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# Transcending the status quo: a communication perspective for improving health behaviors at Eastern Washington University

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Transcending the status quo

A communication perspective for improving health behaviors at Eastern Washington  
University

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A Thesis

Presented to

Eastern Washington University

Cheney, Washington

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In Partial Fulfillment of the Requirements

for the Degree

Master of Science in Communication

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By

Nicole L. Ridnour

Spring 2013



## MASTER'S THESIS

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## Abstract

There is a belief known as the ‘college experience;’ an experience that some understand as a right of passage. This notion continues to be passed from generation to generation; what happens without our noticing is that the demands of that ‘college experience’ are changing. Survey results indicate that this ‘experience’ continues to perpetuate, that college students have skewed perceptions of vulnerabilities and are willing to take unhealthy risks, all as part of the ‘college experience.’ Through a mixed methods approach, this research demonstrates that advances in remedial health education are positively affecting students ‘abilities’ to “gain access to, understand and use information in ways which promote and maintain good health” (World Health Organization, as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). This research also identifies the disparity between having the ‘ability’ and having the ‘motivation’ to mitigate risk. This research further substantiates an exigent need for a holistic approach to improving health literacy, and designing health messages for improving health behaviors at Eastern Washington University.

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Ms. Michelle Pingree

My fellow GSA's

Kelly Rooney

My amazing husband Tim, I love you.

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## Table of Contents

Abstract.....	iv
Acknowledgments.....	v
Chapter 1: Introduction.....	1
Chapter 2: Literature Review.....	10
Preface.....	10
Health Literacy: Defined and Measured.....	11
Health Behaviors: A Psychological Perspective.....	21
Communication Strategies for Changing the Status Quo.....	30
Health in College Communities: Evidence of a National Survey.....	37
Summary/Conclusion.....	40
Chapter 3: Methodology.....	44
Chapter 4: Results and Discussion.....	49
Results.....	49
Discussion.....	57
Chapter 5: Conclusion.....	66
References.....	xxii
Appendix A.....	xxx
Appendix B.....	xxxii
Vita.....	xxix

## Chapter 1

### Introduction

One thing that is certain when you enter college is change. Fueled by a newly formed sense of independence, students encounter a number of new life choices, many challenging to their current personal narratives. Today, students are met with conflicting nutrition habits, study habits provoke larger consumptions of caffeine, demanding schedules leave little opportunity for gym time, and increased exposure to alcohol and drugs. For decades, psychologists have explored factors contributing to the perceptions and attitudes instrumental in the intent to make decisions regarding personal health and well-being. Furthermore, literature and research are both indicative of risky health behaviors in college populations.

Cornell University President David J. Skorton (2012) claimed in a *Huffington Post* article, that as “self-reliant as many of them may seem, undergraduates are still emerging adults, susceptible to peer pressure and inclined to engage in risky behavior” (para. 3).

Dr. Ed Ehlinger, director and chief health officer of the University of Minnesota Boynton’s health service profoundly articulates that,

“Education is one of the strongest influences on economic and health status. College students are a large and growing population and are establishing lifestyles and behavior patterns, they are the trendsetters and the role models for younger people and they are the future leaders of our society. That is why we need to make them a priority”(as cited in Science Daily, 2007, para. 3-4).

Preliminary review of the literature exploring college health behaviors revealed that much of the discourse surrounding health psychology and health promotion were



functioning under the assumption that populations have a preexisting proficiency to comprehend health messages. Thus, understanding ‘health literacy’ emerged as fundamental to the evaluation of communication strategies and campaigns. Medical Doctor, and Editor in Chief of the Journal of Health Communication, Scott Ratzan (2001) attributes education, effective messages, and health literacy, to influencing behavior change. He implicitly asks, *What is the role of communication within the concept of health literacy?*, and offers this;

“...it means getting the right message to the right people, at the right time, with the intended effect. It requires both the science and art of communicating health (...) employing communication to advance the public good” (pp. 210-211).

