

School Nutrition Directors are Receptive to Web-Based Training Opportunities: A National Survey

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Please note that this study was published before the implementation of Healthy, Hunger-Free Kids Act of 2010, which went into effect during the 2012-13 school year, and its provision for Smart Snacks Nutrition Standards for Competitive Food in Schools, implemented during the 2014-15 school year. As such, certain research may not be relevant today.

ABSTRACT

Purpose/Objective

The purpose of this study was to investigate school nutrition directors' (SNDs) previous experience with web-based training (WBT), interest in utilizing WBT within 14 functional areas, and logistical issues (time, price, educational credits, etc.) of developing and delivering WBT learning modules.

Methods

A survey was developed based on a previous qualitative study exploring SNDs opinions and perceived benefits and barriers regarding WBT. A random sample of 700 SNDs equally stratified by United States Department of Agriculture regions was used. Survey responses were analyzed using descriptive statistics, Chi-square and one-way ANOVA tests.

Results

A total of 210 (30%) usable surveys were returned with adequate representation of SNDs with varying educational achievement, certified/credentialed status, and geographical location. Although the majority (57%) of SNDs reported previous experience with WBT, experiences were mostly limited to basic tasks and relatively few SNDs had interacted with an instructor or earned education credits through WBT. Benefits of WBT outnumbered barriers. The most frequently identified benefits included completing the training at anytime, self-directed learning, not traveling, and financial savings. Barriers included technology issues or computer problems and lack of interaction with an instructor. In total, 95% of SNDs indicated they would participate in WBT. Forty-eight percent of SNDs indicated the importance of earning credits for WBT, while 45% of SNDs would complete WBT regardless of earning any type of credit. On a 5-point scale (1=very disinterested, 5=very interested), WBT interest ratings were above 3.4 for all functional areas. Although 83% of SNDs would complete WBT at work, there was uncertainty whether their organizations would provide workday release time to participate.

Applications to Child Nutrition Professionals

Overall interest and support for WBT is high among SNDs. If barriers and logistical concerns are properly considered, SNDs would participate in WBT to meet their individualized learning needs and to enhance their professional development.

INTRODUCTION

Due to the geographical dispersion and diverse learning needs of school nutrition directors (SNDs), supervisors and coordinators, developing practical, accessible, and affordable training opportunities to meet their needs is often difficult. Since SNDs function under a complex set of job responsibilities (Rainville & Carr, 2001), it is challenging to deliver timely and up-to-date training. Despite the debated disadvantages, on-line learning and Web-based training (WBT) have many advantages and have

emerged as mainstream modes of education (Allen & Searman, 2006; Block & Dobell, 1999; Cobb & Mueller, 1998; Jones & Fitzgibbon, 2002; Mills, Fisher, & Stair, 2001). Although WBT has experienced tremendous growth and has increased in popularity among learners, few online training opportunities targeting the specific learning needs and educational requirements of SNDs are available.

Prior to this study, one small qualitative survey explored the potential of developing WBT opportunities aimed at SNDs (Zoellner & Carr, 2008). In this formative study of 42 SNDs, the majority of SNDs had the technological infrastructure needed to support WBT, which included computer and Internet access both at work and at home. Although participation in WBT was relatively low, there was an overwhelmingly positive response regarding interest in WBT for both acquiring new knowledge and for practice activities. The SNDs identified substantially more benefits than barriers for WBT. Additionally, when asked to rate on a scale of 1 (*very disinterested*) to 5 (*very interested*) their interest in participating in WBT for 14 functional areas, the overall mean rating across all functional areas was 4.0. Results of this study indicated WBT has great potential of being a viable delivery method of timely and engaging training for SNDs.

Since developing, testing, and delivering WBT requires an enormous resource commitment, conducting a nationwide WBT needs assessment among a representative sample of SNDs is an important next step. Therefore, the primary aim of this national survey was to investigate SNDs' perceived interest in utilizing WBT within 14 functional areas and to explore logistical issues (time, price, educational credits, etc.) of developing and delivering WBT learning modules.

METHODOLOGY

Survey Instrument

Findings from the previous Zoellner and Carr (2008) qualitative study were used to develop the content for the survey instrument used in this study. The content of the survey developed for this research project consisted of five main sections:

- Experiences with and interests in WBT;
- Satisfaction level with ability to perform in 14 functional areas;
- Interest level in participating in WBT for 14 functional areas;
- Logistical issues related to completing WBT; and
- Demographics.

