: You could list all of the events as they were scheduled on one side of the sheet. Have one

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	column for events scheduled, information not received and one column for events cancelled, information not received. You would mark the appropriate column as you read through the records. And of course you would obtain permission to look through the records!
117. Chart with SUMMARIZE/DRAW CONCLUSIONS (highlighted).	117. LEADER: Good. Now that you can design forms to collect data your next step is to summarize the data to show a clearer picture of it.
118. Slide of T.V., photo album, movie projector and book with pictures.	118. We all know that a picture is worth a thousand words. There are many ways to summarize and illustrate or make a picture of the collected data.
119. Slide of 4 different charts and graphs.	119. Graphs and charts are like pictures of the collected information. Graphs and charts help you see and analyze the data. They can also be used later for the management presentation. To make a chart or a graph, you have to tally or summarize the data you have collected.
120. Make a column graph from information on slide 119.	120. For example, information can be taken from a checksheet with observations of employees waxing floors and made into a column graph.
121. Group.	121. SPEAKER 3: That would be a good way to show how many times each procedure was done correctly next to how many times the procedure was done incorrectly. LEADER: Of course, you would need to write information on the graph so that anyone will know what all of the columns and lines mean. It must also include a title.

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	All of the numbers on the vertical line on the left need to be equally spaced. You always want to be consistent in the way you summarize data.
122. Column graph from 124 with unequal spacing.	122. Let's look at how this column graph would look with unequal spacing. SPEAKER 1: It sure doesn't show the same information. LEADER: It doesn't. That's why I emphasize being consistent in the way you summarize the data.
123. Group.	123. SPEAKER 4: I know I'm a little ahead, but how could you make a graph to show the results of the collected data for the dining room events?
124. PIE CHART with circle.	124. LEADER: A pie chart would be a good way to show the data about the dining schedules. A pie chart shows how several items make up a whole.
125. Speaker 4 female talking to leader.	125. SPEAKER 4: That makes sense. We would be looking at the total number of scheduled events (pause) and how many times people were scheduled or cancelled and the information was not received. LEADER: That's right, June. Let's look at a pie chart that would provide that information.
126. Pie chart to depict this data.	126. For example, if the number of events scheduled over a period of a month totaled 18 or 100% and the number of events scheduled, information not received equaled 5 or 28% and the number of events cancelled, information not received equaled 3 or 17% a pie chart could be used. Each number must be converted to a percentage with the parts adding up to 100%. A pie chart is used when it can provide a precise picture of the information you want to convey.

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	SPEAKER 3: I have a question. LEADER: What is it Bill?
127. Group-centered on female speaker.	127. SPEAKER 3: What kind of graph would we use to show something we were studying daily? Let's say we wanted to show how many shoes were not meeting standards when they were checked on the assembly line each day. How could we display this information? LEADER: That's a good question. I'm glad you thought of that. A line graph is often used to show a progression of events as they happen.
128. Line graph.	128. In this case, a line graph could be used to show how many shoes did not meet the standards daily over a given period of time. SPEAKER 4: Wouldn't it be a good idea to also show a line graph of how many shoes met the standards. This would give you something to compare the problem to.
129. Same graph with different colored line for good shoes.	129. LEADER: It would certainly make the graph more meaningful. You could put both lines on the same graphs in different colors. SPEAKER 2: And you would need to include a code so anyone could understand the graph!
130. Group.	130. LEADER: Very good! All of you are remembering the important details! Sometimes these charts do not clearly show the information or emphasize a point you are trying to make. Frequently, Quality Circles use one other type of chart which helps them interpret unclear data.

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131. Different shot of group.	131. SPEAKER 2: Are you saying, we can't always get a clear picture by just looking at these charts and graphs. LEADER: That's what I am saying. Sometimes, the collected data is just too close to call.
132. Show a Pareto chart.	132. And that is when you will want to use a Pareto chart. The Pareto chart is named after an Italian scholar who lived in the 19th century. He showed how wealth was unevenly distributed between groups of people. The Pareto law is frequently referred to as the 80-20 rule,
133. 80-20 Rule chart.	133. 80% of the wealth is owned by 20% of the people, or 80% of the A's are made by 20% of the students or 80% of the school problems are caused by 20% of the students, or the idea of the major few and the trivial many. Quality Circles use the Pareto chart to show how one problem may be an important one compared to the trivial many or how certain opinions, events, or what ever is being studied can account for the major part of the whole; or how one cause of a problem is more significant than the other causes of a problem.
134. Show Pareto that leader is pointing to.	134. The Pareto chart is a column graph with each column representing a different cause or topic. Each column represents a percentage with all columns adding up to 100%. The columns are arranged in decending order of influence. The advantage of a Pareto chart is that it helps to identify the one or two items or topics that are the most important.