Effective communication strategies are not meant to manipulate and tell the public what to think, but what to think about (...) information must be framed in a way that makes it understandable and actionable (...) at a level commensurate with age, mental capacity, gender and environment” (p. 211).

Health promotion scholars Peerson and Saunders (2009) add that “these definitions do not appear to consider the possibility that someone may possess and understand health information without using it in health promoting ways” (p.289).

This research explores a framework for developing a comprehensive strategy to understand and influence Eastern Washington University (EWU) student health behaviors, with consideration for both their physical and mental well-being. It begins with an inquiry into the nature of Health Literacy, what is it, how is it measured, and what role does it play in implicating or influencing health or risk-related behaviors. To define ‘health literacy,’ I will apply the definition provided by the World Health Organization. This definition echoes throughout the remainder of this paper: Health Literacy is “the

cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (World Health Organization, as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). Based on this definition, I wondered if EWU students had the basic knowledge to “understand and use information in a way which promote and maintain good health.” As Ehlinger (2007) pointed out, education and information are a necessity; but if the information can’t be accommodated<sup>1</sup>, the messages are lost and behaviors go unchallenged.

What we can ascertain from decades of psychological research and data gathered from my interview with Michelle Pingree, Director of Health, Wellness, and Prevention Services at EWU; students may be operating under an ignorant perspective or false narratives when making decisions regarding their health. As a communications scholar, it is necessary to inquire further into such variables, beyond literacy rates, that contribute to student health behaviors. Furthermore, to examine current communication strategies and consider how they can be effectively employed, informed by psychological theories, to close the gap between knowledge and action. My mixed methods approach includes an interview and analysis of data obtained from Michelle Pingree, a multidisciplinary literature analysis, an application of the Rapid Estimate of Adult Literacy in Medicine (REALM), and a local and national survey collected from the ACHA-NCHA. All of these approaches are combined into a comprehensive analysis to propose a framework for communication strategies aimed at the successful dissemination of health education and

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<sup>1</sup> “the adaptation process by which existing knowledge structures are modified somewhat when an individual is exposed to new information.” (Broderick & Blewitt, 2010, p. G-1)

information targeted to EWU students.

As a researcher, I value the utility of both empirical and interpretive ‘soft’ sciences as a way of representing the reality of a particular phenomenon. It is my understanding, as a responsible researcher, that my duties are to analyze and interpret my findings through empirical studies and dialectical interpretations of population studies. I further acknowledge and align with the epistemological leanings of postpositivism, that while all known variables will be addressed or acknowledged, there may be unknown or unrecognizable variables. Research views of Postpositivism acknowledge that validity comes from the research community rather than the subjects. I agree with this premise and offer the argument that empirical support enhances researcher objectivity more so than the optimistic biases of research conducted through interpretive paradigms exclusively. Empirical materials not only inform and interact with Postpositivism, but they are the foundation by which Postpositivists view the world, research, and praxis. Empirical materials contribute to the Postpositivist’s understanding of causes that affect populations within a particular phenomena and aid in generalizations used to formulate hypotheses.

As a self declared Postpositivist, I believe the inclusion of the subject population adds greater practical value to research. Denzin and Lincoln (2011) offer support for my use of a qualitative interview, with Michelle Pingree, Director of Health, Wellness, and Prevention Services, stating that “by using interviews, the researcher can reach areas of reality that would otherwise remain inaccessible such as people’s subjective experiences and attitudes” (p.529). While I value the element of the human experience, I contend that

interpretive research gains greater support from an empirically based argument. This stands as the rationale for my use of the Rapid Estimate of Adult Literacy in Medicine (REALM) survey.

