Evaluation of Health Literacy Competencies through Web Development: A Pilot Study

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ABSTRACT

Purpose: *The study of health literacy and general literacy are closely related, but not identical. Health literacy has received some attention in clinical education (Coleman & Appy, 2012; Coleman, Nguyen, Garvin, Sou, & Carney, 2016), but is not often explored in health education research and teaching. The purpose of this study was to evaluate the perceived value of creating a health literacy and health advocacy web-based resource to address core health literacy and advocacy competencies.* ***Methods:*** *One section of a master's level public health course was evaluated in the winter semester of 2019. Students responded to a series of questions describing their learning experience while creating a web-based resource. Students were also asked if the creation of the web-based resource helped them to comprehend Certified Health Education Specialist (CHES) 7 Areas of Responsibility for Health Educators that addressed health literacy.* ***Results:*** *A total of 13 students completed a Qualtrics survey. Results showed all of the students (100%; n=6-strongly agreed; n=7-agreed) felt that incorporating the development of a web-based resource was an effective learning method and that the assessment helped them to address the elected CHES Responsibilities.* ***Conclusions:*** *The study identified weaknesses and gaps in the design of the assessment. The findings have implications for research, practice, and credentialing.*

Key Words: *health literacy, web development, student learning, health education, health information*

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INTRODUCTION

Health practitioners and educators have generally been advocates for broader access to health-related information. "While health literacy training is recommended for all health professionals in the United States, the precise health literacy competencies health education specialists should possess is not formally delineated in the literature. Therefore, little is known about the health literacy knowledge and skills of health education professionals" (Dawkins, McKyer & McDonald, 2018, p. 99). However, "the core responsibilities, competencies, and sub-competencies set by the National Commission for Health Education Credentialing, Inc. (NCHEC) provide a comprehensive description of the profession, illustrating the skills necessary to perform the daily tasks as a health education specialist" (National Commission for Health Education Credentialing, Inc., 2019, para 1). This includes the skills to recognize and address health literacy. The practice of health literacy and general literacy are closely related, but not identical. General literacy is defined as a set of reading, writing, basic math, speech, and comprehension skills, whereas functional health literacy is defined as "sufficient basic skills in reading and writing to be able to function effectively in everyday situations" (Nutbeam, 2000). Health literacy involves skills, knowledge, and the expectations that health professionals have of the public's interest in, and understanding of, health information and services. Health information is often unfamiliar, complicated, and technical, even for people with higher levels of education. People of all ages, races, incomes, and education levels—not just people with limited reading skills or for those whom English is a second language—are affected by limited health literacy.

With the growth of the Internet, web-based training is a promising distribution channel for reaching health educators and the general public alike (Ballew et al., 2013). Skopelja et al. (2008) and Iammarino & O' Rourke (2018) describe the Internet offers an abundance of health resources. Still, a growing population of health consumers have fallen behind in their capacity to obtain, process and understand necessary health information. Since their inception, web-based "interventions to reduce the literacy burden and improve health literacy have included using simple language, audiovisual or pictorial formats, interactivity, and tailoring of content to individuals' needs" (Muller et al., 2017, para 8). Moreover, web-based training is gaining in popularity and necessity. However, successful web-based training should set out to inform and guide future health education specialists.

PURPOSE

The purpose of this pilot project investigates the perceived value of creating a health literacy web-based resource to address core health literacy competencies. One section of a master's level public health course was examined. The student learning experiences were explored by asking students to respond to a series of questions describing their learning while creating a web-based resource. Additionally, students were asked if the creation of the web-based resource helped them to address a series of Certified Health Education Specialist (CHES) Responsibilities addressing health literacy.

METHODS

This pilot project describes how the design and development of a web-based resource can be used as a tool to aid students in addressing health literacy in a graduate level health literacy and advocacy course. The course was taught over one semester. The course examined public health patient advocacy and health literacy methods while providing an understanding of the relation-ship between how literacy and advocacy affect the overall health of the population.

Students were required to create a health literacy web-based resource using Google Sites. While not a formal part of this project, using Google Sites offered an opportunity for students to improve their plain language skills, health literacy skills, and health advocacy skills. The evaluation of developing competency in writing was based on the following Certified Health Education Specialist (CHES) Responsibilities: Area IV: Conduct Evaluation and Research Related to Health Education/Promotion, Area VI: Serve as a Health Education/Promotion Resource Person and Area VII: Communicate, Promote, and Advocate for Health, Health Education/Promotion, and the Profession (National Commission for Health Education Credentialing, Inc., 2019).

