To the Graduate Council:

I am submitting herewith a thesis written by Karen Lynn Bryson entitled "Development and Application of a Model to Analyze Intent to Remain in WIC and Use Course Skills Among Nutrition Personnel Participating in a Continuing Education Course". I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science Degree, with a major in Nutrition.

Betsy Haughton, Major Professor

We have read this dissertation
And recommend its acceptance:

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Accepted for the Council:

Interim Vice Provost and
Dean of the Graduate School

DEVELOPMENT AND APPLICATION OF A MODEL TO ANALYZE INTENT TO REMAIN IN WIC AND USE COURSE SKILLS AMONG NUTRITION PERSONNEL PARTICIPATING IN A CONTINUING EDUCATION COURSE

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ABSTRACT

This study developed and tested a model to determine factors associated with intent to continue working in WIC and to use community-based nutrition skills taught in a continuing education course. Subjects were WIC nutrition professionals participating in a nine month continuing education course about community-based nutrition programming that used a mixed model of distance education strategies. An instrument was developed to assess attitudes about using course skills and intent to remain in WIC and to use course skills. Participants (n=169) were mailed a survey six months following the final course session and followed up with an additional mailing and reminder letter, yielding a 65% response rate. Most were registered dietitians (RD) (61%) with a bachelor's degree (50%) who worked in health departments (65%). Exploratory principal component analysis extracted four components: Self-assurance, WIC Attitudes, Environment and Consequences. The intent to use course skills could be predicted by these components: Self-assurance, Environment and Consequences. These components were not effective in predicting intent to remain employed in WIC. Positive correlations were determined for WIC Attitudes, Environment and Consequences, and the course as an incentive to remain in WIC and change in satisfaction with working in WIC. The resulting model is useful in assessing the impact of continuing education courses on intent to remain in WIC and use course skills. This continuing education program has the potential to increase community-based nutrition competencies; participants who have a supportive environment and are self assured in using the skills are more likely to apply them on the job.

PREFACE

The following thesis consists of two parts. Part One is a review of literature about public health nutrition issues related to retention and preparation of public health nutrition personnel to provide community-based nutrition interventions. Part Two is a manuscript prepared for submission to a professional journal.

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PART ONE

LITERATURE REVIEW

INTRODUCTION

Public health is an evolving field, as public concern, policy and needs develop and change. Public health nutrition is in transition from a focus on clients and personal health services to a focus on populations, systems and communities (1-2). Studies indicate that those employed in public health nutrition have limited preparation in public health competencies and desire additional education in public health concepts (1,3-5). Adequate preparation is essential for efficient delivery of public health services and to accommodate changes in the focus of public health nutrition.

Since the 1970's the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) has become the predominant setting for community nutrition services, with a focus on individual services (3). WIC nutrition staff represent about 78% of public health nutrition personnel impacted by the shifting population focus in public health nutrition (3). Turnover within WIC has been problematic and efforts to address this issue and improve retention are an important objective (6). Maintaining and improving retention for these personnel is a complex issue. Continuing education and job enhancement are strategies for the successful recruitment and retention of qualified community nutrition professionals working with the WIC program.

Continuing education programs for public health nutrition personnel provide an opportunity for field research in human resource development issues. A major human resource dilemma involves the recruitment and retention of qualified personnel (8). Research on predictors of staff turnover has identified education and training as significant factors impacting retention (9). One area of study has indicated that to be satisfied, employees must be prepared sufficiently to perform the tasks required by their job (10). Since public health nutrition practice is changing, this may be especially important for WIC nutritionists. Therefore, continuing education has the potential to affect retention in WIC and to decrease turnover.

To address continuing education needs of WIC nutritionists in three states and the District of Columbia, a three-year project was developed by the Virginia Department of Health in 1997, with funding by the United States Department of Agriculture (USDA). It was entitled *Distance Training on Community-Based Nutrition Education for WIC Professionals: Implementation and Evaluation* (7). The project was designed to:

- Enhance the skills and improve the practices of WIC professionals in program planning, evaluation and partnerships for successful community-based nutrition education and services;

- Provide expanded continuing education opportunities for WIC professionals to improve the recruitment and retention of nutrition professionals; and

- Provide local access to current educational opportunities in the field of public health nutrition that meet training needs at reduced cost.

The purpose of this study was to analyze factors to predict employee retention of WIC nutrition personnel. The specific objective was to develop and test a model to determine factors that are related to intent to remain working in WIC and to use skills learned in a continuing education program about community-based nutrition programming. A theoretical model was developed based on Fishbein and Ajzen's Theory of Reasoned Action (11) and research examining turnover based on this theory (12-13).

Continuing education has the potential to increase confidence and competence by increasing knowledge and skills and, therefore, improve retention. Public health nutrition managers and WIC policy makers can use the knowledge gained from this study to plan continuing education relevant to current and future work demands and to guide selection of personnel for participation in continuing education programs.

LITERATURE REVIEW

Introduction

The overall mission of public health is to assure conditions in which people can be healthy. To accomplish this mission public health core functions must be emphasized, which include assessment, policy development and assurance (14). The Public Health Function Steering Committee further defined these functions in a list of ten essential public health services (15). Nutrition services essential to public health have been outlined by the Association of State and Territorial Public Health Nutrition

Directors in a list of essential public health nutrition services related to maternal and child health (16) (Appendix 1). Goals of public health nutrition, as set forth by the American Dietetic Association's (ADA) Public Health Nutrition Practice Group, include promotion of optimal nutritional status, health maintenance and disease prevention for all members of the population (17).

Performance of these essential services requires a broad spectrum of qualified nutrition personnel. *Personnel in Public Health Nutrition for the 1990's* describes these personnel as "specialized nutrition professionals and paraprofessionals who provide services through agencies that deliver health services to people living in a designated community" (1,p1). Public health programs should emphasize both community wide health promotion and disease prevention and individual nutrition care in ambulatory primary health care settings (1-2). In so doing, personal health services and population focused-programs are encompassed.

Due to the changes in the structure and funding of public health, the opportunity for public health nutrition personnel to participate in population-focused nutrition services has increased (1,18). Recently most public health nutrition programs have focused on client-centered services. The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) currently funds 78% of full time equivalent (FTE) positions and has a strong individual client focus (3). To accomplish the expansion from primarily client-oriented to community-oriented roles efficiently, skills in essential public health nutrition services must be developed. For example,

skills associated with developing partnerships and building coalitions are vital components of this shift (4,19). Public health nutrition personnel need sufficient preparation to function proactively and be prepared for the future.

Current public health nutrition personnel require additional training to provide essential public health nutrition services adequately (1,3-5). Continuing education directed toward competencies in community based nutrition interventions would permit these personnel to function effectively within their changing roles. Addressing these educational needs should enhance the effectiveness of WIC nutrition professionals, providing a more competent work force capable of assuming different responsibilities. Moreover, increasing confidence through skill development and providing increased responsibilities provide incentives to remain employed and decrease turnover (20). Factors effecting retention can be predicted based on theoretical models and can include variables that are influenced by training programs. By examining studies based on job retention, attrition and behavior change, a model was developed in this study to predict intent to remain employed in WIC and use the skills taught in a continuing education program.

Continuing Education in Public Health Nutrition

The skills required to function as public health nutrition professionals are expanding and leaving many nutrition personnel unprepared. Personnel working in public health nutrition require additional training in population-based planning

competencies necessary to fulfill the expanding roles (1,3-5). Additional skills will be necessary to make the shift from personal health services and a direct care focus to a population/systems focus. Future roles of public health nutrition personnel will include conducting assessment of community needs and assets and developing community risk reduction programs in nutrition and general health (2,21). To prepare public health nutrition personnel adequately will require innovative methods of teaching and delivering continuing education (1). Continuing education should be directed at effectively enhancing skills to prepare personnel to transition into the roles associated with population-based nutrition services (22).

The structure and funding of public health are shifting with changes in health care and private organization interest in public health. This requires public health nutrition personnel to anticipate these changes and to be proactive in accommodating them. Public funds for public health initiatives are decreasing in availability, while private sector agencies and institutions are increasing involvement in health care issues (1,19,22). This shift in funding requires that public health agencies use funds effectively to address community needs and facilitate capacity building. Private organizations such as health insurance companies and health care facilities have taken an interest in the population's health, because they recognize the impact community-based wellness programs can have on health care costs. This creates an opportunity for public health nutritionists to collaborate and create partnerships with private organizations (1,22).

Preparation of Public Health Nutrition Personnel in Population-Based Competencies

Public health nutritionists need to be well prepared to design population-based programs and services, and to emphasize community-wide health promotion and disease prevention programs. The future for public health nutrition personnel will be in planning, implementing, directing and evaluating community nutrition interventions (1,22). For this to occur efficiently, partnerships and coalitions with private, voluntary and public agencies will be formed (1,4,19). Competition for funding and an increased interest in prevention will require innovative methods and will provide new opportunities for health promotion by well prepared public health nutrition professionals.

Successful performance of essential public health nutrition services requires adequate preparation. However, studies indicate that personnel are not well prepared in key public health nutrition competencies. A 1995 WIC Nutrition Needs Assessment Survey for the Mid-Atlantic Region (23) identified several population-based planning competencies as high priorities for training and skill development. These areas included skills in:

- interpreting and using population data;
- conducting and using community health and nutrition need assessment;
- applying social marketing principles in nutrition and health programs;
- data collection and management;
- translating community assessment data into a program plan;
- quality assurance methodology; and
- coordinating WIC with other services to utilize all resources efficiently.

These skills are vital for personnel to perform essential public health nutrition services.

A study of personnel working in public health nutrition also indicated a need for additional training in public health nutrition competencies and a lack of formal education in public health nutrition. The Association of State and Territorial Public Health Nutrition Directors (ASTPHND) represents nutrition leaders of state and territorial health agencies who have an interest in the preparation of public health nutrition personnel and, therefore, conduct a study of the public health nutrition workforce. In 1994 ASTPHND conducted a mail survey (3) that was completed by state and local nutrition personnel and state public health nutrition directors in non-profit and for profit agencies throughout the United States and its territories. This study revealed that for personnel who classified themselves as public health nutritionists, 26.5% had any type of graduate degree, while 7.1% had a graduate degree in public health or with public health course work, indicating that few public health nutritionists have formal training in public health.

Similarly, a self reported survey of the American Dietetic Association's Public Health Nutrition Practice Group members demonstrated a clear need for continuing education in public health nutrition competencies (5). Surveys were mailed to practice group members (n=1,312) and results were analyzed based on a 55% response rate. A 74-item survey that included 42 knowledge/skill statements was used to determine level of knowledge and the degree to which the skills were applied

on the job. All the lowest scoring competencies were in public health. The need for public health nutrition-focused continuing education programs is apparent for those positions requiring population/systems focused skills.