The materials collected in this research design provided me with a better understanding of processes and contexts to determine methodological parameters and further identify gaps where action is necessary to change the status quo. In order to connect my paradigm to my research design, it is necessary to implement practices of both qualitative and quantitative analyses. A Review of the Literature informed my understanding of processes and contexts, and contributed to the formulation of quantitative and qualitative hypotheses. Holistically, these strategies exemplify mixed methods<sup>2</sup> research and provide increased practical understanding with concrete data supporting an assessment of the relative health literacy of EWU students. They also assess students' ability to assimilate<sup>3</sup> health information and education into their personal health and wellbeing decisions.

In terms of praxis, defined by Denzin & Lincoln (2011) as “the combination of theory and action” (p.475), the theories adopted are dependent on the literacy levels, common needs or patterns identified through qualitative data obtained from my interview with EWU Health and Wellness Director Michelle Pingree, the subsequent literature review, and an analysis of the quantitative data.

My qualitative data gathering interview with Ms. Pingree, conducted on August 1,

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<sup>2</sup> “mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches for purposes of breadth and depth of understanding and corroboration” (as cited in Denzin & Lincoln, 2011, p.271)

<sup>3</sup> “the process of interpreting new stimulation or information as fitting with what one already knows.” (Broderick & Blewitt, 2010, p. G-2)

2012, from which I received the EWU executive summary of the American College Health Assessment-National College Health Assessment (ACHA-NCHA). In addition, a literature review of previous work on the psychological perspectives of college student health behaviors was found to rarely encompass an understanding of participant health literacy levels, with the exception of the medical field. This gap is critical, especially in health education programs, health campaigns and public service announcements. It must be closed to effectively promote healthcare prevention and maintenance. Health literacy and related communication strategies are not a one-size-fits-all model; it is essential that research on the topic seek to understand the target audience's capacity to accommodate health messages and information. Competent health literacy is imperative to the capacity to assimilate more complex health messages into the student's preexisting schemas. Put simply, health literacy rates influence may effect the complexity with which the material is designed and deliveret, warranting different message design strategies.

The subsequent chapters will provide further elaboration of my chosen method(s); a compilation of literature discussing health literacy, measurement tools, psychological perspectives of health behaviors, communication strategies, and REALM survey analysis. Additionally, an ACHA-NCHA analysis both nationally and at Eastern Washington University, and a qualitative, data-gathering interview. To conclude, results of my integrative methodologies will be discussed and followed by implications and suggestions for future research.

*“Education is not the filling of a pail, but the lighting of a fire.”*  
~ *William Butler Yeats*

## Chapter 2:

### Literature Review

#### *Preface*

The 21st century has cultivated a new belief in health, with more complexity, more determinants, and more risks. With technology at our fingertips, we have greater access to health and well-being information. However, without an understanding of what information we need, the results could be discouraging at best, even dangerous. Education can improve skills necessary to empower students to “access, use and understand information used in promoting and maintaining healthy behaviors” (World Health Organization, as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210, Ishikawa and Kiuchi, 2010, p. 2, Peerson and Saunders, 2009, p. 286, Nutbeam 2008, p. 2074, Berkman, Davis, and McCormack, 2010, p.13, Kickbusch, 2001, p.293). The following literature review serves as an essential component to understanding health literacy as part of an examination into implications and considerations of student health behaviors, evidence for effective communication strategies for combating risky behaviors, and a discussion of specific health concerns relative to college students.

The accompanying literature will be used to establish a foundation for a working definition of health literacy, as well as determining how to measure it. It will also attempt to identify the areas for concern, areas of pleasant surprise, and areas in need of attention, as it specifically pertains to students at EWU. Additional categories of literature were reviewed to add to the discussion of psychosocial issues corresponding directly to college

student populations and communications strategies key to advocating for behavioral change. In addition, gaps in current research are identified.