Face validity of the WBT survey instrument was established with a convenience sample of seven SNDs. These SNDs pilot tested the instrument and provided written feedback regarding the clarity of the questions and response categories, as well as the instruments' format, flow, and length. Several formatting modifications and a few wording changes were made as a result of the pilot test.

Study Design and Data Collection

This cross-sectional, descriptive study was approved by The University of Southern Mississippi's Institutional Review Board. The study sample was selected from the data base of school districts maintained by Market Data Retrieval, a company which specializes in the school market. A random sample totaling 700 SNDs was selected for this study. The sample was equally stratified by USDA region with all states represented. Each SND received three mailings: 1) a pre-notification letter sent approximately one week prior to the WBT survey; 2) the WBT survey with a postage-paid reply envelope; and 3) a reminder postcard sent approximately one week after the survey.

Data Analyses

Descriptive statistics including frequencies, means, and standard deviations (SD) were used to summarize all responses. Chi-square and one-way ANOVA tests were used to examine associations of demographic (education level, certified/credentialed status, number of years worked in school nutrition programs, and number of years in current position) and school (USDA region and school

size) characteristics with survey responses. Statistical significance is reported at $p < 0.05$. All statistical analyses were performed using SPSS version 15.0.

RESULTS AND DISCUSSION

Sample Characteristics

A total of 223 SNDs responded to the survey, for a response rate of 32%. Thirteen surveys were not used in the data analyses because respondents did not verify if they were a school nutrition director, supervisor, or coordinator, resulting in 210 analyzed surveys. The response rate from all seven USDA regions was similar within each region comprising approximately 11-17% of the total sample.

Characteristics of the SNDs, their schools, and their computer usage are shown in Table 1. Additionally, these SNDs reported working in school nutrition programs approximately 15.1 (SD = 6.7) years, while the average number of years in their current position was about 10.2 (SD = 7.1) years. Nearly all (99%) SNDs spent work time on the computer and most (80%) spent greater than 10 hours each week on the computer while at work.

Table 1. Characteristics of School Nutrition Directors, Their Schools, and Their Computer Use (n=210)

| Characteristic | Number (%) |
|---|------------|
| Level of Education ^a | |
| High school graduate or GED | 48 (23) |
| Associate degree | 35 (17) |
| Baccalaureate degree | 43 (21) |
| Some graduate credit | 30 (14) |
| Master's degree | 35 (17) |
| Graduate hours beyond master's | 8 (4) |
| Other | 4 (2) |
| Certified/Credentialed Status ^b | |
| Not certified | 76 (36) |
| State Department of Education certified | 32 (15) |
| SNA certified | 71 (34) |
| SNS credentialed | 30 (14) |
| Registered Dietitian | 32 (15) |

| Characteristic | Number (%) |
|--|-------------------|
| Student Enrollment | |
| 2,799 or less | 104 (50) |
| 2,800 to 9,999 | 65 (31) |
| 10,000 to 19,999 | 28 (13) |
| 20,000 or greater | 13 (6) |
| Hours Spent Each Week on the Computer While at Work | |
| 0 hours | 3 (1) |
| 1-5 hours | 25 (12) |
| 6-10 hours | 14 (7) |
| 11-15 hours | 39 (19) |
| 16-20 hours | 45 (21) |
| 21-25 hours | 40 (19) |
| Greater than 26 hours | 44 (21) |

^aNumbers do not add to 100% because of missing responses

^bNumbers do not add to 100% because of multiple response options

Web-Based Training: Experience, Benefits, and Barriers

The majority (57%) of SNDs reported some previous experience with WBT. However, the variety of experiences were mostly limited to basic tasks such as links to Web pages or documents (40%) and links to video and/or audio files (27%). Relatively fewer SNDs interacted with an instructor (25%) or other students (14%). Even fewer earned Continuing Education Units (CEUs) (14%) or college credits (10%) through WBT. Previous experience with WBT did not vary significantly by level of education, certified/credentialed status, number of years worked in school nutrition programs, or the number of years in current position. Similarly, previous WBT did not differ by school size or USDA region. These findings indicate that exposure to WBT is not limited to those with less experience or more formal education; rather, WBT opportunities are being sought after by a wide variety of SNDs. Furthermore, previous WBT experience is not limited to large schools or specific regions of the U.S.

