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Nearly three-quarters of US adults use at least one social media site (Pew Research, 2019 & 2021). The consistency of US adults reporting social media use indicates a dependable population base to engage in health education. Based on this data, social media has become a community for health educators to perform essentials of their professional practice such as: (1) providing and managing health education programs, (2) using data to identify community needs, (3) plan, implement, monitor, and evaluating programs, (4) link health systems, health providers, insurers, and patients to address individual and population health needs, and (5) serve as resource to assist individuals, other health professionals, or the community (Bureau of Labor and Statistics, 2021).

This dissertation investigated the variations across demographic categories in social media competency among a sample of health education specialists. To examine the social media competency among health education specialists, this study used the Social Media Competency Inventory (SMCI) (Alber at al., 2015). Data were collected using the National Commission for Health Education Credentialing contact list. The current study used the SMCI survey instrument to better understand the most up-to-date landscape of social media competency in certified health education specialists.

Results indicate demographic characteristics had associations with SMCI constructs of Social Media Self-Efficacy, Effort Expectancy, and Performance Expectancy. Results also indicate that access to social media at work and Social media Self-Efficacy are predictive of Social Media. These results can be implemented into health education practice by informing future training modules and continuing education courses.

ASSESSMENT OF SOCIAL MEDIA COMPETENCY AMONG HEALTH EDUCATION SPECIALISTS

by

Quinn Adam Duclos

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Approved by

Dr. Michael Perko
Committee Co-Chair

Dr. Daniel L. Bibeau
Committee Co-Chair

APPROVAL PAGE

This dissertation written by Quinn Adam Duclos has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Co-Chair

Dr. Michael Perko

Committee Co-Chair

Dr. Daniel L. Bibeau

Committee Members

Dr. Jeffrey Milroy

Dr. Beth Chaney

May 16, 2022

Date of Acceptance by Committee

May 16, 2022

Date of Final Oral Examination

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CHAPTER I: INTRODUCTION

The Health Education Specialist

A health education specialist is defined as an individual who has met, at a minimum, baccalaureate-level health education academic preparation. This individual must be competent to use appropriate educational strategies and methods to facilitate the development of policies, procedures, interventions, and systems conducive to the health and well-being of individuals, groups, and communities. Specialists may serve in a variety of settings. (NCHEC, 2017a; U.S. Bureau of Labor Statistics, 2019; Videto & Dennis, 2021, p.4). A health education specialist may also be referred to as a health educator in various settings and literature, particularly in settings outside of the health education and promotion field.

Some, but not all, health education specialists are currently recognized as being either Certified Health Education Specialists (CHES®) or Master Certified Health Education Specialists (MCHES®). For the purposes of this manuscript, the term "certified health education specialists" will be used when referring to CHES® and MCHES® simultaneously. The certifying agency in the field of health education and promotion is the National Commission for Health Education Credentialing, Inc (NCHEC), and the CHES® signifies the entry-level certification for the field, whereas, MCHES® is the advanced-level certification. The health education profession has identified competencies that have become the basis of their professional practice (Taub et al., 2018). The field periodically conducts competency-based job analyses to update the framework of practice for health education and promotion (Doyle et al., 2012; McKenzie et al., 2016; Knowlden et al., 2020). This framework serves as the basis for the CHES®/MCHES® certifications, professional preparation of future health education specialists, and professional development opportunities for those in the field.

In 1998 the United States Bureau of Labor Statistics recognized the health education profession with a Standard Occupational Classification (SOC) 21-1091 (Office of Management and Budget, 1998). Health educators are also classified as separate from colloquially similar professions like community health workers (21-1094). As defined by the SOC 21-1091, health educators:

> Provide and manage health education programs that help individuals, families, and their communities maximize and maintain healthy lifestyles. Use data to identify community needs prior to planning, implementing, monitoring, and evaluating programs designed to encourage healthy lifestyles, policies, and environments. May link health systems, health providers, insurers, and patients to address individual and population health needs. May serve as resource to assist individuals, other health professionals, or the community, and may administer fiscal resources for health education programs. (US Bureau of Labor and Statistics, 2021)

Health educators are employed in a wide range of settings. As recently as 2020 (US Bureau of Labor and Statistics, 2021) employment data indicate that hospitals, local government, individual and family services, outpatient care centers, and state government were the top five industries where health educators work. Health educators are employed at the highest rates in California, New York, Texas, Florida, and Pennsylvania, evidence their skills are needed across the country (US Bureau of Labor and Statistics, 2021).

The framework of health education and promotion practice, resulting from the 2015 Health Education Specialist Practice Analysis I (HESPA I), includes communication as one of the Seven Areas of Responsibility (AOR) for health education specialists (McKenzie et al.,

2016). Area VII of the Seven Areas of Responsibility for Health Education Specialists is "Communicate, Promote, and Advocate for Health, Health Education/Promotion, and the Profession," (McKenzie et al., 2016, p. 292). Within Area VII, there are four competencies and thirty-eight sub-competencies. Competency 7.1 for health education specialists is to, "Identify, develop, and deliver messages using a variety of communication strategies, methods, and techniques." (National Commission for Health Education Credentialing, 2015, p. 11). It is the professional responsibility of the health education specialist to use a variety of methods and technologies to deliver health messages. Additionally, health education specialists are specifically obligated to deliver health messages using media and communication strategies (McKenzie et al., 2016). A full summary of Competency 7.1 can be found in **Table A1**. One technology that can potentially be used to deliver health messages, identify health literacy, and test messaging campaigns is social media.

A New Communication Strategy: Social Media

With the advent of the internet, a new media communication mode was being developed—*social media.* The definition of social media has evolved greatly over the last 25 years (Aichner et al., 2020). The year 2010 marked a shift in defining of social media. Prior to 2010, social media was commonly researched as a place for people to connect with others that have common interests. Post-2010 research approaches began to focus on content generation and sharing user-generated content (Aichner et al., 2020). In research, social media can be described as:

> …an umbrella term that describes a variety of online platforms, including blogs, business networks, collaborative projects, enterprise social networks (SN), forums, microblogs,

> photo sharing, products review, social bookmarking, social gaming, SN, video sharing, and virtual worlds. (Aichner et al., 2020, p. 215)

The first instance of a modern-day social media networking may have its origins in the first ever Internet Service Provider. In the 1990s, Hotmail furthered progress by making email free for anyone that had a home computer (McIntyre, 2014). Over the next 25 years a surge of internet use occurred, and the common use of social media arose. Pew Research (2019) reported that the percentage of US adults using at least one social media platform increased from 5% in 2005 to 62% in 2014. The number of U.S. adults using social media has steadily climbed each year and recent estimates have current usage around 72% (Pew Research Center, 2019 & 2021).

Social Media Trends

According to the Pew Research Center (2021), YouTube and Facebook are the most used social media platforms among U.S. adults at 81% and 69%, respectively. This trend holds true across all demographic characteristics reported (age, race, education level, sex, and rural/urban status). However, the age group of 18-29 is significantly more likely to use Instagram (71% vs. 40%), Snapchat (65% vs. 25%), and TikTok (48% vs. 21%) than the overall population of US adults. About half of Hispanic (52%) and Black Americans (49%) say they use the photo and video sharing platform Instagram, compared to a smaller percentage of White Americans (35%). Roughly half of adults who have a bachelor's or advanced degree (51%) say they use the career-centered social networking site LinkedIn. Those with some college experience (28%) or those with a high school diploma or less (10%) are far less likely to use LinkedIn. Women dominate the use of the idea and image sharing and saving social media site Pinterest. Compared to men (16%), women report nearly triple the amount of usage of Pinterest (46%). Nextdoor, a social

media platform that connects people based on their location, more likely to be used by urban (17%) and suburban (14%) adults. Only 2% of rural US adults say they have used Nextdoor.

In order to use social media as a tool for health education, a health education specialist must be competent in social media use. Alber et al., (2015) developed, validated, and piloted the Social Media Competency Inventory (SMCI). To date, no studies have used the SMCI to identify variations across demographic categories in social media competency among a sample of health education specialists. The current study collected using this survey instrument to better understand the current landscape of social media competency in certified health education specialists.

Purpose of the Study

The purpose of the study was to evaluate the social media competency of health education specialists. Within this purpose, objectives of this study included determining demographic characteristics of the participants, measuring the work-related internet use of the participants, assessing the social media competency of the participants, and evaluating if relationships exist between demographic characteristics, work-related internet use, and sections of the SMCI. The proposed study has two specific aims: 1) to identify mean differences between the demographic variables and work-related internet use across the sections in the SMCI, and 2) to identify and describe variation across constructs of the SMCI in a sample of certified health education specialists.

Significance of the Study

Previous research has shown that health educators post to social media in various capacities consistent with their professional duties (Bliss et al., 2018; Neiger et al., 2013; Thackeray et al., 2013). Studies in this area have demonstrated that state and local health

departments use Twitter to post factual health information and promote action to personal accounts (Neiger et al., 2013; Thackeray et al., 2013). Of tweets about the organization itself, the majority were one-way communication about events and services offered (Neiger et al., 2013; Thackeray et al., 2013). This knowledge was built upon by using NCHEC database for CHES® and MCHES® as a sample (Bliss at al., 2018). In this study conducted by Bliss et al. (2018) mass email recruitment was used to solicit responses from the NCHEC database of CHES® and MCHES® (N = 10,263). The final sample included 1,060 certified health education specialists. It was reported that the certified health education specialists used work-related social media for increasing awareness, information exchange, networking, and health promotion (Bliss et al., 2018). Minimal research has been conducted into specific constructs that contribute to social media usage intention by health educators. By investigating these particular constructs, best practice may be developed to better inform future use of social media for health education.

CHAPTER II: LITERATURE REVIEW

Background

Health education specialists are a unique group of public health professionals recognized by the U.S. Bureau of Labor and Statistics (U.S. Bureau of Labor and Statistics, 2021) with a professional practice that involves: needs assessment, planning, implementation, evaluation administration and management, resource dissemination, and communication and advocacy in health promotion and education (Knowlden et al., 2020).

The National Commission for Health Education Credentialing, Inc. (NCHEC), the certifying body in the field of health education and promotion, oversees the certification of health education specialists, promotes professional development, and strengthens professional preparation and practices. The findings of the 2015 health education and promotion job analysis (HESPA I) (Knowlden et al., 2016) resulted in Seven Areas of Responsibilities that defined the framework of practice and preparation for the profession for several years.

The CHES® examination is an entry-level certification exam for health education specialists administered through NCHEC. To qualify for this examination, individuals must have at least a bachelor's degree or above in health education or a related field or have at least 25 semester credits/37 quarter hours of coursework (with a grade of C or better) with specific preparation addressing the Seven Areas of Responsibilities and Competencies for Health Education Specialists (NCHEC Exam Eligibility Guide, (n.d)).

The MCHES® examination has much more strict eligibility requirements than the CHES® examination. All individuals that have held a continuous CHES® certification in active-status for a minimum of five years prior to the examination application are eligible. There are two eligibility paths for those that are non-CHES® certified or CHES® certified with fewer than

five years *active-status* and five years of *total experience*. The first path is a master's degree or higher in Health Education, Public Health Education, School Health Education, Community Health Education, etc. The second path is an earned master's degree or higher with an academic transcript reflecting at least 25 semester credits (37 quarter hours) of course work in which the Seven Areas of Responsibility of Health Education Specialists were addressed five years of documented experience as a health education specialist (NCHEC Exam Eligibility Guide, (n.d)).

Since its inception in 1990, some form of communication regarding health has been a required competency for passing the CHES® exam (Sakagami, 2004). In 2015, the Seven Areas of Responsibility included a sub-competency about using media to deliver health education and health promotion (7.1.7) (McKenzie et al., 2015). Within the MCHES® examination there are expanded competencies that included added communication sub-competencies. The areas of responsibility, competencies, and sub-competencies have been historically consistent and statistically validated (Taub et al., 2018). The research also contributes to continuing NCHEC's accreditation status with the National Commission for Certifying Agencies and the International Accreditation Service.

Data Collection Tool

Alber et al. (2015) previously developed a scale to measure social media competency in health education specialists. This scale, the Social Media Competency Inventory (SMCI) was validated, and pilot tested as a part of the research process. The creation, validation, and pilot testing of the SMCI is briefly explained here, refer to **Figure A1** for more details. Phase one of creation of the SMCI began with conceptualization and domain specifications. Using literature review social media was defined and operationalized. Within the context of the SMCI, social media competency is defined as:

> …the user's potential to apply social media technologies to disseminate health information and messages, engage and empower individuals to make healthier decisions, and encourage conversation and participation related to the mission of their health organization. (Alber et al., 2015)

After definition and operationalization of social media, a panel of three health education field experts and one psychometric methodology expert was asked to review observable behaviors that related to the specific constructs conceptualized in the early version of the SMCI. Two sets of reviews were conducted to determine the most important observable behaviors ranked by the field experts. Finally, domain specifications were generated based on literature review and sent to the expert review panel. Domain specifications were then revised based on this feedback.

Phase two in the creation of the SMCI was item development. Original items were developed by the observable behaviors and expert feedback given in phase one. A Qualtrics web-based survey was issued to field experts for feedback on initial items. Experts were asked to evaluate the following characteristics on a "yes/no" scale whether the item adequately reflected each characteristic: brevity, focus, clarity, assurance, readability, and adequacy of response options. If "no" was selected for any of the items, experts were asked to explain why. Next, think aloud sessions were completed over the phone (n = 5) or in-person (n = 5) with a group of health education specialists recruited from LinkedIn. Based on the thematic analyses from these sessions the survey instrument was revised further. The last part of phase two was to conduct a pilot test, 36 of 400 participants (9%) responded to the pilot test, and 16 items were removed based on pilot data.