### ***Health literacy: defined and measured***

Thirteen scholarly articles and one larger text were found to directly contribute to the current conversation about health literacy. The predominant consensus in the collection of articles is that there is no agreement, at least when it comes to a universally accepted definition of health literacy. Definitions applicable to understanding ‘health literacy’ are extensive, ranging from early definitions which narrowly focus on healthcare and the healthcare system, to an evolving definition broadening the focus to include decisions affecting overall health of individuals and communities. Two articles offered a comprehensive analysis of the current conversation in health literacy. These articles stand as the foundation from which to launch more focused research into the relative health literacy of students at EWU: *Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century* (Nutbeam, 2000), and *Health literacy: communication for the public good* (Ratzan, 2000) are alike in their recognition that the term ‘health literacy’ as a concept, has progressed through centuries to become defined by the World Health Organization (WHO) as, “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). Five additional articles covering a variety of disciplines agreed, making the WHO definition the most

accepted definition of health literacy (Ishikawa and Kiuchi, 2010, p. 2, Peerson and Saunders, 2009, p. 286, Nutbeam 2008, p. 2074, Berkman, Davis, and McCormack, 2010, p.13, Kickbusch, 2001, p.293). In addition, three of the authors also cite the expanded definition according to the WHO, that “health literacy means more than being able to read pamphlets and successfully make appointments. By improving people’s access to health information and their capacity to use it effectively, health literacy is critical to empowerment (as cited in Nutbeam, 2000, p.264; Nutbeam, 2008, pp. 2073-2074; Peerson & Saunders, 2009, p.289). Ishikawa and Kiuchi elaborate on the WHO’s expanded definition, adding that “health literacy entails a level of knowledge, personal skills, and confidence that enables making changes in personal lifestyles and living conditions to improve personal and community health. Thus, this definition includes issues critical to the empowerment of patients” (Ishikawa and Kiuchi, 2010, p. 2), and further consider that, “health literacy is a means for enabling individuals to exert greater control over their health as well as over the range of personal, social, and environmental determinants of health” (Ishikawa and Kiuchi, 2010, p. 2).

The second most recognized definition in the venture to make sense of health literacy is the one identified by the Healthy People 2010 project, designed with the intent to increase life expectancy and improve the quality of life as well as eliminate health disparities. Healthy People 2010 focuses on 28 components, developed by leading federal agencies with the most relevant scientific expertise ([healthypeople.gov](http://healthypeople.gov)). Berkman, Davis, and McCormack (2010,pp.13-14), Kickbusch (2001, p. 293), and Baker (2006, p.878) employ the Healthy People 2010 definition within their conceptualization



of health literacy, as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

Within the conversation on defining health literacy, the WHO and Healthy People 2010 emerged most often, though many other noteworthy definitions also surfaced. Berkman (2010, p.13), Kickbusch (2001, p.292), and Baker (2006, p.878) include the definition of the Ad Hoc Committee of 1999, a committee established for the purpose of evaluating health literacy skills in the United States. The Ad Hoc Committee defines health literacy as “the constellation of skills, including the ability to perform basic health information and services needed to make appropriate health decisions.”

A variety of common themes also surfaced in the evolving conceptualization of health literacy, highlighting additions of public empowerment and personal responsibility, communication connections, and limitations within the scope of current definitions. Many authors have evolved their definitions to address the contextual platforms from which people are making health related decisions. Examples of contextual platforms as they pertain to college student health decisions are further examined in the Theory of Planned Behavior and Health Belief Model psychological theories which include perceptions of susceptibilities, social norms, and attitudes. It is important to note that considerations of cultural and social contexts among many researchers was commonly identified as a limitation leading to a gap between survey responses and the subsequent information resulting from this research. Additional limitations include the caution that

an individual's functional literacy<sup>4</sup> may not be an adequate representation of an individual's health literacy.

The positive progression towards a more comprehensive understanding of health literacy does not come without limitations. With no universal definition yet available, Peerson and Saunders (2009), assert that “the lack of shared meaning for health literacy has led to problematic confusion and disagreement between the authors of research articles, grant application and reviewers” (p. 292). This confusion is further compounded when considering the diverse groups, including the unique population in this research. Such is examined more closely in my interview with Michelle Pingree, Director of EWU's Health and Wellness Program.