In two separate closed-ended questions, SNDs were asked to indicate all perceived benefits and barriers applicable for completing WBT. The total frequency of benefits identified was 995, whereas the frequency of barriers identified was 712. The most frequently identified benefits of completing WBT included being able to complete the training at anytime of the day (85%); the ability to move at your own pace or self-directed learning (82%); not traveling to a training or conference site (75%); gaining knowledge or getting current information (60%); and financial savings (55%). The most commonly acknowledged barriers of completing WBT included technology issues or computer problems (46%); having the right software and/or hardware (42%); lack of interaction with an instructor (39%); trouble with on-site interruptions (33%); and delayed feedback to questions (33%).

Functional Areas: Perceived Satisfaction and Interest in Web-Based Training

Competent SNDs are expected to perform in 14 major functional areas (Rainville & Carr, 2001). Table 2 illustrates SNDs' satisfaction rating in their ability to perform under these 14 functional areas,

while Table 3 details their interest rating in participating in WBT for each functional area. These ratings did not differ significantly by SNDs' demographic or school characteristics.

Table 2. Satisfaction Ratinga for Ability to Perform by Functional Areas (n=210)

| Functional Areas | Mean^a | Standard Deviation |
|--|-------------------------|---------------------------|
| Sanitation, Food Safety and Employee Safety | 4.0 | 0.8 |
| Food Production | 4.0 | 0.7 |
| Procurement | 3.9 | 0.8 |
| General Management | 3.8 | 0.7 |
| Nutrition and Menu Planning | 3.8 | 0.9 |
| Financial Management and Record Keeping | 3.7 | 1.0 |
| Program Accountability | 3.6 | 0.9 |
| Customer Service | 3.6 | 0.9 |
| Personnel Management | 3.5 | 0.9 |
| Computer Technology | 3.3 | 0.9 |
| Facility Layout and Design and Equipment Selection | 3.2 | 1.0 |
| Marketing | 3.1 | 0.9 |
| Environmental Management | 3.0 | 0.9 |
| Nutrition Education | 2.9 | 1.0 |

^asatisfaction (1= very dissatisfied, 5=very satisfied)

Table 3. Interest Rating^a for Participating in Web-Based Training by Functional Areas (n=210)

| Functional Areas | Mean^a | Standard Deviation |
|---|-------------------------|---------------------------|
| Nutrition Education | 4.0 | 1.0 |
| Nutrition and Menu Planning | 3.9 | 1.0 |
| Sanitation, Food Safety and Employee Safety | 3.9 | 1.0 |
| Marketing | 3.9 | 1.1 |
| Program Accountability | 3.9 | 1.0 |

| | | |
|--|-----|-----|
| Personnel Management | 3.8 | 1.1 |
| Financial Management and Record Keeping | 3.8 | 1.1 |
| Food Production | 3.8 | 0.9 |
| Customer Service | 3.8 | 1.0 |
| Computer Technology | 3.7 | 1.1 |
| Facility Layout and Design and Equipment Selection | 3.7 | 1.1 |
| General Management | 3.6 | 1.1 |
| Procurement | 3.5 | 1.1 |
| Environmental Management | 3.4 | 1.1 |

^ainterest (1=*very disinterested*, 5= *very interested*)

The perceived performance satisfaction rating is an important finding, as no known national studies have examined SNDs' perceived abilities to perform in the established functional areas. These satisfaction ratings have implications beyond WBT and are important for all groups developing training tailored for SNDs. Although numerous conferences, workshops, and training pertaining to these 14 functional areas are available to SNDs, there is concern that a large majority of SNDs do not take full advantage of these traditional educational opportunities due to their geographical dispersion and diverse learning needs. In this nationally represented study, interest ratings in WBT ranked the highest for the following five functional areas: *Nutrition Education; Nutrition and Menu Planning; Sanitation, Food Safety and Employee Safety; Marketing; and Program Accountability*. Evidenced by the finding that interest rating mean scores for all functional areas were 3.4 or greater, overall support for WBT appears high.

In the previous small qualitative WBT study, SNDs reported the most important motivation for participation in WBT was that WBT topics must be relevant to their needs (Zoellner & Carr, 2008). Therefore, prioritizing WBT interest areas is a critical step in developing and marketing a successful WBT curriculum. In this previous pilot study, Financial Management and Record Keeping and Nutrition and Menu Planning received the overall highest priority scores. *Sanitation, Food Safety and Employee Safety, Nutrition Education, and Program Accountability* were also ranked high (Zoellner & Carr, 2008). The top functional areas in the present study are similar and *Marketing* also ranks among the highest areas of interest.