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	SPEAKER 1: Well then, the same information that was shown on the pie chart could also be shown on a Pareto chart.
135. Pie chart/Pareto.	135. LEADER: Right. Both the pie chart and the Pareto chart are based on the parts adding up to the whole or 100%.
136. Leader talking to group.	136. The advantage of the Pareto chart is that it shows which items are most important and which items are least important. It's easy to read because it is in decending order. I am going to show you a few Pareto charts and I would like for you to tell me what you think each one shows.
137. Pareto showing this data with leader pointing to it.	137. SPEAKER 4: This shows that a Quality Circle brainstormed seven problems to study. It looks like "lack of training" and "absenteeism" were the major problems with the other five problems being the trivial few. LEADER: What does this Pareto chart indicate?
138. Pareto showing this data.	138. SPEAKER 1: This chart shows the percentage of the time events were scheduled and information was not received. It also shows the percentage of times events were cancelled and information was not received. SPEAKER 3: It looks like the system for scheduling events had problems. LEADER: That's a correct interpretation. Let's look at one more.
139. Pareto.	139. SPEAKER 2: This Pareto chart shows that one style of ladies' shoes is defective 75% of the time and all other defects 25% of the time.

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	LEADER: As you can see, the Pareto chart does point out the major few, and the trivial many topics related to the subject you are studying.
140. Chart with SUMMARIZE/DRAW CONCLUSIONS (highlighted).	140. Once you have collected data and summarized the data into charts and graphs, you are ready to begin drawing conclusions based on the data. The conclusions that Quality Circle members draw from the collected data answer these 3 questions: Is this problem a real problem? Is the cause of the problem the most likely cause? Is the solution the best possible solution to the problem? (Pause).
141. Group.	141. LEADER: Before we complete this program, I think it would be helpful if each of you would share something important you have learned today. SPEAKER 1: I now understand why it is important and necessary to collect data.
142. Show slide 5.	142. Collecting data adds credibility to employees' feelings about problems, causes and solutions. SPEAKER 3: I have expanded my vocabulary.
143. Show slide 6.	143. I know now that the word population means a lot more than people. SPEAKER 4: I used to think that to do correct research you had to look at everything or everyone involved.
144. Show slide 7.	144. Instead, I have learned what a sample is and how to select a sample that is representative of the population. SPEAKER 2: I have learned several different ways to collect data.

VISUAL	NARRATION
145. Show slide 8.	145. There are surveys, questionnaires, records and observation just to name some of the more common ways Quality Circles collect data. I think I could select the most appropriate method depending on the problem, cause or solution I was investigating. SPEAKER 1: I feel quite capable of developing check sheets as well as charts and graphs to summarize data.
146. Show slide 9.	146. Besides that, I think it would be fun to do! SPEAKER 3: Pass. SPEAKER 4: I feel much more comfortable interpreting charts and graphs. I used to look at those kinds of things and not really be able to understand them.
146. Show slide 9 again.	146. But, if data is displayed so that it is to the point, charts and graphs can be simple to understand. SPEAKER 2: Pass.
147. Leader talking to group.	147. LEADER: You may not realize it, but each one of you has addressed all of the major points of this lesson. You have learned the purposes of data collection; you can define a population; you have been shown the differences between a population and a sample; you have been introduced to several different ways to collect data; and you have learned how to summarize data into charts and graphs; and you have demonstrated the ability to interpret charts and graphs. Haven't we come a long way in just a short time! Out stepping chart is now complete and you are ready to begin. (BACKGROUND VOICES OF APPROVAL) Fading out of voices and into music.

SCRIPT
A QUALITY CIRCLE
CASE STUDY IN DATA COLLECTION

VISUAL	NARRATION
1. A QUALITY CIRCLE CASE STUDY IN DATA COLLECTION-either Sherlock looking through magnifying glass at title or title could be in smoke from his pipe.	1. Music.
2. AN OKLAHOMA STATE UNIVERSITY PRODUCTION.	2. Music.
3. CREDITS.	3. Music fade into . . .
4. Same as 1.	4. NARRATOR: To demonstrate the research process which was covered in the previous lesson, this case study in Data Collection will be reported. This is a case study of a Quality Circle composed of custodial staff.
5. BRAINSTORMING - similar to pg. 1-3.	5. The Circle members used brainstorming to select the name for their Circle. The name they selected is the Overnight Express. They also used brainstorming to identify a code of conduct for their Circle. It was through brainstorming that the Overnight Express identified several problems in their work area.
6. Show Column Graph of problem identification voting. Close-up.	6. They made a column graph to show the results of weighted voting which determined the problem to study. The problem receiving the most votes was "lack of training for custodians." This problem would later be stated in a more concise manner as the members gathered more data about this problem.
7. Group discussing.	7. In order to verify or prove that "lack of training" was a real problem, the Circle members made some decisions about collecting data.