Phase three of creation of the SMCI was a field test with psychometric analyses resulting in a final item removal. Classical test theory (CTT), categorical confirmatory factor analyses

(CCFAs), and Rasch RSM were used to conduct separate analyses on the field test data. Results from CTT, CCFAs, and Rasch RSM analyses supported the internal validity, item reliability & factor structure, and category fit of the scales within the SMCI. Specifically, Rasch RSM analyses also revealed that some sections of the SMCI could have the Likert-type scale collapsed from one through five to one through four by removing the "neutral/don't know option."

Each section of the SMCI represents a different construct of social media competency; thus, section scores cannot be summed. There are six sections of the SMCI, they are: (1) social media self-efficacy, (2) social media experience, (3) effort expectancy, (4) performance expectancy, (5) facilitating conditions, and (6) social influence. The SMCI instrument and instruction document are attached as **Supplemental Documents 1 & 2**, respectively.

Historical Developments in Health Communication

To understand the history of health communication, it is important to understand the history of the current-day field of communication. The importance of communication in human society has been recognized for thousands of years, "far longer than we can demonstrate through recorded history" (Greenberg et al., 2009, p. 223). As early as the 17th century John Locke is credited for playing a role in inventing and legitimizing the individual (Peters, 1989). This is an important concept because at the time, the concept of "sharing thoughts of individuals as communication" can be directly contributed to Locke (Peters, 1989). Beginning in the 1870s, many communication theories began to take hold in the field of sociology (Simonson, 2016). These theories would take on more social meaning and would be the fundamental scaffolding for society to sustain itself. By the turn of the 20th century, the study of communication theory, especially mass communication had emerged as a powerful academic field (Addams et al., 2004).

Post-World War II mass communication became a staple in everyday life. Schramm (1954) argued that because of technologies available in postwar USA, mass media now had a captive audience. Industries like film and television capitalized on the growing chance to profit. These mass media outlets became so ubiquitous in 20th century USA that Schramm (1957) claimed they could be characterized by their massive sizes and few numbers. No longer were the days of Locke's individualistic communication and as noted by Chaffee & Metzger (2001), the country began to see a shift to a new phenomenon, *media communication.* Media communication is characterized by a shift in motivation of the audience from arousal regulation to needs satisfaction. For example, on television one might seek out arousal regulation through attractive celebrities. In contrast, newer technologies that developed postwar allowed individuals to self-actualize by sharing personal ideas and interests (Chaffee & Metzger, 2001). The most recent development in media communication is the Internet. In 1973 ethernet technology was invented, and by 1985 the internet was a widely used technology by researchers; with roots taking hold in broader communities as well (Leiner et al., 2009). By the early 1990s, the internet had begun to become commercialized and sold, with a formal definition put in to place by the Federal Networking council in 1995 (Leiner et al., 2009).

Communication in the field of healthcare and health promotion has often been cast to the background. Mostly informal before the advent of modern medicine, health communication was primarily the duty of practitioners of folk medicine (Thomas, 2006). These individuals would pass down knowledge of ingredients, recipes, techniques, and lore surrounding healing and management using natural materials. This intergenerational communication was critical in passing along the knowledge of folk medicine for generations until the development of modern medicine (Thomas, 2006).

In early 20th century modern medicine was in its infancy. Few fully trained physicians existed for the populations that needed them. Communication, in the form of "bedside manner", was thought to create a healing environment (Thomas, 2006). Transitioning to the 1960s and 1970s the biomedical model of health had taken firm hold of health and healthcare (Thomas, 2006 & Wright, 2012). Medicine became a wholly scientific process, detached from the patient, and focused on the diagnosis. The drawback to this approach, by focusing on physical limitations, often did not consider psychosocial aspects of illness. These could have included cultural norms, coping abilities, or life events which may have interacted with physical diagnoses (Wright et al., 2012). As a result of this detachment, a power dynamic developed across the healthcare field, the all-knowing physician and ignorant patient. As a result of this power dynamic, the quality of doctor-patient communication saw a sharp decline (Thomas, 2006 & Wright et al., 2012).

Through the last quarter of the 20th century, social scientists began to take an interest in health and healthcare. Because of the influence of several fields, such as sociology, psychology, and communication, health communication as the academic field began to form (Kreps, 2003; Thomas, 2006; Schiavo, 2007; Wright et al., 2012). It was in the early 1980s that a divergence between communication methods in healthcare and health promotion became apparent. The first, known as the "health care delivery" branch of health communication if a sub-field in which scholars examine the communication between practitioner and patient. The next, the "health promotion" branch, is related to the study of persuasive use of communication messages and media to promote public health (Kreps et al., 2003). Kreps et al (2003) predicted that these branches of health communication will merge out of necessity. This is because health promotion

is recognized at the primary focus of any health-related professional practice, and healthcare workers will begin to actively engage in health education and promotion efforts.

In order to engage in health promotion through health communication, many public health professionals were using printed material generated on a massive scale with uniform information. As social scientists began to influence the field of health promotion, and due to their interest in the heterogeneity of mass audiences they began to develop theories that would soon inform health communication (Rimer & Kreuter, 2006). Tailored health communications (THCs) were born from this movement. THCs are communications that are formatted to a population of interests and can be produced using almost any media (Rimer & Kreuter, 2006). With the development of THCs, instead of using cost heavy mass printing to cover a large swath of populations, materials could be developed to target specific populations of need. Much of the early examples of this work were smoking cessation self-help guides targeted toward blue-collar or minority smokers (Rimer & Kreuter, 2006).

In the 1990s, health communication was beginning to flourish as an independent field. In 1989 *Health Communication*, the first scientific quarterly journal in the field, was introduced by Founding Editor Teresa Thompson. This journal was dedicated exclusively to health communication inquiry (Kreps et al., 2003; Wright et al., 2013). In 1996, the second refereed quarterly health communication journal, the *Journal of Health Communication*, was introduced by Founding Editor Scott Ratzan. This journal was meant to be a compliment to the research approach of *Health Communication. Journal of Health Communication* was established to be a research and practice-based journal; with a focus in international health and healthcare practice-based perspectives of health communication (Kreps et al., 2003; Wright et al., 2013).

The field of health communications continued to see a rapid increase in size and relevance through the 1990s into the 2000s, with many universities creating classes, majors, and departments dedicated to health communication (Wright et al., 2013). During this time, a breadth of resources was being generated for health communication researchers to pull from. Many of the critical attributes of health communication had been identified and synthesized during the late 1990s into mid-2000s, and countless scholars in the field would propose their own definitions of health communication. Schiavo (2007) used the history, purposes, attributes, and uses to synthesize a new practice-based definition of health communication as follows:

> "Health communication is a multifaceted and multidisciplinary approach to reach different audiences and share health-related information with the goal of influencing, engaging, and supporting individuals, communities, health professionals, special groups, policymakers and the public to champion, introduce, adopt, or sustain a behavior, practice, or policy that will ultimately improve health outcomes."

Historical Developments in Social Media

With the advent of the internet, a new media communication mode was being developed—*social media.* Briefly, social media has been described as:

"…Internet sites [or platforms] where people interact freely, sharing and discussing information [often] about each other and their lives, using a multimedia mix of personal words, pictures, videos and audio" (McIntyre, 2014, p.7).

The first instance of a modern-day social media networking may have its origins in the first every Internet Service Provider (ISP), CompuServe. In the 1980s, CompuServe facilitated an online newspaper, email, and public bulletins. CompuServe was based on an hourly fee

model, and eventually was overcome by its top competitor, America Online (AOL). In the 1990s, AOL charged $7.95 a month for 2 hours of online time and ten cents for every additional minute, the ISP provided services like email, instant messaging, and chat boards (McIntyre, 2014). Hotmail furthered social media progress in 1996 by making email free for anyone that had a home computer (McIntyre, 2014). According to Pew Research (2014, 2019), internet usage skyrocketed from 14% (1995) to 90% (2019) over this nearly 25-year period. While the rapid increase in internet usage was occurring, widespread use of social media was not far behind. As of March 2005, roughly 5% of US adults were using a social media site. In this same year, internet usage was roughly 46% for US adults (Fox & Rainie, 2014). In January 2014, the number of adults using at least one social media platform leaped to 62%. Since 2014, the number of US adults using social media has steadily climbed each year and recent estimates have the percent at ~72% (Pew Research Center, 2019 & 2021).

Current Trends in Social Media Use

According to Pew Research Center (2021), YouTube and Facebook are the most used social media platforms US among adults at 81% and 69%, respectively. This trend holds true across all demographic characteristics reported (rage, race, education level, sex, and rural/urban status). However, when examining this data further it can be seen that the age group of 18-29 is significantly more likely to use Instagram (72% vs. 40%), Snapchat (65% vs. 25%), and TikTok (48% vs. 21%) than the overall population of US adults. About half of Hispanic (52%) and Black Americans (49%) say they use the photo and video sharing platform Instagram, compared to a smaller percentage of White Americans (35%). Roughly half of adults who have a bachelor's or advanced degree (51%) say they use the career-centered social networking site LinkedIn. Those with some college experience (28%) or those with a high school diploma or less (10%) are far

less likely to use LinkedIn. Women dominate the use of the idea and image sharing and saving social media site Pinterest. Compared to men (16%), women report nearly triple the amount of usage of Pinterest (46%). Nextdoor, a social media platform that connects people based on their location, more likely to be used by urban (17%) and suburban (14%) adults. Only 2% of rural US adults say they have used Nextdoor.

Importance of Health Educators' Use of Social Media

The case can be made that social media is an important tool to augment traditional health education modes. As previously mentioned, until the 1980s most mass communication in health education was through print materials like brochures, pamphlets, and booklets. These materials were non-discriminant in nature and often attempted to reach audiences with a "catch all" approach (Rimer & Kreuter, 2006). In the 1980s, major improvements in computing, and the understanding of how communication could be tailored for specific effects, would allow for health educators to be more creative with their targeted materials. The improvements in computing, coinciding with cheaper costs of color printing allowed for customizable health messaging to become more accessible (Rimer & Kreuter, 2006). Health educators also use other modes of messaging in tandem with print media. As examples, health educators have relied on point-of-purchase advertising, billboards, radio, or television for health promotion campaigns. They may also implement a combination of any one of these methods in concert with community-based approaches or social marketing (Thomas, 2006).

In the 21st century, these traditional media are still available for health educators use for targeted health messaging. However, with the growing technological landscape, the Internet is a vast resource with great potential for utilization. In the early 2000s, early internet technology to produce public service announcements, paid advertisements, and email was used in

disseminating health information and advocating for populations of interest (Hanson et al., 2008). These static (read-only) pages are referred to as Web 1.0 (Hanson et al., 2008; Rudman & Bruwer, 2016). These types of technology have their place in health education as a way to build trust with online populations (Hanson et al., 2008). Web 1.0 has also given rise to the fields of consumer health informatics and narrowed the gap between consumer knowledge and professional knowledge. To capitalize on the use of social media for health education, the field must understand the concept of Web 2.0. Web 2.0 is characterized by interactive web pages, podcasts, webcasts, social networking (Facebook, Twitter, etc.), and content sharing (Hanson et al., 2008).

Social media use by health educators is important for multiple reasons. A primary reason professional use of social media by health educators is important is because the use of social media is grounded in multiple vibrant and active social contexts (Stellefson et al., 2020a). Stellefson et al (2020b), claim that social media has a breadth of areas in which health educators are influential: engaging stakeholders, health policy advocacy, determining factors that affect health communication, delivering health messages effectively, and evaluate ongoing health promotion on social media.

As previously mentioned, roughly 72% of US adults report having used a social media site, with segments of the population using certain sites more than others (Pew Research Institute, 2019 & 2021). The consistency of US adults reporting social media use indicates a consistent population base to engage in health education. Based on this data, social media has become a community for health educators to perform essentials of their professional practice such as: (1) providing and managing health education programs, (2) using data to identify community needs, (3) plan, implement, monitor, and evaluating programs, (4) link health

systems, health providers, insurers, and patients to address individual and population health needs, and (5) serve as resource to assist individuals, other health professionals, or the community (Bureau of Labor and Statistics, 2021).

Literature indicates that health educators use social media for work-related purposes in varying capacities. Hanson et al (2011) discovered that health educators tended to use social networking sites most often for work-related use rather than for personal use. Bliss (2018) expanded upon this knowledge, indicating that CHES® would most commonly use social media to raise awareness, exchange information, and promotion.

Theoretical Background

The Unified Theory of Acceptance and Use of Technology (UTAUT) was used as a primary theoretical grounding for the SMCI. The SMCI draws four constructs directly from the UTAUT: effort expectancy, performance expectancy, social influence, and facilitating conditions. The remaining two constructs of social media self-efficacy and social media experience draw pieces from UTAUT and Integrated Behavioral Model (IBM). Within the IBM behavioral intention is the driver of behavioral use, as in Theory of Planned Behavior (TPB), thus this construct was integrated into the UTAUT. The development, validation, and key relationship themes of the UTAUT that inform health educator's potential competency and ultimate use of social media are described below. A conceptual model of the UTAUT is detailed in **Figure A2**.