Logistical Issues for Web-Based Training

While determining experience, interest, and priority areas for WBT is extremely important, determining logistical issues related to developing and delivering WBT is equally as important. Several logistical issues including educational credits, time, and cost are displayed in Table 4. None of these logistical issues differed significantly by SNDs' demographic or school characteristics.

Table 4. Logistical Issues Related to Completing WBT (n=210)

| Logisital Issue | Number (%)^a |
|--|-------------------------------|
| Which of the following statements best describes you? | |
| I am willing to complete WBT regardless if I could earn CEUs or college credits. | 95 (45) |

| | |
|--|---------|
| I am most willing to complete WBT if I could earn CEUs. | 48 (23) |
| I am most willing to complete WBT if I could earn CEUs and college credits. | 39 (19) |
| I am most willing to complete WBT if I could earn college credits. | 12 (6) |
| I am unwilling to complete WBT. | 10 (5) |
| Which of the following is a reasonable amount of time you could spend AT ONE TIME on the computer completing a WBT lesson? | |
| 0 minutes - I am unwilling to complete WBT | 5 (2) |
| 1-15 minutes | 8 (4) |
| 16-30 minutes | 68 (32) |
| 31-45 minutes | 54 (26) |
| 46-60 minutes | 63 (30) |
| 61-90 minutes | 5 (2) |
| 91-120 minutes | 3 (1) |
| More than 120 minutes | 0 (0) |
| If you registered for a 1-hour CEU course to be completed via WBT, what is a reasonable amount of time to allow for completion of the training? | |
| Within 1 week of enrollment | 36 (17) |
| Within 2-3 weeks of enrollment | 81 (39) |
| Within 1 month of enrollment | 64 (31) |
| Within 2-3 months of enrollment | 9 (4) |
| Within 4-6 months of enrollment | 4 (2) |
| There should be no time limits set on completion of the training | 12 (6) |
| If you could complete a WBT lesson and earn a 1-hour CEU, what is a reasonable charge? | |
| \$0 - The CEU should be free. | 48 (23) |
| \$1-15 | 33 (16) |
| \$16-30 | 47 (22) |

| | |
|---|---------|
| \$31-45 | 35 (17) |
| \$46-60 | 29 (14) |
| \$61-90 | 5 (2) |
| \$91-120 | 3 (1) |
| More than \$120 | 0 (0) |
| How many CEUs would you be willing to complete via WBT in one year? (Choose only one.) | |
| 0 CEU hours | 15 (7) |
| 1-3 CEU hours | 59 (28) |
| 4-6 CEU hours | 86 (41) |
| 7-9 CEU hours | 6 (3) |
| 10 CEU hours or greater | 40 (19) |

^aNumbers do not add to 100% because of missing responses

It is important to discover that an overwhelming majority (95%) of SNDs indicated a willingness to utilize WBT. Several previous studies have indicated that Web-based or online instruction is not a frequently used or preferred mode of training, implying that participation in WBT may be low (Conklin, Lambert, & Lambert, 2005; Nettles & Carr, 2007; Sullivan, Harper, & West, 2002). However, the findings of this study indicate that only 5% of the SNDs would not engage in WBT.

Offering CEUs or college credits to SNDs for WBT courses produced a variety of responses; however, responses did not differ significantly by demographic characteristic. In total, 48% of SNDs indicated the importance of earning credits for WBT, including CEUs (23%), college credits (6%), or both CEUs and college credits (9%). Conversely, 45% of SNDs indicated they would complete WBT regardless of earning any type of credit. The assorted responses may be explained in part by the lack of designated education level or common continuing education requirement for SNDs. This finding presents challenges when trying to appeal to a wide audience base of SNDs, as there are large logistical and financial differences of offering on-line course for no credit versus CEU or college credit. However, one advantage of developing WBT is to customize the level of material and course requirements to offer flexible options for earning educational credits. This type of tailoring is often difficult to do in traditional group settings.

Most SNDs (94%) indicated that they could spend no more than 60 minutes at one time completing a WBT lesson. The SNDs indicated that the optimal amount of time to spend at one time completing WBT is approximately 37 minutes. The majority of SNDs (70%) indicated 2-4 weeks is a reasonable amount of time to complete a WBT lesson. The expense of WBT is also an important consideration, as nearly one-quarter of SNDs specified WBT should be offered at no charge. The overall reasonable cost per credit hour identified was about \$29.