To increase our understanding of health literacy, it is necessary to consider the difference between teaching or providing ‘ability’ and assessing ‘motivation’ to apply skills with information. Corresponding to Nutbeam's (2000) three tier model , which accounts for the motivation to use material obtained, Peerson and Saunders (2009) state that “it is vital to accept **motivation and activation as inseparable aspects of health literacy**. For various and complex reasons having information is no guarantee that it will be used to promote health” (p.289) [emphasis added].

Nutbeam is largely cited for his contribution to the understanding of health literacy beyond simple measures of abilities to read and write; he defines health literacy by what it “enables us to do” (Nutbeam, 2000, p.263). His three tiered model has practical application to individual capacities and motivations critical to the increase in self-

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<sup>4</sup> functional literacy: sufficient basic skills in reading and writing to be able to function effectively in everyday situation (Nutbeam, 2000, p.263)

efficacy<sup>5</sup> empowerment, and control over individual healthcare and behavior choices.

### Nutbeam's 3 Tiered Model of Literacy

*Basic/Functional literacy:* sufficient basic skills in reading and writing to be able to function effectively in everyday situations, broadly compatible with the narrow definition of health literacy.

*Communicative/interactive literacy:* more advanced cognitive and literacy skill which together with social skills, can be used to actively participate in everyday activities, to extract information and derive meaning from different forms, and to apply different forms of communication and to apply new information to changing circumstances

*Critical literacy:* more advanced cognitive skills which together with social skills, can be applied to critically analyze information and to use this information to exert greater control over life events and situations (Nutbeam, 2000, pp. 263-264).

The importance of these articles within my research cannot be overstated. The definitions constructed by the many researchers/authors have allowed me to construct a larger repertoire as a researcher from which to formulate my own conceptualization that will serve as the foundation of my understanding of health literacy. Specific to this research, I align with the majority of those who concur with the WHO's definition of health literacy. Although many definitions were similar with slight variations, the WHO's definition reflects the important connection between ability and motivation as essential to health literacy, although the same is true for functional literacy. My acceptance of the WHO definition is not done so without regard for considerations of context. A failure to recognize context is identified as a gap in the evolving

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<sup>5</sup> self efficacy: "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p.193)

understanding of what constitutes health literacy.

### *Current Tools for Measuring Health Literacy*

Since understanding what we study goes hand in hand with how we study it, it should come as no surprise that of the thirteen articles found to contribute to the analysis of how we measure health literacy, six carried over from the previous discussion of defining health literacy. Contrary to the lengthy efforts among researchers to concede to a universal definition of health literacy, efforts to identify measurement tools are much less subjective. A more objective analysis of the empirical methods used to measure health literacy eliminates the nuances but preserves researcher's choice. Complications emerge over the questions of who to study and what researchers intend to learn. The one universal truth is that the measurements along with the definitions must evolve with societal demands and technology, even as students learn to take responsibility for their own health. Pleasant, McKinney, and Rikard (2011) add that

“Another major change is that it is now increasingly accepted that health literacy competencies apply to both the information seeker and the information giver. This means that we must develop measures to test both these audiences” (p.14).

In the analysis of available measurement tools, it is important to keep in mind that within the scope of this research, the above statement reminds us that it is necessary to collaborate with students and faculty at EWU.

Nearly all articles located with reference to the topic of health literacy measurement supported use of the Rapid Estimate of Adult Literacy in Medicine (REALM), and the Test of Functional Health Literacy in Adults (TOFHLA), or the S-TOFHLA (the ‘S’ stands for the shorter, or abbreviated version). Most researchers are proponents for use of

either the REALM or the TOFHLA given the higher degrees of tested validity and reliability to date in comparison to other available tests. “The REALM and S-TOFHLA is a reasonable starting point, especially given the well documented connections between those measurements and health outcomes and behaviors” (Nielson-Bohlman, 2004 as cited in Chin, et al., p. 10). However, even as the most often employed methods of research, they are not without their critics.