Continuing Education Targeted Government Objectives

Government agencies recognize the need for the public health personnel to have up-to-date knowledge, skills and competencies to perform the essential services of public health nutrition effectively. Therefore, ongoing skill development is an important goal in program planning. In the document *Healthy People 2010* (24) the US Department of Health and Human Services set goals and objectives to give direction to the disease prevention and health promotion efforts of public health services. Objective 23-10 is "To increase the proportion of Federal, Tribal, State and local public health agencies that provide continuing education to develop competency in essential public health services for their employees" (24). Well-trained professionals also contribute to the WIC Program goals of improving health outcomes and achieving program efficiency. The agency which administers the WIC program, the United States Department of Agriculture and its Food and Consumer Service (USDA/FCS), has a Strategic Plan that includes an objective to improve the nutrition qualifications of state and local WIC staff (25).

Continuing Education in Public Health Nutrition

WIC represents a large proportion of public health nutrition programs. The 1994 ASTPHND study (3) reported 78% of full time equivalent (FTE) positions were funded by WIC. WIC's main thrust has been individual counseling and client-focused services and programs. Therefore, as WIC expands to include a community focus, this leaves a large segment of public health nutrition personnel that will require additional preparation and encouragement to move from addressing individual clients' needs to meeting the needs of target populations and communities. WIC personnel can make this shift with increased awareness, education and skills in community-based programming.

Continuing education is essential in any field, but because of the dynamic nature of public health and recent shifts from a client focus to population/systems focus, it is vital to remain proactive in the field of public health nutrition (1). Education in the core public health functions of assessment, policy making and assurance will be essential. Assessment involves regularly collecting data on the health of the community. Utilizing this information based on scientific knowledge and an appreciation for and involvement in the political and planning process is the basis of policy development. Assuring the services necessary to provide conditions where people can be healthy is the third function and is dependent on the other functions (1). Preparation in these components and implementation of the essential services associated with these functions will prepare public health nutrition

professionals to make the transition to a population-systems focus and to be prepared to meet the challenges of the future.

Delivery of Continuing Education

The method for delivering continuing education programs can impact the effectiveness and success of the program. "Innovative approaches are recommended for short and long term training to make preservice and continuing education more available and accessible to nutrition personnel who are currently employed in the field" (1,p8). Advances in technology have made possible delivery of continuing education using distance education strategies. Distance education can be defined as any form of instruction that occurs when the teacher and learner are at a distance from one another (26). A mixed model approach to distance education has proven effective in competency-based teaching and adult learning (27). This approach involves the combination of different learning techniques and can include, for example, course content delivered via satellite video and audio conferencing. This delivery mode can accommodate live question and answer periods, trained facilitators leading structured group discussions and activities, and individual practice and application assignments.

AbuShaba et al (27) utilized a mixed model approach to distance education in nutrition and dietetics to teach educators in WIC about facilitated group discussion. They developed a theory-based model for distance education using theoretical

principles based on educational psychology, human development, and Fishbein and Ajzen's Theory of Reasoned Action. A mixed-model approach was created that combined satellite teleconferencing sessions with local small group activity sessions. Trained instructors led the local activity sessions. A positive response to the model was reported at post-conference, with 83% reporting being very satisfied or satisfied with the conference overall. Eight months following the conference 80% maintained responses of very satisfied or satisfied with the conference overall. Of those who responded eight months following the conference (60% response rate), 79% indicated they would like to attend future conferences. The researchers strongly recommended the use of this model for continuing education in nutrition and dietetics and concluded that this technique is effective in reaching a large audience in a cost-effective manner.

Mixed model distance education courses have the potential to conserve time and resources by increasing the capacity to educate large numbers of staff while decreasing time away from the work place and reducing travel costs. Staff can be educated adequately and effectively at costs less than that of traditional training (27). Distance education with a mixed model approach uses effective teaching techniques that address the differing needs of adult learners and is ideal for training public health nutrition personnel.

To prepare public health nutrition personnel to provide essential public health nutrition services, supervisors responsible for continuing education of their employees can provide innovative continuing education in necessary skills. Distance

education can promote staff development and increase responsibility and opportunity for personnel. The result can be employees who are well qualified to make the shift to focusing on the community.

Turnover and Retention Related to Continuing Education

Retention of qualified professionals is an ongoing issue in public health nutrition. Continuing education and job enhancement contribute to retention of qualified community nutrition professionals and are vital to the success and effectiveness of public health programs (7). Turnover causes disruption to work and morale and financial burdens to the agency (9). Public health nutrition programs have struggled to decrease turnover worsened by limited funding and perceived low prestige (6). Determining and then addressing the factors that impact retention, such as motivation, can provide valuable information to reduce turnover.

Motivation to Work

The psychology and theory of motivation is a complex issue, which has been the subject of many studies. Herzberg, often referred to as the father of work motivational research, examined attitudes toward work in a number of studies. He developed the Motivation-Hygiene theory which identifies intrinsic and extrinsic factors affecting job satisfaction and dissatisfaction (28-29). Factors that determine job satisfaction, or motivation, are separate from factors that lead to job

dissatisfaction, or hygiene factors. Motivator factors are intrinsic to the job and include achievement, recognition for achievement, the work itself, responsibility and growth or advancement. Factors that contribute to dissatisfaction are extrinsic to the job and include company policy and administration, supervision, interpersonal relationships, working conditions, salary, status and security (29).

To apply this theory, managers need to consider if they want to make employees work or to make employees want to work. If employees are made to work, then movement or performance results, not motivation. Motivators, as opposed to hygiene factors, have a longer effect on employees' attitudes. Employees require ongoing hygiene factors to remain moving, such as increases in pay, and require motivators less often. Movement and motivation have a relationship within the work environment and facilitating employees to perform well requires more than just movement. Training, a hygiene factor, does not motivate employees, just as opportunity, a motivator, without training does not motivate. Offering both will not motivate if hygiene factors, such as money, are the only reinforcement. Therefore, for successful long term motivation employees must be adequately trained for challenging jobs and be provided opportunity for growth and advancement, which includes both hygiene and motivating factors (30).

Herzberg's theory has been applied to a number of different professions (30-32). Rantz, Scott and Porter (30) conducted a qualitative study to explore how employee motivation may have changed throughout the years. Herzberg's work was reviewed

and then compared and contrasted with interview data collected for a qualitative study about management effectiveness. In-depth interviews were conducted with 38 staff members and managers primarily from health care settings (58%). Other interviewees included personnel from private (16%), public (13%), and academic (13%) settings. The findings were similar to Herzberg's findings in that intrinsic factors of recognition, the work itself and responsibility were strongly related to job satisfaction. However, interpersonal relations ranked first as a motivating factor instead of as an extrinsic factor. This study demonstrated that the work of Herzberg is still applicable today. Motivating factors, including recognition for jobs well done, focusing on the importance and meaning of work, and providing responsibility and authority to get jobs done, can provide long term benefits to employees and organizations (30).

Factors to Predict Turnover and Retention

The search for variables capable of predicting staff turnover includes not only job satisfaction, but also a number of other factors (9,32). Cavanagh (9) researched predictors of nursing staff turnover by administering a validated questionnaire to 602 registered nurses working in hospitals in the greater Los Angeles area. Subjects' characteristics were assessed for the following variables related to job turnover: intent to stay, job satisfaction, pay and promotion, opportunity, kinship, responsibilities, instrumental communication, peer relation, routine and autonomy, education and

training, professionalism, and integration. The overall response rate was 38.5%: 80.5% from non-profit hospitals and 24.1% from for profit hospitals. A self reported demographic questionnaire was used to determine turnover. Analysis of data using multiple regression determined if a combination of variables could be used to predict average length of employment. Important factors for predicting turnover for nurses included kinship, defined as the influence of family members, and promotional opportunities, defined as the potential mobility within the organization. Intent to stay, or the perceived likelihood to stay employed in the organization, emerged as an important predictor of turnover (9).

Public health nutrition agencies seek to lower personnel turnover by determining the components that influence retention. The 1993 WIC State and Local Staffing Survey (34) indicated difficulties in recruitment and retention of WIC staff due to a limited pool of qualified professionals, noncompetitive salaries, poor promotion potential, and a perception that WIC has less status as a career. In another study, lack of promotional opportunity was cited as the greatest source of dissatisfaction among public health workers surveyed in county health departments in Illinois (8).

Job satisfaction and its components have been assessed among dietitians also. Dalton et al (35) surveyed 1033 New York City dietitians to compare job satisfaction among clinical, community and long term care dietitians. The overall response rate was 39.6%, with 36% useable surveys. Community dietitians were significantly less

satisfied with pay and promotion than the other groups. Further evaluation by Dalton, et al. (10) related job satisfaction to various factors. Factors that contributed to remaining in a position included promotion, increased responsibility, furthering one's education and more opportunity for growth. Those that rated their preparation for entering the profession sufficient were more satisfied than those who rated preparation less sufficient.

The Texas WIC Marketing Study (6) identified training and supervision as two factors that would improve WIC jobs. Work is reported to be rewarding when opportunity is available for professional development (36). A US Department of Labor survey (37) further supported these findings by reporting increased work satisfaction among women when they were given more responsibility and were provided with continued on the job training and development. Education has been linked clearly to turnover in a number of studies (38-40) and can be an important influence on retention.

Continuing education has the potential to affect factors impacting turnover, including promotional opportunities, increased responsibility and professional development. Public health nutrition personnel with skills in community-based nutrition interventions could be given more opportunity and responsibility for initiating change in their communities. Continuing education programs can equip public health nutrition personnel with skills necessary to fulfill changing roles and to

perform essential public health nutrition services. This has the potential to influence intention to remain in WIC and use those skills.

A conceptual approach that addresses attitudes toward continued employment and use of skills taught in a continuing education program may facilitate assessment of retention and continuing education activities in public health.

Theoretical Framework for Examining the Relationship Between Retention and Factors Related to a Continuing Education Course

Retention is a well studied phenomenon with many contributing factors. Fishbein and Ajzen's Theory of Reasoned Action (11,41) has been applied to predict turnover and has been shown to be as effective as traditional measures of job attitudes (42). The Theory of Reasoned Action can assess the relationship between attitudes toward a behavior and intention to perform that behavior and can be used to predict behavior. This theory has been used to develop a model to determine, for example, dropout from school (12) and attrition in a weight loss program (13).

The Theory of Reasoned Action and Application in Research

Studies focusing on turnover often measure intentions to quit and strong correlation has been established based on theoretical models (12-13,42). Fishbein and Ajzen's Theory of Reasoned Action (Figure 1) demonstrates that a person's attitude toward an object influences his responses to the object, and a single behavior can be determined by the intention to perform the behavior (41). A person's intention

is influenced by attitudes toward performing the behavior and subjective norms. Attitudes toward the behavior are "favorable or unfavorable evaluations of an object" (11) and reflect the individual's beliefs about the consequences of performing the particular behavior in a given situation (41). A consistent negative relationship between job attitudes and turnover has been demonstrated through research (42). Subjective norms depend upon the individual's perception of other's expectations of behavior and motivation to comply with those expectations. Other variables may affect behavior but they operate indirectly by influencing attitudes or subjective norms (11, 41). A single act is predictable from the attitude toward that act and the behavior can be predicted by intention to perform that act (41).