Development and Description of Unified Theory of Acceptance and Use of Technology

The UTAUT is an empirically validated information technology model of technology acceptance that includes eight user acceptance models (Venkatesh et al., 2003). The models reviewed are: The Theory of Reasoned Action (TRA), Technology Acceptance Model Version 2

(TAM2), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT). The eight models were tested using data from four organizations over six months with three data collection points. When examined individually, the eight models explained between 17% (TRA) and 53% (TAM2) of the variance in user intention to use information technology. The final UTAUT model contains four core determinants of intention and usage. The unified model has four moderators that express influence on the crucial relationships. When tested using the pooled data from the original four organizations, the UTAUT had an adjusted R^2 of 69%. After conducting a study with the same timeline using two new organizations, the result was an adjusted R^2 of 70%, indicating sound external validity.

The UTAUT questionnaire was adapted from prior validated research scales and synthesized to create a cohesive research instrument for the organizations being tested. For each of the determinants tested, a seven-point Likert scale was used to determine the degree to which a participant agreed/disagreed with the item proposed. As previously stated, the final model contains for core determinants of intention and usage. These core determinants are performance expectancy, effort expectancy, social influence, and facilitating factors. The relationships between these determinants and intention and usage are moderated by up to four moderators. The moderators are sex, age, work experience, and voluntary/mandatory use.

The first determinant, performance expectancy, is defined as, "the degree to which an individual believes that using a system will help them attain gains in job performance," (Venkatesh et al., 2003, p. 447). Performance expectancy captures five constructs from the different models: perceived usefulness (TAM2 and C-TAM-TPB), extrinsic motivation (MM),

job fit (MPCU), relative advantage (IDT), and outcome expectations (SCT). Performance expectancy is the strongest predictor of intention and is significant in both voluntary and mandatory settings. The UTAUT model shows that the relationship between performance expectancy and intention is moderated by gender and age. According to Minton & Schneider (1980), men tend to be highly task oriented. Therefore, men may be prone to increased performance expectancy scores because it measures task accomplishment. Age also plays a moderating role in the relationship between performance expectancy and intention. This may be because younger workers may place more importance on extrinsic rewards (Hall & Mansfield, 1975).

The next determinant, effort expectancy, and is defined as, "the degree of ease associated with use of the system," (Venkatesh et al., 2003, p. 450). The constructs from existing models that are included in effort expectancy are perceived ease of use (TAM2), complexity (MPCU), and ease of use (IDT). Like performance expectancy, effort expectancy is seen to be moderated by sex and age. Previous literature suggests that effort expectancy is more predictive for women than men (Venkatesh & Morris, 2000). Plude & Hoyer (1985) demonstrated age to be associated with difficulty in processing complex stimuli and allocating attention to information on the job.

Social influence is defined as, "the degree to which and individual perceives that important others believe they should use the new system," (Venkatesh et al., 2003 p. 451). The constructs from previous models that contribute to social influence in the UTAUT are subjective norm (TAM2, TPB, and C-TAM-TPB), social factors (MPCU), and image (IDT). Each of the constructs that contributes to social influence contains an explicit or implicit perception that the individual's behavior is influenced by the way others will view them because of having used the technology. Individually, the contributing constructs are only significant when technology use is

mandatory. As with the previous two determinants, age and sex moderate the direct relationship with intention. Venkatesh et al (2000) suggest that women find social influence more meaningful when forming intention to use new technology. As the age of employees increase, social influence expresses a stronger influence on intention, this effect diminishes as work experience increases (Morris & Venkatesh, 2000).

Facilitating conditions are defined as, "the degree to which an individual believes that an organization and technical infrastructure exist to support use of the system," (Venkatesh et al., 2003 p. 453). This definition captures concepts represented by three constructs. The three constructs that contribute to facilitating conditions are perceived behavioral control (TPB, C-TAM-TPB), facilitating conditions (MPCU), and compatibility (IDF). These constructs are operationalized such that barriers for use are removed via organizational conditions.

Self-efficacy and anxiety are direct determinants of intention in SCT, but the UTAUT does not include them as direct determinants. Self-efficacy and anxiety have been modeled as indirect determinants of intention and in this relationship are fully mediated by perceived ease of use (Venkatesh, 2000). In social cognitive theory these constructs are direct determinants of intention without controlling for effort expectancy. Therefore, they do not directly determine intention in the model and are be accounted for by other constructs (Venkatesh, 2003, p32).

Attitude towards using technology is defined as, "an individual's overall affective reaction to using a system," (Venkatesh et al., 2003 p. 455). The constructs that contribute to attitude from existing models are attitude towards behavior (TRA, TPB, and C-TAM-TPB), intrinsic motivation (MM), affect toward use (MPCU), and affect (SCT). Attitude towards use is not included in the final model. This is because evidence suggests that affective reactions such as intrinsic motivation may operate through effort expectancy (Venkatesh, 2000).

The UTAUT can be a useful tool for upper-level management or stakeholders. It can be used to evaluate the likelihood of success for new technology adoption. This theoretical framing helps stakeholders understand the drivers of acceptance and use. Interventions like trainings or marketing materials can be developed to target specific populations that may be less predisposed to adopt and use new systems.

UTAUT as Theoretical Framework for Social Media in Health Education

The first use of the UTAUT for health education research was by Hanson et al (2011). The purpose of this study was to explore factors that determine acceptance and use of social media technology among health educators. Participants in the study were CHES® on NCHEC's calendar year 2009-member database. The member database included 7055 CHES®, of which roughly 92% were female. This database was used because it represented a large population that had displayed professional competencies in health education.

The survey contained three sections. The first section of the survey gathered information on health educator's use of social media, both personal and professional. The second section focused on constructs originating from the UTAUT. Survey items that were used to assess performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intentions were adapted from Venkatesh et al (2003). Like the original UTAUT, each construct was assessed Likert scale with options ranging from strongly agree to strongly disagree. However, this study used a five-point scale as opposed to the original seven-point scale. The final section included questions about respondent demographics and a question about monitoring of social media at work.

Results in this study were relatively similar to the UTAUT model, with one exception. The effort expectancy construct was not associated with intention to use social media, which was

contrary to the UTAUT model. Otherwise, social influence and performance expectancy were both positively associated with increased behavioral intentions to use social media applications at work. These models were performed while controlling for effects of age, work experience, and employers blocking or monitoring access to social media sites. Additionally, CHES® that reported employers blocked or monitored their access to social media sites were more likely to report lower behavioral intentions. Older health educators reported higher effort expectancy, lower performance expectancy, and lower social influence. This trend is consistent with the UTAUT model that older workers are shown to express higher effort expectancy and lower performance expectancy. A complex interaction between mandatory use and work experience may be the reason for lower social influence in the Hanson et al (2011) results.

Hanson et al (2011) indicate that future research should assess the specific roles of health educators within organizations and investigate behavioral intention relative to these roles. Further, they recommend that demographic variables such as: gender, race/ethnicity, and income levels be investigated in greater detail among health educators regarding use patterns.

As previously stated, the UTAUT and its constructs were a primary theoretical grounding for the SMCI. The SMCI has the potential to provide general information about the readiness of health educators to use social media to share appropriate information. The SMCI can be applied to identify gaps or assets in confidence and experience, as well as structural or social needs or benefits within health education organizations. This data can be used to inform the development of specific guidelines, training, and policies. Alber et al., (2015) called for more research to explore the breadth of data collected using the SMCI. The authors also called for future research to examine the relationship among the constructs within the SMCI, and the ability of the SMCI to predict social media use among health educators.

CHAPTER III: METHODS

Research Design

This non-experimental, cross-sectional survey study attempted to capture the constructs that contribute to social media competency and usage in a population of health educators. The study was approved by the University of North Carolina Greensboro's Institutional Review Board (IRB). After IRB approval, data was collected from the National Commission for Health Education Credentialing's email contact list of current active-status CHES® and MCHES® via web-based survey.

Data Collection

Qualtrics software was used to conduct the survey. Responses were collected from May 24th, 2021 to June 21st, 2021. The automatic email function of Qualtrics was used to assure the anonymity of participants. When potential participants received the first email, they were asked to complete the survey through an anonymous link. Automatic reminders were sent to those on the list who had not yet responded. Automatic reminders were sent at 10, 21, and 28 days post-initial invitation as outlined by Dillman (2014). The questionnaire for this survey instrument was the previously validated SMCI (Alber et al., 2015). Anonymous responses were stored on an external hard drive only accessible by the principal investigator.

According to the SMCI guidelines for administration, scoring, and interpretation, a total of five items needed to be recoded before analysis (Alber et al., 2015, Multimedia Appendix 2). Three items that required reverse coding were in the Effort Expectancy section and two were in Social Influence section. The reverse coding was completed in Microsoft Excel software.

Sample

A total of 481 certified health education specialists were recruited for the current study. Using email addresses obtained from NCHEC all current active-status CHES® and MCHES®, participants were recruited via email invitations, a total of 11,766 individuals. An a priori power analysis was conducted using G*Power software (Faul et al., 2007). When inputting $\alpha = 0.05$ and power = 0.80, results suggested a sample of 128 was needed when estimating for a medium effect size.

Measures

Demographics

Demographic characteristics measures included: age, gender, racial or ethnic identity, education level, employment status, and certification level. Age was collected as a continuous variable but was later recoded into a categorical variable for analysis. The other demographic variables mentioned were collected as categorical variables (see **Table 3.**). Specific to work-related internet use, participants were asked if they have internet access at work, social media access at work, and if employers block or monitor websites. Work-related internet use variables were collected as categorical and can been seen in **Table 4**.

Social Media Competency Inventory

The SMCI measures the social media competency of health education specialists (Alber et al., 2015). It was developed to identify gaps and needs for trainings, educational programs, and guidelines for health education specialists. The SMCI is intended to be used for health education specialists and was specifically developed for the field of health education. The reliability of this instrument outside of health education has not been evaluated.

Each section of the SMCI represents a construct of social media competency measured on its own respective scale; thus, section scores cannot be summed (Alber et al., 2015). There are six sections of the SMCI, they are: (1) social media self-efficacy, (2) social media experience, (3) effort expectancy, (4) performance expectancy, (5) facilitating conditions, and (6) social influence. All sections were found to have sufficient internal consistency, the internal consistency of field test data for each scale are: Social Media Self-efficacy (α=0.98), Social Media Experience (α=0.98), Effort Expectancy (α=0.74), Performance Expectancy (α=0.81), Facilitating Conditions (α=0.66), and Social Influence (α=0.66).

Sections of the Social Media Competency Inventory

The Social Media Self-Efficacy and Social Media Experience scales are organized by the Seven Areas of Responsibilities for Health Education Specialists. For the purposes of this instrument, Social Media Self-Efficacy, is defined as:

> …an individual's confidence in their ability to use social media technologies as a function of their employment to meet their employer's needs as well as to reach and engage the public. (Alber et al., 2015)

In Section A, participants reviewed different tasks that a health education specialist may complete when developing, implementing, or evaluating a social media program. They were asked to indicate how confident they are on the day of the questionnaire in their ability to complete each task. The response options for Section A are: (1) Extremely Unconfident, (2) Unconfident, (3) Somewhat Unconfident, (4) Somewhat Confident, (5) Confident, and (6) Extremely Confident. This section of the SMCI is organized by the Seven Areas of Responsibilities for Health Education Specialists. The participants indicated how confident they felt completing each task presented. Section A has the highest possible sum score of 300.

According to the SMCI, higher relative scores indicate high confidence in using social media technologies for work-related activities, while lower scores reflect lower confidence levels.

Next, the main construct of Section B, Social Media Experience, is defined as:

> …an individual's completed actions or tasks related to SM, SM websites, and tools that exist and are utilized for professional purposes in health education. (Alber et al., 2015)

In Section B, participants reviewed a set of tasks that a health education specialist may need to complete while developing, implementing, or evaluating a social media program or for advocacy or professional development purposes. They were asked to indicate previous experience completing each task in a health education setting. The response options for Section B are: (1) None, (2) Very Limited, (3) Some Experience, (4) Quite A lot, and (5) Extensive. The highest possible sum score for Section B is 105. Higher scores indicate more experience using social media for health education purposes, while lower scores reflect less experience using social media. The items represent relevant experiences to health education.

In sections C through F participants were asked to read statements related to social media use in health education. They were then asked to indicate their level of agreement with each statement. Section C measures Effort Expectancy. Effort Expectancy is perception of the ease of using social media for health education purposes (Alber et al., 2015). Participants were asked to indicate their level of agreement with each item. The response options for Section C are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Somewhat Agree, and (4) Strongly Agree. Highest possible sum score for section C is 12. Higher scores reflect a perception that social media is easy to use, while lower scores reflect perception of social media being difficult to use.

Section D measures Performance Expectancy. Performance Expectancy is the individual's beliefs about how social media will impact their ability to do their job (Alber et al.,

2015). Participants were asked to indicate their level of agreement with each item. The response options for Section D are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Highest possible sum score for section D is 15. Higher scores reflect beliefs that social media will positively impact their work, while lower scores indicate beliefs that social media will negatively impact their work.

Section E measures Facilitating Conditions. Facilitating Conditions are one's beliefs in the presence of organizational and technical infrastructure to support the use of social media for health education practice and research (Alber et al., 2015). Participants were asked to indicate their level of agreement with each item. The response options for Section D are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Highest possible sum score for section E is 15. Higher scores indicate the belief that organization and technical structure infrastructure exists in their organization to support social media use, while lower scores indicate that they do not believe the structure exists to support social media use.