VISUAL	NARRATION
8. What Chart.	8. The Overnight Express decided that they wanted to know if the Physical Plant Custodial personnel received training for their jobs; if the training was consistent; and if refresher courses were provided. They decided to conduct a survey since they wanted to know employees' opinions about training.
9. Specific questions with What Chart.	9. They developed a survey to ask the custodians if they received training and how they felt about this training. Employees were asked to respond on a scale of 1, strongly agree, to 6, strongly disagree.
10. Sampling on What Chart.	10. The Circle members felt that they needed to send this survey to the entire population of full-time custodial employees.
11. N = 107.	11. This population consisted of 107 employees. They sent the surveys out and received 98% of them back within one week.
12. Members tallying results.	12. When the Circle met again to tally the results, they found that some employees responded that they had received training. They also found that the survey did not give them enough information because it did not ask the right questions.
13. Members meeting - looking at problem column chart.	13. So...it was back to the drawing board again. The members discussed the possibility of studying another problem versus re-investigating the training problem. They voted to continue working on the training problem.
14. What Chart - with better questions.	14. This time, they carefully asked questions necessary to develop a valid questionnaire that would provide accurate answers.

VISUAL	NARRATION
	Some of the questions on this survey were:
15. Chart continues-possibly with one question at a time.	15. MEMBERS VOICES:
16. Question 16.	16. Have you received training for your job?
17. Question 17.	17. How many sessions did you attend?
18. Question 18.	18. Who conducted this training?
19. Question 19.	19. Have you been through a refresher course since your initial training?
20. Question 20.	20. Did training help your job?
21. Question 21.	21. Would you be interested in attending training?
	These questions would help the Quality Circle members find out if any training was being done and would also give a more precise description of the training in their department.
22. Add interviews to chart.	22. They decided to use interviews to study the problem. Next, Circle members decided to select a sample instead of attempting to study the entire population.
23. Sampling Chart.	23. The population consisted of 107 full-time employees. The Circle members felt that there were some differences within the population that could affect the results of the interviews.
	Some of the differences they brainstormed were:
24. JOBS DIFFERENCES (highlighted).	24. 1. the type of job the employee has;
25. OBS (highlighted). DIFFERENCES: Length of employment (highlighted).	25. 2. the length of time the individual has been employed;
26. JOBS DIFFERENCES: Length of employment, Age (highlighted).	26. 3. the age of the employee; and
27. JOBS DIFFERENCES: Length of employment, Age, Sex (highlighted).	27. 4. the sex of the employee.

VISUAL	NARRATION
	The Circle considered two of these differences important enough to affect the results of the questionnaire.
28. Same as 27 but Age & Sex in a bright color.	28. It was decided that the length of employment and the sex of the employee should be considered when choosing the samples. The population was divided into subgroups by length of employment. Then a list of employees' names was obtained.
29. June's chart-which demonstrates sampling for 3 groups.	29. There were three lists; one for zero to 1 year, one for one to five years and one for five or more years of employment. Each list was marked with a highlighter pen to indicate which employees were female. Because of the differences within the population, the Circle members decided to select a 20% sample size.
30. Close-up of sample portion of chart.	30. The names were placed in cups, by length of employment. There were 24 employees, 20 males and 4 females, in the 0 to 1 year subgroup. There were 42 employees, 21 males and 21 females in the 1 to 5 year subgroup and there were 41 employees, 19 males and 22 females in the 5 or more years subgroup.
31. Drawing names out of cups, with group sitting around and 1 person recording.	31. In order to select a representative sample of approximately 20%, the names of 4 males and 1 female were drawn from the zero to 1 year subgroup, 5 males and 5 females from the 1 to 5 years subgroup and 4 males and 5 females from the 5 or more years subgroup.
32. 4 part slide with each member with clipboard, interviewing other employees.	32. Next they gathered data from the sample. The Circle members divided up this responsibility and each member interviewed the employees in the sample. They were able to interview 23 of the 24 employees selected for the sample.

VISUAL	NARRATION
33. Chart with Summarizing/Drawing Conclusions (highlight Summarizing).	33. One week later, the Circle members met to tally or summarize the results of the interviews. The summarized data showed that the custodial personnel did desire training. Most felt that training helped them in their jobs. The employees had received many different kinds of training from several individuals and most employees had never been to a refresher course since their initial training.
34. Summarize Survey.	34. The results of this survey showed that employees wanted a training program and pointed out that a standardized training program was needed.
35. Group discussing.	35. Normally, the next portion of the Circle cycle would consist of doing a cause and effect analysis and gathering data to verify the cause. It was decided that a cause and effect analysis was not necessary as the cause of the problem was an obvious one, training was not being provided. The Circle members then brainstormed solutions to the training problem. They decided that the solution should include:
36. Title Solutions-picture of handbook.	36. 1. Designing and writing a training handbook to be used as a guide for training custodians.
37. Handbook, Trainer.	37. 2. Hiring or identifing a trainer who would design a curriculum and provide sessions and serve in other capacities as designated.
38. Handbook, Trainer, Training Program.	38. 3. Developing a standardized training program and record keeping system.
39. Completed Implementation Chart.	39. The steps for these solutions were planned using an implementation chart. This chart includes a problem statement, steps to the solution, the persons responsible for each activity, the start and target dates, and a follow-up or evaluation plan. Possible barriers or helps of the solution were also included.