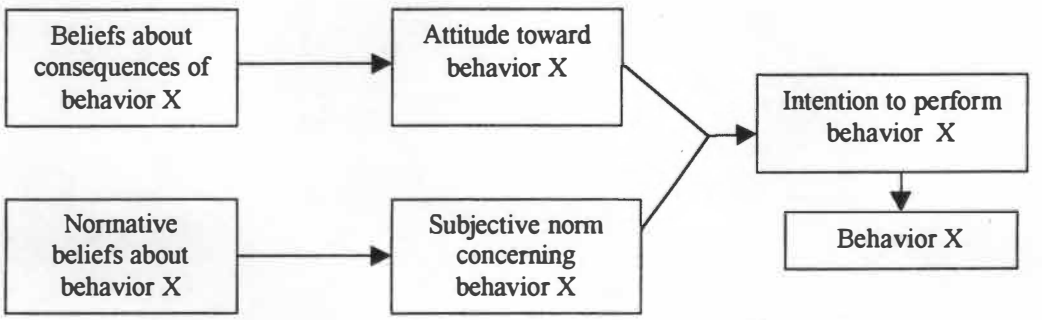

Figure 1. Theory of Reasoned Action
Fishbein M, Ajzen I. *Belief Attitude and Behavior: An Introduction to Theory and Research.* Addison- Wesley Publishing Co. Reading MA. 1975.

Application of this theory has been applied to job turnover and proven to be an effective predictor (42). Bean (12) applied this model in conjunction with a model of turnover in work organizations to predict attrition of university freshmen. A causal model was developed to assess student attrition, intentions and confidence (Figure 2). Data were collected in a two step longitudinal process. First, questionnaires were given to 1,574 full time, unmarried freshman under 21 years of age, who had not transferred from another school and were U.S. citizens. Useable data were analyzed from 1,513 respondents. Second, dropout data were taken from registration tapes during the fall and spring of the year of the survey. Multiple regression and path analysis were selected to analyze data. Each of the variables contributed significantly to understanding the attrition process and intent to leave was the best predictor of

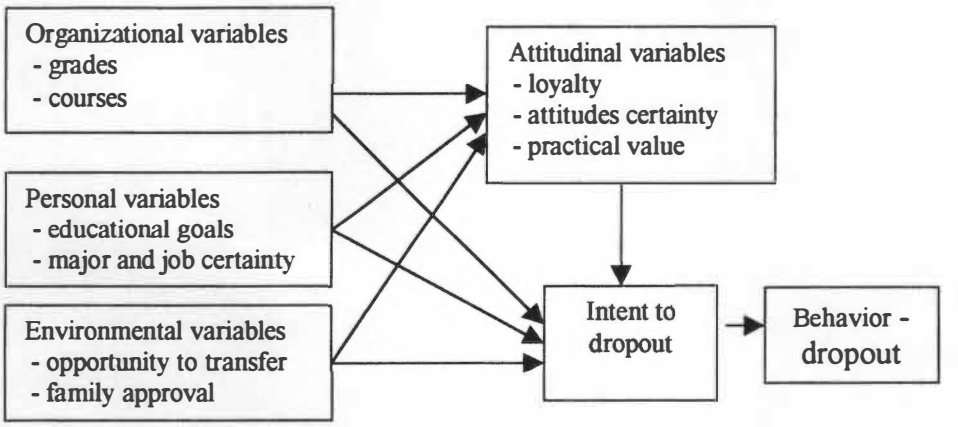

Figure 2. Student Attrition, Intentions and Confidence
Bean JP. Student attrition interventions and confidence interaction effects in a path model. *Research in Higher Ed.* 1982; 17:291-220.

actual attrition. This model proved useful in predicting student dropout from the university setting and provided valuable information on factors related to attrition.

This model then was adapted to apply to attrition in a weight loss program by Pratt (13,43). The variable categories included intention, attitude, environmental and social factors, personal factors, program content and delivery and demographic factors. This retrospective study surveyed by mail 759 adults who had enrolled in a 10-week weight reduction program. A total of 309 useable surveys were returned for a 41% response rate. A substantial number of dropouts (47%) returned the questionnaire, decreasing the chance of nonresponse bias. Multiple regression and path analysis were used to predict program completion and to establish direct and indirect effects on program completion. Self-assurance had a significant effect on program completion. Perceived importance, social support and social ease influenced program completion through the intervening self-assurance variable. Thus, factors may not influence the outcome directly, but may affect the outcome through intervening variables. The results of the study indicated that attributes that are internal and gained during the program implementation are the most significant factors determining program completion.

These studies indicate a model that reflects attitudes toward intent to perform a behavior can predict turnover. Intent to remain was the strongest predictor of the actual behavior. Attitudes that affect intent were determined by organizational, personal, environmental and attitudinal variables. These factors have been

demonstrated to be adequate measurements of behavior and useful in determining behavior.

Proposed Model for Examining the Relationship Between Retention in WIC and Factors Related to a Continuing Education Course for WIC Nutrition Personnel

Fishbein and Ajzen's Theory of Reasoned Action (11) provides a basis for developing a model to examine the relationship between factors related to using skills taught in a continuing education course and intent to remain employed in WIC (Figure 3). This model sets a framework to evaluate the impact of the course about community based nutrition programming on retention by researching factors related to the continuing education and intent to remain in the job. Specifically, this model, when applied to intent to remain employed in WIC and use skills taught in the course, includes four components: WIC attitudes, self-assurance, motivation and environmental factors.

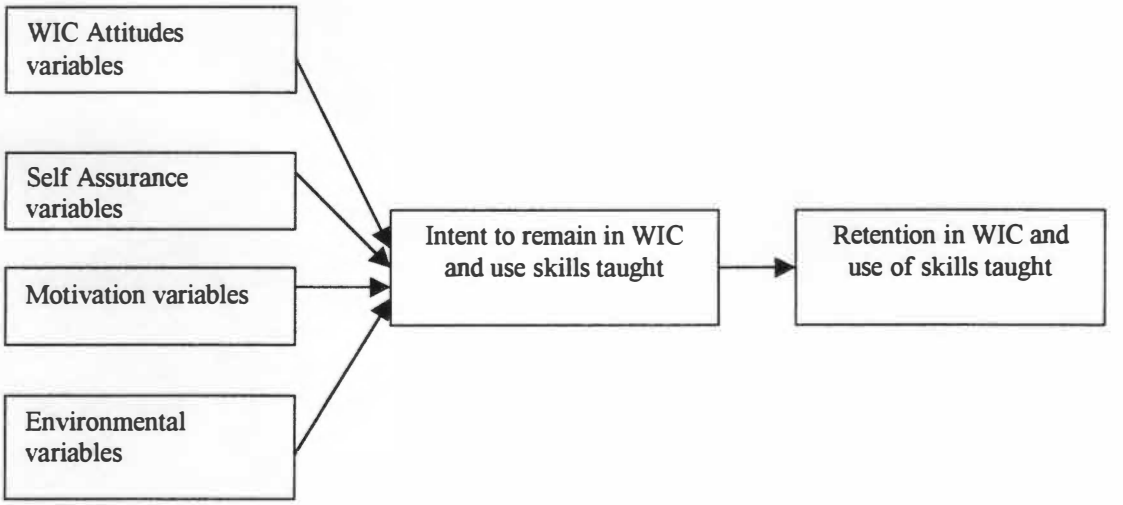

Figure 3. Proposed Model for Examining the Relationship Between Retention and Factors Related to Continuing Education

WIC Attitudes

In this model WIC attitudes are the degree to which the continuing education participant believes that WIC is the appropriate place to perform skills taught in the course. For the continuing education course to influence intent to remain in WIC and use course skills, the participant must be able to apply the skills to current work or s/he may go elsewhere to use the skills. These variables correspond with attitudinal variables found in Bean (12) and Pratt (13). Examples include: I am certain that WIC is the right place to use the skills taught in this course and; Community-based nutrition programming is appropriate for WIC.

Self-assurance and Motivation

Personal variables, self-assurance and motivation, are two components of the model that correspond with variables developed by Pratt (13). Self-assurance assesses confidence in performing skills taught in the course. Increased confidence would facilitate intention to use the skills. Example statements of those attitudes are: I feel confident about my ability to perform the skills taught in this course; and I think I could convince health professionals of the benefits of community-based nutrition programming. Motivation is the degree the course participant is inclined to utilize these skills in WIC. Employees are motivated in a number of ways, including improved job satisfaction and career fulfillment, and can demonstrate that motivation by expressing a desire to use the course skills. Examples of statements to assess

motivation include: I will feel more fulfilled if I use the skills taught in this course; and I'm excited about using the skills taught in this course.

Environment

Factors critical to staff retention are caring and supportive managers who provide workers the materials and equipment to do their jobs properly (36). Subjective norms are classified as environmental variables and can be effected by social and physical support and are included in Bean's (12) and Pratt's (13) models. This is the belief by the continuing education participant that people important to him/her will support use of the course skills. Physical resources necessary to apply these skills include, for example, time and access to information using computers, the Internet or libraries. This factor is an especially important one, since the participant may have positive attitudes and personal beliefs about using the learned skills which will affect retention positively. However, if the social and physical supports are not available, an overall negative affect on retention may be produced. Statements to measure attitudes about environmental support include, for example: My supervisor would be willing to allow me to use the skills taught in this course; My peers cooperate with others who want to try new ideas; and My work environment is flexible enough to allow me to use what I've learned in this course.

Intentions

Attitudes and past behaviors act through intentions to affect future behavior. Therefore intent to quit is an appropriate measurement of actual turnover, as it has been shown to be a strong indicator of turnover (12-13,41). The dependent variable in this model is intent to remain in WIC and use course skills. This variable is defined as the likelihood the participant will continue employment with WIC and use skills taught in the course.

Summary

The shift to a community focus in public health nutrition requires that personnel be prepared adequately to perform essential functions of public health nutrition. Those employed in public health nutrition have limited preparation and must obtain additional knowledge and skill to perform population/system-focused programming. Continuing education in community-based nutrition programming provides necessary tools to focus on the community and, by contributing to professional development and job enhancement, has the potential to improve retention. Research has shown that Fishbein and Ajzen's Theory of Reasoned Action (41) can be applied to predict intention to remain in school (12) and weight loss programs (13). Based on this research, a model was developed to examine the relationship between factors related to using skills taught in a continuing education course and intent to remain employed in WIC and use those skills. This model was

tested using data collected from a continuing education course in community-based nutrition programming.