Section F measures Social Influence. Social Influence is the individual's beliefs about how those important to them think they should use social media (Alber et al., 2015). were asked to indicate their level of agreement with each item. The response options for Section D are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Highest possible sum score for section F is 15. Higher scores indicate that the individual believes those around them support the use of social media, while lower scores indicate those around them do not support the use of social media.

Research Questions

RQ1: What are the relationships between the demographic characteristics across sections in social media competency in health education specialists?

1. What are the relationships between the demographic characteristics and Social Media Self-Efficacy?
2. What are the relationships between the demographic characteristics and Social Media Experience?
3. What are the relationships between the demographic characteristics and Effort Expectancy?
4. What are the relationships between the demographic characteristics and Performance Expectancy?
5. What are the relationships between the demographic characteristics and Facilitating Conditions?
6. What are the relationships between the demographic characteristics and Social Influence?

RQ2: What is the strength of the relationship between demographic variables, work-related internet use, sections of social media competency, and Social Media Experience in health education specialists?

1. What is the strength of the relationship between work-related internet use variables and Social Media Experience?
2. What is the strength of the relationship between Social Media Self-Efficacy and Social Media Experience?
3. What is the strength of the relationship between Effort Expectancy and Social Media Experience?
4. What is the strength of the relationship between Performance Expectancy and Social Media Experience?
5. What is the strength of the relationship between Facilitating Factors and Social Media Experience?
6. What is the strength of the relationship between Social Influence and Social Media Experience?

In order to address the first specific aim, frequency analyses were conducted to examine the demographic profile of the study participants. Additionally, mean sum scores for SMCI constructs were compared to group characteristics via Pearson's correlation. Relationships that emerge from correlation analyses advanced to means testing. Independent samples t-tests were conducted to compare mean differences between constructs of the SMCI and demographic characteristics. Levene's Test for equality of variances was performed post-hoc to account for possible non-normality of data.

In order to address the second aim, the same analysis plan was executed, with additional analyses added. Regression analysis was conducted to model the relationship between the independent variable of Social Media Experience and dependent variables such as SMCI sum scores. All analyses were performed using SPSS v28.

Limitations

According to Alber et al. (2015) internal consistency of Facilitating Conditions and Social Influence scales require additional reliability analyses. Additionally, the Effort Expectancy scale needs to be tested to determine the most appropriate number of response options. The SMCI was designed using the NCHEC Seven Areas of Responsibility for Health Education Specialists as a point of reference. Since this study's participants have been certified and practicing health education under the Seven Areas of Responsibility, there may be limitations to its practical application. This is because, as of this study, the most up-to-date recommendations from NCHEC are the Eight Areas of Responsibility for Health Education Specialists. These eight areas were developed using insight from the latest Health Education Specialist Practice Analysis 2020 (HESPA II) (Knowlden et al., 2020). The eight areas include: assessment of needs capacity, planning, implementation, evaluation and research, advocacy, communication, leadership and management, and ethics and professionalism. NCHEC has begun evaluation and testing of the Eight Areas of Responsibility have in 2022.

Summary

This study provides some information about how the demographic composition of certified health education specialists may relate to their social media competency. There are implications for research, practice, and educational preparation that can come from the results of this study. This study can serve as a direct comparison point to the new Eight Areas of

Responsibility that began testing and evaluation in 2022. An adaptation of the SMCI will need to be created for these new areas but could serve as a research agenda moving forward. The applications from findings of this study have potential inform NCHEC for future training or continuing education modules. Deficiencies in certain constructs may be supplemented using continuing education credit awarding workshops. Finally, curriculum that aligns with field standards can be designed using evidence. Focusing on the strengths identified in the current study will provide supplemental information to course design for health education programs.

CHAPTER IV: EXAMINING THE RELATIONSHIPS BETWEEN DEMOGRAPHIC CHARACTERISTICS AND THE SOCIAL MEDIA COMPETENCY OF HEALTH EDUCATION SPECIALISTS

Introduction

A health education specialist is an individual with baccalaureate-level or higher academic training in health education. They are also competent in the use of educational strategies and methods to facilitate the development of policies, procedures, interventions, and systems conducive to the health and well-being of individuals, groups, and communities. (NCHEC, 2020a; U.S. Bureau of Labor Statistics, 2019; Videto & Dennis, 2021, p.4). Health education specialists are a unique group of public health professionals recognized by the U.S. Bureau of Labor and Statistics (U.S. Bureau of Labor and Statistics, 2021) with a professional practice that involves: needs assessment, planning, implementation, evaluation administration and management, resource dissemination, and communication and advocacy in health promotion and education (Knowlden et al., 2020).

Some, but not all, health education specialists are currently recognized as being either Certified Health Education Specialists (CHES®) or Master Certified Health Education Specialists (MCHES®). The certifying agency in the field of health education and promotion is the National Commission for Health Education Credentialing, Inc (NCHEC), and the CHES® signifies the entry-level certification for the field, whereas MCHES® is the advanced-level certification. The health education profession has identified competencies that have become the basis of their professional practice (Taub et al., 2018). The field periodically conducts competency-based job analyses to update the framework of practice for health education and promotion (Doyle et al., 2012; McKenzie et al., 2016; Knowlden et al., 2020).

The framework of health education and promotion practice represented in the current study was implemented as a result of the 2015 Health Education Specialist Practice Analysis I (HESPA I). HESPA I identified Seven Areas of Responsibility (AOR) for health education specialists, they are: (I) Assess Needs, Resources and Capacity for Health Education/Promotion, (II) Plan Health Education/Promotion, (III) Implement Health Education/Promotion, (IV) Conduct Evaluation and Research Related to Health Education/Promotion, (V) Administer and Manage Health Education/Promotion, (VI) Serve as a Health Education/Promotion Resource Person, and (VII) Communicate, Promote, and Advocate for Health, Health Education/Promotion, and the Profession (McKenzie et al., 2016). Within Area VII, there are four competencies and thirty-eight sub-competencies. Competency 7.1 for health education specialists is to, "Identify, develop, and deliver messages using a variety of communication strategies, methods, and techniques." (National Commission for Health Education Credentialing, 2015, p. 11). It is the professional responsibility of the health education specialist to use a variety of methods and technologies to deliver health messages. Additionally, health education specialists are specifically obligated to deliver health messages using media and communication strategies (McKenzie et al., 2016). One emergent technology that can potentially be used to deliver health messages, identify health literacy, and test messaging campaigns is social media.

Previous research has shown that health educators post to social media in various capacities consistent with their professional duties (Bliss et al., 2018; Neiger et al., 2013; Thackeray et al., 2013). Studies have demonstrated that state and local health departments use Twitter to post factual health information and promote action, the majority of tweets were one-way communication about events and services offered (Neiger et al., 2013; Thackeray et al., 2013). In a study of 1,060 certified health education specialists conducted by Bliss et al. (2018),

it was reported that the participants used work-related social media for increasing awareness, information exchange, networking, and health promotion (Bliss et al., 2018). These findings indicated a high frequency of one-way communication. Minimal research has been conducted into specific constructs that contribute to social media usage intention by health educators. By investigating these particular constructs, best practice may be developed to better inform future use of social media for health education.

Pew Research (2019) has reported that the percentage of US adults using at least one social media platform increased from 5% in 2005 to 62% in 2014. The number of U.S. adults using social media has steadily climbed each year and recent estimates have current usage around 72% (Pew Research Center, 2019 & 2021). In order to use social media as a tool for health education, the health education specialist must be competent in social media use. Social media competency can be defined as,

> …the user's potential to apply social media technologies to disseminate health information and messages, engage and empower individuals to make healthier decisions, and encourage conversation and participation related to the mission of their health organization. (Alber et al., 2015, Multimedia Appendix 2, p. 1).

According to the Pew Research Center (2021), YouTube and Facebook are the most used social media platforms among U.S. adults at 81% and 69%, respectively. This trend holds true across all demographic characteristics reported (age, race, education level, sex, and rural/urban status). However, when exploring other social media sites, it can be seen that the age group of 18-29 uses photo and video sharing platforms at a much higher rate than the overall populations. Young adults are significantly more likely to use Instagram (71% vs. 40%), Snapchat (65% vs. 25%), and TikTok (48% vs. 21%) than the overall population of US adults (Pew Research Center,

2021). The health education specialist competent in social media use would be able to apply their knowledge of these specific technologies to empower young adults to make healthier decisions.

In 2015, Alber et al. developed, validated, and piloted the Social Media Competency Inventory (SMCI) specifically for health education specialists. It was developed to identify gaps and needs for trainings, educational programs, and guidelines for health education specialists. The SMCI is intended to be used for health education specialists and was specifically developed for the field of health education. There are six sections of the SMCI, they are: (1) social media self-efficacy, (2) social media experience, (3) effort expectancy, (4) performance expectancy, (5) facilitating conditions, and (6) social influence. To date, no studies have used the SMCI to identify variations across demographic categories in social media competency among a sample of health education specialists. The current study assessed social media competency among a sample of certified health education specialists, using the SMCI, to better understand the current landscape of social media competency among the sample of active-status CHES® and MCHES®.

Purpose

The purpose of this study was to (1) establish a demographic profile for the sample of certified health education specialists, (2a) evaluate relationships that may exist between demographic characteristics and sections of the SMCI, (2b) evaluate relationships that may exist between work-related internet use variables and sections of the SMCI, and (3) explore variations in demographic characteristics that may exist across sections in the SMCI. This study will answer what variations in demographic variables exists across: (A) Social Media Self-Efficacy, (B) Social Media Experience, (C) Effort Expectancy, (D) Performance Expectancy, (E) Facilitating Conditions, and (F) Social Influence among a sample of certified

health education specialists.

Methods

Design

This non-experimental, cross-sectional survey study aimed to capture the constructs that contribute to social media competency and usage in a population of health education specialists. The study was approved by the University of North Carolina Greensboro's Institutional Review Board (IRB). After IRB approval, data was collected from the NCHEC email contact list of current active-status CHES® and MCHES® via web-based survey. CHES® and MCHES® on the contact list were recruited via an IRB-approved email message, and the web-based survey link was provided in the body of the email message.

Survey Instrument

The questionnaire for this survey instrument was the previously validated Social Media Competency Inventory (SMCI) (Alber et al., 2015). Anonymous responses were stored on an external hard drive only accessible by the Principal Investigator. The SMCI measures the social media competency of health education specialists (Alber et al., 2015). It was developed to identify gaps and needs for trainings, educational programs, and guidelines for health education specialists. The SMCI is intended to be used for health education specialists and was specifically developed for the field of health education. The reliability of this instrument outside of health education has not been evaluated.

Each section of the SMCI represents a construct of social media competency measured on its own respective scale; thus, section scores cannot be summed (Alber et al., 2015). There are six sections of the SMCI, including: (1) social media self-efficacy, (2) social media experience, (3) effort expectancy, (4) performance expectancy, (5) facilitating conditions, and (6) social

influence. All sections were found to have sufficient internal consistency; the internal consistency of field test data for each scale are: Social Media Self-efficacy (α=0.98), Social Media Experience (α=0.98), Effort Expectancy (α=0.74), Performance Expectancy (α=0.81), Facilitating Conditions (α=0.66), and Social Influence (α=0.66).

Data Collection

Qualtrics software was used to conduct the survey. When potential participants received the first recruitment email, they were provided the IRB-approved information on the study, consent, and asked to complete the survey through an anonymous link. Automatic reminders were sent to those on the list who did not respond to the initial email. Automatic reminders were sent at 10, 21, and 28 days after initial outreach as outlined by Dillman (2014). Contact information was obtained through the NCHEC contact list (N=11,766). An a priori power analysis was conducted using G*Power software (Faul et al., 2007). When inputting α = 0.05 and power = 0.80, results suggested a sample size of 128 was needed when estimating for a medium effect size.

Sample

A total of 481 CHES® and MCHES® were recruited for the study. Contact information for the sample population was obtained through the NCHEC contact list (N=11,766) after receiving permission from the University of North Carolina Greensboro Institutional Review Board. Of the 11,766 initial contact emails, 201 (1.71%) bounced back due to incorrect contact information and 11 emails were sent to spam. Removing these from potential respondents left a sample pool of 11,554. Of the pool of eligible respondents, 554 (4.79%) started the survey and 481 (4.16%) completed the survey. The completion rate for the survey was 86.82%. No respondents began the survey as a result of the reminder emails.

Measures

This study examined social media competency among health education specialists using the SMCI as an instrument for collection. Responses were collected from May 24th, 2021 to June 21st, 2021. Each section of the SMCI represents a different construct of social media competency; thus, section scores cannot be summed. There are six sections of the SMCI, they are: (A) Social Media Self-Efficacy, (B) Social Media Experience, (C) Effort Expectancy, (D) Performance Expectancy, (E) Facilitating Conditions, and (F) Social Influence.

Social Media Self-Efficacy

Participants reviewed different tasks that a health education specialist may complete when developing, implementing, or evaluating a social media program. They were asked to indicate how confident they are on the day of the questionnaire in their ability to complete each task. The response options for this section were: (1) Extremely Unconfident, (2) Unconfident, (3) Somewhat Unconfident, (4) Somewhat Confident, (5) Confident, and (6) Extremely Confident. The Social Media Self-Efficacy section has 50 items and a highest possible sum score of 300. According to the SMCI, higher relative scores indicate high confidence in using social media technologies for work-related activities, while lower scores reflect lower confidence levels.