VISUAL	NARRATION
40. Close-up of barriers & helpers.	40. These barriers and helps were brainstormed by the Circle members. They listed problems that might be encountered with the recommended solution. And they listed the positive points of the recommended solution. Brainstorming the possible barriers and helps would assist the Quality Circle members as they worked through this project.
41. COST/BENEFIT ANALYSIS-picture of chart.	41. Next, the members completed a cost /benefit analysis of the problem and solution.
42. Close-up of completed costs of problem.	42. They brainstormed costs of not having a training program. It was decided that personhours would be a cost, due to employees repeating tasks they did not complete correctly, or due to employees performing tasks more slowly because they had not received training. Using supplies incorrectly resulted in waste and increased cost. Equipment and property damage could also be the result of no training and increased costs. Untrained personnel damaged both equipment and property resulting in added costs. Safety related incidents were also a potential cost. Lack of training in how to lift, how to work with chemicals and how to use machinery can result in injuries, which, in turn, increase costs.
43. Circle members.	43. The Circle members were not able to place an exact dollar amount on these costs they brainstormed, but they did gather data on incidents that would support these costs. This data was obtained through records and interviews. The Circle members brainstormed costs of the solution during the same meeting.
44. Close-up of completed costs of solution.	44. They concluded that the overall costs of the solution would be the salary for the trainer, supplies for training, and the training manuals.

VISUAL	NARRATION
	To verify these costs, the Circle members obtained records of costs for supplies and projected an approximate cost. They also obtained the cost of printing the training manuals and projected a cost based on the number of employees to be trained in one year.
45. Group brainstorming benefits of solution with recorder writing on newsprint.	45. The third area brainstormed, were the benefits of the solution. The benefits do not have to have a dollar amount named for each item. Usually a Circle will include dollar savings when possible.
46. Close-up of benefits of solution.	46. The benefits to the solution were: increased accuracy when performing the job; less repetition of tasks; reduced inventory; decrease in equipment repairs; lower medical costs; safer work environment; and improved morale.
47. Show members with transparency of Cost Benefit Analysis.	47. The Overnight Express Quality Circle outlined the problem costs, the solution costs and the benefits of the solution on a transparency. They planned to obtain this information from records and interviews.
48. 5 part chart.	48. In summary, the Circle members had obtained evidence or proof that the problem they selected was a real problem and that the solution they were recommending was a good one.
49. Group Presenting to Management.	49. After drawing conclusions from the collected data, the Circle members presented their findings to management. MUSIC FADE OUT.

APPENDIX D

RELEASE OF LIABILITY FORM

RELEASE OF LIABILITY

The undersigned hereby releases Staff Orientation, Training and Development, and all representatives of Staff Orientation, Training and Development, from liability for the publication of a photograph or other likeness of the undersigned taken on or about _____, 19_____.

Signed this _____day of _____, 19_____.

_____

_____
Witness

_____
Witness

APPENDIX E

INTERNSHIP ACTIVITIES LOG

Monday, June 11, 1984

I contacted Dr. Ronald Payne, Assistant Director of the University Audiovisual Center. He agreed to be a co-preceptor for my internship with Dr. Gail Christensen, Manager of Staff Training and Development.

Wednesday, June 13 3 hours

I contacted three universities, in the quality circle network started by Dr. Christensen, to gather information regarding the training materials they are using. I listed their ideas for survey questions that I will send to them later this month. this questionnaire will be used to assess the need for quality circle training materials in service settings. Those I talked with have had to adapt training materials to fit their settings.

Tuesday, June 19

I met with Dr. William Venable to discuss plans for this internship. I set up a meeting with Dr. Venable and both preceptors for Friday, June 29.

Tuesday and Wednesday, June 26 and 27

I wrote the original internship proposal including objectives for the internship and a corresponding timetable.

Friday, June 29

I met with Dr. Venable, Dr. Christensen and Dr. Payne to discuss the internship proposal. All were in agreement with the proposal as written.

Friday, July 6

I met with Dr. Paul Harper and Dr. Venable to discuss the internship proposal. I also talked with Dr. John Baird so that all committee members were informed of my plans.

Monday, July 9 12 hours

I reviewed and critiqued a quality circle training program from BNA Communications, Inc. This program provided techniques and ideas that I can use later as I develop my own program.

I reviewed and critiqued a quality circle training program from the quality circle institute.

Monday and Tuesday, July 9 and 10 16 hours

I wrote a cover letter for the university quality circle network. The members of this network will be asked to respond to several questions about the training program they are currently using.

A thirteen question survey was also developed and sent to all network members.

Wednesday, July 11 8 hours

I started the storyboard for the slide/tape programs on data collection and cause and effect analysis.

The development of the storyboard started with the objectives for each program. The objectives were broken down into general concepts that would need to be addressed.

Tuesday, July 17 2 hours

I wrote for two more quality circle training programs that I would like to review and critique. I also wrote for information on a part series "Slide Shows Made Easy" although the company did not indicate that they would send out a free preview.

Wednesday, July 18 16 hours

I worked on the initial draft of a content outline from the objectives previously developed for the internship. This includes a content outline for cause and effect analysis and data collection.

