

EVALUATION OF WORK SIMPLIFICATION BOOKLET AND SLIDE
TAPE PROGRAM FOR FOODSERVICE EMPLOYEES

by

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INTRODUCTION

Foodservice organizations today are challenged to provide high quality services within budgetary limitations. Effective use of space, equipment, food, supplies, and personnel should be made in meeting the challenge. Concepts from research in institutional management and industrial engineering, as well as from other disciplines, yield important information for improving efficiency in foodservice.

Work simplification principles occupy a central role in increased efficiency. Spickler (1) deemed work simplification a teaching and training program, contending that these principles are the most important management tools available. Employees taught to use these principles can improve their own job methods.

Close (2) described signals identifying the need for improved efficiency that include high costs, low productivity, labor troubles, idle time, excessive product handling, or poor housekeeping practices. Application of work simplification principles in these situations could be very advantageous.

Colucci's (3) study of application of work simplification to quantity food preparation increased efficiency because specific techniques were changed. David (4) cited the importance of work simplification training based on the application of industrial engineering principles to the total foodservice operation. Many characteristics of foodservice operations resemble those in other industries and procedures can be streamlined similarly to attain optimum output. Industrial engineering concepts involve systems analysis and development for more effective use

of space, equipment, food, supplies, and personnel. These concepts are applicable, then, to foodservice systems and should be taught to personnel (5).

Productivity is affected by all elements involving the worker (6). To obtain the most from resources requires better methods, increased skills, technical improvements, and creativity, all of which can be enhanced through employee training in work simplification.

Work analysis and design is an approach to improved work factors by providing services and products with minimum time, effort, and money (7). Bakr and Rollings (8) indicated that the systems approach to a work improvement program should involve each worker in the work environment recognizing that human limitations affect principles of work design.

A need exists for instructing foodservice personnel in the use of work simplification principles to improve work methods. Meeting this need with self instructional materials containing basic information relieves managers from part of the training function permitting employees to learn at their own convenience.

The initial purpose of this study was to revise a booklet, The Basic Four of Work, which had been developed at Kansas State University (KSU) eleven years ago. The purpose was extended to include development of a slide-tape module embodying the same material and illustrations for training employees with limited reading skills.

The booklet and slide-tape units were tested in a pilot study with residence hall foodservice employees. One group of employees was instructed with the booklet and another with the slide-tape presentation. Both the booklet and slide-tape unit included tests of knowledge and attitude. The efficacy of the two training methods was measured by

comparison of pretest and posttest scores of the two groups. In addition, reactions to the two training methods were compared.

Definitions of the two terms most frequently used in this study follow. Work simplification is the process of attaining the quickest and best method of performing each necessary operation in a task or whole system for increased efficiency. The process includes improvement and standardization of methods, equipment, working conditions, and employee training. The desired effect is that employees "work smart" rather than "work hard" in order to save effort, time, and money. Motion economy refers to performance of an operation or task using the minimal essential movements to achieve desired results.

REVIEW OF LITERATURE

Work Simplification

Schmid (9) noted that people become involved in a work simplification program by making the analysis and developing an improved method. Those involved must understand the rationale for the improvement and effect of changes on work. Rosa (10) concurred that workers and supervisors must understand the rationale before changes are made to allay fears and gain full cooperation in improvement of work details. Work simplification was defined by Wright (11) as the organized application of common sense to find better ways of doing work.

Smith (12) stated that the aim of work simplification is to have more efficient production with less fatigue to workers. The consequences of fatigue are poor product quality, increased accidents, and lowered employee capacity for work. Smith's suggestions for a work simplification plan were to arrange or position work correctly, use standard procedures or omit unnecessary steps, put away materials after completing operations, and clean up the work space.

Nadler (13) explained work simplification as a systematic analysis of any type of work, thus assuring that correct methods and procedures are used. As the basis for this analysis, he cited fifteen principles of motion economy dealing with equipment and methods.

Claims that motion economy can improve efficiency and reduce fatigue are supported by Nichols (14, 15) in a study of heart rate as a physiological measure of human work motions. Investigation and

appraisal of several motion economy principles with variations in operator heart rate served as a guide for workplace and job design to improve efficiency and reduce fatigue in manual work.

Nadler's fifteen principles (13) of motion economy form the basis for Close's (2) efficiency principles in the categories of material handling, workplace, tools and equipment, and motion economy of body. Each category includes five to ten statements on work improvement. According to a publication by the Hospital Research and Educational Trust (16), motion economy can be divided into three main categories: arrangement of work area, use of body, and design of tools and equipment.

Rodenborn (17) reported how an industrial engineer's reorganization of a food line by changing procedures and eliminating unnecessary tasks resulted in reduction of excess labor. To arrange necessary work in best order, human body movements and limitations in relation to equipment must be considered. McManis (18) determined the space needs of foodservice workers based on anthropometric data. The research showed that in planning space needs, a range of human dimensions and body movements to fit the group to be accommodated should be specified rather than using dimensions of a single piece of equipment.

West et al. (19) viewed work simplification as the elimination of unnecessary elements of a job involving changes in equipment and arrangement or changes in procedures. Employee interest, understanding, and cooperation are essential for the success of a work simplification program. Elimination of wasted effort occurs when the worker becomes conscious of motion efficiency, learns to apply procedures, and sees resulting benefits.

Kazarian (7) summarized the results of recent studies based on the works of Taylor, the Gilbreths, and Moganson and defined a set of principles currently used in developing work methods, the workplace, and the tools and equipment needed. He said that present studies on work analysis and design involve the consideration of existing systems in segments to identify and eliminate unnecessary work and arrange necessary work in best order.

Improvement through Employee Training

Cushman (20) stated that a successful employee training program may be expected to improve work performance with realization of a minimum of three outcomes: definite and permanent improvement in performance of work at all levels, more effective cooperation and teamwork in the organization, and improved morale throughout the organization. Good instruction requires the learner to apply ideas in a practical way. Application depends on the trainer's prior analysis of training needs, practical objectives, efficient program operation, and program analysis. The training program is affected by the supervisor's recognition of the program, employee's personal advantage, competition, and employee's responsibility.

Training programs can encourage participation in work simplification, indicated Rosa (10), with recommendations that the training be conducted in formal classes. Supervisors should be encouraged to share knowledge with workers. Frequently workers are able to devise improvements in work after receiving work simplification training. Wright (11) reported results of a series of classes taught by trained personnel to supervisors. These results encouraged workers to prepare proposals for

improving work subsequently discussed by a committee. Following adoption of a proposed improvement, personnel were educated concerning the change.

Kintzer (21) wrote that an adult is more willing to learn if the teacher explains what is to be learned and its importance, adds humor and enthusiasm, and establishes dialogue. Methods to enhance adult learning include actual doing, using pictures, relating subject to something familiar, providing materials for interest, and frequent feedback.

To evaluate behavior change following a training program, Craig (22) made four suggestions: make appraisal of on-the-job performance before and after training; have performance appraised by trainee, superior, subordinates, and peers; compare before and after performance using statistical analysis and relate changes to training program; and make post-training appraisal at least three months after training. Apley (23) developed and evaluated an audio-visual program using slides and oral instructions augmented with guided practice for teaching banquet service to foodservice personnel. Employees reacted favorably to the training procedure.

Benedict (24) reported a subjective evaluation of an experimental training program. After a five-day training program, effects were determined by on-the-job performance and the trainees' and administrators' responses to a subject matter test and subjective-type rating. Subordinates answered interview questions. The rating was more discerning in measuring intangible outcomes of training than the objective evaluation which is not compatible with the intangible. Subjective measures used for pre and post subject matter tests were analyzed to determine the relationship between what was learned and used on the job and also to

observe other training results. Job-related changes due to the training were reported by 78 per cent of the participants.

Calvin (25) stated that the teacher's role when using programmed material is to provide encouragement and information, handle difficulties, respond to concerns, and assess overall problems. Also, the teacher should maintain variety of presentation, encourage fast or slow learners, improve the program, and encourage the "love of learning."

Hilton (26) stated that the audio-tutorial system is a multisensory training approach using media as the teacher. This individualized instruction provides a wide range of learning experiences to present information. Hilton compared two self study techniques, an audio slide program and a pictorial information sheet, for quantity food production. Effectiveness of each training technique was judged by individual pretest and posttest scores, standard study time, evaluation of performance after training, and student reaction. No significant differences in scores, study times, or performance were noted. Subjects responded in an open-ended questionnaire that the slides were helpful because their senses of sight and hearing were used. Interest could be lost easily, however, and instruction was given too fast on the slides. Subjects stated that the written information was helpful, saved time, was pertinent, but required motivation. O'Day (27) indicated that a self study program permits the learner to adjust the pace to his or her ability and motivational level.

Scharf (28) compared results of training foodservice workers using a self study programmed text with an approach using a lecture and transparencies. Test scores indicated that both forms of instruction were effective in training. The text required no special equipment and less supervisory time and was especially good with only one or two

students. The lecture required equipment but added a personal touch; important points could be stressed by the presenter's voice.

Matthews (29) suggested a programmed audio cassette employee training method using a workbook with cassette tape. This method was considered to be feasible for teaching large groups while allowing each learner to follow objectives at his or her own pace.

Food Management (30) contained a description of the use of manuals for training foodservice employees. The learners' comprehension should be tested during the training period, and management must be dedicated to the success of the training program.

Gellerman (31) stressed that to achieve optimum learning, the learner must want to learn and be interested in the subject, and the reasons for training should be apparent to the trainees and tailored to specific needs. The training should enforce ideas already known rather than replace old with new. Gallagher (32) noted that training should be done in the first few days on the job as the trainee is beginning to evaluate his or her role in the work situation. Observation of procedures and achievable goals cause the trainee to be receptive to comments from others in learning a job. If not given training, the employee develops or adopts methods that can be more expensive than the cost of training because of errors, waste, accidents, poor sanitation, and lost customers.

Elsbree and Howe (33) evaluated an employee training course to determine whether course objectives represented the job, ascertain whether trainees were meeting course objectives, and isolate causes of trainees' failure to meet objectives. An attitudes questionnaire was given by Kirkpatrick (34) to trainees before and after training to determine the effectiveness of training for on-the-job behavior. General conditions

that This and Lippitt (35) indicated were needed for effective learning included motivation to learn, active learning, guidance for the learner, appropriate materials, time to practice the learning, varied learning methods, reinforcement of correct behavior, established standards of performance, and recognized differences in learning levels and methods and times.

An article in Food Management mentioned that institutional foodservice continually has new challenges with pressure to contain costs and still improve quality (36). If the training is negligible in cost or appears highly efficient and effective, however, a systematic evaluation probably is not necessary. Deming (37) recommended that if an organization makes a considerable training investment with no overwhelming evidence of good return, implementing an evaluation system could be productive. Page (38) expressed that training programs help ensure management of an efficient work force, reduce turnover, and build good morale. Correct procedures, leading to increased productivity, can be taught to everyone. Proper training provides opportunities for employees to improve efficiency, encourages growth and development within the organization, and contributes to a higher degree of job satisfaction.

Self Study Training

Middleton and Konz (39) found that a slide tape program to teach motion patterns for breading foods was a useful training method. Kahl (40) used slides for instructing employees in correct dishmachine operation. The group which practiced the steps after seeing the slides was more accurate and quicker in operating the dishmachine than the group which answered written questions after seeing the slides without practicing the steps.

According to Romiszowski (41), synchronized slide tape presentations have become very popular, especially in industrial training. The practical advantages of self operated presentations are instant availability for any employee shift, standard presentation, and less instructor time. The Ford Motor Company found that the slide tape stimulated interest, motivated, and outlined the subject for employees. To ensure retention, supplementary texts were required to provide practice in applying information.

Moroz (42) compared two training methods, videotape and printed instruction, for teaching typical foodservice tasks. Sumbingco et al. (43) used a programmed text for teaching foodservice employees how to portion pie and clean a food slicer. Workers responded favorably to the programmed text, saying it was useful and interesting. Success seemed to be due to use of small learning steps, active participation, immediate knowledge of results, and self-pacing. The videotape required no translation of words into actions as was necessary with printed instructions in which individual reading ability affected interpretation of the instructions.

Also, Woods and Northcutt (44) investigated the results when students used self study units instead of attending lecture. The lecture was tape recorded with slides of the lecture visuals for self study. Advantages of study units were the ability to stop and replay the tape, less distractions, and greater ease in following session structure.

Frame (45) compared employee training by videotape with training by manual allowing equal time for each method. Each employee was alone during training with proper environmental factors to preclude distraction from the training lesson. The employees trained by the videotape

performed significantly better in making sandwiches but only slightly better in frying. Reactions by employees to both types of media were favorable. Ninety-five per cent of the employees said they preferred to be trained in a specific job rather than to learn the job without training.

Boucher et al. (46) stated that printed materials as an instructional medium were economical and permit the learner to set the desired pace. The disadvantages are that the use of printed materials relies on students' reading ability and constitutes a one-way medium with no opportunities for clarification if learner has questions. Klevins (47) declared that slides serve educational purposes by focusing attention on one topic, presenting information visually to increase understanding, enhancing art appreciation, increasing understanding of symbols, teaching skills, encouraging interest in a particular topic, and reinforcing information received from other media.

Hayes (48) conducted a study to measure achievement and attitude change of subjects studying identical material using two methods, a slide tape unit and lecture-demonstration. Time schedules, lessons, achievement tests, and attitude tests were identical for both groups. No significant difference was shown between mean performance scores of students who completed the slide tape unit and those who completed the lecture-demonstration phase. Statistical data indicated that an instructor can expect equal student achievement from the slide tape and the lecture-demonstration methods. If control of learning climate is essential, the teacher should choose the conventional method. If learner-controlled pacing is preferred, however, the teacher should use the self instructional method.

Self study training programs, according to Laird (49), should have behavioral outcomes defined, specify content scope, and indicate normal time required for the program. Analysis of Dameron's (50) self instructional module on use of the critical incident technique revealed that the module was as effective as lecture in teaching basic concepts. The self instructional method relieved teachers from presenting this material and allowed mastery of material at the learner's pace.