Social Media Experience

Participants reviewed a set of tasks that a health education specialist may need to complete while developing, implementing, or evaluating a social media program, or for advocacy or professional development purposes. They were asked to indicate previous experience completing each task in a health education setting. The response options for the Social Media Experience section were: (1) None, (2) Very Limited, (3) Some Experience, (4) Quite a Lot, and (5) Extensive. This section had 21 response items and a highest possible sum

score of 105. According to the SMCI, higher scores indicate more experience using social media, while lower scores reflect less experience using social media. The items represent relevant experiences to health education.

Effort Expectancy

Participants were asked to indicate their level of agreement with each item. The response options for the Effort Expectancy section were: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Somewhat Agree, and (4) Strongly Agree. This section had three items and a highest possible sum score of 12. According to the SMCI, higher scores reflect a perception that social media is easy to use, while lower scores reflect perception of social media being difficult to use.

Performance Expectancy

Participants were asked to indicate their level of agreement with each item. The response options for the Performance Expectancy section were: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. This section had three items and the highest possible sum score of 15. According to the SMCI, higher scores reflect beliefs that social media will positively impact their work, while lower scores indicate beliefs that social media will negatively impact their work.

Facilitating Conditions

Participants were asked to indicate their level of agreement with each item. The response options for the Facilitating Conditions section were: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. This section had three items and the highest possible sum score of 15. According to the SMCI, higher scores indicate the belief that organization and technical structure infrastructure exists in their

organization to support social media use, while lower scores indicate that they do not believe the structure exists to support social media use.

Social Influence

Participants were asked to indicate their level of agreement with each item. The response options for Social Influence were: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. This section had three items and the highest possible sum score of 15. According to the SMCI, higher scores indicate that the individual believes those around them support the use of social media, while lower scores indicate those around them do not support the use of social media.

Demographics

Demographic characteristics measured included: age, gender, racial or ethnic identity, education level, employment status, and certification level. Age was collected as a continuous variable but was later recoded into a categorical variable for analysis. Other demographic variables mentioned were collected as categorical variables (see **Table 3.**). Specific to work-related internet use, participants were asked if they had: internet access at work, social media access at work, or if employers block or monitor websites. Work-related internet use variables were collected as categorical and can been seen in **Table 4**.

Data Analysis

To establish a demographic profile of the sample population, frequency analyses were performed. The most frequent non-missing response option for each demographic variable was recoded into a binary variable. In the recoding process, the most frequent variables were recoded into "1" and all other response options were recoded into "0". The only exception to this was age. When recoding age, the most frequent age group (30-39) was combined with the second

most frequent age group (18-29) to create the variable "Age Below 40," which was coded as "1." All other age groups were coded as "0."

Pearson's correlation analyses were conducted to elucidate possible relationships between the recoded demographic variables and sections of the SMCI. Levene's Test for Equality of Variances was performed to account for potentially non-normal data. Significant relationships that emerged from correlation analyses advanced to means testing. Independent samples t-tests were performed to assess mean differences between binary variables within SMCI sections. For all analyses, a two-tailed significance level of $p < 0.05$ was considered statistically significant. Analyses were performed using SPSS v28 (IBM Corp., 2021).

Results

Table 3. shows the characteristics of the 481 health education specials included in the sample. The majority were aged 30-39 (22.9%), female (86.9%), and identified as white (65.3%). Roughly one-third (33.5%) had earned a Master of Public Health degree. Additionally, the same percentage of the sample was employed full-time or was CHES® certified (83.4%). The vast majority of participants (95.8%) reported having full access to internet in the workplace. In addition to internet access, roughly two-thirds (62.4%) of participants reported having full social media access in the workplace. Many participants (42.8%) said that their employer blocks or monitors websites at their place of employment, however about one-fifth (20.6%) of respondents are unsure if their employer does so. More details on work-related internet usage can be found in **Table 4.**

Social Media Self-Efficacy (215.65) and Effort Expectancy (9.09) had the highest relative mean scores compared to their section sum scores (300 and 12, respectively). Performance Expectancy (4.82) and Social Influence (5.54) had the lowest relative mean scores

compared to their section sum scores. More detailed information on mean scores of SMCI sections are reported in **Table 5.**

Pearson's Correlation

Table 6. shows Pearson's *r* test results for the 481 health education specialists included in the sample. Interpretations for Pearson's *r* test results are based on Cohen's effect size index for significance of product-moment *r* (Cohen, 1992). Cohen's index describes small effect size as 0.10, a medium effect size as 0.30, and a large effect size as 0.50. There was a significant, small-to-medium, positive correlation between Social Media Self-Efficacy and age below 40, respectively ($r = 0.178$, $p < 0.001$). Social Media Self-Efficacy also showed a small-to-medium, positive, relationship with access to social media at work ($r = 0.226$, $p < 0.001$). Similar to Social Media Self-Efficacy, Social Media Experience presented a small-to-medium, positive, relationship with full access to internet at work ($r = 0.261$, $p < 0.001$).

Effort Expectancy exhibited two significant relationships. The first was a small, negative, relationship with the race/ethnicity variable ($r = -0.137$, $p < 0.05$). The second relationship was a small-to-medium, positive, relationship with full access to social media at work ($r = 0.221$, $p < 0.001$). Performance Expectancy was seen to be associated with only one variable, White. The relationship between these two variables was small and negative ($r = -0.135$, $p < 0.05$). Facilitating Conditions showed no relationships with any demographic variables. Finally, Social Influence displayed two significant relationships in these analyses. The first was a small, negative, relationship with CHES® certification ($r = -0.116$, $p < 0.05$). The second relationship was a small, positive, relationship with full access to social media at work ($r = 0.123$, $p < 0.05$).

Independent Samples T-Tests

Independent samples t-tests were used to compare mean differences of selected demographic characteristics within each section of the SMCI. The results of these analyses are summarized in **Tables 7-10**.

Age Group Comparisons

Table 7. summarizes the results for age group comparisons across social media competency inventory sections. Analyses showed that when comparing mean sum scores of Social Media Self-Efficacy, those below age 40 had an average sum score 16.43 higher than those over age 40 (225.40 vs. 208.97, $p < 0.001$). When examining Social Media Experience, those below 40 had an average score 4.32 higher than those not in the group (57.43 vs. 53.11, $p = 0.053$). Finally, Effort Expectancy mean sum scores in those below 40 were 0.39 higher than those over 40 (9.31 vs. 8.93, $p = 0.053$).

Social Media Access at Work

Table 8. summarizes social media access comparisons across social media competency inventory sections. Four significant mean differences emerged from analyses. The Social Media Self-Efficacy section showed a mean difference in sum scores of 21.62 when comparing having full access to internet at work vs not (223.41 vs. 201.52, $p < 0.001$). The Social Media Experience section showed a mean difference in sum scores of 11.30 when comparing having full access to internet at work vs not (58.75 vs. 47.45, $p < 0.001$). The Effort Expectancy section showed a mean difference in sum scores of 0.89 when comparing having full access to internet at work vs not (9.39 vs. 8.50, $p < 0.001$). The Social Influence section showed a mean difference in sum scores of 0.63 when comparing having full access to internet at work vs not (5.75 vs. 5.12, $p = 0.023$).

Racial/ Ethnic Identity

Table 9. summarizes racial/ethnic identity comparisons across social media competency inventory sections. Two significant mean differences emerged from the analyses. Effort Expectancy presented a mean difference in sum scores of -0.56 when comparing White- vs Non-White participants (8.91 vs. 9.47, $p = 0.011$). Performance Expectancy showed a mean difference in sum scores of -0.56 when comparing White- vs Non-White participants (4.64 vs. 5.21, $p = 0.013$).

Certification

Table 10. summarizes certification comparisons across social media competency inventory sections. One significant mean difference emerged from the analyses. The Social Influence section showed a mean difference in sum scores of -0.73 when comparing CHES® certified participants to MCHES® certified participants (5.40 vs. 6.13, $p = 0.032$).

Discussion

The present study aimed to (1) establish a demographic profile for the sample of certified health education specialists, (2a) evaluate relationships that may exist between demographic characteristics and sections of the SMCI, (2b) evaluate relationships that may exist between work-related internet use variables and sections of the SMCI, and (3) explore variations in demographic characteristics that may exist across sections in the SMCI.

The population under 40 represented ~60% of the sample, which is lower, but similar, to other studies using the NCHEC database (McKenzie et al., 2016; Bliss et al., 2018; Knowlden et al, 2020). In previous research, ranges were cut-off at age 45; this, in addition to the natural aging of the population, could account for a slightly lower percentage of younger individuals in the sample. Consistent with previous research, the population was predominantly female, held a

master's degree, or was fully employed (Doyle et al., 2012; McKenzie et al., 2016; Bliss et al., 2018; Knowlden et al, 2020).

The current sample included more participants identifying as Black or African American and Hispanic or Latino than previous studies focusing on certified health education specialists. (Doyle et al., 2012; McKenzie et al., 2016; Bliss et al., 2018; Knowlden et al, 2020). This change was reflected in a smaller proportion of White participants. The change in racial and ethnic identity may have a link to NCHEC's stance on equity and injustice and its strategic plan. NCHEC stands firmly against racism, sexism, ageism, or discrimination of any kind (National Commission for Health Education Credentialing, 2020b). NCHEC has acted toward this end by seeking to increase diversity in among the CHES® and MCHES® workforce by the end of 2022 (National Commission for Health Education Credentialing, 2020c).

A majority of the participants had full access to internet at work, consistent with previous reports that examined social media use by health education specialists (Hanson et al. 2011; Alber et al., 2015). About two-thirds of participants that responded reported they had full access to social media at work, which is much higher than previous results from Alber et al. (2015). This may be the result of wider use and acceptance of social media over time (Pew Research 2019 & 2021). Participants reported that employers block or monitor websites at a rate of 43%, which is comparable to previously reported rates of 42-50% (Hanson et al. 2011; Alber et al., 2015). Interestingly, participants that reported they were unsure if employers blocked or monitored websites was much higher (20.6% vs 9.1%, respectively) than that reported by Alber et al. (2015).

Pearson's *r* analyses revealed four significant relationships that existed between demographic characteristics and sections of the SMCI. A positive relationship was revealed between the study participants under age 40 and Social Media Self-Efficacy. This indicates that

being in the younger population is associated with higher confidence to use social media technologies as a function of their employment. The remaining associations with sections were negative. White identifying participants were seen to have an inverse association with Effort Expectancy and Performance Expectancy. In other words, the racial and ethnic minority respondents showed a positive association with Effort Expectancy and Performance Expectancy. These associations indicate that racial and ethnic minority participants perceive that using social media for health education purposes is easier and believe social media will have a positive impact on their ability to do their job. There was a negative association seen between CHES® certificate holders and Social Influence. This means that CHES® certificate holders are less likely to believe those around them support the use social media than MCHES® certificate holders.

These analyses also uncovered relationships between full access to social media at work and four of the sections of the SMCI. Positive associations were apparent between full access to social media at work and Social Media Self-Efficacy, Social Media Experience, Effort Expectancy, and Social Influence. Those with full access to social media at work were associated with having higher confidence to use social media technologies as a function of their employment. Additionally, these individuals were associated with being experienced with using social media for health education and promotion purposes. Those with full access to social media at work were associated with higher perceived ease of use of social media. Finally, those with full access to social media at work showed a positive association with the belief that those around them support the use of social media.

Independent sample's T-Tests revealed several group-mean differences that built upon the results of the Pearson's *r* testing. First, those below the age of 40 had 7.39% higher mean social media self-efficacy score compared to those above age 40. The younger participants have more

confidence to use social media technologies as a function of their older counterparts. Next, when comparing SCMI section mean scores of the racial and ethnical groups, two significant differences become apparent. White participants have 6.29% lower mean scores for Effort Expectancy compared to the non-White participants. White participants also had 12.07% lower mean scores in Performance Expectancy compared to non-White participants. Compared to MCHES®, CHES® saw 13.52% lower mean scores in Social Influence. Finally, those with full access to social media at work saw significant group mean differences across four of the SMCI sections. The participants that indicated they had full access at work had significantly higher mean scores than those without full access for Social Media Self-Efficacy (9.69% higher), Social Media Experience (19.23% higher), Effort Expectancy (9.48% higher), and Social Influence (10.96% higher).

Novel findings

Possible explanations for these associations can be found in other results from **Table 6.** Analyses of demographic variables resulted in a negative relationship between race and age, with participants under the age of 40 being more racially and ethnically diverse than older age groups. Participants under 40 were also seen to have a positive association with having the CHES® certification, as opposed to the MCHES® certification. This result is intuitive given the eligibility criteria for the MCHES® exam includes a requirement of at least five (5) years of experience working at the advanced level of practice. Results indicated that participants holding the CHES certification were more likely to identify as a racial and ethnic minority, as opposed to the MCHES certification. It was also observed that having full social media access at work was negatively associated with CHES® certification. In other words, participants that held a CHES® certification were associated with having less than full social media access at work.

The results from these analyses indicate that higher Social Media Self-Efficacy was associated with age under 40, which was confirmed by means testing. Those in the population that were racial and ethnic minorities were associated with having higher Performance Expectancy and Effort Expectancy for using social media for health promotion; this association was also confirmed by means testing across Effort Expectancy and Performance Expectancy. The racial and ethnic minority participants were also associated with being under 40 years old, adding another potential relationship to examine. Further, holding a CHES® certification being associated with racial and ethnic minority identity adds another possible relationship into a larger model for future exploration.