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APPENDIX

Appendix

Essential Public Health Nutrition Services

Essential public health services include:

- Assessing the nutritional status of specific populations or geographic areas
- Identifying target populations that may be at nutritional risk
- Initiating and participating in nutrition data collection
- Providing leadership in the development of and planning for health and nutrition policies
- Recommending and providing specific training and programs to meet identified nutrition needs
- Raising awareness among key policy makers of the potential impact of nutrition and food regulations and budget decisions on the health of the community
- Acting as an advocate for target populations on food and nutrition issues
- Planning for nutrition services in conjunction with other health services, based on information obtained from an adequate and on-going data base focused on health outcomes
- Identifying or assisting in development of accurate, up-to-date nutrition education, counseling materials
- Ensuring the availability of quality nutrition services to target populations, including nutrition screening, assessment, education, counseling and referral for food assistance and follow-up

- Participating in nutrition research, demonstration and evaluation projects
- Providing expert nutrition consultation to the community
- Providing community health promotion and disease prevention activities that are population-based
- Providing quality assurance guidelines for practitioners dealing with food and nutrition issues
- Facilitating coordination with other providers of health and nutrition services within the community
- Evaluating the impact of the health status of populations who receive public health nutrition services.

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PART TWO

MANUSCRIPT

INTRODUCTION

In the Institute of Medicine's report *The Future of Public Health* (1), public health's mission is defined as "fulfilling society's interest in assuring conditions in which people can be healthy" (1, p7). To accomplish this mission public health core functions must be emphasized, which include assessment, policy development and assurance (1). Ten essential public health services further define these functions (2). Goals of public health nutrition, as set forth by the American Dietetic Association (ADA) Public Health Nutrition Practice Group, include promotion of optimal nutrition status, health maintenance and disease prevention for all members of the population (3). Nutrition services essential to fulfilling these goals are described by the Association of State and Territorial Public Health Nutrition Directors (ASTPHND) (4) and provide guidance in developing population-based public health nutrition services.

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) represents the largest US public health nutrition program and currently funds 78% of full time equivalent (FTE) positions (5). The WIC program has recognized that to support the goals of public health nutrition and perform essential nutrition services, nutritionists need to expand their scope of practice to include both individual nutrition care and population-based disease prevention and health promotion (6-8). To accomplish the expansion of services from those that are

primarily client-oriented to those that are community-oriented efficiently, skills in essential public health nutrition services must be current.

Studies indicate that public health nutrition personnel report being not well prepared in key public health nutrition competencies (5,9-11). A 1995 WIC Nutrition Needs Assessment Survey for the Mid Atlantic Region identified several population-based competencies as high priorities for training and skill development (10). ADA Public Health Nutrition Practice Group members also rated themselves lowest in public health nutrition competencies compared to other nutrition competencies (11). Moreover, a 1994 ASTPHND survey indicated that for those who classified themselves as public health nutritionists, 26.5% had any type of graduate degree, while only 7.1% had a graduate degree in public health nutrition or with public health nutrition coursework (5). The need for public health nutrition focused continuing education is apparent for the effective delivery of essential services.

Public health nutrition programs have struggled with the issue of turnover and sought to determine strategies to improve retention (12). Components that predict turnover have not been well researched in public health nutrition, but have been explored in other areas. Education and training of staff are associated with turnover and have been included in models to predict turnover in nursing and factory settings (13-14). Providing staff opportunity for achievement and advancement through continuing education influences motivation and retention (13,15). Increasing

confidence through skill development and providing increased responsibility promotes retention and decreases turnover (14,16).

Fishbein and Ajzen's Theory of Reasoned Action (17) has been applied to predict turnover, because it assesses the relationship between attitudes toward a behavior and intent to perform that behavior, which in turn can be used to predict behavior. This theory has been applied to develop models to determine, for example, dropout from school (18) and attrition from a weight loss program (19).

To address continuing education needs and to improve retention in WIC, the Virginia Department of Health received funding from the US Department of Agriculture in 1997 to plan, implement and evaluate a distance education course for WIC nutrition professionals in three states and the District of Columbia focused on community-based nutrition planning: *Moving to the Future: Building Community-Based Nutrition Services.* The continuing education used a mixed model approach, including live one-way video and two-way audio conferencing followed by small group discussion and activities at local sites, and consisted of five one-day sessions over a nine-month period. Attainment of course objectives and satisfaction were evaluated at baseline and after each session. A follow up evaluation of course satisfaction and issues related to retention in WIC was administered six months after completion of the last session.

The purpose of the research described here was to develop and test a model to determine factors associated with intent to continue working in WIC and to use the community-based nutrition skills learned in the course using a case-study approach.

METHODS

Subjects

Subjects for the entire continuing education program included local, regional and state nutrition professionals from participating states/jurisdictions (Virginia, West Virginia, Wisconsin and the District of Columbia) who were invited and volunteered to take the course. Subjects for this research about retention included only those who completed a baseline questionnaire for demographic characteristics, worked in WIC at the beginning of the course, and completed at least one course session.

Proposed Model

A theoretical model was developed using Fishbein and Ajzen's Theory of Reasoned Action (17) and Bean (18) and Pratt's (19) models about retention (Figure 1). The model included four components proposed to produce variations in retention: WIC attitudes, two personal variables (motivation and self-assurance) and environmental variables related to work in WIC. WIC attitudes refers to the degree to which the nutrition professional believes WIC is the appropriate place to use skills taught in the course. The two personal variables, motivation and self-assurance,

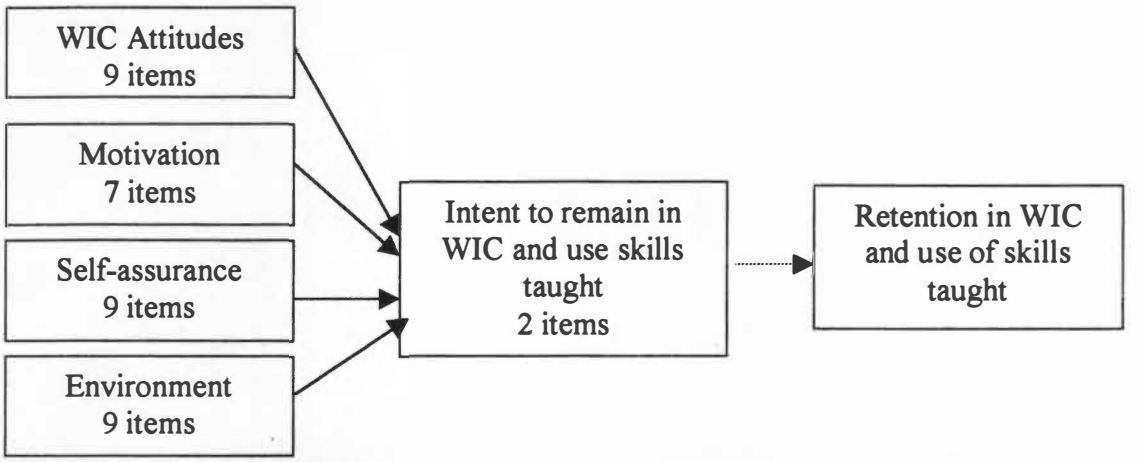


Figure 1. Proposed Model to Predict Intent to Remain in WIC and Use Course Skills

concern the degree to which the nutritionist is motivated to use these skills and believes s/he can perform them. Environmental variables concern the work environment and the nutritionist's belief that there is support by supervisors and peers, for example, to use the skills. It was hypothesized that each of the components of the model would relate to intent to remain in WIC and to use the course skills. The best predictor of retention in WIC and use of course skills is intent (17). Therefore, retention was predicted indirectly through intent.

Instrument

To test the model a list of 56 items was generated to address each of the four components. Items used by Bean (18) and Pratt (19) served as a basis for generating

these items. To establish face validity for each variable, Q-sort methodology was utilized (20) by 11 WIC employees, public health nutrition graduate students and nutrition professors not associated with the project. Individuals sorted items, each listed on separate cards, into one of five categories, including variables from the model (WIC attitudes, motivation, self-assurance and environment), and a "dummy" variable about continuing education. If items did not appear to belong in any of the categories, they were discarded.

The Q-sort resulted in 34 items for the four components of the model. These items were compiled in an instrument that used a Likert scale of 1 to 5 (1=strongly disagree to 5=strongly agree). Five questions addressed retention issues. Two categorical items measured intent to remain in WIC and use course skills: in general and within a year. Theses two time frames were selected to accommodate intentions in general and in a specific period of time. Three items were used to determine the degree to which the course impacted perceptions about working in WIC, using a Likert scale of 1 to 5 (1=not at all to 5=a lot). Demographic data collected at baseline were used to describe the sample.

To establish face validity of the final instrument, formative review was provided by the overall project's evaluation team, who reviewed the instrument for relevance and clarity. Revisions were made accordingly based on input from these team members who represented the jurisdictions involved in the project.

The instrument was revised again, including some rewording of items, following a pilot test with 19 Registered Dietitians who worked in WIC or were familiar with WIC, but were not involved in the project (Appendix A).

Administration

The instrument was administered by mail to participants using a modified Dillman (21) procedure. Participants who completed a baseline questionnaire received an initial mailing (cover letter, survey and self-addressed envelope) six months after the last course session. Two weeks later a second mailing (cover letter, survey and self-addressed envelope) was sent to non-respondents who completed a baseline and attended at least three sessions. Three weeks after the initial mailing, non-respondents who had completed a baseline received a reminder letter. The University of Tennessee's Office of Research Administration and the Virginia Department of Health approved this research for use with human subjects.

Statistical Analysis

Data from returned surveys were double entered and verified and statistically analyzed using the Statistical Analysis System (version 6, 1990, SAS Institute, Cary NC). Participant identification numbers were matched from baseline to six-month evaluation to provide data for descriptive statistics. Frequency distribution for intent to remain employed in WIC and use course skills and means with standard deviation

for items relating to the impact the course had on participant's attitudes about employment in WIC were determined.

Principal component analysis was used to reduce reported scores from the 34 items about attitudes related to using course skills developed from the model and to group those scores into related components or factors. Each item was tested for reliability using the Cronbach Alpha statistic. Items with loading values greater than 0.400 were initially accepted. However, accepted items that loaded on more than one component were dropped. Therefore, the final loading value for acceptance was set at 0.600 (22). Scree plot and component interpretability were used to determine the optimal number of components to extract.

Logistic regression was used to determine the ability of the components to predict intent to remain in WIC and to use course skills. Two dichotomous variables were created to classify participants as those who intend to remain in WIC versus those who do not intend to stay in WIC, and those who intend to use course skills versus those who do not intend to use course skills.

Spearman's correlation coefficient analyzed the strength of the association between each component and the questions relating to the impact the course had on participants' perception about employment in WIC.