Duchastel and Waller (51) stated that illustrations for self instructional modules can explain items visually for which verbal explanations would be too cumbersome. Illustrations can be descriptive, expressive, constructional, functional, logico-mathematical, algorithmic, and data-display. These functions are not mutually exclusive of one another and can be used to evaluate illustrations for suitability.

Schweitzer and Gines (52) discussed the advantages of written training materials. According to them, handout materials are simple and inexpensive to reproduce, useful on the job if properly designed, useful for later reference, require no equipment for use, and are easily stored and maintained. The disadvantages are that reading skills are required, handouts may be ignored, and motion cannot be shown. Schweitzer also outlined advantages of audiotapes which can be used repeatedly by different groups or individuals, require less equipment than videotape, and can be validated as learning devices.

Smith (53) stated that self paced instruction allows the trainee to establish his or her own pace to use the materials. Programmed instruction is characterized by established goals for the learner, frequent learner responses, confirmation of correct answers, and correction of wrong answers.

Training Text Content

Nichols (14) endorsed the use of motion economy principles such as the advantage of using two hands symmetrically while working rather than use of only one hand. Kotschevar (54) indicated that foodservice workers should learn to use muscles properly and keep the body in alignment using proper work heights to conserve energy. He added that a worker needs periods of rest to maintain high productivity. Konz's (55) study of work station design indicated that the best work height for a standing operator is about one inch below the elbow although the work height may vary several inches without much effect on performance.

Instructions to aid in work simplification training include proper lifting and carrying techniques, safety practices, weighing ingredients, proper tools and equipment, and ventilation (16). Smalley (56) further stated that physical factors such as temperature extremes, dust, noise, vibration, and psychological factors contribute to human exertion and comprise part of human work content.

Hudson's (57) list of work simplification principles for foodservice personnel was based on motion economy research. Several examples of proper techniques for foodservice tasks relate to work area requirements. Konz and Goel (58) developed reference tables of normal male and female work areas based on elbow distances in relation to height and other factors.

A publication of the American Hospital Association (59) indicated that work simplification training may include teaching sanitation standards and listed many personal and environmental sanitation standards that should be followed. Hazard control programs described by Ayoub (60) are directed toward safe behavior of workers, application of

ergonomic principles for relationships between man and machine, proper environment, and tasks that assure early identification of hazards. Pearson and Ayoub (61) stressed that the worker should be warned of inherent hazards because of the nature of many industrial tasks requiring a human-machine interaction. Environment and task stress can affect human efficiency increasing the chance of accidents.

Davis (62) presented in a training manual the importance of using two hands rather than one when performing foodservice tasks. Assignments in the manual included demonstrating the advantages of using two hands in handling meat and making salad.

West et al. (19) cited that work simplification efforts can be jeopardized with workers' fatigue caused by environmental factors and recommended 75 to 80°F temperature with 50 to 60 per cent relative humidity in foodservice areas to avoid employee fatigue. Fatigue also can be prevented if work surface is at proper height. Roozbazar (63) found that work surface height should be set at or slightly below the elbow rest height for sitting work and at or slightly below elbow height when standing.

Konz (64) suggested that work height can be adjusted by changing equipment height, raising a platform for worker, and adjusting height of tabletop equipment by blocking up. The report further supported teaching proper work height principles to foodservice employees.

Kazarian (7) reported that well designed work places usually result in good work methods and can affect attitude toward work and the methods used. He described the determination of normal and maximum work areas for each hand stating that repetitive tasks should always be done in the normal work areas to avoid overextending the body.

Kazarian also advocated working with both hands simultaneously to avoid fatigue because when one hand is idle the body tries to pull itself into balance. The momentum is developed when body members are in motion. Since effort is required to start and stop motion, developed momentum should be used effectively which can be done by training employees to use continuous movements at work.

The effects of temperature extremes on accuracy have been shown to be detrimental and Kazarian concluded that every means to provide optimum conditions should be utilized. Insufficient lighting causes errors and accidents and glare can cause eye fatigue. Good lighting can increase work output from 10 to 20 per cent depending on the illumination. If speed and accuracy for long time periods are desired for a task, the highest available level of illumination should be provided. Kazarian stated the studies of noise effects on worker efficiency "conflicting and inconclusive" but cited the need to reduce high noise levels. Loud noise leads to distractions, errors, and accidents thus reducing worker performance. The best way to control noise is at its source by proper maintenance, repair and lubrication of noisy machines, and use of sound-absorbing materials. Employees should be taught to control noise as a principle of work simplification.

Marino (65) in an evaluation of a programmed instruction unit stressed the importance of appropriate content. Instruction should be valid and of good technical quality in order to be of greatest value. Content validity referred to the degree to which the instruction met the training goals and would enable the learner to meet the lesson objectives. Technical quality was concerned with length, sequence, and clarity of the unit.

Text Design

Patterson and Roberts (66) recommended that the instruction be written "along the path from what the reader knows" to the desired end in order to present new information. Material quantity should be brief. Pictures can add impact, serve as an educational tool, or create a readiness to learn. He indicated some characteristics of a good booklet were eye appeal, attractive cover, and comfortable size.

Emerson (67) outlined steps in developing instructional materials to aid in preparing an outline for training manuals. When considering what information to include in a training program, Lysaught and Williams (68) suggested the following criteria: the amount and logical order of material, student needs, ease of treatment of subject, and level of learning. Employee trainers must consider the number of trainees, permanence of subject matter, and estimated time for development of material.

When designing instruction, Warren (69) recommended arranging training behaviors and criteria in order before separating the instruction into teaching units for explanation of each point. When the program plan is finished, O'Day (27) suggested that the program draft should be given to a sample from the target population. The programmer should examine responses of the pilot group to discover shortcomings of the draft. Clues for revisions may be found by examining items on which several people err.

Kinder (70) stated that with a text, pictures can motivate and vitalize learning and clarify ideas. Pictures should be truthful and accurate, simple, in perspective, active, artistic, in good condition, and well-identified. He added that projected pictures are better than printed pictures because they can be enlarged via the projection screen.

Cassette recordings to accompany slides are compact, easy to use and store, relatively inexpensive, and simple to duplicate, serving equally well for any number of trainees.

O'Sullivan (71) cited the advantages of using audio training methods. These advantages included encouragement of imagination, program flexibility, usefulness for reinforcement, and easily edited for smoothness. An audio message should change in rhythm, texture, or construction at least every thirty seconds to hold attention. The final product should be a continuous flow that is clean, clear, and comprehensive. Burge (72) suggested that narration be in simple conversational style to accompany slides. Titles on slides should be reduced to the simplest form for easy reading and understanding as the narration complements the slides.

METHODOLOGY

The purpose of this study was to revise an outdated booklet, "The Basic Four of Work," develop parallel material in a slide tape program, and compare the effectiveness of the two types of materials for training foodservice employees. The booklet involved in this study was written for readers having only basic reading skills because of the wide range of English comprehension among foodservice employees. The slide tape program was developed for training employees with less than this reading level.

Development of Booklet

The original booklet was critiqued by dietitians in the Kansas State University (KSU) residence hall foodservices. Suggestions for revision included modernized illustrations, simplified text material, and additional practical examples for workers. Suggestions also included retention of the four categories used in the original booklet which were You the Worker, The Equipment, The Methods, and The Environment. The booklet was revised under the guidance of a professor in the Department of Industrial Engineering at KSU because of the emphasis on work simplification.

Preliminary Draft

The initial phase in the preparation of the booklet was writing a script which was reviewed and revised several times before typing into booklet form with open spaces for illustrations. Sketched illustrations were added on each page before distributing copies for review to a panel of eight dietitians, including six from KSU residence hall food centers

and two from the graduate faculty in Institutional Management. The residence hall food centers were Derby and Kramer and, in addition, the foodservices in each of the three Strong Complex residence halls. Suggested revisions with the dietitians and faculty included clarification of some statements, addition of examples, provision of a section title on each page corner, and suggestions for illustrations. Based on the comments, revisions were made in several sections of the booklet.

A student draftsman prepared the artistic drawings based on the author's sketches and pictures of foodservice equipment. After drawings were added and script revisions made, the booklet was reviewed by a panel of ten persons, including the eight dietitians who previously had reviewed the script and two additional KSU residence hall dietitians. Based on recommendations, revisions were made including changes in illustrations and sequence of sentences within each section.

Final Form

In the introduction to the booklet (Appendix A), the following basic four categories of work were listed:

You, the WORKER
The EQUIPMENT
The METHODS
The ENVIRONMENT.

The use of the basic four was emphasized as enabling the employee to "work smart" rather than "work hard." Throughout the booklet, the illustrations supported each essential statement.

The portions of the booklet devoted to each of the four categories consisted of a title page and succeeding pages for each of the sub categories. The title pages contained one illustration and a summarizing statement for the category. "Good grooming and personal hygiene make you

better" was the heading on the first page of the category, You the Worker. The text consisted of short statements pertaining to good grooming and hygiene habits. Small sketches illustrated each of the items mentioned. The conclusion of this page was a single statement in italics, "Good hygiene and grooming are the responsibility of every foodservice employee."

The next page in the You the Worker category was headed, "Healthy and happy workers get the job done more easily." Appropriate statements with sketches completed the page which concluded with an italicized summary, "A balanced diet, good health, and a smile help you feel great." The succeeding pages on sanitary work habits and safety guidelines followed this same pattern.

The second section pertained to the equipment category and began with a single page bearing an introductory heading, one illustration, and a summarizing statement in italics, "Proper equipment arrangement helps you 'work smart.'" Sub categories for this section were:

Work areas should fit you and your job
Pre-placed utensils and supplies save time, steps, and strain
Wheels and labels aid work organization.

The first page in the third section devoted to the methods category had an introduction, one illustration, and the italicized statement, "Arranging work and using both hands in rhythm and order improves your methods." Page headings for this section were:

"Drop delivery" makes your job easier
Your muscles must be used properly in work methods to reduce tiring
Good hand motions improve your job methods
Different methods to save hand motions may be used to make a job simpler
Planned methods, followed step by step, help the entire job go smoothly.

The first page of the last section on the environment category followed the pattern of the preceding sections and concluded with the italicized statement, "You have a part in keeping your environment right." Topical headings for this section were:

Proper lighting reduces eyestrain, mistakes and accidents
 Proper ventilation makes the job easier
 Temperature and humidity must be controlled for an efficient food-service
 Too much noise causes tension and tiring.

The concluding page was headed by the statements "The 'Basic Four of Work' applies to you" and "Use these four factors for more satisfaction." Each of the factors was explained in a short statement. The page concluded with "You're on your way to working smart with the 'Basic Four'!"

Development of Slide Tape Program

In making slides for alternate training, the main statements from the booklet were reproduced on slides (Appendix B). The illustrations used in the booklet to exemplify practical use of principles were also reproduced on slides. Each slide had a summary and an identifying section title in the upper right corner.

The first three slides were devoted to the introductory pages of the booklet and reproduced in black and white. The accompanying tape began with a friendly introduction: "Hello! This 'Basic Four of Work' program explains work principles to you, a foodservice worker, based on the categories of worker, equipment, methods, and environment. . . ."

The four categories were identified by the following distinctive background colors: You the Worker in red, The Equipment in blue, The Methods in green, and The Environment in orange. Subtitles for each

category were in the appropriate distinctive color. All other material was photographed on a yellow background. A total of ninety-one slides was prepared.

The text for the tape, recorded by a staff member in the Media Center of the College of Home Economics, was virtually identical to that of the booklet. The tape had inaudible pulse cues to advance slides automatically on an interconnected projector to facilitate use as a self instructional tool.

The slide tape program was reviewed by a panel of thirteen residence hall dietitians. The resulting revisions included clearer and darker titles and better detail in illustrations. The text of the tape was not changed.

Effectiveness of the Training Methods

The comparative effectiveness of the two training methods was evaluated by pre- and posttests using two groups of foodservice employees. Approval to conduct the study was secured from the College of Home Economics Committee on Research Involving Human Subjects and from the Director of Residence Halls Foodservice at Kansas State University.

Preliminary Review

A preliminary review was administered to four cooks in a local high school foodservice. They were informed of the purpose of the test and the procedures to be followed (Appendix C). Also, they were assured that scores would not be disclosed. One objective of the review was to determine the appropriate time allowance for completion of each training method and posttest (Appendix D).

Two employees read the booklet while two viewed the slide tape program in an adjoining room. No pretest was given. Upon completion of the program, the four employees were given the posttest. Only two employees answered the reaction questionnaire (Appendix E), and three were interviewed individually. Results indicated that thirty minutes was reasonable for reading the booklet, the slide tape program lasted nineteen minutes, and ten minutes was sufficient for taking the posttest. Interview questions were revised for greater clarity as a result of the interviews (Appendix F).

Test Groups

An initial meeting to explain the training program and recruit participants was conducted for cooks in each foodservice unit. Those who attended were given consent forms (Appendix G), the pretest (Appendix H), and general information questionnaire (Appendix I) to complete. Each pretest had an attached card with a number assigned to that participant for all tests. Employees were told that the pretest was being given to determine their present knowledge of work simplification. They were told that in three to four weeks the dietitian in their unit would assign time during working hours for studying the training program (Appendix J).

The test groups consisted of twenty-nine KSU residence hall foodservice employees working in the main entree, salad, or bakery units, or ingredient room. Twelve were from Derby Food Center, eleven from Kramer Food Center, and six from the three foodservices in the Strong Complex residence halls. Participation was solicited on the basis that the program related to development of a foodservice training program on work simplification and that the tests would be done during working hours.

The twelve employees from Derby Food Center were assigned to the slide tape program and the seventeen others were asked to read the booklet.

Procedure for Evaluation

The evaluation procedure included a pretest and posttest, reaction questionnaire, and interview. The pretest was intended to ascertain previous knowledge of work simplification and the posttest was used to determine the amount of learning attributable to the training method. The pretest contained eighteen multiple-choice questions, including four or five from each main section of the text. The posttest contained the same questions, arranged in a different order.

To establish validity, questions were reviewed by a panel of thirteen KSU residence hall foodservice dietitians. As a result, several test questions were revised for clarity and accuracy.

A general information questionnaire to obtain demographic data was included with the pretest. Questions pertained to age, years employed in foodservice, level of formal education, and area of kitchen in which the employee worked.