In sum, these data indicate that CHES® are, in general, younger, racially and ethnically diverse. The age of these individuals had an association with higher Social Media Self-Efficacy. The racial and ethnic identity of these individuals had an association with Effort Expectancy and Performance Expectancy, possibly through an indirect association with age. Those that were CHES® certified were associated with having lower Social Influence, means testing confirmed CHES® did have lower Social Influence scores compared to MCHES®. As previously stated, those that were CHES® also associated with being in general, younger, and more racially and ethnically diverse. Social Influence may be negatively associated with CHES® certification via indirect associations with age or racial and ethnic identity. Future testing on these associations should be conducted to parse out the degree to which age and racial and ethnic identity influence these relationships.

Limitations

According to Alber et al. (2015) internal consistency of Facilitating Conditions and Social Influence scales require additional reliability analyses. Additionally, the Effort

Expectancy scale needs to be tested to determine the most appropriate number of response options. The age variable was missing roughly one-third of the data. In the case of Social Media Experience and Effort Expectancy the group mean differences were trending toward significance. A larger portion of the reporting their age may have clarified if a difference in group means for Social Media Experience and Effort Expectancy was statistically significant or insignificant. This sample is a small fraction of total health education specialists, and the results may not necessarily reflect the entirety of health education specialists.

Conclusions

In conclusion, the key difference in this sample is the percentage of Black or African American and Hispanic or Latino identifying compared to previous studies using NCHEC contact lists for recruitment. This may be a result of NCHEC's strategic plan to increase diversity among the CHES® and MCHES® workforce (Objective 4.2) (National Commission for Health Education Credentialing, 2020c). Additionally, social influence, effort expectancy, and performance expectancy in the population may have significant impacts on social media self-efficacy through a yet to be explained relationship with age, CHES®, and racial or ethnic identity.

CHAPTER V: EXAMINING THE ASSOCIATIONS BETWEEN DEMOGRAPHIC VARIABLES, CONSTRUCTS OF SOCIAL MEDIA COMPETENCY, AND SOCIAL MEDIA EXPERIENCE IN HEALTH EDUCATION SPECIALISTS

Introduction

A health education specialist is an individual with baccalaureate-level or higher academic training in health education. They are also competent in the use of educational strategies and methods to facilitate the development of policies, procedures, interventions, and systems conducive to the health and well-being of individuals, groups, and communities. (NCHEC, 2020a; U.S. Bureau of Labor Statistics, 2019; Videto & Dennis, 2021, p.4).

Some, but not all, health education specialists are currently recognized as being either Certified Health Education Specialists (CHES®) or Master Certified Health Education Specialists (MCHES®). The certifying agency in the field of health education and promotion is the National Commission for Health Education Credentialing, Inc (NCHEC), and the CHES® signifies the entry-level certification for the field, whereas MCHES® is the advanced-level certification. The health education profession has identified competencies that have become the basis of their professional practice (Taub et al., 2018). The field periodically conducts competency-based job analyses to update the framework of practice for health education and promotion (Doyle et al., 2012; McKenzie et al., 2016; Knowlden et al., 2020).

The framework of health education and promotion practice represented in the current study was implemented as a result of the 2015 Health Education Specialist Practice Analysis I (HESPA I). HESPA I identified Seven Areas of Responsibility (AOR) for health education specialists, they are: (I) Assess Needs, Resources and Capacity for Health Education/Promotion, (II) Plan Health Education/Promotion, (III) Implement Health Education/Promotion, (IV)

Conduct Evaluation and Research Related to Health Education/Promotion, (V) Administer and Manage Health Education/Promotion, (VI) Serve as a Health Education/Promotion Resource Person, and (VII) Communicate, Promote, and Advocate for Health, Health Education/ Promotion, and the Profession (McKenzie et al., 2016). Within Area VII, there are four competencies and thirty-eight sub-competencies. Competency 7.1 for health education specialists is to, "Identify, develop, and deliver messages using a variety of communication strategies, methods, and techniques." (National Commission for Health Education Credentialing, 2015, p. 11). It is the professional responsibility of the health education specialist to use a variety of methods and technologies to deliver health messages. Additionally, health education specialists are specifically obligated to deliver health messages using media and communication strategies (McKenzie et al., 2016). One emergent technology that can potentially be used to deliver health messages, identify health literacy, and test messaging campaigns is social media.

Previous research has shown that health educators post to social media in various capacities consistent with their professional duties (Bliss et al., 2018; Neiger et al., 2013; Thackeray et al., 2013). Studies have demonstrated that state and local health departments use Twitter to post factual health information and promote action, the majority of tweets were one-way communication about events and services offered (Neiger et al., 2013; Thackeray et al., 2013). In a study of 1,060 certified health education specialists conducted by Bliss et al. (2018) it was reported that the participants used work-related social media for increasing awareness, information exchange, networking, and health promotion (Bliss et al., 2018). These findings indicated a high frequency of one-way communication. Minimal research has been conducted into specific constructs that contribute to social media usage intention by health educators. By

investigating these particular constructs, best practice may be developed to better inform future use of social media for health education.

In 2015, Alber et al. developed, validated, and piloted the Social Media Competency Inventory (SMCI) specifically for health education specialists. It was developed to identify gaps and needs for trainings, educational programs, and guidelines for health education specialists. The SMCI is intended to be used for health education specialists and was specifically developed for the field of health education. There are six sections of the SMCI, they are: (1) Social Media Self-Efficacy, (2) Social Media Experience, (3) Effort Expectancy, (4) Performance Expectancy, (5) Facilitating conditions, and (6) Social influence.

Social Media Experience

The SMCI does not directly measure "use behavior" of social media, rather Social Media Experience. For the purpose of this study, Social Media Experience includes, "…actions or tasks completed by the individual related to social media, social media websites, and tools that exist and are utilized for professional purposes in health education." (Alber et al., 2015 p.6). Since this section of the SMCI includes behavior of the individual completing tasks related to social media for health education it was deemed a suitable outcome viable for examining use behavior. To date, no studies have used the SMCI to examine the strength of the relationship between Social Media Experience and other sections in the SMCI among a sample of health education specialists.

Purpose

The purpose of this study was to examine the potential relationships between Social Media Experience and specific variables of social media competency measured with the SMCI. This study will specifically assess potential that exist across: (1) Social Media Self-

Efficacy, (2) Effort Expectancy, (3) Performance Expectancy, (4) Facilitating Conditions, and (5) Social Influence and Social Media Experience.

Methods

Sample

A total of 481 CHES® and MCHES® were recruited for the study. Health education specialists are a unique group of public health professionals recognized by the U.S. Bureau of Labor and Statistics (U.S. Bureau of Labor and Statistics, 2021) with a professional practice that involves: needs assessment, planning, implementation, evaluation administration and management, resource dissemination, and communication and advocacy in health promotion and education (Knowlden et al., 2020). Contact information for the sample population was obtained through the NCHEC contact list (N=11,766) after receiving permission from the University of North Carolina Greensboro Institutional Review Board.

Qualtrics software was used to conduct the survey. When potential participants received the first email, they were asked to complete the survey through an anonymous link. Automatic reminders were sent to those on the list who did not respond to the initial email. Automatic reminders were sent at 10, 21, and 28 days after initial outreach as outlined by Dillman (2014).

An a priori power analysis was conducted using G*Power software (Faul et al., 2007). When inputting $\alpha = 0.05$ and power = 0.80, results suggested a sample size of 128 was needed when estimating for a medium effect size. Of the 11,766 initial contact emails, 201 (1.71%) bounced back due to incorrect contact information and 11 emails were sent to spam. Removing these from potential respondents left a sample pool of 11,554. Of the pool of eligible respondents, 554 (4.79%) started the survey and 481 (4.16%) completed the survey. The

completion rate for the survey was 86.82%. No respondents began the as a result of the reminder emails.

Measures

This study examined social media competency among health education specialists using the Social Media Competency Inventory (SMCI) and an instrument for collection. Responses were collected from May 24th, 2021, to June 21st, 2021. Two reminder emails were sent out during the data collection period: one at day 10 and one at day 21 (Dillman, 2014).

Each section of the SMCI represents a different construct of social media competency; thus, section scores cannot be summed. There are six sections of the SMCI, they are: (A) Social Media Self-Efficacy, (B) Social Media Experience, (C) Effort Expectancy, (D) Performance Expectancy, (E) Facilitating Conditions, and (F) Social Influence.

In Section A, participants reviewed different tasks that a health education specialist may complete when developing, implementing, or evaluating a social media program. They were asked to indicate how confident they are on the day of the questionnaire in their ability to complete each task. The response options for Section A are: (1) Extremely Unconfident, (2) Unconfident, (3) Somewhat Unconfident, (4) Somewhat Confident, (5) Confident, and (6) Extremely Confident. Section A has 50 items and a highest possible sum score of 300. According to the SMCI, higher relative scores indicate high confidence in using social media technologies for work-related activities, while lower scores reflect lower confidence levels.

In Section B, participants reviewed a set of tasks that a health education specialist may need to complete while developing, implementing, or evaluating a social media program, or for advocacy or professional development purposes. They were asked to indicate previous experience completing each task in a health education setting. The response options for Section

B are: (1) None, (2) Very Limited, (3) Some Experience, (4) Quite a Lot, and (5) Extensive. Section B has 21 items and a highest possible sum score of 105. According to the SMCI, higher scores indicate more experience using social media, while lower scores reflect less experience using social media. The items represent relevant experiences to health education.

Section C measures Effort Expectancy. Participants were asked to indicate their level of agreement with each item. The response options for Section C are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Somewhat Agree, and (4) Strongly Agree. Section C has three items and a highest possible sum score of 12. According to the SMCI, higher scores reflect a perception that social media is easy to use, while lower scores reflect perception of social media being difficult to use.

Section D measures Performance Expectancy. Participants were asked to indicate their level of agreement with each item. The response options for Section D are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Section D has three items and the highest possible sum score of 15. According to the SMCI, higher scores reflect beliefs that social media will positively impact their work, while lower scores indicate beliefs that social media will negatively impact their work.

Section E measures Facilitating Conditions. Participants were asked to indicate their level of agreement with each item. The response options for Section D are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Section E has three items and the highest possible sum score of 15. According to the SMCI, higher scores indicate the belief that organization and technical structure infrastructure exists in their organization to support social media use, while lower scores indicate that they do not believe the structure exists to support social media use.

Section F measures Social Influence. Participants were asked to indicate their level of agreement with each item. The response options for Section F are: (1) Strongly Disagree, (2) Somewhat Disagree, (3) Neither Agree or Disagree, (4) Somewhat Agree, and (5) Strongly Agree. Section F has three items and the highest possible sum score of 15. According to the SMCI, higher scores indicate that the individual believes those around them support the use of social media, while lower scores indicate those around them do not support the use of social media.

Demographic characteristics of the population were also collected. The characteristics collected were age, gender, racial or ethnic identity, and education level. Additionally, NCHEC certification status and employment status were gathered. Specific to social media, participants were asked if they have internet access at work, their amount of social media access at work, and if employers block or monitor websites.

Analysis

To establish a demographic profile of the sample population, frequency analyses were performed. The most frequent non-missing response option for each demographic variable was recoded into a binary variable. In the recoding process the most frequent variables were recoded into "1" and all other response options were recoded into "0". The only exception to this was age. When recoding age, the most frequent age group (30-39) was combined with the second most frequent age group (18-29) to create the variable "Age Below 40," which was coded as "1." All other age groups were coded as "0."

Pearson's correlation analyses were conducted to elucidate possible relationships between the recoded demographic variables and sections of the SMCI. Significant relationships that emerged from correlation analyses then advanced as control variables for hierarchical linear

regression. The hierarchical regression aimed to examine possible relationships between SMCI sections and Social Media Experience in a two-stage model. The first stage included demographic control variable entry only. Variables that advanced as controls to hierarchical regression modeling were age, race/ethnicity, CHES®, and access to social media at work. The second stage added in the SMCI sections of Social Media Self-Efficacy, Effort Expectancy, Performance Expectancy, Facilitating Conditions, and Social Influence as independent variables. All alpha levels for statistical analyses were set at $\alpha = 0.05$. Analyses were performed using SPSS v28 (IBM Corp., 2021).

Results

Sample Characteristics

Participants voluntarily responded to an anonymous survey link send via email. Emails were obtained through the NCHEC contact list (N=11,766). Of the 11,766 initial contact emails, 201 (1.71%) bounced back due to incorrect contact information and 11 emails were sent to spam. Removing these from potential respondents leaves a sample pool of 11,554. Of the pool of eligible respondents 554 (4.79%) started the survey and 481 (4.16%) completed it, with some missing data.