RESULTS

Demographics

Of the 169 participants completing a baseline evaluation and at least one course session, 111 completed and returned a follow-up evaluation, for a 65% response rate. Of the respondents, 93 (84%) met the selection criteria and, therefore, are the focus of the remaining results and discussion. The majority (61%) of respondents were registered dietitians (RD) and licensed in their state (53%). Most respondents worked in health departments (65%) in both direct care and administration (46%). About 50% had a Bachelor's degree. On average respondents had worked in dietetics over 12 years and in WIC almost 9 years (Table 1).

Course Skills Components: Attitudes about Using the Course Skills in WIC

Four components accounting for 69% of the total variance were extracted. These components were examined and named based on common themes within the components (Table 2). The first component, Self-assurance, consisted of 11 items relating to the participant's confidence in using course skills. Component 2, WIC Attitudes, was comprised of 6 items relating to the participant's belief that WIC is the appropriate setting to use course skills. The Environment, component 3, consisted of 5 items that represent the social and physical support available to use course skills. Component 4, Consequences, contained 2 items representing beliefs about outcomes

Table 1
Characteristics of Respondents

Characteristics	Respondents (n=93)	
	No.	%[a]
State		
Wisconsin	45	48.4
Virginia	31	33.3
West Virginia	12	12.9
Washington DC	5	5.4
Community		
Rural	43	49.4
Urban	30	34.5
Suburban	14	16.1
Agency		
Health Department	59	64.8
Community health center and/or primary care center	13	14.3
Community action agency or program	6	6.6
Human Services	3	3.3
Other	10	11.0
Position		
Both direct care and administration	42	46.2
Direct Care	37	40.7
Administration	8	8.8
Consultant	4	4.4
Education		
Bachelor's degree	45	49.5
Master's degree	29	31.8
Some graduate school	15	16.5
Some college	1	1.1
Doctoral degree	1	1.1

Table 1 (continued)

Credentials		
Registered Dietitian (RD)	57	61.3
Licensed or Certified Nutritionist or Dietitian	49	52.7
RD-eligible	4	4.3
International Board Certified Lactation Consultant (IBCLC)	4	4.3
Registered Nurse (RN)	2	2.2
Certified Family and Consumer Scientist (CFCS)	1	1.1
No credentials	16	17.2
Other	19	20.4
Salary (expressed as one full-time equivalent (FTE))		
Less than $15,000	2	2.2
$15,000-$20,000	2	2.2
$20,001-$25,000	8	8.8
$25,001-$30,000	22	24.2
$30,001-$40,000	47	51.5
$40,001-$45,000	9	9.9
$45,001-$50,000	1	1.1
$More then $50,000		

	Mean ± SD
Years in Dietetics	12.4±7.3 (n=90)
Years in WIC	8.6±5.7 (n=86)

[a]Percentages may not total 100% in each row due to lack of response to some items.

Table 2
Attitudes Related to Working in WIC and Using Course Skills Components and Factor Loadings

Component	Factor Loadings
Self Assurance (Component 1)	
I think I could be an effective group facilitator for this course.	0.801
I could do a good job as a resource person the next time this course is offered.	0.785
I think I could convince health professional of the benefits of community based nutrition programming.	0.772
If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	0.767
I think I could do an effective job in community based nutrition programming.	0.748
I feel confident about my ability to perform the skills taught in this course.	0.713
I would like to share what I have learned with others.	0.680
I would like to try skills taught in this course on my job.	0.671
I can perform the skills taught in this course.	0.667
The skills taught in this course would enhance satisfaction with my job.	0.606
I want to use the skill taught in this course.	0.605
WIC Attitudes (Component 2)	
Community-based nutrition programming is appropriate for WIC.	0.856
WIC is an appropriate program for incorporating community based nutrition programs.	0.814
Individual nutrition education is appropriate for WIC.	0.772
It is important to use the skill taught in this course in WIC.	0.752
The skills taught in this course would be applied very well in WIC.	0.719
I would like to see the WIC program incorporate community based nutrition programming.	0.629
Environment (Component 3)	
My supervisor is open to applying new ideas in our program.	0.840
My supervisor would be willing to allow me to use the skills taught in this course.	0.790

My supervisor wants me to use the skills taught in this course.	0.776
My work environment is flexible enough to allow me to use what I've learned in this course.	0.715

Table 2 (continued)

I have the support of my peers to perform the skills taught in this course.	0.640
Consequences (Component 4)	
Using the skills taught in this course may lead to a pay increase.	0.606
The WIC program should be changed to focus on community based nutrition programming.	0.603

of using course skills. Eigenvalues for each of the four final components were 8.15, 5.96, 4.77 and 4.44 accounting for 24%, 18%, 14% and 13% of the variance after rotation, respectively. Cronbach's Alpha, used to assess the reliability of the items, was 0.96.

Components and Intent to Remain Employed in WIC and Use Course Skills

The majority of participants intended to remain in WIC and use course skills (72%) and over 85% of participants intended to remain in WIC regardless of intent to use skills (Table 3). Similarly, almost 72% of participants planned to remain in WIC one year from the six-month follow-up and use course skills.

Components and Relationship to Course as an Employment Incentive and to Satisfaction with Working in WIC

Participants indicated the course did not prompt them to seek employment outside of WIC (Table 4). The course itself did not appear to be an incentive to remain in WIC and did not change satisfaction with working in WIC, since the mean scores were about 2.5 and 2.4, respectively. However, statistical analysis demonstrated positive correlations for the course as an incentive to remain employed in WIC and WIC Attitudes (Factor 2), Environment (Factor 3), and Consequences (Factor 4). Similarly, responses to the extent the course changed satisfaction with working in WIC were positively correlated with WIC Attitudes, Environment and

Table 3
Intent to Remain in WIC and Use the Course Skills, Frequencies

Intent		Frequency (%)	
To Stay in WIC	**To Use Course Skills**	**In General** (n=93)	**One Year** (n=92)
No	No	3.2	4.4
No	Yes	10.8	8.7
Yes	No	14.0	15.2
Yes	Yes	72.0	71.7

Table 4
Participants' Response to Course as an Employment Incentive and Satisfaction with working in WIC

Question	Mean (SD)	n
To what extent was the course a positive incentive to remain employed in WIC?	2.5 (1.3)	92
To what extent did the course change how satisfied you are working in WIC?	2.4 (1.2)	92
To what extent did the course prompt you to seek new job opportunities outside of WIC?	1.8 (1.1)	91

1=not at all, 5=a lot

Consequences (Table 5). These significant relationships, however, were only fair, accounting for only 6% to 25% of the variance.

Relationship of Components in Predicting Intent to Use Skills and Stay in WIC

T-tests were performed to determine differences in responses between participants who planned to remain in WIC and those who did not, and between participants who planned to use skills and those who did not (Appendix B). Significant differences ($p<.05$) were found between those who planned to use skills and those who did not in 26 of the 34 items for participants who plan to use skills and

Table 5
Correlation Between Components and Course as an Employment Incentive and Satisfaction with Working in WIC

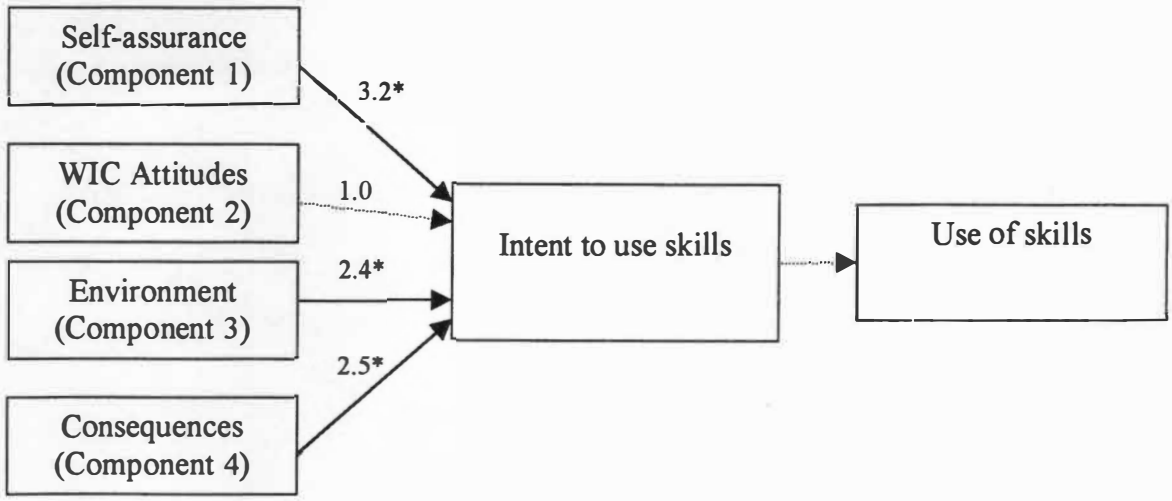
Participants' Response	Spearman Correlation Coefficients (r^2) (n=80)			
	Self-assurance	**WIC Attitudes**	**Environment**	**Consequences**
Extent course an incentive to remain employed in WIC	0.0989 (.010)	0.2508* (.063)	0.2200* (.049)	0.4933* (.243)
Extent course changed how satisfied with working in WIC	0.1432 (.020)	0.2382* (.057)	0.3271* (.107)	0.4957* (.246)
Extent course prompted to seek new job opportunities	-0.0595 (.004)	-0.0004 (0)	0.0228 (0)	0.1399 (.020)

*$P \leq .05$

27 of the 34 items for participants who plan to use skills in one year, but not between those who planned to stay and those who did not. Differences were found in 7 of the 34 items for those who plan to remain in WIC and 8 of the 34 items for those who plan to remain in WIC one year. This supported continuation of the analysis with intent to use skills as the outcome variable.