The reaction questionnaires were based on the evaluation instrument used for the slide tape modules of the Kansas Nutrition Education and Training Program (73). The reaction questionnaire for each group differed only in the use of the words "booklet" or "slide tape program" and was given after the posttests to elicit individual opinions about the training program methods, length, clarity, quality, and usefulness. The participants were asked to check "yes," "no," or "no opinion" for each response.

The interview questions were designed to obtain opinions in a less formal conversational setting. The ten minute interview period allowed

participants to indicate what they liked and disliked about "The Basic Four of Work" booklet or slide tape program, how they could use the principles, whether they were using the principles, and what suggestions they had for improving the training program (Appendix K). Answers were recorded by the interviewer on interview question forms.

Administration of Training

Dietitians from all the units attended a meeting in which the purpose of the study, time schedule, and procedures were explained. The objectives of the meeting were to elicit support for the study and emphasize the need for consistency and accuracy.

"The Basic Four of Work" booklets and a list of names of participants were distributed to the Kramer and Strong Complex dietitians. The dietitians were responsible for issuing the booklets two weeks after the pretest and assign each participant a thirty minute study period during working hours. The dietitians requested that the employees read the booklet carefully and informed them that after two weeks each would be given a test, questionnaire, and interview concerning the booklet. The dietitians recorded the date each participant read the booklet.

The Derby unit dietitian scheduled the slide tape program for the participants in small groups, pairs, or individually. The employees were asked to view the slides and listen to the tape carefully. They were informed that after two weeks they would be given a test, questionnaire, and interview concerning the program. The date each participant viewed the program was recorded.

Two weeks after the training the participating employees were given the posttest and reaction questionnaire. The pretest and posttest were

matched by a code number. Interviews followed completion of the posttest and questionnaires.

Data Analysis

A computer grading program (74) was used to score the pre- and posttests. Also, the program generated reliability estimates. A t-test for two independent samples was used to compare pre- and posttest mean scores from each group. A t-test for two related samples was used to compare pre- and posttest mean scores within each group. Difference scores indicating change from pre- to posttest were computed and scores of the two groups were compared using the t-test. Percentages of correct responses on each of the questions on the pre- and posttests were compiled for the booklet and the slide tape groups. Routines and programs of the Statistical Package for the Social Sciences (75) was used for all analyses.

RESULTS AND DISCUSSION

Characteristics of the Sample

Twenty-nine employees from five university residence hall foodservice units participated in the study. Seventeen employees from Kramer Food Center and three foodservices in the Strong Complex residence halls evaluated the booklet and twelve from the largest unit, Derby Food Center, were used to evaluate the slide tape program.

The characteristics of the sample are shown in Table 1. Most of the employees were over forty years of age with the greatest number (41.4 per cent) in the fifty to fifty-nine age group. Almost half of the employees had been employed by the KSU residence halls foodservice system for at least eleven years. About two-thirds of the respondents had been employed in various foodservice positions for at least eleven years, including one employee with a record of thirty-two years. Most of the employees (65.6 per cent) graduated from high school including three who had at least one year of college. Almost 70 per cent of the employees worked in the main production area of the foodservice. The remaining employees worked in the bakery or salad areas or ingredient room.

Evaluation of Cognitive Learning

Knowledge of work simplification concepts were measured by a pretest three to four weeks before use of the two training procedures. Two weeks after completing the booklet or the slide tape program, a posttest was administered. The pre- and posttest questions were identical but the

Table 1: Characteristics of study sample (N = 29) for evaluation of training materials on work simplification

characteristic	N	%
age		
20-29	2	6.9
30-39	2	6.9
40-49	7	24.1
50-59	12	41.4
over 59	6	20.7
length of KSU foodservice employment		
1-5 years	9	31.0
6-10 years	7	24.1
11-20 years	13	44.9
length of employment in foodservice		
1-5 years	5	17.2
6-10 years	5	17.2
11-15 years	13	44.9
16-32 years	6	20.7
highest level of education		
high school not complete	10	34.4
high school diploma	16	55.3
one or more years of college	3	10.3
area of primary work		
bakery department	5	17.2
main production	20	69.0
salad department	2	6.9
ingredient room	2	6.9

order was different. The Kuder-Richardson reliability estimate was .66, which is considered sufficiently reliable for a teacher-made test.

Comparisons of the pretest, posttest, and difference mean scores (Table 2) indicated no significant difference between the two instructional methods. The larger standard deviations in the mean score of the slide tape group indicate a much wider dispersion of scores than occurred in those of the booklet group. Comparisons of the pre- and posttest mean scores within each group showed significant differences in both the booklet and the slide tape group and implied that cognitive learning occurred in each group.

Table 2: Comparison of pre- and posttest scores of booklet and slide tape groups

criterion measures	booklet group (B) (N = 17)		slide tape group (S) (N = 12)		t value ¹ B vs. S
	mean	s.d.	mean	s.d.	
knowledge score ²					
pretest	19.0 ± 1.5		17.7 ± 3.3		1.30
posttest	21.1 ± 1.1		20.2 ± 1.8		1.51
difference ³	2.0 ± 1.4		2.5 ± 2.5		-0.56
t value, ⁴ pre vs. post	5.92***		3.51**		

¹t value for two independent samples used to compare mean scores from each group.

²Maximum score = 22.

³Difference = posttest - pretest.

⁴t value for two related samples used to compare pre- and posttest mean scores within each group

** p ≤ .01

*** p ≤ .001

Percentages of correct responses for pretest and corresponding posttest questions for the booklet and slide tape group are shown in Table 3. The percentage of correct posttest responses was greater than pretest responses on twelve of twenty-two questions based on the booklet. On nine questions, the scores were identical. The question concerning proper lifting (question 5) was the only one with a decreased percentage of correct posttest responses.

The percentage of the slide tape group responding correctly increased from pre- to posttest on fourteen of twenty-two questions. The posttest correct response percentages decreased on four questions and was identical on the remaining four items.

Both groups showed a large increase in percentage of correct posttest responses for questions concerning "work smart" (question 2), drop delivery (question 8), and body balance (question 18). The low percentage of correct responses in these pretest questions with a large increase following training suggests an initial lack of familiarity with these topics.

Reactions to Training Materials

Reactions as shown in Table 4 indicated that the slide tape program induced more positive responses than did the booklet. Twenty-one of the questions elicited favorable responses by greater than 90 per cent of the slide tape group as opposed to thirteen from the booklet group. Probably using a slide tape program was a unique experience for many of the employees thus explaining the enthusiastic response. The groups were in agreement that the training program was helpful for the job.

Table 3: Percentage of correct responses of booklet and slide tape groups on pre- and posttest items

item summary of content	booklet group (N = 17)		slide tape group (N = 12)	
	pretest	posttest	pretest	posttest
	% correct		% correct	
1 how planned methods help	94.1	94.1	100.0	91.7
2 slogan to "work smart"	58.8	94.1	66.7	83.3
3 alertness at work	100.0	100.0	100.0	91.7
4 wiping spills	76.5	88.2	75.0	100.0
5 lifting correctly	88.2	82.4	75.0	91.7
6 proper grooming habits	100.0	100.0	100.0	100.0
7 how to control temperature	88.2	94.1	75.0	100.0
8 example of using drop delivery	29.4	70.6	41.7	75.0
9 importance of proper lighting	100.0	100.0	83.3	83.3
10 why to plan proper storage	94.1	94.1	75.0	83.3
11 tool to save hand motions	76.5	100.0	50.0	66.7
12 how to adjust work heights	94.1	100.0	75.0	91.7
13 how to control noise	100.0	100.0	91.7	100.0
14 using smooth hand motions	94.1	100.0	100.0	91.7
15 using wheels to move equipment	100.0	100.0	83.3	100.0
16 importance of arranging equipment properly	94.1	100.0	66.7	100.0
17 why to follow health plan	100.0	100.0	100.0	100.0
18 body balance in "upside-down T"	35.3	88.2	41.7	83.3
19 cleaning equipment and area	94.1	100.0	100.0	100.0
20 storing detergent properly	94.1	100.0	83.3	100.0
21 scrubbing hands	88.2	100.0	91.7	83.3
22 using proper ventilation	100.0	100.0	91.7	100.0

Table 4: Reactions to work simplification training materials by booklet and slide tape groups

item number	booklet group (N = 17)				slide tape group (N = 12)			
	yes		no		yes		no	
	%		%		%		%	
1. Was the training program:								
a. enjoyable?	82.4		--		91.7		--	8.3
b. interesting?	94.1		--		91.7		--	8.3
c. able to hold attention?	88.2		5.9		100.0		--	--
d. too long?	5.9		82.3		9.1		90.9	--
e. too fast paced?	5.9		94.1		18.2		81.8	--
f. too detailed?	--		94.1		--		100.0	--
g. too general?	--		76.5		16.7		83.3	--
h. on material known?	76.4		11.8		72.7		18.2	9.1
i. helpful for job?	88.2		--		100.0		--	--
2. Did the pictures:								
a. follow the words?	93.3		--		100.0		--	--
b. appear realistic?	81.3		6.3		100.0		--	--
3. Was art work:								
a. well drawn?	82.4		--		100.0		--	--
b. appropriate?	87.4		6.3		100.0		--	--
4. Were the words:								
a. easy to read?	100.0		--		100.0		--	--
b. too small?	--		100.0		--		100.0	--

Table 4: (cont.)

item number	booklet group (N = 17)			slide tape group (N = 12)		
	yes	no	no opinion or no response	yes	no	no opinion or no response
	%	%	%	%	%	%
5. Were there too many difficult terms?	--	94.1	5.9	--	100.0	--
6. Were the test questions:						
a. representative?	100.0	--	--	100.0	--	--
b. covered in lesson?	100.0	--	--	100.0	--	--
c. understandable?	100.0	--	--	100.0	--	--
d. too easy?	31.2	68.8	--	8.3	91.7	--
e. too hard?	--	100.0	--	--	100.0	--
f. too picky?	5.9	82.3	11.8	--	90.9	9.1
7. Do you like booklets for training?	94.1	--	5.9			
7. Do you like slide tapes for training?				91.7	--	8.3
8. Do you plan to use the information on the job?	100.0	--	--	100.0	--	--

Reactions to both the booklet and slide tape were complimentary for the text and the art work. All the participants stated that they planned to use the information on the job.

Participant Interviews

The interviews did not disclose any information contradictory to that of the tests and the reaction questionnaire. Nine of the participants had read the booklet two or three times. Six of the booklet group and four of the slide tape group could name all four parts of "The Basic Four of Work." Four of those using the booklet and three from the slide tape group could name none of the four parts.

The open end questions elicited a wide range of responses. Most of the workers in both test groups liked the entire booklet or slide tape program. Differences between equipment illustrated and that in the place of employment was cited by three in the booklet group.

The examples most frequently cited for the use of the "Basic Four" on the job were: You the Worker--cleanliness of self and work area; Equipment--proper use and cleaning; Methods--lifting and use of carts; Environment--ventilation, noise control, and working with others. Fifteen of the booklet group commented no additional information should be included in the booklet. Only four of the slide tape group had a similar opinion about that program. Single responses by some of the slide tape group for desired additional information were not relevant for this program; e.g., refrigeration and holding temperatures for foods and how to use leftovers.

All of the participants could cite an example of using a principle of the "Basic Four" on the job. The most frequently mentioned was the

need to be more careful in lifting. Changes that the participants have made in the job since the training program were generally related to doing the job easier and safer.

SUMMARY AND CONCLUSIONS

The purpose of this study was to revise a self study booklet, "The Basic Four of Work," develop a parallel slide tape program, and compare the effectiveness of the two types of materials for training foodservice employees. The booklet and slide tape program introduced "The Basic Four of Work" as the elements of You the Worker, The Equipment, The Methods, and The Environment. Each part of the "Basic Four" was explained using work simplification principles and examples from foodservices with appropriate illustrations.

The booklet and the slide tape program were evaluated with a group of twenty-nine Kansas State University residence hall foodservice employees. Twelve employees in one food center viewed the slide tape program and the remaining seventeen participants read the booklet. The efficacy of the two training methods was measured by comparison of pre- and posttest scores of the two groups. In addition, reactions to the two training methods were compared. Also, an interview was conducted on the instructional material.

The knowledge score was computed for the pre- and posttest for each group. A t-test for related samples was used to compare pre- and post-test mean scores within each group. A t-test for independent samples was done to compare mean scores from each group. Difference scores indicating change from one test to another were computed and analyzed.

Conclusions and Recommendations

The analysis of data revealed that the booklet and the slide tape program were equally effective in teaching concepts of "The Basic Four of Work" involving work simplification. Based on this finding, either method could be used for training foodservice employees, using the media most preferable for the situation. Work simplification principles should be emphasized and integrated into every foodservice employee training plan. The self study media developed in this study effectively meets this goal. Additional work simplification training materials should be developed for the entire foodservice industry.

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APPENDIXES

APPENDIX A

"The Basic Four of Work" Booklet

The Basic Four of Work

- ★ **You The Worker**
- ★ **The Equipment**
- ★ **The Methods**
- ★ **The Environment**

"The Basic Four of Work" training manual explains work principles to foodservice employees based on the categories of worker, equipment, methods, and environment. Each principle is capitalized and underlined at the top of the page. Practical action suggestions are marked by asterisks (**).

Dr. Stephan Konz, Professor
Industrial Engineering
Janet Maxwell, Graduate Student
Dietetics, Restaurant and
Institutional Management
Kansas State University
Manhattan, Kansas 66506

Graphics by Pete McCall

1980

WHAT IS THE "BASIC FOUR OF WORK"?