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The ultimate purpose of using Google Sites was to allow for anonymous peer-review. Review panels with a minimum of three reviewers per site were created, and students were provided with three live links to websites for review. All websites were assigned a project number and were de-identified for student confidentiality. Each student completed the peer review rubric and provided specific comments to justify the score given to each of the sections in the proposal. The final project score was an average of all reviewers' scores. Students dissatisfied with their project scores were permitted to resubmit their projects to the instructor for regrading, provided they included an explanation of how they addressed peer reviewers' feedback.

Direction Sheet for Web-based and Health Literacy Pilot Project

Students were provided with a direction sheet introducing the web-based and health literacy pilot project. The purpose of the pilot project set out to provide the community with credible resources about a public health topic. Additionally, the project set out to help students in developing and creating a web presence as health literacy and health advocacy strategy. The direction sheet provided students with four learning objectives. The learning objectives included identifying the level of health literacy of an intended audience; identifying, reviewing and evaluating information to support a public health issue; adapting and coveying health-related information to consumers information for consumer use, and creating a website to share with peers and potential organizations. The direction sheet also provides two areas of CHES Responsibilities. CHES Responsibilities include Area IV: Conduct Evaluation and Research Related to Health Education/Promotion and Area VI: Serve as a Health Education/Promotion Resource Person. Under Area VI: Serve as a Health Education/Promotion Resource Person the following sub-competencies were also addressed 6.1.1 Assess needs for health-related information, 6.1.2 Identify valid information resources, 6.1.3 Evaluate resource materials for accuracy, relevance, and timeliness, 6.1.4 Adapt information for consumer and 6.1.5 Convey health-related information to the consumer.

Students were required to use a provided Gmail account offered by the University. The Gmail account provided access to Google Sites. Students were also required to review the rubric associated with the project as part of the class requirement. The project required students to provide five resources with a short 250 to 500-word description composed in plain language. Students were encouraged to be creative, to provide a YouTube video if applicable, and to provide an APA citation of the video.

Rubric for Web-based and Health Literacy Pilot Project

The following elements were required for the project, use of plain language, CHES Responsibility criteria, grammar and spelling, APA citation of references, formatting, and appearance, use of graphics, and navigation. The rubric was based on a five-point scale with five as rated excellent to one as rated poor.

Evaluation of Web-based and Health Literacy Pilot Project

Sample

Participants for the study included 14 master's level public health students enrolled in one Health Advocacy and Literacy course during the winter semester of 2019. A student roster for the course was used to send an email to the students requesting their voluntary participation in completing the electronic survey related to the class web-based health literacy assessment experience.

Procedures and data collection

The University's Review Board granted ethics approval for the pilot project (Reference #19-309-H). Before sending an email recruitment letter, the primary investigator (PI) collected information using the University's Permission to Release Non-Public Information. The Permission to Release Non-Public Information provides that the release of education records (or personally identifiable information therein, except for public directory information) without the written consent of the student will not be made. Following the collection of the release forms, an email requesting permission for participation in a survey about the experience of creating a web-based health literacy resource was sent to student participants. The email recruitment letter was distributed to students enrolled in Health Advocacy and Literacy during the winter semester of 2019.

Survey

The email recruitment letter provided a link to a pilot survey containing 12 Likert scaled questions (rating questions 1-5, 1 strongly

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disagree – 5 strongly agree). The survey was developed using Qualtrics, a survey development tool. The first question of the survey contained the consent letter. Students were asked to provide approval in writing to participate in the study. Should the student consent, the student was asked to continue with the survey by completing the 12 Likert-scale questions. Once a student agreed, the student was asked to rate his/her learning experience for creating a web-based health literacy and advocacy resources for public health and to rate his/her learning based on one area of the seven CHES responsibilities.

RESULTS

Data was downloaded from Qualitrics and uploaded into SPSS for analysis. Data was analyzed using basic descriptive statistics. Based on the evaluation results of the 14 students in the course, 13 elected and agreed to complete the survey for a 92% return rate.

Demographics

Most respondents were white females with prior academic degrees in exercise science, nutrition, public and non-profit administration, and allied health science. All of the respondents were classified as second-year students matriculating in a Master's of Public Health degree.

CHES responsibility

Of the 13 students, 100% (*n*=6 strongly agreed; *n*=7 agreed) of the students indicated that creating a web-based resource for health literacy and health advocacy helped to understand the applications of concepts learned in class. Additionally, 86.6% (*n*=5 strongly agreed; *n*=7 agreed) of the students thought that the assignment helped to assess the needs for health-related information. Table 1 reflects student responses regarding the web-based health literacy and advocacy assignment meeting Area VI: Serve as a Health Education/Promotion Resource Person for the CHES responsibilities with the following sub-competencies, (6.1 Obtain and disseminate health-related information; 6.1.1 Assess needs for health-related information; 6.1.2 Identify valid information resources; 6.1.3 Evaluate resource materials for accuracy, relevance, and timeliness; 6.1.4 Adapt information for consumer, and 6.1.5 Convey health-related information to consumer responsibilities). (See Table 1)