I am finding that such a large number of ideas are somewhat difficult to narrow down into one program - especially for the program on data collection.

Wednesday, July 25 6 hours

I met with Dr. Payne and Dr. Christensen to review the objectives and the content outline. A few minor revisions were made.

I started work on the narrative portion of the storyboard.

I purchased large posterboards so that I could carry my work with me, but then decided it would be best to use the walls in my office considering the amount of content to be included.

Monday, July 30 8 hours

I worked on the storyboard. I used many ideas from the manual written by Gail and me. I am finding it difficult to write material that is understandable when heard rather than when read.

Tuesday, July 31 8 hours

I met with Dr. Christensen and Dr. Payne. During this meeting, it was decided to make the cause and effect program rather brief as the data collection program will be quite lengthy.

Dr. Payne suggested two voices for the data collection program. One could be a narrator introducing the program, the second voice could be that of a quality circle leader teaching individuals about this material.

I continued working on the content outline for data collection, adding ideas and rearranging ideas in more logical sequence.

Wednesday, August 1 1 hour

I reviewed a film on inferential statistics in the audiovisual department. Dr. Payne had recommended this film as a simple but thorough approach to research. I noted ideas for use in the data collection slide/tape program and found the program to be quite good.

Week of August 6 12 hours

I continued working on the storyboard for data collection. I am not pleased yet with the flow of ideas, but realize that broad ideas need to be generated before I can really deal with the specifics of the script.

I set up a meeting with Ron and Gail for next week to discuss the finalized storyboard on data collection.

Week of August 13 12 hours

I worked on the ideas for the visuals that will coincide with the narrative portion of the script. I am finding that this really tests my creative abilities. This portion of the project requires not only visualizing what is narrated, but also depicting the concepts so that the subject remains interesting.

Friday, August 17 3 hours

I met with Ron and Gail. During this meeting, it was decided that a follow-up slide/tape program of a case study in data collection would be more advantageous to the learners. It was also considered

most appropriate considering the amount and complexity of information covered in the first program. We felt that the learners would benefit most from an application of some of the topics presented during the first program. I discussed this with Dr. Venable and will revise by internship proposal accordingly.

Week of August 20 10 hours

I began collecting information from a quality circle group on campus. This information will form the basis of the case study.

A case study about a training problem was selected because this type of problem is applicable to any level of quality circle learning data collection techniques. This type of problem could be studied by quality circles made up of staff level workers or a quality circle made up of upper level managers.

I looked through old charts and graphs and other data collected by the circle when studying the training problem. They were quite pleased that their project will be published.

Wednesday, September 5

I met with Dr. Venable and Dr. Payne to provide them with an update of my work.

Week of September 17 16 hours

I finally received most of the surveys I had sent to members of the university quality circle network. I compiled this information into a readable format to send to those who had participated. The information I received indicates that quality circle trainers in university settings are developing many of their training materials. If they do purchase programs, most have to be adapted. This confirms my assumption that audiovisual program such as I am developing, are needed in university settings.

Week of September 24

Although the activities of this week are not directly related to my internship, they involved quite a lot of learning about quality circles.

I attended the Regional ASTD Conference in Little Rock, Arkansas and met individuals from three different organizations who are working with quality circles. We discussed our experiences with training and training materials. I also recruited two new members for the Network.

Monday, Tuesday, and Wednesday, October 1-3 24 hours

I wrote the narrative scripts for data collection and the case study in data collection into a rough draft. This information was taken from the storyboard which I had completed.

It was challenging to transpose information from general ideas into a free-flowing understandable script.

On Wednesday, I talked with Dr. Joe Campbell of ABSED and Dr. James Key of Agricultural Education. Both the these individuals have strong backgrounds in research and statistics. They agreed to read through my script to check the statistical information for clarity and correctness. Although I had referred to many textbooks for information, I felt their input would be beneficial.

Friday, October 5 4 hours

I took the rough draft of the data collection script to Drs. Campbell and Key and asked them to review it within the next week.

I also met with Drs. Christensen and Payne to read through both scripts. It was decided that the case study would apply to more settings if we did not call it an OSU case study.

Several revisions were made regarding the format of the script.

We decided this material would be more interesting and would better demonstrate the participatory style of quality circles if the first script was presented as a quality circle training session in progress.

This would require the voices of a narrator to introduce the program, a leader and several participants.

Week of October 8 20 hours

I met with Dr. Campbell to discuss her ideas regarding the script. I then discussed her suggestions with Dr. Christensen and Dr. Key and made the necessary statistical corrections.

The rest of this week I re-wrote the script to include all of the participants as stated earlier. I found this to be an exercise in creativity as I had to think of natural sounding interactions among all participants.

I also contacted people throughout the university for possible readers for the script. I was finding out names as well as prices for professionals to read.

The data collection script now consisted of 6 readers - a narrator, a leader and four quality circle members.

Week of October 15 20 hours

I started work on the shot script using the ideas I had developed during the storyboard stage.