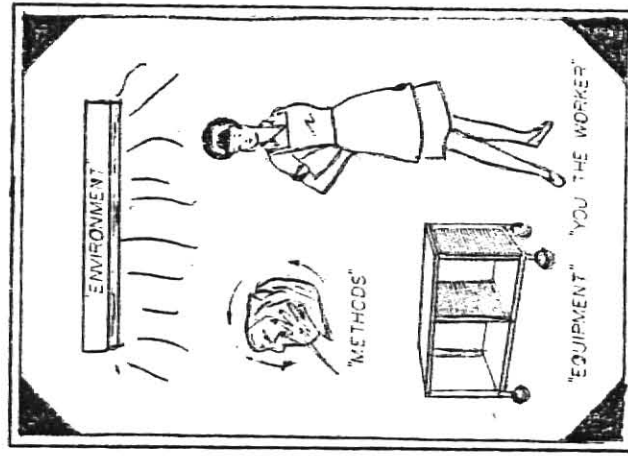
The "Basic Four" important for your job includes:

You, the WORKER

The EQUIPMENT

The METHODS

The ENVIRONMENT

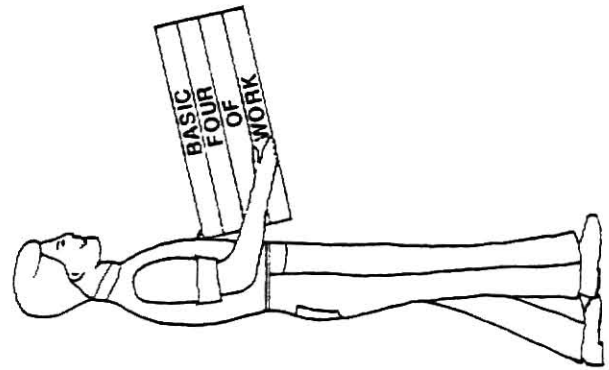


The "Basic Four of Work" is important to you in your foodservice job. Each of the factors is needed to help you to do your best. By using the "Basic Four", you can work efficiently and will "work smart" rather than "work hard".

Your job can be done with less effort and more success.

Be a better and more satisfied foodservice employee!

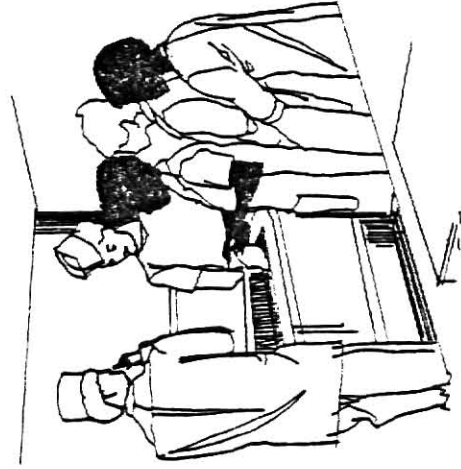
Here's how → → → → → → →



"WORK SMART"!

YOU, THE WORKER

"Working smart" depends on you. You are responsible for personal health and safety practices, which affect the success of the foodservice.



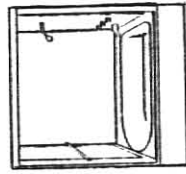
A foodservice employee must work safely and be neat and clean.

GOOD GROOMING AND PERSONAL HYGIENE MAKE YOU BETTER.

When you are clean and comfortable, you will feel good and be able to work properly.

****Follow good grooming and hygiene habits including:**

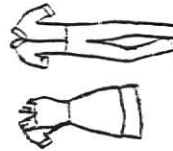
daily shower and use of deodorant



clean and comfortable shoes which protect the feet



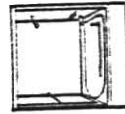
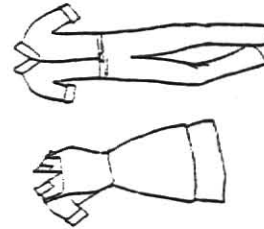
clean and well fitted clothing



neat and clean hair covered by a hair net or cap



well-kept hands and fingernails, free of irritations and free of nail polish. (If you have a bandage on your hand, wear a plastic glove.)



**"WASH YOUR HANDS
DROWN A GERM"**

Good hygiene and grooming are the responsibility of every foodservice employee.

HEALTHY AND HAPPY WORKERS GET THE JOB DONE MORE EASILY.

Your duty is to use a plan to stay healthy.

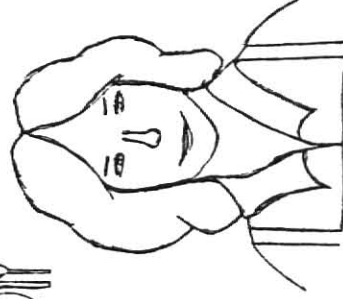
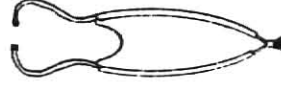
****Get a physical checkup from a doctor or clinic to make sure you are healthy. Ask about community health services such as blood tests that are free or low cost. Be sure you are free of disease so you will feel well and not infect others.**



****Eat a balanced diet.**

****Get enough rest and exercise to maintain good health.**

****Smile, have a positive attitude, and be a cheerful teamworker so the work will be more enjoyable.**

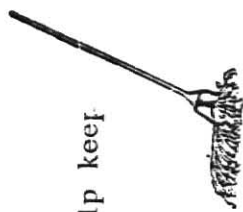


A balanced diet, good health and a smile help you feel great.

SANITARY WORK HABITS MUST BE USED.

By following sanitation rules, you help keep foodservice work areas clean.

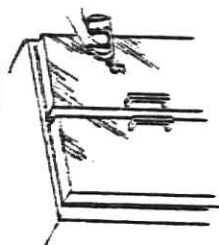
****Clean** the area soon after using it.
After use, clean the mop with hot, soapy water.



****Use** gloves to protect your hands in handling rough or freezing objects or strong detergents.



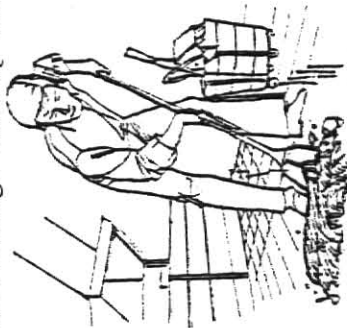
****Scrub** your hands well or use clean plastic gloves when handling food directly.



****Clean** all utensils and equipment properly.

****Keep** detergents and cleaning supplies in a separate area away from foods.

****Protect** food, equipment, and supplies from dirt and damage during storage.



Final clean-up is quicker if the area is kept clean.

SAFETY GUIDELINES ARE IMPORTANT TO FOLLOW.

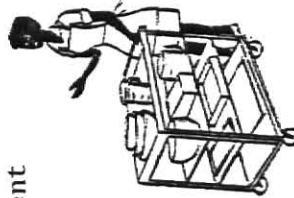
"Safety first" is a rule.



****Be** alert as you work in order to prevent accidents.

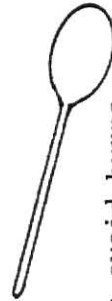
****Report** hazards or injuries.

****Wipe up** spills immediately to prevent falls.



****Lift** heavy items correctly using a cart or co-worker.

****Keep** knife handles dry and store knives in racks at locations near places of use.



****Use** tools with long handles to avoid burns when stirring hot food.

50

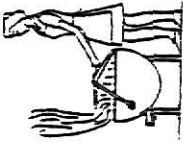


****Turn off** electrical equipment after use.

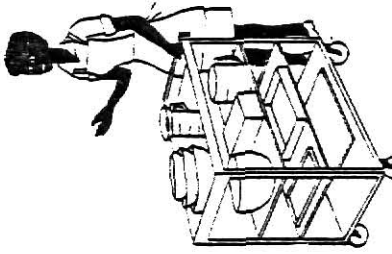
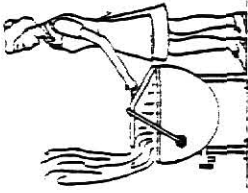
You, the Worker

THE EQUIPMENT

****Use** heat-resistant potholders when handling hot pans. If lifting a lid, turn lid away from you to let steam escape.



****Cover** containers of liquid when moving them to avoid spills.

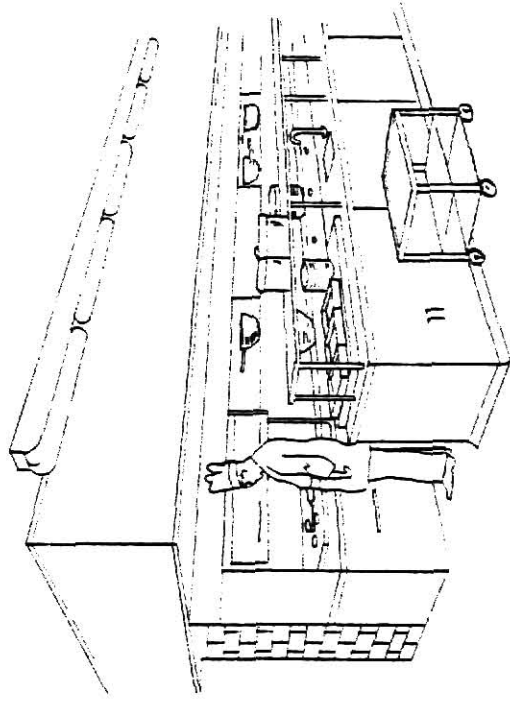


Proper safety practices prevent accidents.

You, the worker now know some of the health, sanitation, and safety practices that will help you do your job properly!

"Work smart!"

Equipment, utensils, and supplies placed and used properly in the work area increase efficiency of your job.



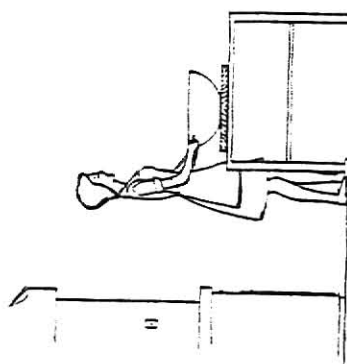
Proper equipment arrangement helps you "work smart".

WORK AREAS SHOULD FIT YOU AND YOUR JOB.

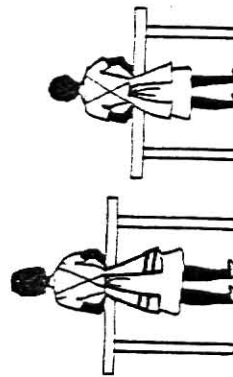
Different jobs require different work heights. Your hands should be about level with your elbows as you work. When you stand to work, the table height should allow you to stand straight with arms relaxed. When you sit to work, the chair should support your lower back and allow you to sit straight with feet on floor or rail.

****Adjust** work heights to your elbow by:

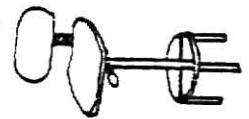
- 1) changing height of work on the table. (Use different thicknesses of cutting boards or platforms to adjust the level of the work.)



- 2) adjusting equipment height. (Use a table to suit your height and job.)



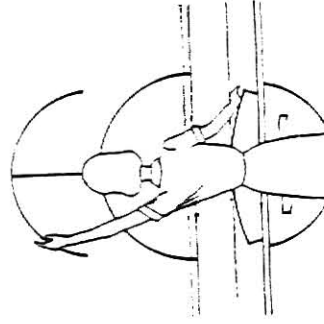
- 3) adjusting the chair. (Use adjustable height chairs.)



****Do** most work within the maximum area you can reach to avoid tiring. Your maximum reach includes the area you can touch when you move your entire arm from front to side and from tabletop towards the ceiling.

****Do** occasional walking within your area, rather than standing still, to keep your blood moving.

****Keep** your most-used utensils and supplies within the maximum work area.



Maximum work areas, based on your reach distance, affect tiring.

ILLEGIBLE DOCUMENT

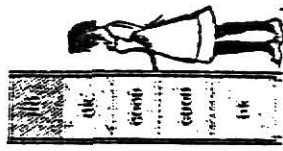
**THE FOLLOWING
DOCUMENT(S) IS OF
POOR LEGIBILITY IN
THE ORIGINAL**

**THIS IS THE BEST
COPY AVAILABLE**

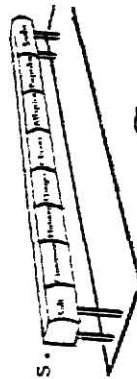
PRE-PLACED UTENSILS AND SUPPLIES SAVE TIME, STEPS, AND STRAIN.

Planning ahead for location of utensils and supplies is the first step in the job.

****Store utensils and supplies where they will be used within easy reach, using adjustable shelves if possible.** Store most often used items in normal work areas and put seldom used items in less convenient places.

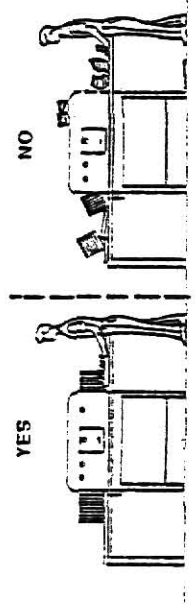
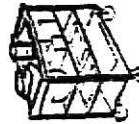


****Store items at the level between your shoulders and knees.** A level higher than your head increases danger of falling objects and is a more difficult level at which to handle items. Heavy and bulky containers should be stored near the floor so they will be easier to move.



****Label items such as spices.** Keep them in alphabetical order.

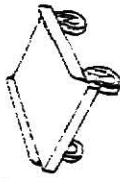
****Collect all needed items on a cart.** Place items close to the work area before beginning the job.



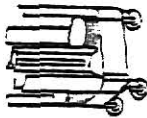
Planned arrangements save time, motion, & effort.

WHEELS AND LABELS AID WORK ORGANIZATION

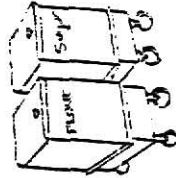
Wheels make your job "roll" smoothly.



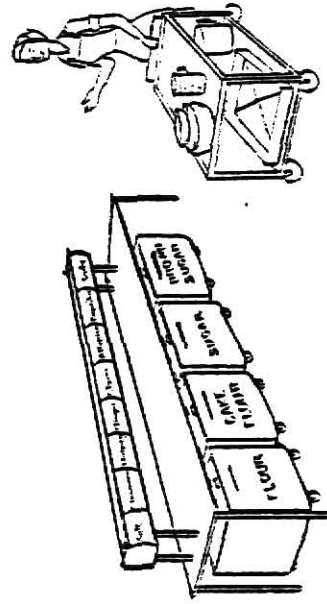
****Use dollies and carts for transport, preparation, and storage of food and supplies or to move heavy objects.** Carts with several shelves and tray racks can move many trays at one time.