Table 3. shows the characteristics of the 481 health education specialists included in the sample. The majority were aged 30-39 (22.9%), female (86.9%), or white (65.3%). Roughly one-third (33.5%) had earned a Master of Public Health degree. Additionally, the same percentage of the sample was employed full-time or was CHES® certified (83.4%). The vast majority of participants (95.8%) reported having full access to internet in the workplace. In addition to internet access, roughly two-thirds (62.4%) of participants have full social media access in the workplace. Many participants (42.8%) said that their employer blocks or monitors websites at

their place of employment, however about one-fifth (20.6%) of respondents are unsure if their employer does so. More details on work-related usage can be found in **Table 4.** Social Media Self-Efficacy (215.65) and Effort Expectancy (9.09) had the highest relative mean scores compared to their section sum scores (300 and 12, respectively). Performance Expectancy (4.82) and Social Influence (5.54) had the lowest relative mean scores compared to their section sum scores. More detailed information on mean scores of SMCI sections are reported in **Table 5.**

Pearson's Correlation

Table 6. shows the Pearson's *r* test results for the 481 health education specialists included in the sample. Interpretations for Pearson's *r* test results are based on Cohen's effect size index for significance of product-moment *r* (Cohen, 1992). Cohen's index describes small effect size as 0.10, a medium effect size as 0.30, and a large effect size as 0.50. There is a significant, small-to-medium, positive correlation between Social Media Self-Efficacy and age, respectively ($r = 0.178$, $p < 0.001$). Social Media Self-Efficacy also small-to-medium, positive, relationship with access to social media at work ($r = 0.226$, $p < 0.001$). Similar to Social Media Self-Efficacy, Social Media Experience showed a small-to-medium, positive, relationship with access to internet at work ($r = 0.261$, $p < 0.001$). Effort Expectancy presented two significant relationships. The first was a small, negative, relationship with the race/ethnicity variable ($r = -0.137$, $p < 0.05$). The second relationship was a small-to-medium, positive, relationship with full access to social media at work ($r = 0.221$, $p < 0.001$). Performance Expectancy was seen to be associated with only one variable, race/ethnicity. The relationship between these two variables was small and negative ($r = -0.135$, $p < 0.05$). Facilitating Conditions showed no relationships with any demographic variables. Finally, Social Influence displayed two significant relationships in these analyses. The first was a small, negative, relationship with

CHES® certification (r = -0.116, $p < 0.05$). The second relationship was a small, positive, relationship with access to social media at work (r = 0.123, $p < 0.05$).

Hierarchical Regression

Model 1

The summary for regression Model 1 can be found in **Table 11.** The dependent variable for this model was Social Media Experience sum score. This model was performed to act as a control. Variables for this model were: age, race/ethnicity, access to social media at work, and CHES® certified. The control variables explained 7.8% of the variance in Social Media experience of certified health education specialists.

Model 2

The summary for regression model 2 can be found in **Table 11.** The dependent variable for this model was Social Media Experience sum score. The control variables for this model were: age, race/ethnicity, access to social media at work, and CHES® certified. Independent variables for this model were constructs of the SMCI: Social Media Self-Efficacy, Effort Expectancy, Performance Expectancy, Facilitating Conditions, and Social Influence. Overall, the SMCI constructs accounted for 35.2% of the variance of Social Media Experience when controlling for age, race/ethnicity, access to social media at work, and CHES® certification.

Social Media Competency Inventory Sections

The slope for Social Media Self-Efficacy was found to be significant (B = 0.284 ± 0.03, $p < 0.001$), this suggests that for every one-point increase in Social Media Self-Efficacy sum scores, Social Media Experience Scores will increase by 0.284. The slope for the Effort Expectancy was nonsignificant (p = 0.706), and no relationship with Social Media Experience was apparent. The slope for Performance Expectancy was seen to be significant (p = 0.043),

indicating that for every one-point increase in Performance sum scores, Social Media Experience Scores will decrease by nearly one full point (0.997 ± 0.48). The slope for Facilitating Conditions was not significant ($p = 0.946$). The slope Social Influence was not significant ($p = 0.541$).

Discussion

The present study aimed to assess relationships across: (1) Social Media Self-Efficacy, (2) Effort Expectancy, (3) Performance Expectancy, (4) Facilitating Conditions, and (5) Social Influence and Social Media Experience. Other variables, such as demographics and internet use at work variables, acted as controls in the first model of the hierarchical regression. In the second model

Pearson's *r* analyses revealed four significant relationships that existed between demographic characteristics and sections of the SMCI. A positive relationship was found between the study participants' age and Social Media Self-Efficacy. This indicates that being in the younger population is associated with higher confidence to use social media technologies as a function of their employment. The remaining associations with sections were negative. White participants were seen to have an inverse association with Effort Expectancy and Performance Expectancy. In other words, the racial and ethnic minority respondents showed a positive association with Effort Expectancy and Performance Expectancy. These associations indicate that racial and ethnic minority participants perceive that using social media for health education purposes is easier and believe social media will have a positive impact on their ability to do their job. There was a negative association seen between CHES® certificate holders and Social Influence. This means that CHES® certificate holders are less likely to believe those around them support the use social media than MCHES® certificate holders.

These analyses also showed relationships between access to social media at work and four of the sections of the SMCI. Positive associations were apparent between access to social media at work and Social Media Self-Efficacy, Social Media Experience, Effort Expectancy, and Social Influence. Those with full access to social media at work were associated with having higher confidence to use social media technologies as a function of their employment. Additionally, full access to AM at work was positively associated with SM experience using social media for health education and promotion purposes. Those with full access to social media at work had higher perceived ease of use of social media. Finally, those with full access to social media at work were more likely to believe that those around them support the use of social media.

Regression results indicate that demographic variables alone contribute minimal explanation of variance of the modeled relationship on Social Media Experience. When adding SMCI constructs to the model, a significantly larger amount of variance is explained. The two significant contributors to Model 2 were Social Media Self-Efficacy and Performance Expectancy. Changes in Social Media Self-Efficacy were positively associated with changes in Social Media Experience. Changes in Performance Expectancy are negatively associated with changes in Social Media Experience.

Those with higher beliefs about how social media will impact their ability to do their job were seen to have lower Social Media Experience. Results from the Pearson's *r* analysis indicated a significant correlation did not exist between age and Performance Expectancy. However, when controlling for age, Performance Expectancy was seen to be a predictor of Social Media Experience. Previous studies indicate that older employees have lower Performance Expectancy (Hall & Mansfield, 1975; Minton & Schneider, 1980; Venkatesh et al., 2003,

Hanson et al., 2011). The current study focused on group differences between younger-aged and older-aged health education specialists. Future research should focus on the variations between different age groups to elucidate a possible association of age on the relationship between Performance Expectancy and Social Media Experience.

Limitations

According to Alber et al. (2015) internal consistency of Facilitating Conditions and Social Influence scales require additional reliability analyses. Additionally, the Effort Expectancy scale needs to be tested to determine the most appropriate number of response options. The age variable was missing roughly one-third of the data. If a larger amount if age responses was collected this may have affected the strength of any relationship involving age. This sample is a small fraction of total health education specialists, and the results may not necessarily reflect the entirety of health education specialists.

Conclusions

In conclusion, the results of this study indicate that the demographic characteristics have limited explanatory power on Social Media Experience. When controlling for these variables, the variance explained rose to over one-third. Social Media Self-Expectancy was the only positive relationship to with Social Media Experience to emerge from analysis. Future research could focus on what methods increase Social Media Self-Efficacy among health education specialists. Additionally, Performance Expectancy was seen to have a strong negative relationship on Social Media Experience. Future research may focus on different constructs of Performance Expectancy such as: perceived usefulness, extrinsic motivation, job fit, relative advantage, and outcome expectations (Venkatesh, 2003). By focusing on these constructs researchers can target which

areas of Performance Expectancy may be responsible for a negative relationship with Social Media Experience.

CHAPTER VI: CONCLUSIONS

Key Findings

The Social Media Self-Efficacy group mean indicated those in the sample are somewhat confident in using social media technologies for work-related activities. Additionally, the Effort Expectancy group mean indicated those in the sample perceived that social media is somewhat easy to use but are not fully confident in the ease of use of social media for health education purposes. Taking these two results together, the individuals in the sample felt marginally positive in these sections of the SMCI. The Performance Expectancy group mean indicated those in the sample believed that social media will negatively impact their ability to do their job. Moreover, the Social Influence group mean indicated those in the sample believed those around them do not support the use of social media. Taking these two responses together, the individuals in the sample felt decidedly negative about these sections of the SMCI.

Results indicate that CHES® were, in general, younger and racially and ethnically diverse. This may be a result of NCHEC's strategic plan (NCHEC, 2020c). Part of the strategic plan aims to increase diversity among the CHES® and MCHES® workforce (Objective 4.2). Two main differences were observed, on average, between Non-White identifying participants and White-identifying participants. Non-White identifying participants perceived social media as easier to use for health education purposes than White identifying participants. Also, Non-White identifying participants perceived that social media will more positively impact their job compared to White identifying participants. Age was correlated with both CHES® and racial/ethnic identity. Future research should focus on determining what possible interaction age could have on the relationship between racial/ethnical identity and CHES®.

Social Media Self-Efficacy follows established theory as a predictor of behavior. The current study identified the strength of the relationship between the two as a point of reference for future research. Previous studies indicate that older employees have lower Performance Expectancy. (Hall & Mansfield, 1975; Minton & Schneider, 1980; Venkatesh et al., 2003, Hanson et al., 2011). The current study focused on group differences between younger-aged and older-aged health education specialists. However, future research should investigate the possible association of age on the relationship between Performance Expectancy and Social Media Experience.

Limitations

According to Alber et al. (2015) internal consistency of Facilitating Conditions and Social Influence scales require additional reliability analyses. Additionally, the Effort Expectancy scale needs to be tested to determine the most appropriate number of response options. Nearly one-third of total age responses were coded as missing. A larger number of responses for the age variable may have influenced any relationships associated with age. This sample was a fraction of the entirety of health education specialists. The results of the current study may not be generalizable to the broader health education specialist community.

Implications

The SMCI is a tool that researchers and practitioners can access to assess their performance in six key areas of social media competency specific to health education. The SMCI is publicly available and can be used at any time. The SMCI is accompanied by supplemental documents outlining the implementations and scoring of the instrument. Since the SMCI comes with these documents, it may be easy to implement for the groups previously mentioned. The SMCI may provide guidance to researchers seeking to understand the upstream intentions for

social media usage in health education specialists. Additionally, the SMCI can provide guidance to practicing health education specialists seeking to implement social media methods in their professional practice. Finally, the SMCI could provide guidance to organizations trying to understand and improve the social media usage in their health education specialists.

The SMCI may provide guidance to researchers seeking to understand the upstream intentions for social media usage in health education specialists. Because the SMCI collects six different constructs to social media competency, this data can be used in many different ways. Future research could design a survey tool based on the SMCI that also includes more comprehensive social media intention and social media usage items. Collecting this type of data would closely align with the theoretical basis of the SMCI, the UTAUT (Venkatesh, 2003). The UTAUT has been tested and is a reliable theoretical basis for testing technology acceptance. Applying the constructs of the SMCI and additional data that includes behavioral intention and usage are a natural progression.

The SMCI can provide guidance to practicing health education specialists seeking to implement social media methods in their professional practice. The results of this study indicate that social media self-efficacy and performance expectancy are significant influences on overall social media experience of health education specialists. Practicing health education specialists can use results of this study as a starting point to increase their social media usage. First, health education specialists can increase their self-efficacy for social media use. This can be achieved through practicing small steps, having a role model demonstrate social media use, or somehow reduce stress and anxiety associated with social media use for health education (Janz & Becker, 1984). The practitioner can also decrease their performance expectancy, or their beliefs about how social media will impact their ability to do their job. Performance Expectancy is a complex

section of SMCI and captures five constructs from the different models: perceived usefulness (TAM2 and C-TAM-TPB), extrinsic motivation (MM), job fit (MPCU), relative advantage (IDT), and outcome expectations (SCT) (Venkatesh, 2003). Self-identification of one of more of these constructs of Performance Expectancy can help the health education specialist target which is most influential to their own Performance expectancy.

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APPENDIX A: TABLES AND FIGURES

Figure A1. Outline of methods for the designing, development, and testing the Social Media Competency Inventory. Taken from Alber et al. (2015, p. 3).