DISCUSSION

Historically, health educators have played an essential role in promoting consumer health to enable those in various settings—schools, communities, worksites health, and medical care settings, and the general public—to find current, reliable, valid, and accessible health information. Moreover, health educators help to provide informed choices in health-related decision making. The pilot project investigated the perceived value of creating a health literacy web-based resource as one method of evaluating core health literacy competencies. Student learning experiences were explored by asking students to respond to a series of questions describing their learning while simultaneously creating a web-based resource. Additionally, it was investigated if the creation of the web-based resource helped students to understand and utilize a series of Certified Health Education Specialist (CHES) Responsibilities addressing health literacy and health information.

Entry-level health education specialists must be competent when working with data and information (NCHEC, 2015). Therefore, health education training programs need to use appropriate pedagogical strategies to assist students in learning about various research methodologies as well as developing and practicing relevant research skills. Brainstorming using the mind mapping technique is a useful pedagogical tool for the identification of a research topic, and the formulation of research questions is a prime example. The concept of developing and designing a web-resource for health information and literacy provides a framework to help more health educators to see the issue in its complexity and of different modes of delivering a health message.

Limitations

No study is without limitations. First, the sample is not a representation of the population of health education students in the United States and thus not generalizable. Furthermore, the research was on a small scale, involving one faculty member of the Masters of Public Health program at one University. Additionally, no demographic information was collected as the sample size was small, and the researcher would be able to identify one (male) in the course. Moreover, though this is the second year for the assessment, this is the first year the

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study reached out to collect data from students, thus making the study a pilot project.

CONCLUSIONS

Future research efforts based on this assessment will involve efforts for more open authorship and future student-generated learning objects, as well as pilot projects in health care organizations to evaluate content. A review of the literature identified no other study that examined the health literacy of health education students. This study, therefore, offers initial understanding about strengths and weaknesses in health education students' health literacy competence. The results of the study suggest there are several gaps in knowledge, and students may have limited opportunities to develop practical health literacy experience.

This study offers an initial understanding of strengths and weaknesses in health education students' health literacy competence and information acquisition. The results of the study suggest there are several gaps in knowledge, and students may have limited opportunities to develop practical health literacy experience.

In response, professional programs may need to review and revise their curricula and pedagogy to identify and address health literacy deficiencies in course offerings. Such a move would need support by additional robust research to expand the literature on health education students' health literacy preparation and competence. Future studies could use a nationally representative sample to give a complete picture of the state of health literacy in professional development. The literature could also explore further the inverse relationship between prior academic degrees and health literacy knowledge, and the mismatch between students' health literacy knowledge and their report that health literacy was included in their programs. Such investigation would help clarify how health literacy is taught to health education students as well as identify tools that might help enhance student learning and achievement; therefore, also establishing best practices for curricular, credentialing, and practice changes.

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Table 1. ***Student responses Area VI: Serve as a Health Education/Promotion Resource Person***

Question	Strongly Agree	Agree	Somewhat Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Do you feel that the assignment helped to assess needs for health-related information? (CHES Sub-competency 6.1.1)	38.46% (*n*=5)	46.15% (*n* =6)	7.69% (*n* =1)	0.00% (*n* =0)	7.69% (*n* =1)	0.00% (n=0)
Do you feel that the assignment helped to identify valid information resources? (CHES Sub-competency 6.1.2)	38.46% (*n*=5)	53.85% (*n*=7)	7.69% (*n*=1)	0.00% (*n*=0)	0.00% (*n*=0)	0.00% (*n*=0)
Do you feel that the assignment helped to evaluate resource materials for accuracy, relevance, and timeliness? (CHES Sub-competency 6.1.3)	53.85% (*n*=7)	38.46% (*n*=5)	7.69% (*n*=1)	0.00% (*n*=0)	0.00% (*n*=0)	0.00% (*n*=0)
Do you feel that the assignment helped you to adapt information for consumer? (CHES Sub-competency 6.1.4)	38.46% (*n*=5)	46.15% (*n*=6)	15.38% (*n*=2)	0.00% (*n*=0)	0.00% (*n*=0)	0.00% (*n*=0)
Do you feel that the assignment helped you to convey health-related information to consumer? (CHES Sub-competency 6.1.5)	46.15% (*n*=6)	46.15% (*n*=6)	7.69% (*n*=1)	0.00% (*n*=0)	0.00% (*n*=0)	0.00% (*n*=0)
Do you feel that the assignment helped you to identify the level of literacy of an intended audience?	46.15% (*n*=6)	38.46% (*n*=5)	0.00% (*n*=0)	7.69% (*n*=1)	7.69% (*n*=1)	0.00% (*n*=0)

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