****Use labeled storage bins for flour and sugar to save effort and prevent error.**



****Label pans for easier selection of proper sizes.**

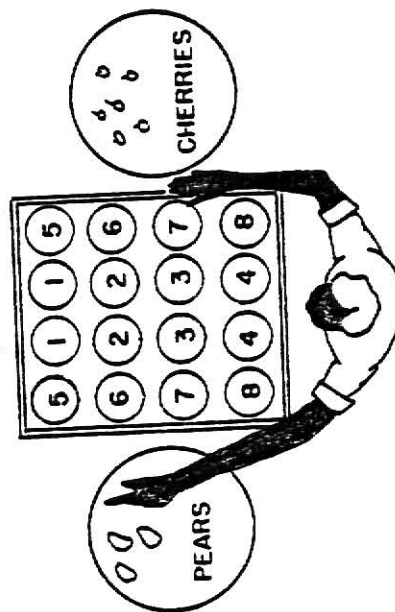


Equipment on wheels can help organize work.

You can understand how proper placement and use of equipment can help you in the "Basic Four"!

THE METHODS

Your methods can help you "work smart". Save time and energy with better results.

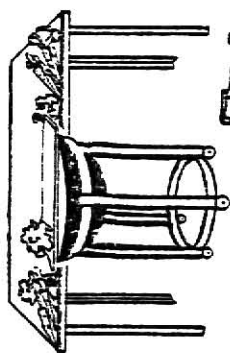


Arranging work and using both hands in rhythm and order improves your methods.

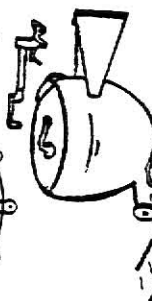
"DROP DELIVERY" MAKES YOUR JOB EASIER.

Gravity makes drop delivery useful in the kitchen and dishroom.

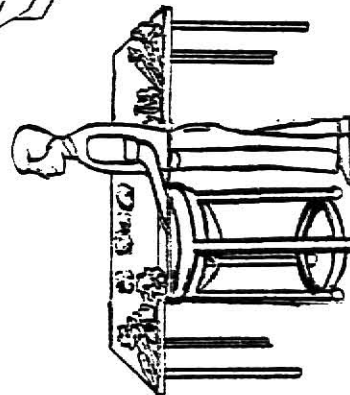
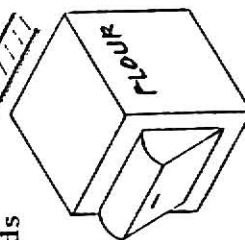
****Place a chopping board across a bowl when chopping food and then push the food into the bowl.**



****Use water faucets above steam kettles and drains below to make use of gravity in the kitchen.**



****Keep cleaning supplies or foods in tilting bin dispensers so that gravity makes the bins easier to load and unload.**



Drop delivery using proper heights of equipment helps you "work smart".

YOUR MUSCLES MUST BE USED PROPERLY IN WORK METHODS TO REDUCE TIRING.

Your body is like an upside-down "T". Keep that "T" in balance to save energy. Bend your knees, not your back.

**Keep your motions smooth and simple to reduce strain.

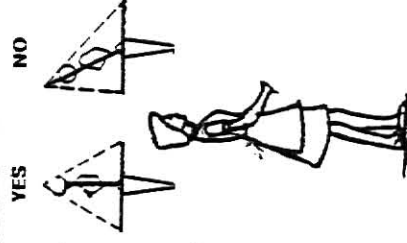
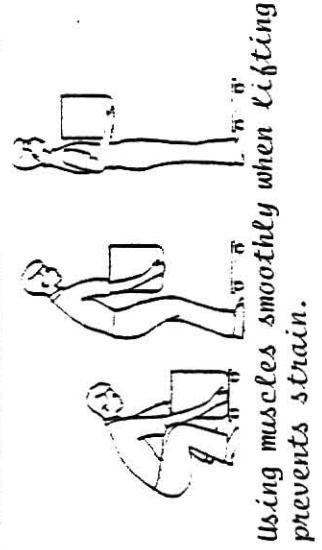
**Practice correct posture with shoulders and back straight and head held high.

**Carry objects close to the body using both hands for balance. An apron will protect your clothes.

**Get a cart or co-worker if:

the load weighs over 25 pounds, or if the load weighs over 15 pounds and is hard to handle, such as a full hot counter pan.

**Lift loads smoothly using your leg muscles rather than back muscles. Don't be a jerk!



GOOD HAND MOTIONS IMPROVE YOUR JOB METHODS.

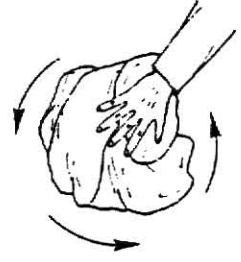
Look for ways to use hands properly.

**Use fingers to grasp the disher, wrist to dip potatoes, wrist and forearm to place potatoes on plate, fingers to release potatoes, forearm and upper arm to place plate on tray, and upper arm and shoulder to move pan to sink.

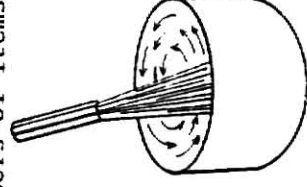
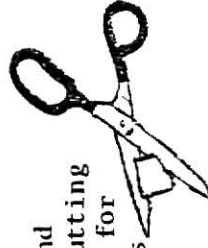
**Arrange the work area for smooth hand movements, working to gain speed with rhythm in setting up desserts, putting glasses into racks, or panning rolls. Move several identical items at a time.

**Use proper tools to use good hand motions, such as scissors for cutting sticky foods, and an egg slicer for slicing other soft foods such as bananas and cooked vegetables.

**Use two hands together for speed and rhythm, moving both hands toward or away from the center of work area. Move even numbers of items so you can use both hands.



Using continuous curved motions avoids unneeded starts and stops.



DIFFERENT METHODS TO SAVE HAND MOTIONS MAY BE USED TO MAKE A JOB SIMPLER.

Equipment may do the job so your hands can rest or are free to do another job.

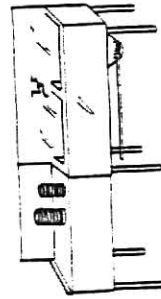
****Use a meat slicer, a chopper, or a mixer when possible to save time and muscles. Let the machine do the work!**

****Use knee-activated controls for drains and foot-operated equipment to free your hands and prevent tiring.**

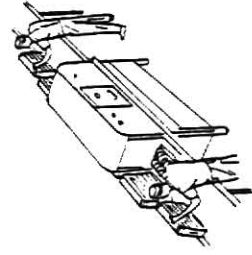
****Use multiple cutters or markers for sectioning large amounts of food to portion, such as pie, cake, rolls, or gelatin.**

****Improve your job, with your supervisor's approval, to simplify your motions.**

"OK"



"BETTER"



Using a machine or utensil or different method can save hand motion.

PLANNED METHODS, FOLLOWED STEP BY STEP, HELP THE ENTIRE JOB GO SMOOTHLY.

When you correctly perform the beginning steps in a procedure, the rest of the job is easier.

PLAN AHEAD

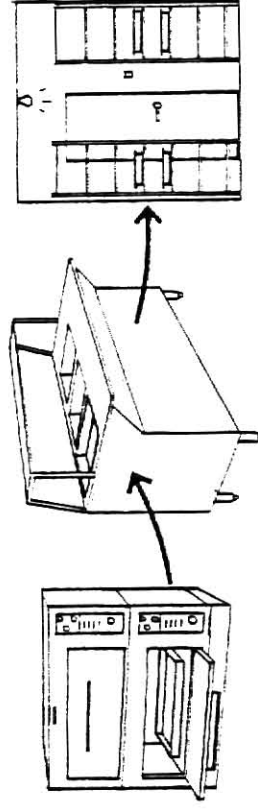
****presoak utensils which have sticking food because water helps loosen cooked food. Put some detergent in the soaking water.**

****Oil the insides of pans used for baking foods or pots for cooking noodles to prevent the food from sticking to the pan.**

****Cross-stack sliced ingredients such as cheese and meat for easy separation.**

****Measure by weight, using scales, rather than by volume to improve accuracy and save time.**

****Use the same pan for baking, serving, and storing food to reduce handling and cleaning time.**

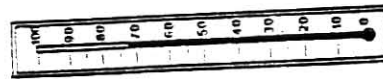
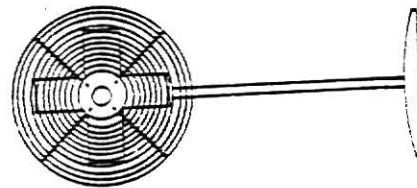
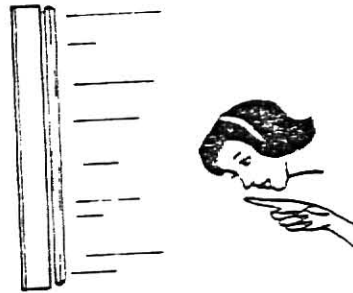


Following a plan makes the job methods flow smoothly.

Your work methods in the "Basic 4" are ways you can do your job better and more efficiently.

THE ENVIRONMENT

Your surroundings, called environment, affect comfort and efficiency as you work.

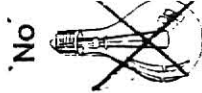


you have a part in keeping your environment right.

The Environment

PROPER LIGHTING REDUCES EYESTRAIN, MISTAKES AND ACCIDENTS.

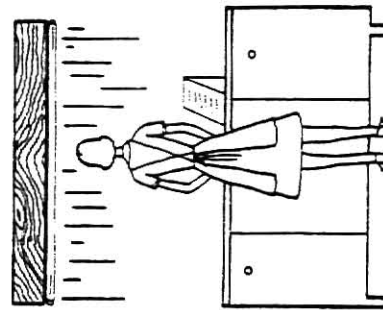
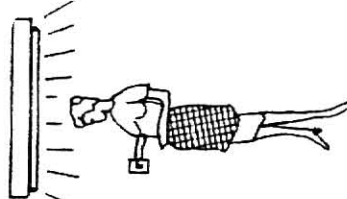
When light is even and reaches all work areas, you will be able to see things quickly and clearly.



****Check** lighting to see if it can be adjusted to reduce glare or shadow.



****Use** the lighting that is available to you at work.

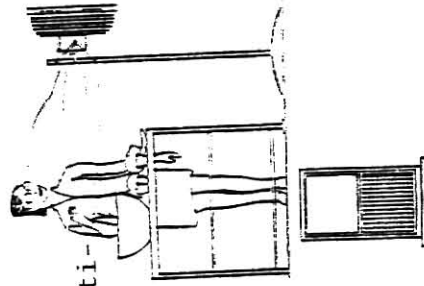


Proper lighting helps you see your job best so you reduce eyestrain, mistakes and accidents.

PROPER VENTILATION MAKES THE JOB EASIER.

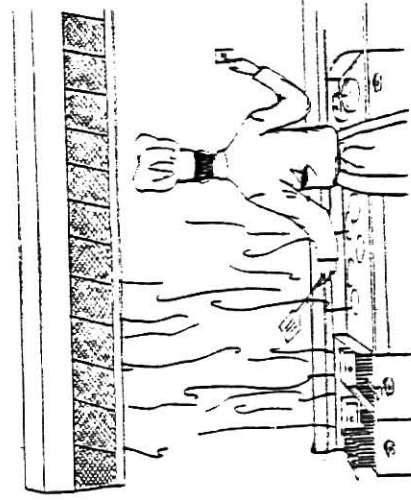
Ventilation removes heat, steam, and odor from the room.

**Use hood fans over kitchen equipment and ceiling fans over dishmachines to remove steam and odor.



**Use circulation fans to help ventilate. Do not let fans blow over food or clean dishes. Keep the fan close.

**Open windows, if allowed and if screened, so air can circulate.



Ventilation in foodservice keeps air circulating.

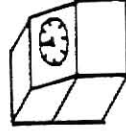
TEMPERATURE AND HUMIDITY MUST BE CONTROLLED FOR AN EFFICIENT FOODSERVICE.

Proper venting of hot equipment can help.

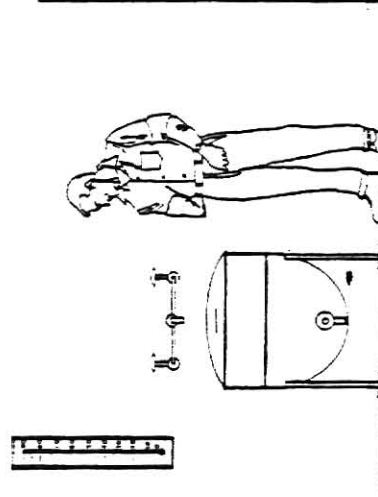
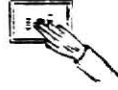
**Cover foods when roasting or heating to avoid high temperatures and high humidity in the kitchen. It saves energy, too!



**Cook foods no longer than necessary to reduce kitchen temperatures, save energy and produce quality food.



**Turn off equipment when not in use.



Proper methods help control temperature and humidity to produce quality foods.

The Environment

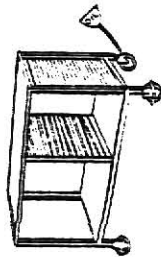
TOO MUCH NOISE CAUSES TENSION AND TIRING.

Noise control can help employees work smart.

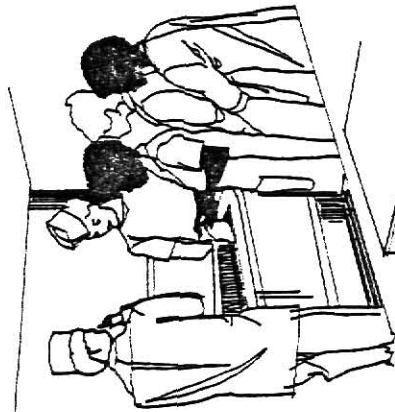
****Work quietly.** Let others do their job properly without distraction.



****Use equipment properly.** Keep it in good condition so it will work quietly.



****Report noise** which may be eliminated.

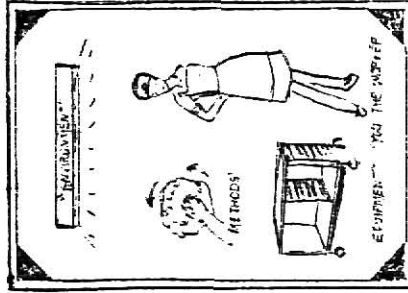


Quiet workers can work with less tension and less tiring.