Lastly, organizational assistance for traditional training versus WBT was examined based on financial support and workday release time associated with the training experience. Most SNDs (93%) indicated their organization provided financial support to attend traditional forms of training, while only 55% indicated organizational financial support to complete WBT. Only 1% of SNDs indicated that their organization would not allow workday release for traditional forms of training,

whereas 10% indicated their organization would not allow workday release for participating in WBT. School nutrition directors were largely uncertain if their organization would provide financial support for WBT (36%) and did not know if their organization would provide workday support for WBT (25%). This level of uncertainty regarding organizational support for WBT is considerably higher than the 1% of SNDs who were uncertain if their organization provided financial and workday support for traditional forms of training. In a separate question, 49% of SNDs indicated they would complete the WBT mostly at work, while 34% indicated they would complete the WBT partially at work and partially at home, and the remaining 17% indicated they would complete the WBT mostly at home. Considering the majority of SNDs indicated they would complete the WBT while at work, organizational support in the form of workday release is an important consideration that should be addressed to promote the successful execution of a WBT curriculum for SNDs.

CONCLUSIONS AND APPLICATIONS

Major highlights of this study are discovering a great interest in WBT, establishing and prioritizing functional areas most desired for WBT, and identifying logistical issues to consider when developing, promoting and delivering WBT opportunities to SNDs. Overall, this study reveals that developing WBT opportunities for SNDs is a worthy endeavor and has the potential to be extremely successful if perceived barriers and logistical concerns are properly considered. Strengths of this study include the random sample and proportionate national representation of all regions in the U.S., which improves the ability to generalize findings. Another strength of this study is the scientific rigor involved in developing content validity for the survey instrument.

The findings of this study imply WBT has the unique capability of addressing some of the major education and training barriers faced by SNDs. In general, this study supports previously documented benefits of online learning, including convenience, learner-centered curriculum, accessibility from any site, uniformity of content, rapidly updated content, and cost effectiveness (Block & Dobell, 1999; Jones & Fitzgibbon, 2002). However, it is equally important to address the perceived barriers of WBT, as these documented barriers may deter future participation. The frustrations with or accessibility to technology, lack of group relationships or social exchanges, and feelings of isolation supports previously cited disadvantages of online learning (Cobb & Mueller, 1998; Mills et al., 2001).

These findings have several important implications for organizations interested in developing and delivering educational and training opportunities for SNDs. First, when developing WBT opportunities, it is important to consider that 43% of SNDs have not had any previous experiences with WBT. Of those who have engaged in WBT, the variety of experiences are limited as relatively few SNDs have interacted with an instructor or other students, or earned CEUs or college credits through WBT. Furthermore, it is important to capitalize on the perceived benefits, and to anticipate and proactively address perceived barriers when promoting WBT and recruiting SNDs to engage in on-line learning opportunities. It is imperative to develop content areas that are of interest to SNDs. According to this study, the functional areas with the highest interest ratings for WBT included Nutrition Education, Nutrition and Menu Planning, Sanitation, Food Safety and Employee Safety, Marketing, and Program Accountability. Finally, in order for WBT to be a viable education mode, logistical issues related to WBT must be well planned. Since there is such a diverse need for educational credit, different WBT course tracks may need to be offered for those who desire no credit versus those who desire CEUs or college credits. Although 83% of SNDs indicated they would complete WBT mostly or partially at work, there is uncertainty whether their organizations would provide workday release time to participate in WBT. In order to ensure success of WBT delivery, the benefits and practicality of WBT also need to be promoted among school district officials providing oversight to SNDs.

The primary limitation of this research is the inherent response bias associated with conducting survey research. Those SNDs interested in WBT may have been more likely to respond to the survey which could impact results and interpretation. Furthermore, although appropriate efforts were taken to increase response, the 32% response rate is somewhat low.

The next step is to apply the findings from this study and begin developing and evaluating WBT courses for SNDs. Mechanisms to assess and track whether the SNDs are meeting established learning outcomes need to be established through field testing. Appropriately promoting WBT courses is also an important component for ensuring successful participation in WBT opportunities. Following completion of WBT modules, it will be important to request feedback from SNDs to determine effectiveness of the course content, course activities, assignments, instructor interactions, and student interactions. As the WBT modules are utilized more broadly, future research is also needed to assess differences between the knowledge and skills acquired through WBT versus more traditional educational settings.

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BIOGRAPHY

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