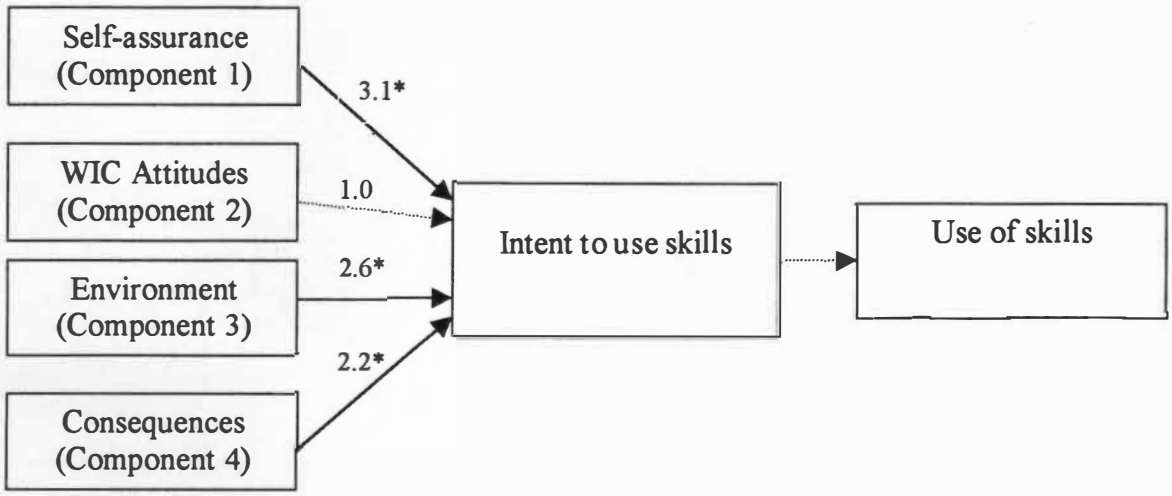
The models with intent to use skills and intent to use skills in one year as the outcome variables explained 40% and 39% of the variance, respectively. Hosmer and Lemeshow's Goodness of Fit tests the null hypothesis that there is no difference between the observed and the model to predict values of the dependent variable, or intent. Therefore, if the test statistic is significant, then the null hypothesis cannot be rejected. The goodness of fit test statistic indicated that for intent to use skills and intent to use skills in one year as the outcome variables, the model's estimates fit the data at an acceptable level (P=0.69 and P=0.97, respectively).

The likelihood ratio and score test the global null hypothesis (BETA=0), where the null hypothesis is that explanatory variables have regression coefficients of zero. For intent to use skills and intent to use skills in one year, the likelihood ratio and score provided evidence that at least one of the regression coefficients for the components was not zero (Figure 2). The odds of using skills taught in the course, in general and in one year, increased significantly with Self-assurance (P=0.004 and P=0.004, respectively), Environment (P=0.020 and P=0.008, respectively) and Consequences (P= 0.014 and P=0.003, respectively) (Figure 2).



Liklihood ratio (P=0.0002) and score (P=0.0003)
*P≤.05
n=81

Intent to use Skills
(in one year)



Liklihood ratio (P=0.0001) and score (P=0.0003)
*P≤.05
n=80

Figure 2. Odds Ratios of Components to Predict Intent to Use Skills and Intent to Use Skills in One Year

The models with intent to remain in WIC and intent to remain in WIC one year as outcome variables were not significant for any of the components. This was expected based on the results of the t-tests.

DISCUSSION

This research tested a model to assess factors affecting intent to remain working in WIC and to use skills taught in a continuing education course about community-based nutrition programming. Principal component analysis yielded four components: Self-assurance, WIC attitudes, Environment and Consequences. Intent to use skills could be predicted by Self-assurance, Environment, and Consequences. WIC Attitudes, Environment and Consequences, were positively associated with participants' report of the course as an incentive to remain in WIC and satisfaction with working in WIC. This model is similar to Pratt's model (19) whose components included social support, self-assurance and perceived importance. Bean's model (18) included components that were similar, but specific to student attrition. This model differs from previous models because it is specific to WIC nutrition professionals and the continuing education taught in this project.

The findings for retention in WIC and use of course skills were similar whether participants reported in the general time frame or one year time frame. This might be expected considering longevity of these personnel in WIC. It would be

important to keep this in mind when applying the model to other personnel, such as, those who are entry-level.

Despite indications of difficulties with retention of employees in WIC (12), the majority of participants indicated they intended to remain employed in WIC. They reported the course was not an incentive to remain employed in WIC and did not change their job satisfaction. Of note is their report that the course also did not prompt them to seek new job opportunities outside of WIC. These findings must be tempered with the finding that these personnel had worked in WIC over eight years on average. Other research suggests that continuing education that provides employees with additional responsibility and opportunity for advancement increases satisfaction and is an incentive to remain employed (13-15). In contrast, this study found no course components were predictive of intention to remain in WIC. This may be because the course participants had not been assured or given additional responsibility or opportunity. It is important to note that participants reported that the course did not cause dissatisfaction with working in WIC, which might be of concern if participants gained skills they thought they would be unable to use in their work environment. These results, again, are likely given the finding that participants had worked in WIC, on average, over 8 years and may have already been satisfied with their work and plan to remain in WIC, regardless of the training they receive.

The most desirable outcome of a continuing education program is for participants to use skills taught in the course on their jobs. The model developed in

this study demonstrated that participants intend to use course skills when they have confidence in using the skills, a supportive social and physical environment and the belief that use of the skills can impact future consequences. Those who choose continuing education programs can assure that skills are used by examining the work environment to determine if these components are present.

Correlation analysis revealed positive correlations for course components and certain aspects related to working in WIC. There was a positive relationship between participants who responded that WIC was the appropriate place to use course skills, had the support to use skills and perceived consequences of using those skills, and the course as an incentive to remain in WIC and change in satisfaction with working in WIC. These findings demonstrate the importance of considering the work environment when planning and implementing continuing education programs.

Several facts provide valuable insight when interpreting results found in this study. The majority of participants worked in administration (46% in both administration and direct care, 9% in administration only) and worked an average of almost 9 years in WIC. These professionals already had a commitment to WIC and therefore, the continuing education course might have little impact on their intent to remain in WIC. Future research could investigate differences that might occur among personnel with longevity in WIC compared to those who are new to WIC. Continuing education directed at WIC professionals in direct care who have worked in WIC for a shorter period of time may impact retention.

It is important to note that the course occurred over a 9-month period and with follow-up 6 months after conclusion of the final session. During this 15-month period, those who were dissatisfied may have left WIC. Despite follow-up with non-respondents it is not known if any non-respondents no longer worked in WIC. Developing a system to more effectively track participants who have left the job would provide valuable insight into retention issues.

Further research into continuing education components may reveal an association with retention. Additional follow-up could provide insight into the degree the course impacted job opportunities and responsibilities and therefore, retention. Continuing education is an important component of maintaining and retaining adequately prepared and satisfied employees. Retaining employees positively impacts the organization by improving morale and controlling costs. Discovering components associated with these issues can provide valuable information in planning and implementing continuing education programs and in improving retention of professionals.

Limitations

Results of this study must be viewed within the context of certain limitations. Retention is a complex issue, influenced by a number of factors, both internal and external. This study focused specifically on components related to a continuing education course and did not attempt to address the multitude of other influences on

retention (14). These components may exert a greater influence on retention for some individuals than continuing education can overcome. Thus, effect of continuing education must be considered as one portion of a larger concept of retention.

Results of this study are only useful for groups with similar characteristics because they are specific for the particular continuing education course and the WIC nutrition professionals who volunteered to complete it. Self-selection is an important consideration when studying retention. Moreover, it would be important to validate the findings with other groups, such as, entry-level personnel, and in a pretest/posttest experimental design with appropriate control groups (23). Nevertheless, the results are valuable not only for identifying a model to predict retention and use of skills taught, but also for providing information program directors may consider when encouraging and supporting personnel to seek continuing education opportunities.

APPLICATION

This model can be adapted by dietetic professionals to other continuing education programs to analyze intent to use course skills and retention. Also, professionals can use this model to plan and implement continuing education programs by assuring the program is applicable to participants' jobs, the environment allows use of learned skills and participants believe there are positive consequences for using course skills.

The *Moving to the Future* course to train public health nutrition professionals in community-based nutrition programming has the potential to increase community-based nutrition competencies and to promote use of course skills. Participants who have a supportive environment and can apply skills to their job are likely to use course skills and therefore, support a smooth transition to a population/systems focus in public health nutrition programs.

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REFERENCES

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APPENDICES

APPENDIX B

SIX-MONTH ASSESSMENT

Moving to the Future: Building Community-Based Nutrition Services

Six-Month Assessment

This six-month assessment will help us assure that this course met its objectives. It is not an evaluation or test of you! It is, however, an assessment of the course itself. Thanks for completing it

To help us maintain confidentiality and give you a unique identifier, please use the spaces below to record the first two letters of the month you were born, followed by the last two digits of the year you were born, and followed by the last four digits of your social security number

For example, if you were born in February of 1970 and your social security number was 999-99-1678, then you would record: F E 7 0 1 6 7 8.

Your unique identifier is:

__ __ __ __ __ __ __ __

I. Relationship of this Course to Jobs and Community-Based Nutrition Programming

The following is a list of statements about the relationship of this course to community-based nutrition programming, WIC, and your job.

Please blacken the appropriate circle to indicate whether you agree or disagree. The rating scale is 1 = strongly disagree and 5 = strongly agree. Please be candid when responding.

	Strongly Disagree				Strongly Agree
1. Individual nutrition education is appropriate for WIC.	①	②	③	④	⑤
2. Community-based nutrition programming is appropriate for WIC.	①	②	③	④	⑤
3. It is important to use the skills taught in this course in WIC.	①	②	③	④	⑤
4. WIC is an appropriate program for incorporating community based nutrition programs.	①	②	③	④	⑤
5. The skills taught in this course would be applied very well in WIC.	①	②	③	④	⑤
6. I can perform the skills taught in this course.	①	②	③	④	⑤
7. I feel confident about my ability to perform the skills taught in this course.	①	②	③	④	⑤
8. I think I could be an effective group facilitator for this course.	①	②	③	④	⑤
9. I think I could convince health professionals of the benefits of community based nutrition programming.	①	②	③	④	⑤
10. Using the skills taught in this course may lead to a pay increase.	①	②	③	④	⑤
11. My job will be improved with the use of skills taught in this course.	①	②	③	④	⑤
12. I would like to share what I have learned with others.	①	②	③	④	⑤

	Strongly Disagree				Strongly Agree
13. I would like to see the WIC program incorporate community based nutrition programming.	①	②	③	④	⑤
14. I'm excited about using what I've learned in this course.	①	②	③	④	⑤
15. The WIC program should be changed to focus on community based nutrition programming.	①	②	③	④	⑤
16. I have the support of my peers to perform the skills taught in this course.	①	②	③	④	⑤
17. I am certain that WIC is the right place to use the skills taught in this course.	①	②	③	④	⑤
18. My supervisor would be willing to allow me to use the skills taught in this course.	①	②	③	④	⑤
19. I think I could do an effective job in community based nutrition programming.	①	②	③	④	⑤
20. My peers are willing to cover for me if I perform other tasks.	①	②	③	④	⑤
21. My supervisor is open to applying new ideas in our program.	①	②	③	④	⑤
22. If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	①	②	③	④	⑤
23. I will feel more fulfilled if I use the skills taught in this course.	①	②	③	④	⑤
24. The WIC guidelines allow for use of community based nutrition programming.	①	②	③	④	⑤
25. I want to use the skills taught in this course.	①	②	③	④	⑤
26. I have access to information via computer, Internet or library to use the skills taught in this course.	①	②	③	④	⑤

	Strongly Disagree				Strongly Agree
27. I would like to try skills taught in this course on my job.	①	②	③	④	⑤
28. My peers cooperate with others who want to try new ideas.	①	②	③	④	⑤
29. I could do a good job as a resource person the next time this course is offered.	①	②	③	④	⑤
30. My supervisor wants me to use the skills taught in this course.	①	②	③	④	⑤
31. My work environment is flexible enough to allow me to use what I've learned in this course.	①	②	③	④	⑤
32. WIC is an appropriate place to use the skills that were the focus of this course.	①	②	③	④	⑤
33. The skills taught in this course would enhance satisfaction with my job.	①	②	③	④	⑤
34. I cannot wait to use what I have learned in this course.	①	②	③	④	⑤

Please answer each of the following questions by blackening the appropriate circle. Please be candid when responding.