Suggest ways to improve the environment as you use the Basic 4 to help you "work smart".

THE "BASIC FOUR OF WORK" APPLIES TO YOU. USE THESE FOUR FACTORS FOR MORE SATISFACTION.

You, the worker: Use good health, sanitation, and safety practices.



The equipment: Plan and arrange your utensils, supplies, and equipment.

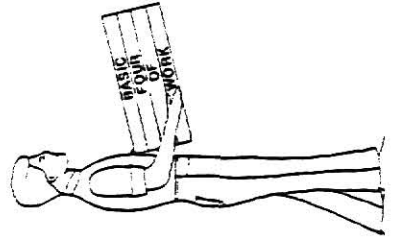
The methods: Make best use of your body and the equipment.

The environment: Work in proper conditions in your surroundings.

Use the "Basic Four" to eliminate motions, combine them, rearrange the sequence, or simplify steps in order to make the job easier.

By working within the frame of the "Basic Four of Work", you will use less effort, accomplish your job more quickly and easily, make fewer mistakes, and produce better results.

You're on your way to working smart with the "Basic Four"!



APPENDIX B

"The Basic Four of Work" Slide Tape Program

THE BASIC FOUR OF WORK SLIDE TAPE PROGRAM

SlidesScript

Frame 1

The Basic Four of Work
 *You The Worker
 *The Equipment
 *The Methods
 *The Environment

Hello! This Basic Four of Work program explains work principles to you, a food-service worker, based on the categories of worker, equipment, methods, and environment. Each principle is emphasized as we proceed through the program.

Frame 2

You, the WORKER
 The EQUIPMENT
 The METHODS
 The ENVIRONMENT
 with each element
 illustrated

"What are The Basic Four of Work?" you are wondering. The Basic Four that are important for your job are: you, the worker; the equipment; the methods; and the environment.

Frame 3

Illustration of employee
 carrying a Basic Four of
 Work sign (page 2)

The Basic Four of Work is important to you in your foodservice job. Each of the factors is needed to help you to do your best. By using The Basic Four, you can work efficiently and will "work smart" rather than "work hard." Your job can be done with less effort and more success. Be a better and more satisfied foodservice employee! Here's how: Use The Basic Four which you will learn in this program!

Frame 4

The Basic Four of Work
 *You The Worker
 *The Equipment
 *The Methods
 *The Environment
 (You The Worker
 emphasized)
 (red background)

You The Worker is the first principle, because "working smart" depends on you. You are responsible for personal health and safety practices, which affect the success of the foodservice.

¹Refer to booklet.

<u>Slides</u>	<u>Script</u>
	Frame 5
Illustration of five employees gathered in foodservice setting (page 3)	A foodservice employee must work safely and be neat and clean.
	Frame 6
"Good grooming and personal hygiene make you better." (red background)	Good grooming and personal hygiene make you better. When you are clean and comfortable, you will feel good and be able to work properly. Follow good grooming and hygiene habits including:
	Frame 7
Illustration of shower (page 4)	Daily shower and use of deodorant,
	Frame 8
Illustration of shoes (page 4)	Clean and comfortable shoes which protect the feet,
	Frame 9
Illustration of clean uniforms (page 4)	Clean and well fitted clothing,
	Frame 10
Illustration of comb (page 4)	Neat and clean hair covered by a hairnet or cap, and
	Frame 11
Illustration of washing hands (page 4)	Well-kept hands and fingernails, free of irritations and free of nail polish. If you have a bandage on your hand, wear a plastic glove.

SlidesScript

Frame 12

Illustration of grooming
and hygiene habits
(page 4)

So, good hygiene and grooming are the
responsibility of every foodservice
employee!

Frame 13

"Healthy and happy workers
get the job done more
easily."
(red background)

Healthy and happy workers get the job done
more easily. It is your duty to use a plan
to stay healthy. Get a physical checkup
from a doctor or clinic to make sure you
are healthy. Ask about community health
services such as blood tests that are free
or low cost. Be sure you are free of
disease so you will feel well and not
infect others.

Frame 14

Illustration of plate
of food (page 5)

Eat a balanced diet. Get enough rest and
exercise to maintain good health. Smile,
have a positive attitude, and be a cheerful
teamworker so the work will be more enjoy-
able.

Frame 15

Illustration of worker
with plate and
stethoscope (page 5)

A balanced diet, good health, and a smile
help you feel great!

Frame 16

"Sanitary work habits
must be used."
(red background)

Sanitary work habits must be used. By
following sanitation rules, you help keep
foodservice work areas clean.

Frame 17

Illustration of mop
(page 6)

Clean the area soon after using it. After
use, clean the mop with hot, soapy water.

<u>Slides</u>	<u>Script</u>
	Frame 18
Illustration of harsh soap on hand (page 6)	Use gloves to protect your hands in handling rough or freezing objects or strong detergents. Scrub your hands well or use clean plastic gloves when handling food directly.
	Frame 19
Illustration of cabinet being cleaned (page 6)	Clean all utensils and equipment properly.
	Frame 20
Illustration of worker putting things into drawer (page 6)	Keep detergents and cleaning supplies in a separate area away from foods. Protect food, equipment, and supplies from dirt and damage during storage.
	Frame 21
Illustration of worker mopping (page 6)	So, final clean up is quicker if the area is kept clean!
	Frame 22
"Safety guidelines are important to follow." (red background)	Safety guidelines are important to follow.
	Frame 23
Illustration of "Safety first" logo (page 7)	Safety first is a rule. Be alert as you work in order to prevent accidents. Report hazards or injuries.
	Frame 24
Illustration of worker wiping spill	Wipe up spills immediately to prevent falls.

SlidesScript

Frame 25

Illustration of worker
using cart (page 7)

Lift heavy items correctly using a cart or co-worker. Keep knife handles dry and store knives in racks at locations near places to use. Use tools with long handles to avoid burns when stirring hot food.

Frame 26

Illustration of hand
at on/off switch
(page 7)

Turn off electrical equipment after use. Keep aisles clear so traffic is not blocked.

Frame 27

Illustration of worker
at steam kettle
(page 8)

Use heat-resistant potholders when handling hot pans. If lifting a lid, turn lid away from you to let steam escape. Cover containers of liquid when moving them to avoid spills.

Frame 28

Illustration of safety
practices (page 8)

Proper safety practices prevent accidents! You the worker now know some of the health, sanitation, and safety practices that will help you do your job properly! "Work smart!"

Frame 29

The Basic Four of Work
*You The Worker
*The Equipment
*The Methods
*The Environment
(The Equipment
emphasized)
(blue background)

The Equipment is the second of The Basic Four of Work. Equipment, utensils, and supplies placed and used properly in the work area increase efficiency of your job.

Frame 30

Illustration of cook
at grill (page 9)

Proper equipment arrangement helps you "work smart."

SlidesScript

Frame 31

"Work areas should fit you and your job."
(blue background)

Work areas should fit you and your job. Different jobs require different work heights. Your hands should be about level with your elbows as you work. When you stand to work, the table height should allow you to stand straight with arms relaxed. When you sit to work, the chair should support your lower back and allow you to sit straight with feet on floor or rail. Adjust work heights to your elbow by:

Frame 32

Illustration of board under bowl (page 10)

Changing height of work on the table, by using different thicknesses of cutting boards, or platforms to adjust the level of the work. Or,

Frame 33

Illustration of workers at different table heights (page 10)

Adjusting equipment height by using a table to suit your height and job. Or,

Frame 34

Illustration of adjustable chair (page 10)

Adjusting the chair by using adjustable height chairs. Do occasional walking within your area, rather than standing still, to keep your blood moving.

Frame 35

Illustration of worker at maximum work area distance (page 11)

Do most work within the maximum area you can reach to avoid tiring. Your maximum reach includes the area you can touch when you move your entire arm from front to side and from tabletop towards the ceiling. Keep your most-used utensils and supplies within the maximum work area. You can see that maximum work areas, based on your reach distance, affect tiring.

<u>Slides</u>	<u>Script</u>
	Frame 36
"Pre-placed utensils and supplies save time, steps, and strain." (blue background)	Pre-placed utensils and supplies save time, steps, and strain. Planning ahead for location of utensils and supplies is the first step in the job.
	Frame 37
Illustration of storage heights for shelves (page 12)	Store utensils and supplies where they will be used within easy reach, using adjustable shelves if possible. Store most often used items in normal work areas and put seldom used items in less convenient places. Store items at the level between your shoulders and knees. A level higher than your head increases danger of falling objects and is a more difficult level at which to handle items. Heavy and bulky containers should be stored near the floor so they will be easier to move.
	Frame 38
Illustration of labeled spice bins (page 12)	Label items such as spices. Keep them in alphabetical order.
	Frame 39
Illustration of cart of supplies (page 12)	Collect all needed items on a cart. Place items close to the work area before beginning the job.
	Frame 40
Illustration of dish-machine set-ups, proper and improper (page 12)	Planned arrangements save time, motion, and effort!
	Frame 41
"Wheels and labels aid work organization." (blue background)	Wheels and labels aid work organization. Wheels make your job "roll" smoothly.

<u>Slides</u>	<u>Script</u>
	Frame 42
Illustration of rack dollies (page 13)	Use dollies and carts for transport, preparation, and storage of food and supplies or to move heavy objects. Carts with several shelves and tray racks can move many trays at one time.
	Frame 43
Illustration of bins on wheels (page 13)	Use labeled storage bins for flour and sugar to save effort and prevent error. Label pans for easier selection of proper sizes.
	Frame 44
Illustration of worker with cart by labeled bins (page 13)	Equipment on wheels can help organize work. You can understand how proper placement and use of equipment can help you in The Basic Four!
	Frame 45
The Basic Four of Work *You The Worker *The Equipment *The Methods *The Environment (The Methods emphasized) (green background)	The Methods is the third of the Basic Four. Your methods can help you "work smart." Save time and energy with better results.
	Frame 46
Illustration of worker arranging pears and cherries (page 14)	Arranging work and using both hands in rhythm and order improves your methods.
	Frame 47
"'Drop delivery' makes your job easier." (green background)	"Drop delivery" makes your job easier. Gravity makes drop delivery useful in the kitchen and dishroom.

<u>Slides</u>	<u>Script</u>
	Frame 48
Illustration of board across bowl (page 15)	Place a chopping board across a bowl when chopping food and then push the food into the bowl.
	Frame 49
Illustration of faucet over kettle (page 15)	Use water faucets above steam kettles, and drains below to make use of gravity in the kitchen.
	Frame 50
Illustration of tilting flour bin (page 15)	Keep cleaning supplies or foods in tilting bin dispensers so that gravity makes the bins easier to load and unload.
	Frame 51
Illustration of worker with bowl at table (page 15)	Drop delivery using proper heights of equipment helps you "work smart"!
	Frame 52
"Your muscles must be used properly in work methods to reduce tiring." (green background)	Your muscles must be used properly in work methods to reduce tiring.
	Frame 53
Illustration of proper and improper body posture (page 16)	Your body is like an upside-down "T." Keep that "T" in balance to save energy. Keep your motions smooth and simple to reduce strain.

<u>Slides</u>	<u>Script</u>
	Frame 54
Illustration of worker using correct posture at work (page 16)	Practice correct posture with shoulders and back straight and head held high. Carry objects close to the body using both hands for balance. An apron will protect your clothes. Get a cart or co-worker if: the load weighs over 25 pounds, or if the load weighs over 15 pounds and is hard to handle, such as a full hot counter pan.
	Frame 55
Illustration of three-step lifting (page 16)	Lift loads smoothly using your leg muscles rather than back muscles. Don't be a jerk! Using muscles smoothly when lifting prevents strain.
	Frame 56
"Good hand motions improve your job methods." (green background)	Good hand motions improve your job methods. Look for ways to use hands properly!
	Frame 57
Illustration of dishing food from pan to plate (page 17)	Use fingers to grasp the dishes, wrist to dip potatoes, wrist and forearms to place potatoes on plate, fingers to release potatoes, forearm and upper arm to place plate on tray, and upper arm and shoulder to move pan to sink. Arrange the work area for smooth hand movements, working to gain speed with rhythm in setting up desserts, putting glasses into racks, or panning rolls. Move several identical items at a time.
	Frame 58
Illustration of scissors with marshmallow (page 17)	Use proper tools to use good hand motions, such as scissors for cutting sticky foods, and an egg slicer for slicing other soft foods such as bananas and cooked vegetables.

SlidesScript

Frame 59

Illustration of curved motions of work (page 17)

Use two hands together for speed and rhythm, moving both hands toward or away from the center of work area. Move even numbers of items so you can use both hands. Using continuous curved motions avoids unneeded starts and stops.

Frame 60

"Different methods to save hand motions may be used to make a job simpler."
(green background)

Different methods to save hand motions may be used to make a job simpler. Equipment may do the job so your hands can rest or are free to do another job.

Frame 61

Illustration of food chopper (page 18)

Use a meat slicer, a chopper, or a mixer when possible to save time and muscles. Let the machine do the work!

Frame 62

Illustration of sink with knee controls (page 18)

Use knee-activated controls for drains and foot-operated equipment to free your hands and prevent tiring.

Frame 63

Illustration of pie marker (page 18)

Use multiple cutters or markers for sectioning large amounts of food to portions, such as pie, cake, rolls, or gelatin. Improve your job, with your supervisor's approval, to simplify your motions.

Frame 64

Illustration of "OK" and "better" methods of dishwashing (page 18)

Using a machine or utensil or different method can save hand motion.

SlidesScript

Frame 65

"Planned methods, followed step by step, help the entire job go smoothly."
(green background)

Planned methods, followed step by step, help the entire job go smoothly. When you correctly perform the beginning steps in a procedure, the rest of the job is easier.

Frame 66

Logo "Plan ahead"
(page 19)

Plan ahead. Presoak utensils which have sticking food because water helps loosen cooked food. Put some detergent in the soaking water.