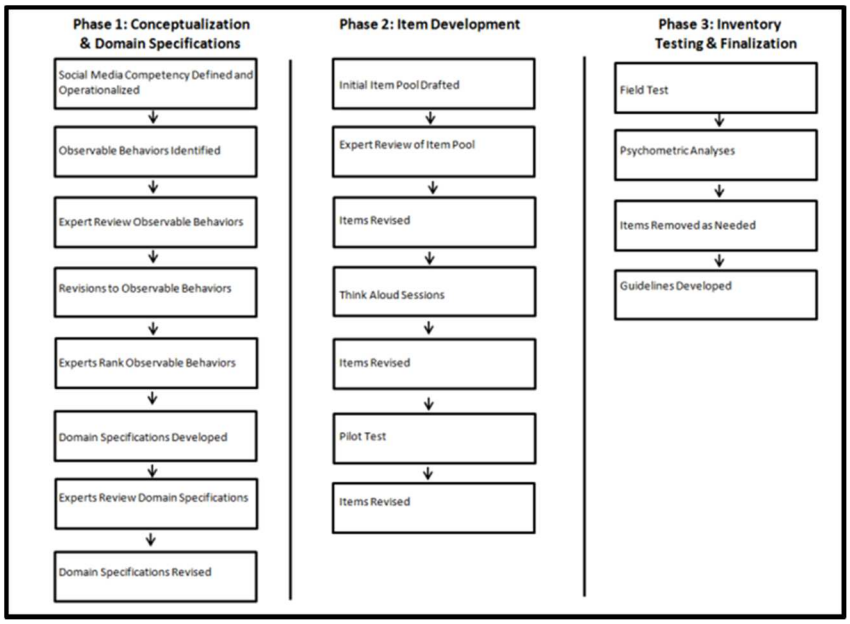

Figure A2. Visual Representation of Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003)

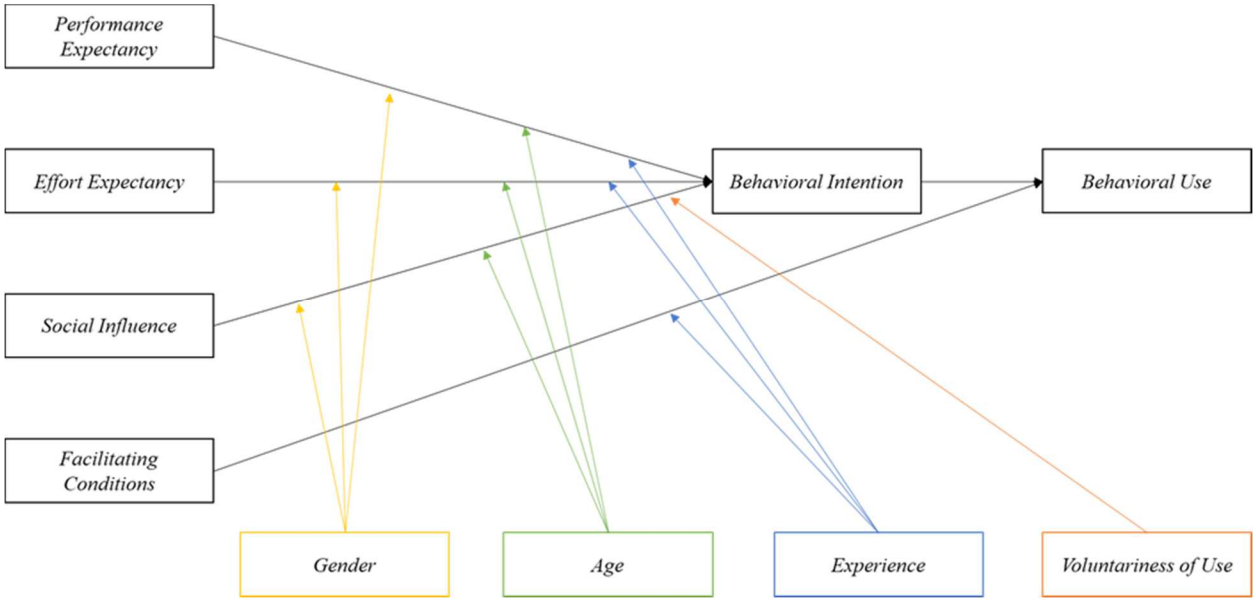

Table A1. **Area VII, Competency 7.1 summary table.**

Area VII: Communicate, Promote, and Advocate for Health, Health Education/Promotion, and the Profession	
7.1	Identify, develop, and deliver messages using a variety of communication strategies, methods, and techniques
7.1.1	Create messages using communication theories and/or models
7.1.2	Identify level of literacy of intended audience
7.1.3	Tailor messages for intended audience
7.1.4	Pilot test messages and delivery methods*
7.1.5	Revise messages based on pilot feedback*
7.1.6	Assess and select methods and technologies used to deliver messages
7.1.7	Deliver messages using media and communication strategies
7.1.8	Evaluate the impact of the delivered messages

Note: *indicates Advanced-level 1 sub-competency. Adapted from the Health Education Specialist Practice Analysis 2015 (McKenzie et al., 2016)

Table A2. Demographic frequency analysis of the sample of health education specialists.

Demographic Characteristics of Sample Population (N = 481)	*n (%)*
Age	
18 to 29	87 (18.1)
30 to 39*	110 (22.9)
40 to 49	72 (15.0)
50 to 59	34 (7.1)
60+	22 (4.6)
Missing	156 (32.4)
Gender	
Male	52 (10.8)
Female*	418 (86.9)
Non-Binary	4 (0.8)
Transgender (F2M)	1 (0.2)
Transgender (M2F)	0 (0.0)
Missing	6 (1.2)
Race and Ethnicity	
White*	314 (65.3)
Black or African American	78 (16.2)
Indigenous American	3 (0.6)
Asian	16 (3.3)
Hispanic, Latino, or Spanish	40 (8.3)
Multiracial	17 (3.5)
Other	7 (1.5)
Missing	6 (1.2)
Education Level	
Four Year Degree	83 (17.3)
Some Graduate School	26 (5.4)
MPH*	161 (33.5)
Master's Degree (other than MPH)	119 (24.7)
Doctorate	85 (17.7)
Missing	7 (1.5)
Employment Status	
Employed Full Time*	401 (83.4)
Employed Part Time	27 (5.6)
Unemployed looking for work	10 (2.1)
Unemployed not looking for work	4 (0.8)
Retired	4 (0.8)
Student	11 (2.3)
Temporary/contracted worker (IRS 1099)	8 (1.7)
Consultant	5 (1.0)
Missing	11 (2.3)

Note: *denotes the most frequent non-missing data.

Table A3. **Frequency analysis of work-related internet usage in the sample of health education specialists.**

Work-Related Internet Usage (N = 481)	*n (%)*
Access to Internet at Work	
Yes*	461 (95.8)
No	6 (1.2)
Missing	14 (2.9)
Access to Social Media at Work	
Full access*	300 (62.4)
Limited access	105 (21.8)
No access	31 (6.4)
Unsure	33 (6.9)
Missing	12 (2.5)
Employers Block or Monitor Websites	
Yes*	206 (42.8)
No	161 (33.5)
Unsure	99 (20.6)
Missing	15 (3.1)

Note: *Indicates the most frequent non-missing data.

Table A4. Mean scores for each area of the Social Media Competency Inventory (SMCI). Highest possible score is provided as a reference in parentheses next to the respective score.

Social Media Competency Inventory Section Mean Scores (N = 481)		
SMCI Section	***n***	***Mean ± SD***
Social Media Self-Efficacy (300)	381	215.65 ± 45.50
Social Media Experience (105)	347	54.90 ± 20.50
Effort Expectancy (12)	341	9.09 ± 1.90
Performance Expectancy (15)	339	4.82 ± 1.95
Facilitating Conditions (15)	340	7.13 ± 2.99
Social Influence (15)	340	5.54 ± 2.41

Table A5. Bivariate Pearson's correlations between demographic variables and Social Media Competency Inventory sections. Bold coefficients indicate general significant relationships.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	-														
2. Gender	0.048	-													
3. Race/Ethnicity	**-.112***	0.002	-												
4. MPH Earned	**.171****	**.132****	**-.149****	-											
5. CHES®	**.220****	0.056	**-.124****	0.013	-										
6. Employment Status	0.009	0.058	**.120****	0.068	**-.105***	-									
7. Internet Access at Work	0.057	-0.042	-0.001	0.042	-0.050	**.170****	-								
8. Social Media Access at Work	-0.060	**-.098***	0.074	-0.004	**-.136****	0.079	**.153****	-							
9. Employers Block/Monitor Websites	0.082	**.112***	-0.057	0.063	0.048	**.195****	-0.014	**-.334****	-						
10. Social Media Self-Efficacy	**.178****	-0.077	-0.046	-0.065	0.043	0.069	0.056	**.226****	-0.028	-					
11. Social Media Experience	0.104	-0.098	-0.029	-0.088	-0.016	0.101	0.039	**.261****	0.019	**.634****	-				
12. Effort Expectancy	0.100	0.051	**-.137***	-0.008	0.051	0.015	0.085	**.221****	0.021	**.539****	**.400****	-			
13. Performance Expectancy	0.023	-0.072	**-.135***	0.042	-0.085	-0.103	-0.067	0.015	-0.040	0.073	-0.033	-0.041	-		
14. Facilitating Conditions	-0.002	-0.029	-0.063	-0.017	-0.032	0.051	-0.049	0.066	-0.005	0.010	0.063	-0.037	**.260****	-	
15. Social Influence	0.014	0.047	-0.070	-0.001	**-.116***	-0.014	-0.015	**.123***	-0.037	0.085	0.060	-0.014	**.362****	**.441****	-

Note: *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

Table A6. Independent samples t-tests comparing the mean Social Media Competency Inventory Section scores in participants <40 and age ≥40.

Age Group Comparisons Across Social Media Competency Inventory Sections (N=481)					
SMCI Section Sum	*Age Below 40*	*n*	*Mean ± SEM*	*Mean Difference*	*p-value*
Social Media Self-Efficacy	Yes	155	225.40 ± 3.50	16.43	<0.001*
	No	226	208.97 ± 3.04		
Social Media Experience	Yes	144	57.43 ± 1.75	4.32	0.053†
	No	203	53.11 ± 1.40		
Effort Expectancy	Yes	143	9.31 ± 0.15	0.39	0.064†
	No	198	8.93 ± 0.14		
Performance Expectancy	Yes	142	4.87 ± 0.19	0.09	0.678
	No	197	4.78 ± 0.13		
Facilitating Conditions	Yes	142	7.12 ± 0.24	-0.01	0.972
	No	198	7.13 ± 0.29		
Social Influence	Yes	142	5.58 ± 0.21	0.07	0.794
	No	198	5.52 ± 0.17		

Note: *Indicates significant two-tailed relationship at the 0.05 level. †Indicates trend toward significance at the 0.05 level (two-tailed).

Table A7. Independent samples t-tests comparing the mean Social Media Competency Inventory Section scores in participants with full social media access at work and those with less than full social media access at work.

Social Media Access Comparisons Across Social Media Competency Inventory Sections (N=481)					
SMCI Section Sum	*Full Access to SM at Work*	*n*	*Mean ± SEM*	*Mean Difference*	*p-value*
Social Media Self-Efficacy	Yes	249	223.14 ± 2.64	21.62	<0.001*
	No	132	201.52 ± 4.28		
Social Media Experience	Yes	229	58.75 ± 1.31	11.30	<0.001*
	No	118	47.45 ± 1.84		
Effort Expectancy	Yes	228	9.39 ± 0.12	0.89	<0.001*
	No	113	8.50 ± 0.19		
Performance Expectancy	Yes	226	4.84 ± 0.13	0.06	0.783
	No	113	4.78 ± 0.18		
Facilitating Conditions	Yes	227	7.26 ± 0.21	0.42	0.228
	No	113	6.85 ± 0.26		
Social Influence	Yes	227	5.75 ± 0.17	0.63	0.023*
	No	113	5.12 ± 0.21		

Note: *Indicates significant two-tailed relationship at the 0.05 level.

Table A8. Independent samples t-tests comparing the mean Social Media Competency Inventory Section scores in White and Non-White participants.

Racial/Ethnic Identity Comparisons Across Social Media Competency Inventory Sections (N=481)					
SMCI Section Sum	*Racial/Ethnic Identity*	*n*	*Mean ± SEM*	*Mean Difference*	*p-value*
Social Media Self-Efficacy	White	254	214.17 ± 2.83	-4.47	0.367
	Non-White	127	218.63 ± 4.09		
Social Media Experience	White	236	54.50 ± 1.32	-1.27	0.592
	Non-White	111	55.77 ± 1.98		
Effort Expectancy	White	233	8.91 ± 0.12	-0.56	0.011*
	Non-White	108	9.47 ± 0.18		
Performance Expectancy	White	232	4.64 ± 0.12	-0.56	0.013*
	Non-White	107	5.21 ± 0.21		
Facilitating Conditions	White	233	7.00 ± 0.19	-0.40	0.250
	Non-White	107	7.40 ± 0.30		
Social Influence	White	233	5.43 ± 0.16	-0.37	0.195
	Non-White	107	5.79 ± 0.232		

Note: *Indicates significant two-tailed relationship at the 0.05 level.

Table A9. Independent samples t-tests comparing the mean Social Media Competency Inventory Section scores in Certified Health Education Specialists (CHES®) and Master Certified Health Education Specialists (MCHES®).

Certification Comparisons Across Social Media Competency Inventory Sections (N=481)					
SMCI Section Sum	*Certification*	*n*	*Mean ± SEM*	*Mean Difference*	*p-value*
Social Media Self-Efficacy	CHES®	314	216.55 ± 2.61	5.09	0.407
	MCHES®	67	211.46 ± 5.12		
Social Media Experience	CHES®	286	54.76 ± 1.23	-0.85	0.769
	MCHES®	61	55.61 ± 2.51		
Effort Expectancy	CHES®	280	9.14 ± 0.11	0.25	0.351
	MCHES®	61	8.89 ± 0.26		
Performance Expectancy	CHES®	277	4.74 ± 0.12	-0.43	0.120
	MCHES®	61	5.16 ± 0.25		
Facilitating Conditions	CHES®	278	7.06 ± 0.18	-0.25	0.558
	MCHES®	61	7.31 ± 0.40		
Social Influence	CHES®	278	5.40 ± 0.14	-0.73	0.032*
	MCHES®	61	6.13 ± 0.32		

Note: *Indicates significant two-tailed relationship at the 0.05 level.

Table A10. Summary of the model fit for hierarchical linear regression

Results for Regression Analysis Exploring Relationships with Social Media Experience (N=481)

	Social Media Experience		
Predictors	B	R^2	ΔR^2
Model 1			
[1]Control Variables		.078**	
Model 2			
SMCI Constructs		.430	.352**
Social Media Self-Efficacy	0.279**		
Effort Expectancy	0.706		
Performance Expectancy	-0.997*		
Facilitating Conditions	0.538		
Social Influence	-0.019		

Note: *Indicates significance at the <0.05 level.
**Indicates significance at the <0.001 level.
[1]Control variables: age, race/ethnicity, CHES®, and social media access at work.