I set up a format for word processing in which each numbered visual would correspond to each numbered section of the narrative.

I also reviewed and critiqued a quality circle training program from Organizational Dynamics, Inc.

Week of October 22 26 hours

I met with Ron and Gail to discuss the work I had done on the script, both narrative as well as visuals. That much of the script still needed to sound "more conversational." I met with Jane Astin in the graphics section of the Audiovisual Department. I started looking through clip art to get ideas for slides.

I spent quite a lot of time proofreading changes in the script as they were returned from Word Processing.

Week of October 29 16 hours

I met again with Ron and Gail to review the visual portion of the script and the changes that had been made. I set up an appointment with Lee Tarrant from Institutional Research. He will demonstrate how the Personnel Department Computer Graphics operates. I hope that I can use the computer for the graphic slides in the program.

Thursday, November 1 6 hours

I met with Ron and Gail to discuss the completed visual scripts. Ron recommended that I wait to develop the graphics when the computer graphics machine is delivered to the audiovisual department. He expects it to be delivered around December 14. This computer will make more professional looking graphics and slides.

We also read through the narrative scripts and made a few minor revisions. This part looks like is to ready for a final reading soon by the individual who does the recordings in the A.V. department.

I also meet with Lee Tarrant of Institutional Research to use the computer graphics machine in Personnel Services. I designed a pie chart and two line graphs. Although I learned how to do this, this machine will not work because it doesn't provide a color printer and the lines are not smooth enough to be made into slides.

I received the re-typed script from word processing and went over it with Gail. We planned to meet again with Ron on Monday for a final check.

Monday, November 5 6 hours

I met with Ron and Gail to read through the revised script and to plan for the work on the visuals. Some questions were raised regarding the treatment of sampling in the script. I then talked with Dr. James Key about the questions and was able to further clarify the different types of sampling covered in the script. Dr. Key also recommended a resource for beginning statistics than might be of further assistance. I found this book and used it before re-writing the script.

I also changed the script to include the objectives of the lesson at the beginning and the end of the program.

Thursday, November 8 4 hours

I finished the suggested script revisions. I find that these ideas take quite a long time to actually turn into an understandable text.

Monday, November 12 8 hours

Ron, Gail and I met to read through the revisions made last week. We found that the ideas were good, but the script is still not "flowing" as smoothly as we would like. We found that the script has too many different ideas that may become confusing to the learners. I will combine a chart I have developed with some of the steps I have outlined to become the actual steps to Data Collection. I am again quite frustrated with the revisions I face, although an understandable program is what I am striving to achieve. Dr. Payne also recommended that I take all of the shots I can with my 35mm camera. I am concerned that the slides will not look professional enough because my camera is totally automatic. Dr. Christensen and I will work on obtaining the services of a professional photographer who will work with me. I contacted the Journalism Department to discuss cost for voices for taping. I also contacted Aletha Hollis in the Audiovisual Department to get their prices for taping. Ms. Hollis will edit, dub voices, add music and will let me assist her. I will probably use her services since the price is reasonable and I can participate.

Tuesday, November 13 8 hours

I divided the shot script into the kind of slides required i.e., people and item shots that I can take with a camera. Gail asked Paul Mullen to take some of the shots and he agreed. I had to call to find release forms for individuals to sign before they are photographed. This required several phone calls and finally the OSU attorney suggested calling the O'Collegian staff. The O'Collegian staff provided me with a suggested format and from that I developed a form for future use by the Staff Development Department. I plan to take pictures tomorrow and Thursday. Gail has arranged for a picture-taking session while one of the quality circle groups is meeting.

Wednesday, November 14 5 hours

I provided the photographer with a description of all the pictures we will need. The photographer took pictures as I directed during the quality circle meeting. I learned the necessity of having a photo session as a photo session only. It was disruptive to both the group as they tried to meet and to the photographer as he tried to take pictures. Although we were able to get most of the pictures we needed, it was a rather slow process. I also learned some tips on taking pictures that will be invaluable i.e., arranging groups of people, and being aware of objects in the environment that might be distracting when viewing slides.

Thursday, November 15 8 hours

I arranged with the staff of Personnel Services to take pictures at lunch time. These individuals were very agreeable and easy to work with as we took pictures. It went much more smoothly today taking pictures when no other activities were occurring. I needed a picture of people dining in the State Room but I wasn't able to get this shot. There were problems with Release of Liability forms and the possibility of disrupting people's lunches. Mr. Mullen took several pictures at lunch time and gave me a quick explanation in the use of his camera so that I could take some of the pictures that afternoon. I made a file for the Release of Liability forms so they can be kept in one location in Personnel Services. I spent part of my day proofing the latest revision of the script. I finished the day by meeting with Jane Aston in Audiovisual Graphics to schedule a time for starting on the word and character slides.

Sunday, November 18 2 hours

I worked on minor revisions of both the shot and narrative scripts.