Frame 67

Illustration of oiling pan (page 19)

Oil the insides of pans used for baking foods or pots for cooking noodles to prevent the food from sticking to the pan. Cross-stack sliced ingredients such as cheese and meat for easy separation.

Frame 68

Illustration of scales (page 19)

Measure by weight, using scales, rather than by volume to improve accuracy and save time.

Frame 69

Illustration of pan used in oven, counter, and refrigerator (page 19)

Use the same pan for baking, serving, and storing food to reduce handling and cleaning time. Following a plan makes the job methods flow smoothly! Your work methods in The Basic Four are ways you can do your job better and more efficiently!

Frame 70

The Basic Four of Work
*You The Worker
*The Equipment
*The Methods
*The Environment
(The Environment emphasized)
(orange background)

In the fourth part of The Basic Four, you'll see that your surroundings, called environment, affect comfort and efficiency as you work.

<u>Slides</u>	<u>Script</u>
	Frame 71
Illustration of environmental factors in kitchen (page 20)	You have a part in keeping your environment right.
	Frame 72
"Proper lighting reduces eyestrain, mistakes and accidents." (orange background)	Proper lighting reduces eyestrain, mistakes and accidents. When light is even and reaches all work areas, you will be able to see things quickly and clearly.
	Frame 73
Illustration of bulb and fluorescent light (page 21)	Check lighting to see if it can be adjusted to reduce glare or shadows.
	Frame 74
Illustration of worker using light (page 21)	Use the lighting that is available to you at work.
	Frame 75
Illustration of worker at table under a light (page 21)	Proper lighting helps you see your job best so you reduce eyestrain, mistakes and accidents.
	Frame 76
"Proper ventilation makes the job easier." (orange background)	Proper ventilation makes the job easier. Ventilation removes heat, steam, and odor from the room. Use hood fans over kitchen equipment and ceiling fans over dishmachines to remove steam and odor.
	Frame 77
Illustration of worker by a fan (page 22)	Use circulation fans to help ventilate. Do not let fans blow over food or clean dishes. Keep the fan close.

SlidesScript

Frame 78

Illustration of window
(page 22)

Open windows, if allowed and if screened, so air can circulate.

Frame 79

Illustration of cook
using hood fan
(page 22)

Ventilation in foodservice keeps air circulating.

Frame 80

"Temperature and humidity must be controlled for an efficient foodservice."
(orange background)

Temperature and humidity must be controlled for an efficient foodservice. Proper venting of hot equipment can help.

Frame 81

Illustration of lid
over pan (page 23)

Cover foods when roasting or heating to avoid high temperatures and high humidity in the kitchen. It saves energy, too!

Frame 82

Illustration of timer
(page 23)

Cook foods no longer than necessary to reduce kitchen temperatures, save energy, and produce quality food.

Frame 83

Illustration of on/off
switch (page 23)

Turn off equipment when not in use.

Frame 84

Illustration of worker
at kettle with watch
(page 23)

Proper methods help control temperature and humidity to produce quality foods.

SlidesScript

Frame 85

"Too much noise causes tension and tiring."
(orange background)

Too much noise causes tension and tiring.
Noise control can help employees "work smart."

Frame 86

Illustration of quiet gesture (page 24)

Work quietly. Let others do their job properly without distraction.

Frame 87

Illustration of cart being oiled (page 24)

Use equipment properly. Keep it in good condition so it will work quietly. Report noise which may be eliminated.

Frame 88

Illustration of quiet workers (page 24)

Quiet workers can work with less tension and less tiring! Suggest ways to improve the environment as you use The Basic Four to help you "work smart."

Frame 89

You, the WORKER
The EQUIPMENT
The METHODS
The ENVIRONMENT
with each element
illustrated

The Basic Four of Work applies to you. Use these four factors for more satisfaction.
You, the worker: Use good health, sanitation, and safety practices.
The equipment: Plan and arrange your utensils, supplies, and equipment.
The methods: Make best use of your body and the equipment.
The environment: Work in proper conditions in your surroundings.
Use The Basic Four to eliminate motions, combine them, rearrange the sequence, or simplify steps in order to make the job easier.
By working within the frame of The Basic Four of Work, you will use less effort, accomplish your job more quickly and easily, make fewer mistakes, and produce better results.

SlidesScript

Frame 90

Illustration of employee
carrying a Basic Four of
Work sign (inside back
cover)

You're on your way to working smart with
The Basic Four!

Frame 91

The Basic Four of Work
*You The Worker
*The Equipment
*The Methods
*The Environment

(The end)

APPENDIX C

Instructions to Pilot Test Group

INSTRUCTIONS TO PILOT TEST GROUP

"I am Janet Maxwell. I'm a dietitian at Kansas State University at Derby Food Center, where we serve residents of four residence halls. I've brought you together today as a group to tell you about a training program in which you may participate. The program applies to your job by presenting work simplification in the foodservice setting. I have developed it at Kansas State as a help to foodservice workers like you in your job."

"We need your cooperation for the success of the project. If you have questions at any time, please feel free to ask. Mrs. Greig has agreed to let you review these materials so that I can get your opinions on them. You will review 'The Basic Four of Work' (booklet or slide tape program) and then take a short quiz and be in a ten minute interview in order to get your opinions and reactions to the material."

"Your name will not be associated with your answers in any report of the results and this will not affect your job rating. Your help will make this training program useful to others. What questions do you have?"

(For those who participate, the researcher will present the slide tape or the booklet to each person, followed by a short quiz and a ten minute interview.)

APPENDIX D

Posttest

POSTTEST

The Basic Four of Work

Circle the letter of the best answer to each question.

1. How can temperature and humidity be controlled in foodservice?
 - a) Cover foods when cooking
 - b) Cook foods for as long as possible
 - c) Keep equipment on at all times
2. How can you make work areas fit you and your job?
 - a) Tell your supervisor you can work at any height
 - b) Adjust work heights by changing height of equipment, chair, or work level
 - c) Do not try to do most of your work within the maximum work area
3. In what position should you keep your body in order to have balance at work?
 - a) Upside-down A
 - b) Upside-down L
 - c) Upside-down T
4. What should you remember in order to work efficiently?
 - a) Work smart
 - b) Work hard
 - c) Work quietly
5. Which is an example of "drop delivery" using gravity in the kitchen?
 - a) Using water faucets above steam kettles
 - b) Using carts to move heavy pans
 - c) Using correct posture
6. Why should you plan ahead for placement of utensils and supplies?
 - a) Proper storage makes the job easier even though it takes more time
 - b) Proper storage within easy reach saves time, stress, and strain
 - c) Proper storage won't save time, stress, or strain
7. To move equipment easily what is needed most?
 - a) Muscles
 - b) Wheels
 - c) Money

8. How do planned methods help at the job?
 - a) A plan makes job methods flow smoothly
 - b) A plan uses more time and effort
 - c) The employee will not "work smart"
9. Which of these can help save hand motions?
 - a) Paring knife
 - b) Knee-control drains
 - c) Faucets
10. Which of the following safety guidelines do you follow at work?
(You can circle more than one answer.)
 - a) Be alert as you work
 - b) Wipe up spills immediately
 - c) Lift heavy items correctly
11. What can you do to use proper ventilation in foodservice?
 - a) Close windows
 - b) Use hood fans and circulation fans
 - c) Don't let air circulate
12. Why should you follow a health plan with good diet and rest?
 - a) So you will be unhappy
 - b) So you can work hard
 - c) So you will feel great and get the job done easily
13. What helps control noise on the job?
 - a) Using loud equipment
 - b) Working quietly
 - c) Ignoring sounds that should be reported
14. What grooming habits should you use?
 - a) Wear tight clothing and nailpolish
 - b) Wear clean clothing and clean shoes
 - c) Use the same pair of plastic gloves all day
15. What is one way to use proper hand motions?
 - a) Use one hand at a time when moving items
 - b) Use any tool available
 - c) Use smooth hand movements together for speed and rhythm

16. Which of the following sanitation rules should be followed at work?
(You can circle more than one answer.)
- a) Clean all equipment and the area after use
 - b) Keep detergents in an area where foods are stored
 - c) Scrub hands well
17. Why is proper lighting important?
- a) Reduces eyestrain
 - b) Increases accidents
 - c) Increases mistakes
18. Why is proper arrangement of equipment important?
- a) To "work smart" for an efficient job
 - b) To "work hard"
 - c) To look attractive

APPENDIX E

Reaction Questionnaires

REACTION QUESTIONNAIRE

The Basic Four of Work booklet

Check the choice which is closest to your reaction.

- | | | |
|---|---|---|
| <p>1. Was the training booklet:</p> <p>a) enjoyable?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>b) interesting?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>c) able to hold your attention?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>d) too long?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>e) too fast paced?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>f) too detailed?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>g) too general?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>h) on material you already knew?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>i) helpful to you on your job?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> | <p>2. Did the pictures:</p> <p>a) follow the words?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>b) appear realistic?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>3. Was the art work:</p> <p>a) well drawn?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>b) appropriate?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>4. Were the words in the booklet:</p> <p>a) easy to read?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>b) too small?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>5. Were there too many difficult terms?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> | <p>6. Were the test questions:</p> <p>a) representative of the booklet?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>b) covered in the booklet?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>c) understandable?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>d) too easy?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>e) too hard?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>f) too picky?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>7. Do you like booklets for training?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> <p>8. Do you plan to use the information on your job?
 <input type="checkbox"/> yes
 <input type="checkbox"/> no
 <input type="checkbox"/> no opinion</p> |
|---|---|---|

REACTION QUESTIONNAIRE

The Basic Four of Work slide tape program

Check the choice which is closest to your reaction.

1. Was the training program:
 - a) enjoyable?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - b) interesting?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - c) able to hold your attention?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - d) too long?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - e) too fast paced?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - f) too detailed?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - g) too general?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - h) on material you already knew?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - i) helpful to you on your job?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
2. Did the pictures:
 - a) follow the words?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - b) appear realistic?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
3. Was the art work:
 - a) well drawn?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - b) appropriate?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
4. Were the words on the slides:
 - a) easy to read?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - b) too small?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
5. Were there too many difficult terms?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
6. Were the test questions:
 - a) representative of the slide-tape program?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - b) covered in the program?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - c) understandable?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - d) too easy?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - e) too hard?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
 - f) too picky?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
7. Do you like slide-tape programs for training?
 - ☐ yes
 - ☐ no
 - ☐ no opinion
8. Do you plan to use the information on your job?
 - ☐ yes
 - ☐ no
 - ☐ no opinion

APPENDIX F
Interview Questions

INTERVIEW QUESTIONS

The Basic Four of Work booklet

Instructions: "We would like to ask your opinion of the booklet to help us in evaluating it. The interview should take only about ten minutes. Your answers will not be linked to your name, so please relax and answer the questions honestly. Thank you."

1. Did you read the whole booklet during the assigned time when it was given to you?

If "no," how did you do it?

How many times did you read the whole booklet?

2. What are the four parts of The Basic Four of Work? Name them.
3. What did you like best about The Basic Four of Work booklet?
4. What did you like least?
5. How can you use the "Basic Four" principles on your job? Give one example in each category.
You, the Worker-
The Equipment-
The Methods-
The Environment-
6. Do you have suggestions for additional information you would like included in the booklet?
7. What changes have you made on your job since you have read the booklet?

INTERVIEW QUESTIONS

The Basic Four of Work slide tape program

Instructions: "We would like to ask your opinion of the slide tape to help us in evaluating it. The interview should take only about ten minutes. Your answers will not be linked to your name, so please relax and answer the questions honestly. Thank you."

1. Did you view the whole slide tape program during the assigned time when it was given to you?

If "no," how did you do it?

How many times did you look at the whole slide tape program?

2. What are the four parts of The Basic Four of Work? Name them.
3. What did you like best about The Basic Four of Work slide tape program?
4. What did you like least?
5. How can you use the "Basic Four" principles on your job? Give one example in each category.

You, the Worker-

The Equipment-

The Methods-

The Environment-
6. Do you have suggestions for additional information you would like included in the slide tape program?
7. What changes have you made on your job since you have viewed the program?

APPENDIX G
Consent Form

May, 1980

Dear KSU Residence Hall Foodservice employee:

We are developing training materials for work methods improvement in foodservice. We are trying to find an effective way of teaching this subject. We have developed a self-instructional booklet and a slide-tape program and would like for you to help in evaluating them.

We need your cooperation and hope you will take part in the project. Your participation, however, is voluntary. Your job evaluation rating will not be affected by your participation. You have the right to not participate in the group and the right to withdraw your consent.

If you participate, you will be given a short test first and then you will have the opportunity to either read the booklet or view the slides with the tape presentation. After you complete the training program, you will again take a short test. Your score will be kept confidential. You will then have a scheduled appointment to give your opinion of the training program. Your comments will help us in finalizing the training materials.

After the project is completed, we will give you a booklet and tell you the results of the project. Please ask any questions you may have.

Your help in this project is greatly appreciated. Please complete the consent form below and return it. Thank you for your cooperation.

I have read the above statements and have been fully advised of the procedures to be used in this project. I understand all the above statements.

_____ I am willing to participate.

_____ I am not willing to participate.

Date: _____ Signed: _____

APPENDIX H

Pretest

PRETEST

The Basic Four of Work

Circle the letter of the best answer to each question.