35. Have you identified a potential funding source(s) for a grant proposal since completing this course?

① No. -------> Please continue to question 37.
② Yes. ------> Please continue to question 36.

36. If you answered "yes," then how many potential funding sources did you identify?
_____ (insert the number)

37. Have you prepared or helped prepare a grant proposal since completing this course?

① Yes, I prepared a grant proposal and it is funded.
② Yes, I prepared a grant proposal and it is submitted.
③ Yes, I prepared a grant proposal and I am waiting to submit it.
④ Yes, I am preparing a grant proposal at this time.
⑤ No, I did not prepare a grant proposal.

38. Have you become involved in a new WIC-community partnership for nutrition education in your community since completing this course?

① No. -------> Please continue to question 40.
② Yes. -----> Please continue to question 39.

39. If you answered "yes," then how many new WIC-community partnerships did you become involved in?
_____ (insert the number)

40. Have you collected data about what your community or target population perceives as its problems and assets since completing this course?

① Yes, I collected data and analyzed the results.
② Yes, I collected data and I am analyzing the result currently.
③ Yes, but I am in the process of collecting data now.
④ No, but I am analyzing the results of data collected prior to this course.
⑤ No, I did not collect or analyze any data.

41. Do you intend to remain working in WIC using the skills taught in this course?
① I do not intend to continue working in WIC and I do not intend to use these skills.
② I do not intend to continue working in WIC, but I do intend to use these skills.
③ I do intend to continue working in WIC, but I do not intend to use these skills.
④ I do intend to continue working in WIC and I do intend to use these skills.

42. Do you intend to be working in WIC <u>one year from now</u> using the skills taught in this course?
① I do not intend to be working in WIC one year from now and I do not intend to use these skills.
② I do not intend to be working in WIC one year from now, but I do intend to use these skills.
③ I do intend to be working in WIC one year from now, but I do not intend to use these skills.
④ I do intend to be working in WIC one year from now and I do intend to use these skills.

For each of the following questions, please blacken the circle that best describes how the *Moving to the Future* course changed how you feel about working in WIC.

43. To what extent was the *Moving to the Future* course a positive incentive to remain employed as a WIC nutrition professional?

Not at all				A lot
①	②	③	④	⑤

44. To what extent did the *Moving to the Future* course change how satisfied you are working in WIC?

Not at all				A lot
①	②	③	④	⑤

45. To what extent did the *Moving to the Future* course prompt you to seek new job opportunities outside of WIC?

Not at all				A lot
①	②	③	④	⑤

II. Satisfaction with Course and Contribution to Learning

We want to know how satisfied you are with the *Moving to the Future* course. Please describe how satisfied you are with the course overall by blackening the appropriate circle.

	Level of Satisfaction				
	Very Dissatisfied				Very Satisfied
46. Course content	①	②	③	④	⑤
47. Print materials	①	②	③	④	⑤
48. One-way live video conference	①	②	③	④	⑤
49. Two-way audio (call-in) portion of video conference	①	②	③	④	⑤
50. Local small group discussions/workshops	①	②	③	④	⑤
51. Assigned activities	①	②	③	④	⑤

	Level of Satisfaction				
	Very Dissatisfied				Very Satisfied
52. Quality of local facilities	①	②	③	④	⑤
53. Course overall	①	②	③	④	⑤

We want to know how well the *Moving to the Future* course contributed to your learning. Please describe how well each of the following portions of the course contributed by blackening the appropriate circle.

	Degree of Contribution				
	Not at all				A Lot
54. Print materials	①	②	③	④	⑤
55. One-way live video conference	①	②	③	④	⑤
56. Two-way audio (call-in) portion of video conference	①	②	③	④	⑤
57. Local small group discussions/workshops	①	②	③	④	⑤
58. Assigned activities	①	②	③	④	⑤
59. Local facilitator	①	②	③	④	⑤
60. Course overall	①	②	③	④	⑤

Thank you for your time completing this questionnaire. Please return it in the postage-paid envelope provided to:

Department of Nutrition - 108
College of Human Ecology
University of Tennessee
2317 Volunteer Blvd.
Knoxville, TN 37916-9989

APPENDIX B

T-TESTS FOR INSTRUMENT ITEMS

Appendix B

Intent to Use Skills

Differences between those who intend to use course skills and those who do not: responses to questionnaire items.

Items	Mean Responses to Statements		
	Intend to Use	Do Not Intend to Use	t-value
1. Individual nutrition education is appropriate for WIC.	4.5±1.0	4.6±0.8	0.4
2. Community-based nutrition programming is appropriate for WIC.	4.2±1.2	4.1±1.0	-0.2
3. It is important to use the skills taught in this course in WIC.	4.1±1.0	3.3±1.1	-2.7*
4. WIC is an appropriate program for incorporating community-based nutrition programs.	4.2±1.0	3.8±1.0	-1.8
5. The skills taught in this course would be applied very well in WIC.	4.0±1.0	2.9±1.0	-3.8*
6. I can perform the skills taught in this course.	4.0±0.8	3.4±1.0	-2.7*
7. I feel confident about my ability to perform the skills taught in this course.	4.0±0.9	3.2±1.0	-3.1*
8. I think I could be a good group facilitator for this course.	3.4±1.1	2.2±1.0	-3.9*
9. I think I could convince health professionals of the benefits of community-based nutrition programming.	3.6±0.9	2.9±1.0	-2.7*
10. Using the skills taught in this course may lead to a pay increase.	2.4±1.2	2.3±1.1	-0.5
11. My job will be improved with the use of skills taught in this course.	3.6±0.8	2.5±0.8	-5.0*
12. I would like to share what I have learned with others.	3.5±0.9	2.7±0.9	-3.5*
13. I would like to see the WIC program incorporate community based nutrition programming.	3.9±1.0	3.3±1.1	-2.4*
14. I'm excited about using what I've learned in this course.	3.6±0.9	2.4±0.9	-5.0*
15. The WIC program should be changed to focus on community based nutrition programming.	3.3±1.0	2.6±1.1	-2.5*
16. I have the support of my peers to perform the skills taught in this course.	3.4±1.0	2.4±1.0	-3.5*
17. I am certain that WIC is the right place to use the skills taught in this course.	3.5±1.0	2.5±0.8	-3.8*

18. My supervisor is willing to allow me to use the skills taught in this course.	3.8±1.0	2.9±1.0	-3.1*
19. I think I could do an effective job in community-based nutrition programming.	3.8±0.7	3.2±1.1	-3.0*
20. My peers are willing to cover for me if I perform other tasks.	2.8±1.0	1.8±1.0	-3.5*
21. My supervisor is open to applying new ideas in our program.	3.6±1.2	3.3±1.5	-1.0
22. If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	4.0±0.8	3.1±1.2	-3.5*
23. I will feel more fulfilled if I use the skills taught in this course.	3.5±1.0	2.5±1.1	-3.4*
24. The WIC guidelines allow for use of community-based nutrition programming.	3.4±0.9	3.2±1.0	-0.6
25. I want to use the skills taught in this course.	3.7±1.0	2.9±1.1	-3.0*
26. I have access to information via computer, Internet or library to use the skills taught in this course.	3.9±1.1	3.3±1.2	-1.9
27. I would like to try skills taught in this course on my job.	3.8±0.9	2.7±1.0	-4.0*
28. My peers cooperate with others who want to try new ideas.	3.4±0.8	2.4±1.1	-4.0*
29. I could do a good job as a resource person the next time this course is offered.	3.2±1.0	2.3±0.9	-3.2*
30. My supervisor wants me to use the skills taught in this course.	3.3±1.1	2.4±0.9	-3.0*
31. My work environment is flexible enough to allow me to use what I've learned in this course.	3.0±1.1	2.0±0.8	-3.5*
32. WIC is an appropriate place to use the skills that were the focus of this course.	3.7±0.9	2.7±0.9	-3.6*
33. The skills taught in this course would enhance satisfaction with my job.	3.5±0.9	2.6±0.9	-3.4*
34. I cannot wait to use what I have learned in this course.	3.3±0.9	2.3±0.9	-3.7*

*$p<.05$

Intent to Use Skills in One Year

Differences between those who intend to use course skills in one year and those who do not: responses to questionnaire items.

Items	Mean Responses to Statements		
	Intend to Use	Do Not Intend to Use	t-value
1. Individual nutrition education is appropriate for WIC.	4.5±1.0	4.5±0.9	0.2
2. Community-based nutrition programming is appropriate for WIC.	4.2±1.1	4.0±1.1	-0.7
3. It is important to use the skills taught in this course in WIC.	4.1±1.0	3.2±1.2	-3.1*
4. WIC is an appropriate program for incorporating community-based nutrition programs.	4.3±1.0	3.6±1.0	-2.3*
5. The skills taught in this course would be applied very well in WIC.	4.0±1.0	2.9±1.1	-4.0*
6. I can perform the skills taught in this course.	4.1±0.8	3.3±1.0	-3.2*
7. I feel confident about my ability to perform the skills taught in this course.	4.0±0.9	3.2±0.9	-3.4*
8. I think I could be a good group facilitator for this course.	3.4±1.1	2.2±1.1	-4.0*
9. I think I could convince health professionals of the benefits of community-based nutrition programming.	3.6±0.9	2.8±1.0	-3.4*
10. Using the skills taught in this course may lead to a pay increase.	2.5±1.2	2.1±1.1	-1.1
11. My job will be improved with the use of skills taught in this course.	3.6±0.8	2.6±0.8	-5.0*
12. I would like to share what I have learned with others.	3.6±0.9	2.7±1.0	-3.5*
13. I would like to see the WIC program incorporate community based nutrition programming.	3.9±1.1	3.5±1.2	-1.4
14. I'm excited about using what I've learned in this course.	3.6±0.9	2.6±1.0	-4.2*
15. The WIC program should be changed to focus on community based nutrition programming.	3.2±0.9	2.9±1.2	-1.0
16. I have the support of my peers to perform the skills taught in this course.	3.4±1.0	2.4±1.0	-3.7*
17. I am certain that WIC is the right place to use the skills taught in this course.	3.5±1.0	2.6±0.9	-3.9*
18. My supervisor would be willing to allow me to use the skills taught in this course.	3.8±1.0	2.9±1.1	-3.0*