Monday, November 19 6 hours

I took the revisions of the scripts to Word Processing. I took all of the film into the Photo Shop to be processed. I met with Aletha Hollis to discuss recording the script and asked her to read it and make any changes she felt were necessary. I met with Jane Aston and started work on typing all of the word slides as I want them to look. Jane gave me ideas for making these slides. The words need to be bold and the slides should not appear crowded, and only the main ideas should be included.

Wednesday, November 21

I gathered together the booklet I had looked through earlier for slide ideas and I got some old catalogs for use when I make the character slides.

Wednesday, November 28 8 hours

I met with Aletha Hollis and she recommended dividing the first script into three separate programs due to its length. I made the necessary revisions at points in the script I thought were appropriate. I picked up the slides that had been processed. I selected the slides I thought were best and ask for Mr. Mullen's input. It appears I will have enough different slides and I will not have to take more pictures. I finished typing the rest of the word slides and started drawing ideas for the computer graphics.

Thursday, November 29 2 hours

I finished my preparation for the graphics work and went to the graphics department. They were so busy that Ms. Aston was unable to work with me today. I met with Gail to provide her with an update of the project.

Week of December 3 8 hours

I spent some time in the Graphics Department. I started cutting and pasting some of the character slides. I decided this would be a good time to read my script through to see how it flows. It had been at least a week since I read it and I felt I could be more objective now. I developed a table of random numbers to be used for several of the slides. I re-checked some of my information to make sure all of data for the quality circle case study was accurate.

Monday, December 10 7 hours

I met with Ron and Gail and asked them to be readers for the script. We decided to have a professional male voice for the narrator, a professional female voice for the leader and myself and another male to be the voices for the other two participants. I purchased several item for my art work and I continued work on the character slides.

Wednesday, December 12 6 hours

I worked in the Graphics Department. Cutting and pasting for slides is very slow work.

Thursday, December 20 7 hours

I continued my work on graphics. I am beginning to learn some helpful hints as the people in this department are less busy and able to assist me more. I made copies of the script for all of the individuals who will be reading. I set up three tentative dates for recording in January. Ms. Hollis is out of town and these dates will have to be confirmed later. I learned how to paint a transparency when color pictures are not available. I am now making one slide approximately every two hours.

Week of January 1, 1985 7 hours

I met with Aletha Hollis to discuss the script which is to be recorded. We made a few final revisions and set the recording date for January 25. This date will be for recording the four non-professional readers (including myself). I worked on graphic art, cutting and pasting pictures that will be slides. I am getting much

closer to the completion of this part of my project. I think I have just about finished all of the art work that I can do. There are some difficult drawings that the commercial artists will have to complete. I copied and reduced several pieces of clip art. I provided all readers with the script changes after Word Processing completed the typing. I notified them of the recording date.

Tuesday, January 8 5 hours

I completed my portion of the graphic artwork today. I also had to double check what artwork was done against the script.This was necessary in order to turn over the work to Jane Aston in Graphics. I set up a meeting with her for the first of next week. Since the script is now in its final form, I copied it for all committee members.

Monday, January 14 3 hours

I realize that I still needed to sketch ideas for charts and graphs that will be done by graphics personnel. I had to include both data that matched the script and precise instructions for those who will do the art work.

Wednesday, January 16 6 hours

I met with Jane Aston and we went through all of the art I had completed. Overall she was pleased with my work. This was the first time I have attempted anything of this nature. I gave her the instructions for the rest of the art and we set a tentative date of mid-February for completion. I met with Ron Payne to update him on my project. I did a final editing of the slides that were taken in November. This was fairly easy to do as I had done initial editing immediately after getting the slides processed. This time I had to decide which slides would be used for different parts of the script. I took the slides to Photo Services to be duplicated. Some slides also had to be combined into two in one and three in one slides.

Friday, January 25 4 hours

I picked up the slides that had been duplicated. I found a three-in-one slide to be less than professional in appearance. I have discovered that one needs to allow plenty of time for completion of this portion of a slide/tape program as it will take another week to get the slide fixed. I also have a better idea of what to expect when combining slides. I checked with Jane Aston in Graphics to see how work was coming along on my slides. They have been too busy to get started this week, but hopefully will start next week. I recorded the script in the sound-room with Gail Christensen and Bruce Hoover. I was able to listen to our recording and was satisfied with all but the last portion of my recording. I will go back next week to record

again. I also heard the narrator's portion of the script and it sounded quite professional. It is now getting exciting to see and hear the "fruits of my labor". Recording was much easier than we thought it might be. Ms. Hollis was great to work with during this session. She and I will edit it in two to three weeks.

Thursday, January 31 2 hours

I recorded my portion of the script again. I also checked with Jane Aston to see how work is coming on the slides. She promised me they will start work on them next week. I talked with Ron Payne to set up a time for him to read the script so Aletha and I can get the editing completed. We have set aside the entire day of February 12 to edit together the scripts of all the readers.