1. How do planned methods help at the job?
 - a) A plan makes job methods flow smoothly
 - b) A plan uses more time and effort
 - c) The employee will not "work smart"
2. What should you remember in order to work efficiently?
 - a) Work smart
 - b) Work hard
 - c) Work quietly
3. Which of the following safety guidelines do you follow at work?
(You can circle more than one answer.)
 - a) Be alert as you work
 - b) Wipe up spills immediately
 - c) Lift heavy items correctly
4. What grooming habits should you use?
 - a) Wear tight clothing and nailpolish
 - b) Wear clean clothing and clean shoes
 - c) Use the same pair of plastic gloves all day
5. How can temperature and humidity be controlled in foodservice?
 - a) Cover foods when cooking
 - b) Cook foods for as long as possible
 - c) Keep equipment on at all times
6. Which is an example of "drop delivery" using gravity in the kitchen?
 - a) Using water faucets above steam kettles
 - b) Using carts to move heavy pans
 - c) Using correct posture
7. Why is proper lighting important?
 - a) Reduces eyestrain
 - b) Increases accidents
 - c) Increases mistakes

8. Why should you plan ahead for placement of utensils and supplies?
 - a) Proper storage makes the job easier even though it takes more time
 - b) Proper storage within easy reach saves time, stress, and strain
 - c) Proper storage won't save time, stress, or strain
9. Which of these can help save hand motions?
 - a) Paring knife
 - b) Knee-control drains
 - c) Faucets
10. How can you make work areas fit you and your job?
 - a) Tell your supervisor you can work at any height
 - b) Adjust work heights by changing height of equipment, chair, or work level
 - c) Do not try to do most of your work within the maximum work area
11. What helps control noise on the job?
 - a) Using loud equipment
 - b) Working quietly
 - c) Ignoring sounds that should be reported
12. What is one way to use proper hand motions?
 - a) Use one hand at a time when moving items
 - b) Use any tool available
 - c) Use smooth hand movements together for speed and rhythm
13. To move equipment easily what is needed most?
 - a) Muscles
 - b) Wheels
 - c) Money
14. Why is proper arrangement of equipment important?
 - a) To "work smart" for an efficient job
 - b) To "work hard"
 - c) To look attractive
15. Why should you follow a health plan with good diet and rest?
 - a) So you will be unhappy
 - b) So you can work hard
 - c) So you will feel great and get the job done easily

16. In what position should you keep your body in order to have balance at work?
- a) Upside-down A
 - b) Upside-down L
 - c) Upside-down T
17. Which of the following sanitation rules should be followed at work? (You can circle more than one answer.)
- a) Clean all equipment and the area after use
 - b) Keep detergents in an area where foods are stored
 - c) Scrub hands well
18. What can you do to use proper ventilation in foodservice?
- a) Close windows
 - b) Use hood fans and circulation fans
 - c) Don't let air circulate

APPENDIX I

General Information Questionnaire

GENERAL INFORMATION QUESTIONNAIRE

Please complete the following items as directed.

1. Your age in years:

- ☐ a) under 20 years
- ☐ b) 20-29
- ☐ c) 30-39
- ☐ d) 40-49
- ☐ e) 50-59
- ☐ f) over 59

2. Years employed in KSU food service

years

3. Total years employed in food service (including KSU)

years

4. What is your highest level of education?

- ☐ a) completed grade school
- ☐ b) attended high school but did not finish
- ☐ c) completed high school
- ☐ d) attended college but did not complete degree
- ☐ e) completed associate degree
- ☐ f) completed bachelor's degree

5. Please indicate the area in which you work most of the time:

- ☐ a) main entree preparation
- ☐ b) bakery
- ☐ c) salads
- ☐ d) ingredient room

APPENDIX J

Instructions to Participants

INSTRUCTIONS TO PARTICIPANTS

Derby Employees

Initial meeting for obtaining participants to review slide tape

"I have brought you together today as a group to tell you about a training program in which you may participate. The program applies to your job by presenting work simplification in the foodservice setting. I have worked with Miss Riggs and some professors at K-State to develop it here with you in mind, as a help to you in your job."

"After I give you each this letter, you may read it and ask questions and then sign your name with a check by your response of whether or not you will participate. I truly hope you do because I need your cooperation for the success of the project but it is your choice as to whether or not you participate."

"To those of you who choose to participate, I will give you a short quiz today concerning work simplification and assign 30 minutes during your work day for viewing the slide tape program. About two weeks after you have seen the program, you will be given another short quiz and a brief private interview in order to get your opinions and reactions to the material."

"We hope this will help you in your job. We will be asking you what improvements you've made in your job methods. I will tell you the results of the group after the project is completed. Your name will not be associated with your answers in any report of the results and this will not affect your job rating. Your help in reviewing the material will make this slide tape useful to others. What questions do you have?"

(Employees will then be given the letter, Appendix G.)

"Please sign the paper and check your response after reading it and return it to me."

[For those who choose to participate, the researcher will give the pre-test and general information questionnaire (Appendixes H, I) and will consult with the dietitian to assign each employee to a 30 minute period three to four weeks later for reviewing the slide tape program (Appendix B). About two weeks after seeing the slide tape program they will return for about 20 minutes to take the posttest (Appendix D) and answer reaction questionnaire (Appendix E). A 10-minute interview will follow the posttest (Appendix F).]

INSTRUCTIONS TO PARTICIPANTS

Kramer and Strong Employees

Initial meeting for obtaining participants to review booklet

"I am Janet Maxwell. I have brought you together today as a group to tell you about a training program in which you may participate. The program applies to your job by presenting work simplification in the foodservice setting. I have worked with Miss Riggs and some professors at K-State to develop it here with you in mind, as a help to you in your job."

"After I give you each this letter, you may read it and ask questions and then sign your name with a check by your response of whether or not you will participate. I truly hope you do because I need your cooperation for the success of the project but it is your choice as to whether or not you participate."

"To those of you who choose to participate, I will give a short quiz today concerning work simplification and assign 30 minutes during your work day for reading the booklet which you may keep for two weeks to review carefully. After the two week period, you will be given another short quiz and a brief private interview in order to get your opinions and reactions to the material."

"We hope this will help you in your job. We will be asking you what improvements you've made in your job methods. I will give you a booklet to keep and will tell you the results of the group after the project is completed. Your name will not be associated with your answers in any report of the results and this will not affect your job rating. Your help in reviewing the material will make this booklet useful to others. What questions do you have?"

(Employees will then be given the letter, Appendix G.)

"Please sign the paper and check your response after reading it and return it to me."

[For those who choose to participate, the researcher will give the pre-test and general information questionnaire (Appendixes H, I) and will consult with the dietitians to assign each employee a 30 minute period three to four weeks later for reviewing the booklet (Appendix A). They will be allowed to keep the booklet for two weeks and then return for 20 minutes to take the posttest (Appendix D) and answer reaction questionnaire (Appendix E). A 10 minute interview will follow the posttest (Appendix F).]

INSTRUCTIONS TO PARTICIPANTS, PRECEDING PRETEST AND GENERAL INFORMATION QUESTIONNAIRE

"We would like you to answer these questions before you receive the training material on work simplification. Please sign your name on the card on your paper and return it to me. You will have about 15 minutes to answer these questions. Read each question and circle the letter of your answer. When you finish, hand your answers to me. Your name will not be associated with your answers on any report of the results. This will not affect your job rating. In about three to four weeks, you'll receive training material I have developed which I will give you. If you have any questions, I will be happy to answer them. Please be completely honest for this study to be worthwhile. Thank you for your help and cooperation. You may now begin answering the questions."

(After 15 minutes, the dietitian will ask for test.)

INSTRUCTIONS TO PARTICIPANTS, PRECEDING BOOKLET OR SLIDE TAPE

"You will have 30 minutes to review this training lesson. In addition, you may review it later in off-duty time, if you wish. When 30 minutes have passed, you are to return to your regular duties. After two weeks, you'll be scheduled to answer several more questions on a test and in a short interview based on what you are going to review. Do you have questions? (pause) You may begin."

INSTRUCTIONS TO PARTICIPANTS, PRECEDING POSTTEST

"Now that you've used the training material, we would like you to answer these questions based on the lesson you have reviewed on work simplification. Read each question and circle the letter of your answer. When you finish, hand your answers to me. Remember, your name will not be associated with your answers on any report of the results. This will not affect your job rating. Please be honest for the study to be worthwhile. You have 20 minutes to answer these questions. You may begin."

(After 20 minutes, the researcher will ask for the answers and will ask the interview questions of each individual, writing down the participant's answers.)

"This interview is designed to ask you questions concerning your opinion and reactions to the work simplification material you reviewed. This will take only about ten minutes. Please be as honest as you can. Although you may choose not to answer any question which you feel is too difficult, your answers will not be linked to your name, so please relax and answer the questions truthfully. Thank you."

APPENDIX K
Responses to Interview Questions

RESPONSES TO INTERVIEW QUESTIONS

	Booklet group (N = 17)	Slide tape group (N = 12)
1. a. Did you read the whole booklet or view the whole slide tape program during the assigned time when it was given to you?		
yes	8	12
no	9	-
b. If "no," how did you do it?		
read it at home	6	
reviewed at home after reading it at work	3	
c. How many times did you read the whole booklet?		
one	8	
two	4	
three	5	
2. What are the four parts of "The Basic Four of Work"?		
all four parts answered correctly	6	4
three of the four parts answered correctly	3	2
one or two parts answered correctly	4	3
none answered correctly	4	3
3. What did you like best about "The Basic Four of Work" booklet or slide tape?		
good review	4	2
interesting	3	2
I liked it all		5
informational, explanatory	3	
helped remind me of important things	2	
brief and to the point	2	
thorough	2	
booklet arrangement	2	
doing my work easier		2
helped me learn and remember		1
easy to understand, describes what I do		1
showed how to stand and lift to avoid tiring		1
not too basic		1
helped me understand the pretest questions	1	1
especially good for new people	1	
pictures helped remember things	1	
different ways to make job easier	1	
working smart	1	
simple	1	

	Booklet group (N = 17)	Slide tape group (N = 12)
3. (cont.)		
tells the how-to's	1	
good for reference	1	
ventilation section	1	
4. What did you like least?		
(no answer)	8	7
we don't have all the equipment shown	3	
too much review	2	
we do things differently	2	
(training was) too short	1	1
upside-down T was confusing	1	1
not being able to change work heights		
as it showed		1
if needed supplies aren't here, I		
can't organize		1
went too fast; either show it (slides)		
twice or slower		1
5. How can you use the "Basic Four" principles		
on your job? Give one example in each		
category.		
You the Worker:		
being clean	9	1
wiping spills	6	
keep area clean	3	5
(no answer)	3	1
report equipment for repair	3	
good attitude	3	
being safe	2	3
working with others	1	1
work smart		2
be healthy and get sleep		2
The Equipment:		
use it carefully and properly	4	1
cleaning it	4	
gather utensils and ingredients		4
use cart		3
arranging work	2	1
work levels and work areas	2	
(no answer)	1	2
putting away	1	
keeping it sharp and oiled	1	
store things in proper place		1
report equipment defects		1
turn off when not in use		1
The Methods:		
lifting posture	9	3
use cart	6	
use both hands, circular motions	4	

	Booklet group (N = 17)	Slide tape group (N = 12)
5. The Methods: (cont.)		
storage	4	
gather items	4	
proper heights	3	
drop delivery using pan at sink		3
arrange supplies		2
be efficient	1	
plan ahead	1	1
work area dimensions	1	
work quickly	1	
cover food		1
help others		1
storage; try better ways to cut down time		1
(no answer)		1
The Environment:		
work with others	7	
noise control	6	2
use ventilation	5	5
(no answer)	2	4
lighting	1	
turn off gas or electric when not in use	1	
6. Do you have any additional information you would like included in the booklet or slide tape program?		
no	15	4
communication between departments		2
more about the bakery		1
how to train others in this (work simplification)		1
refrigeration and holding temperatures for foods		1
specifics on grooming		1
how to use leftovers		1
ventilation which was mentioned which we don't have		1
help others when needed	1	
add cartoons (to booklet)	1	
7. What changes have you made in your job since you read the booklet or viewed the program?		
more careful lifting	4	
more conscious of being safe		2
gathering utensils		2
cleaning		1
(no answer)		2
I'm more careful not to have leftovers		1
day-to-day work		1

	Booklet group (N = 17)	Slide tape group (N = 12)
7. (cont.)		
more aware to gather things to save		
time and steps; posture; light		1
showed others how to lift and stand		1
gather cans ahead of time; get cartons		
early		1
trying to use the information on the job		1
cover things when going to rest break		1
using mobile tables	1	
reminded me of ways to go ahead	1	
made me more aware of my job	1	
working ahead	1	
seeing easier ways to do things	1	
being organized	1	
being more tolerant of another employee	1	
using simultaneous hand motions for rolls	1	
Other comments:		
I can use all the information	3	
it's what I do every day	2	
good for new employee	1	1
show program one or two more times		2
we've done things together all this time		1
refreshes your mind		1
would like it to be slower paced		1
good review	1	
I should have read it more	1	
I try to do my job right	1	

EVALUATION OF WORK SIMPLIFICATION BOOKLET AND SLIDE
TAPE PROGRAM FOR FOODSERVICE EMPLOYEES

by

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B.S., Purdue University, 1977

AN ABSTRACT OF A MASTER'S THESIS

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ABSTRACT

The purpose of this study was to revise an outdated booklet, The Basic Four of Work, develop parallel material in a slide tape program, and compare the effectiveness of the two types of materials for training foodservice employees. The text material covered the following four factors: You the Worker; the Equipment; the Methods; and the Environment. Illustrations pertained to basic principles of work simplification applicable to foodservice situations.

The original booklet was critiqued by dietitians in the Kansas State University (KSU) residence hall foodservices. Suggestions for revisions included new illustrations, simplified text material, and additional practical examples for workers. Suggestions also included retention of the four categories used in the original booklet which were You the Worker, the Equipment, the Methods, and the Environment. Because of the emphasis on work simplification, the revision was done with guidance of a professor in the KSU Department of Industrial Engineering.

The slide tape material was identical to that in the booklet. A pretest, posttest, reaction questionnaire, and interview questions were developed to measure the effectiveness of the two training methods. A pilot test was conducted with four cooks in a local high school as a final check on the training materials and test instruments.

Twenty-nine employees in the food production units of the KSU residence halls foodservice were assigned to separate groups for testing the booklet or the slide tape program. Provisions were made for the testing during working hours. Employees were informed that they would be asked to complete the training programs, pre- and posttests, a questionnaire,

and an interview on the instructional material. The efficacy of the two training methods was measured by comparing the mean scores of the two groups on a pretest and posttest, supplemented by the results of the reaction questionnaire and interview.

The analysis of data revealed that the booklet and the slide tape were equally effective in teaching "The Basic Four of Work" approach to work simplification. Based on this finding, either method would be suitable for foodservice employee training using the media appropriate for the situation. Consideration of the overall implications of this study indicate that work simplification principles should be emphasized and integrated into every foodservice training plan.