19. I think I could do an effective job in community-based nutrition programming.	3.8±0.7	3.2±1.1	-2.3*
20. My peers are willing to cover for me if I perform other tasks.	2.8±1.0	1.7±1.0	-4.3*
21. My supervisor is open to applying new ideas in our program.	3.7±1.1	3.3±1.6	-1.0
22. If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	4.0±0.8	3.2±1.2	-2.8*
23. I will feel more fulfilled if I use the skills taught in this course.	3.5±1.0	2.6±1.2	-3.3*
24. The WIC guidelines allow for use of community-based nutrition programming.	3.4±0.9	3.1±1.0	-1.4
25. I want to use the skills taught in this course.	3.7±1.0	3.0±1.0	-2.9*
26. I have access to information via computer, Internet or library to use the skills taught in this course.	3.9±1.1	3.4±1.1	-1.7*
27. I would like to try skills taught in this course on my job.	3.8±0.9	2.8±1.0	-3.8*
28. My peers cooperate with others who want to try new ideas.	3.4±0.8	2.5±1.3	-2.7*
29. I could do a good job as a resource person the next time this course is offered.	3.2±1.0	2.4±1.0	-3.0*
30. My supervisor wants me to use the skills taught in this course.	3.3±1.0	2.4±1.0	-3.2*
31. My work environment is flexible enough to allow me to use what I've learned in this course.	3.1±1.1	2.0±0.8	-4.1*
32. WIC is an appropriate place to use the skills that were the focus of this course.	3.7±0.9	2.8±0.9	-3.4*
33. The skills taught in this course would enhance satisfaction with my job.	3.5±1.0	2.7±0.9	-3.1*
34. I cannot wait to use what I have learned in this course.	3.3±0.9	2.4±0.9	-3.5*

*$p<.05$

Intent to Remain in WIC

Differences between those who intend to remain in WIC and those who do not: responses to questionnaire items.

Items	Mean Responses to Statements		
	Intend to Remain in WIC	Do Not Intend to Remain in WIC	t-value
1. Individual nutrition education is appropriate for WIC.	4.4±1.1	4.8±0.4	2.0*
2. Community-based nutrition programming is appropriate for WIC.	4.1±1.2	4.8±0.4	3.9*
3. It is important to use the skills taught in this course in WIC.	3.9±1.1	4.5±0.5	3.5*
4. WIC is an appropriate program for incorporating community-based nutrition programs.	4.1±1.0	4.4±0.5	1.5
5. The skills taught in this course would be applied very well in WIC.	3.8±1.2	4.2±0.6	2.3*
6. I can perform the skills taught in this course.	3.9±0.9	4.3±0.6	1.7
7. I feel confident about my ability to perform the skills taught in this course.	3.8±1.0	4.3±0.8	2.0
8. I think I could be a good group facilitator for this course.	3.1±1.2	3.6±1.0	1.5
9. I think I could convince health professionals of the benefits of community-based nutrition programming.	3.4±1.0	3.7±0.5	1.7
10. Using the skills taught in this course may lead to a pay increase.	2.4±1.2	2.5±1.0	0.2
11. My job will be improved with the use of skills taught in this course.	3.4±1.0	3.7±0.5	1.9
12. I would like to share what I have learned with others.	3.4±1.0	3.7±0.5	2.0
13. I would like to see the WIC program incorporate community based nutrition programming.	3.7±1.1	4.3±0.5	3.1*
14. I'm excited about using what I've learned in this course.	3.3±1.0	3.8±0.7	1.6
15. The WIC program should be changed to focus on community based nutrition programming.	3.1±1.0	3.2±1.1	0.1
16. I have the support of my peers to perform the skills taught in this course.	3.2±1.1	3.4±0.9	0.7
17. I am certain that WIC is the right place to use the skills taught in this course.	3.3±1.1	3.5±0.5	1.4
18. My supervisor would be willing to allow me to use the skills taught in this course.	3.6±1.1	3.8±0.8	0.9

19. My peers are willing to cover for me if I perform other tasks.	3.7±0.8	4.0±0.7	1.3
20. My peers are willing to cover for me if I perform other tasks.	2.6±1.1	2.6±1.2	-0.1
21. My supervisor is open to applying new ideas in our program.	3.5±1.2	3.9±1.1	1.1
22. If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	3.8±1.0	4.1±0.6	2.1*
23. I will feel more fulfilled if I use the skills taught in this course.	3.3±1.1	3.5±1.0	0.6
24. The WIC guidelines allow for use of community-based nutrition programming.	3.3±0.9	3.8±0.8	1.7
25. I want to use the skills taught in this course.	3.6±1.1	3.9±0.6	1.8
26. I have access to information via computer, Internet or library to use the skills taught in this course.	3.8±1.1	3.9±1.0	0.4
27. I would like to try skills taught in this course on my job.	3.5±1.0	4.0±0.6	1.5
28. My peers cooperate with others who want to try new ideas.	3.3±0.9	2.9±1.0	-1.3
29. I could do a good job as a resource person the next time this course is offered.	3.0±1.0	3.3±1.0	0.7
30. My supervisor wants me to use the skills taught in this course.	3.1±1.1	3.5±0.8	1.3
31. My work environment is flexible enough to allow me to use what I've learned in this course.	2.9±1.1	2.8±1.1	-0.4
32. WIC is an appropriate place to use the skills that were the focus of this course.	3.5±1.0	3.8±0.6	1.4
33. The skills taught in this course would enhance satisfaction with my job.	3.3±1.0	3.7±0.7	1.6
34. I cannot wait to use what I have learned in this course.	3.0±1.0	3.6±0.5	3.0*

*$p<.05$

Intent to Remain in WIC One Year

Differences between those who intend to remain in WIC one year and those who do not: responses to questionnaire items.

Items	Mean Responses to Statements		
	Intend to Remain in WIC	Do Not Intend to Remain in WIC	t-value
1. Individual nutrition education is appropriate for WIC.	4.4±1.1	5.0±0.3	3.6*
2. Community-based nutrition programming is appropriate for WIC.	4.1±1.2	4.8±0.5	3.7*
3. It is important to use the skills taught in this course in WIC.	3.9±1.1	4.6±0.7	3.2*
4. WIC is an appropriate program for incorporating community-based nutrition programs.	4.1±1.0	4.4±0.7	1.0
5. The skills taught in this course would be applied very well in WIC.	3.7±1.1	4.3±0.7	2.7*
6. I can perform the skills taught in this course.	3.9±0.9	4.3±0.6	1.4
7. I feel confident about my ability to perform the skills taught in this course.	3.8±1.0	4.3±0.8	1.7
8. I think I could be a good group facilitator for this course.	3.0±1.2	3.8±1.0	2.0*
9. I think I could convince health professionals of the benefits of community-based nutrition programming.	3.4±1.0	3.8±0.5	2.2*
10. Using the skills taught in this course may lead to a pay increase.	2.4±1.2	2.5±1.0	0.4
11. My job will be improved with the use of skills taught in this course.	3.4±1.0	3.6±0.5	1.1
12. I would like to share what I have learned with others.	3.4±1.0	3.7±0.5	1.8
13. I would like to see the WIC program incorporate community based nutrition programming.	3.7±1.1	4.4±0.5	3.6*
14. I'm excited about using what I've learned in this course.	3.3±1.0	3.7±0.7	1.2
15. The WIC program should be changed to focus on community based nutrition programming.	3.1±1.0	3.5±0.9	1.5
16. I have the support of my peers to perform the skills taught in this course.	3.2±1.1	3.3±0.8	0.2
17. I am certain that WIC is the right place to use the skills taught in this course.	3.3±1.1	3.5±0.5	1.3
18. My supervisor would be willing to allow me to use the skills taught in this course.	3.6±1.1	3.8±0.8	0.5

19. My peers are willing to cover for me if I perform other tasks.	3.7±0.8	3.8±0.7	0.5
20. My peers are willing to cover for me if I perform other tasks.	2.6±1.1	2.7±1.2	0.1
21. My supervisor is open to applying new ideas in our program.	3.5±1.2	3.8±1.1	0.8
22. If my supervisor asked me to apply what I have learned in this course, I believe I could be successful.	3.7±1.0	4.2±0.6	2.1*
23. I will feel more fulfilled if I use the skills taught in this course.	3.3±1.1	3.3±1.0	-0.2
24. The WIC guidelines allow for use of community-based nutrition programming.	3.3±0.9	3.7±0.8	1.5
25. I want to use the skills taught in this course.	3.6±1.1	3.9±0.7	1.6
26. I have access to information via computer, Internet or library to use the skills taught in this course.	3.8±1.2	3.8±1.0	-0.1
27. I would like to try skills taught in this course on my job.	3.5±1.0	4.0±0.7	1.4
28. My peers cooperate with others who want to try new ideas.	3.3±0.9	3.0±1.0	-0.9
29. I could do a good job as a resource person the next time this course is offered.	3.0±1.0	3.2±1.0	0.4
30. My supervisor wants me to use the skills taught in this course.	3.1±1.1	3.4±0.7	1.1
31. My work environment is flexible enough to allow me to use what I've learned in this course.	2.9±1.1	2.8±1.0	-0.1
32. WIC is an appropriate place to use the skills that were the focus of this course.	3.5±1.0	3.8±0.6	1.1
33. The skills taught in this course would enhance satisfaction with my job.	3.3±1.0	3.5±0.5	1.1
34. I cannot wait to use what I have learned in this course.	3.1±1.0	3.5±0.5	2.0

*$p<.05$

VITA

VITA

Karen Wattenbarger (Bryson) was born in Moscow, Idaho in 1969. She attended school at McDonald Elementary until 1980 when her family moved to Bonners Ferry, Idaho. She graduated from Bonners Ferry High School in 1987. In 1987 she attended the University of Tennessee at Chattanooga and in 1988 entered the University of Idaho. Initially majoring in Psychology, she later applied and was accepted to the Coordinated Undergraduate Program in Dietetics. She graduated with a Bachelor's of Science Degree in Nutrition in 1992 and became a Registered Dietitian later that same year.

After graduation Karen began working with the WIC Program at West Central Community Center in Spokane, Washington. In 1993 she moved to Cleveland, Tennessee and began working as a clinical dietitian at Hutcheson Medical Center in Fort Oglethorpe, Georgia. She returned to the WIC Program in 1994, working for the Bradley County Health Department as a WIC Nutritionist and later for the Southeast Region Health Department as Breastfeeding Coordinator. She began work on her Master's Degree in Nutrition (Public Health Nutrition) in 1996 and left the WIC Program in 1997 to pursue academics full time.

In September of 1996 Karen became Mrs. Karen Bryson and in January of 1999 she became mother to Jenna Bryson. Presently she is a full time mother and wife.