Tuesday, February 12 3 hours

I worked with Aletha Hollis. We started editing all of the voices together from approximately four different tapes. This will be quite a lengthy process because of the number of voices involved and the length of the script. Ms. Hollis explained the care needed in handling the tape, the necessity of wearing "editing gloves", and how to cut and splice the tape. Much of the editing involves the skill of hearing a script and knowing that it sounds right. Ms. Hollis was able to cut spaces out of the script because they just didn't sound right. She will add the music and sync tones once she has finished editing. We discussed the need for some of the word slides to proceed the narration so that the viewer has time to read and understand the word before hearing the narration. I stopped by graphics to get an up-date on their progress. They have not started on the slides yet due to a shortage of personnel. They hope to get started soon.

Monday, March 4 3 hours

I previewed copies of the tapes that had been edited by the recording specialist. A few mistakes were noted, a few sync tones needed to be changed, and some problems with the speed of recording the voices was detected. These problems were discussed with the recording specialist and she will attempt to correct them within the next week. I visited with the personnel in the graphics department and answered some of their questions regarding artwork. They plan to have all of the slides completed within two weeks.

Wednesday, March 13

I spoke with Jane Aston on the phone and she had been requested by Dr. Christensen to ask me to come in to do more work on graphics. It seems that funds are running out for this internship and there may be some problem in completing the visuals. I spoke with Dr. Venable and Dr. Payne regarding this problem.

Monday, March 18 5 hours

As a result of the phone conversation with Jane Aston, I offered to spend another day assisting with graphics. I spent the day pasting type - set words on paper. These will become the word slides. I discussed a deadline for completion with Jane Aston. We agreed on April 10, 1985 in order that I would have time to complete a final editing before presenting these programs to my committee.

I informed Dr. Christensen of what was done during this day and told her about the deadline.

Wednesday, March 27

I talked with Dr. Payne and Jane Aston today and they have again received requests to have me do more of the production work. I explained that I was limited on time and that I have already exceeded the designated amount of hours required for this internship. We discussed several ideas they had regarding meeting the deadline. I am to contact them on April 10 when I return from out-of-town.

Summary

This Activities Log has given a detailed description of the daily activities involved in the planning and implementation of this internship. When the internship was initiated, two slide/tape programs were envisioned. The first was to be on data collection techniques and the second on cause and effect analysis.

The first program became complex and lengthy and needed to be divided into three separate modules. It was decided early in the internship that a case study report of data collection activities would be most beneficial to the learners. Plans were changed, and the program on cause and effect analysis was deleted.

Planning and development activities included writing the purpose, objectives, content outline, storyboard, narrative, and visual scripts. Production activities included photography, experience in graphic artwork, recording, and initial editing of recordings and slides.

As a result of this internship, I feel quite capable of planning and directing the production of slide/tape programs. The entire process provided a better understanding of the steps involved in developing audiovisual training materials.

At times I felt frustrated by all of the rewriting necessary in the planning phase, but I understood the necessity of detail before production was initiated. This detail paid off as production took place. Very few script changes were required after production started.

I was able to develop a good model for planning and producing audiovisuals. Although this model was not strictly adhered to, it, like any other model, required adaptation to fit the situation.

If I were to develop a similar audiovisual program again I would limit the number of objectives for each program to one or two. This

would prevent the program from becoming too lengthy and complex. Iwould better utilize the resources of a communications expert to ensure that the program visually illustrates the narrative content. I would initiate the graphic artwork prior to other production activities in order that all production is completed in a timely manner. I would develop a team approach for planning and producing this type of program.

A point of concern during this internship involved consistent financial support. Initially there was much support for the development of these audiovisual programs. However, as funds became scarce, financial support became inconsistent. This evolved during a time when technical audiovisual expertise was essential.

A large portion of planning and production was completed by the intern on January 16, 1985. At that time, the recording and graphic artwork areas of production were turned over to the Audiovisual Department. Consistent financial support would have ensured completion of the audiovisuals for this internship.

VITA

Linda S. Gognat

Candidate for the Degree of

Master of Science

Report: A PROGRAM FOR QUALITY CIRCLE TRAINING IN DATA COLLECTION

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Biographical:

Personal Data: Born in Vincennes, Indiana, January 21, 1953, the daughter of Joseph A. and Constance Davis Gognat.

Education: Graduated from Rivet High School, Vincennes, Indiana, in May, 1971; received Associate of Science degree in Nursing from Vincennes University in May, 1974; received Bachelor of Science degree in Nursing from University of Evansville in August, 1977; completed requirements for the Master of Science degree at Oklahoma State University in May, 1985.

Professional Experience: Staff Nurse, Good Samaritan Hospital, Vincennes, Indiana, 1974-1977. Assistant Head Nurse of Pediatrics, Good Samaritan Hospital, Vincennes, Indiana, 1977-1978. Instructor of Pediatric Nursing, Deaconess Hospital School of Nursing, Evansville, Indiana, 1979-1980. Staff Development Instructor, Good Samaritan Hospital, Vincennes, Indiana, 1980-1981. Director of Staff Development, Stillwater Medical Center, Stillwater, Oklahoma, 1982-1983. Quality Assurance Coordinator, Cushing Regional Hospital, Cushing, Oklahoma, 1983-present.

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