The REALM is a 66-word recognition and pronunciation test, administered and scored in 2-3 minutes. The 2-3 minute duration makes this survey especially usable for surveying many subjects in the least amount of time. With that said, since the primary-focus is on reading related skills, “better performance on the REALM more likely reflects health and general knowledge than processing capacity” (Chin, et al., p.4). In contrast to the TOFHLA, the REALM can also assess a respondent’s functional literacy level. Another unique benefit of the REALM is its grading system, known as the Slossan Oral Reading Test (SORT), which is widely established in educational settings (Zhang, Thumboo, Fong, and Li, 2009, p.177). This could be considered of greater significance when surveying populations in academic communities. Contrary to the benefits of the REALM, unlike other health literacy tests, it is limited by only being available in English. Additionally, Berkman, Davis, McCormack (2010) argue that the REALM is “primarily focused on reading related skills and thus there are no considered comprehensive measures of the skills needed to navigate the health care environment” (p. 17). Notable limitations to the REALM beyond the inequities of measuring comprehension of materials is the instrument’s inability to consider age, gender,

language, cultural, or contextual factors (as cited in Peerson and Saunders, 2009, p.290).

In their analysis of oral health literacy, Sabbahi, Lawrence, Limback, and Rootman (2009) proclaim the TOFHLA to be the most useful health literacy comprehension test (p. 452). However some of the same shortfalls noted in the REALM instrument were also applied to the TOFHLA. The TOFHLA has been faulted for not adequately testing health literacy (Peerson and Saunders, 2009, p.290), or considering comprehensive measures needed to capture health literacy outside of clinical settings, or comparatively, not considering age, gender, language, cultural, and contextual factors (as cited in Peerson and Saunders, 2009, p. 290). Noticeable is the parallel between the disparagement of the REALM and TOFHLA's abilities to account for such considerations and the many attempts to define health literacy. The TOFHLA is cited by Baker (2006) as the most used method of measuring health literacy, as it comes with higher degrees of validity and reliability than the latter measurement tools, is available in English and Spanish, and offers abbreviated version that can be administered in 7-10 minutes. Additionally, the TOFHLA's measurement of numeracy<sup>6</sup> skills is small but present (p. 880).

In an attempt to increase comprehensive measures and relevance to consumer use of health literacy skills, two fresh approaches have emerged. The Health Activities Literacy Scale (HALS) and the Newest Vital Sign (NVS) together, differ completely from the REALM and TOFHLA and individually unlike each other. HALS appears to be the most evolved measurement to date but is still too new and inaccessible in comparison to the REALM and TOFHLA. It is more comprehensive and differentiates between five

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<sup>6</sup> "Health numeracy is the degree to which individuals have the capacity to access, process, interpret, communicate, and act on numerical, quantitative, graphical, biostatistical, and probabilistic health information needed to make effective health decisions" (Golbeck, Ahlers-Schmidt, Paschal, and Dismuke, 2005, p. 375).

competencies relevant to health literacy: health promotion, health protection, disease prevention, health care and maintenance, and systems navigation. Additionally, the HALS assessment poses its questions using varying tasks and skills, in an effort to account for different contexts (Nutbeam, 2009, p. 304, Nutbeam, 2000 p.2075, Sabbahi, 2009, p. 452). Unlike any other health literacy measurement tool, the HALS content is aimed at six different context areas. The full ETS research analysis of the HALS assessment indicates the six adult context/content categories to consist of home and family, health and safety, Community and citizenship, work, and leisure and recreation. The five domains and six different context areas demonstrate progression within the contemporary understanding and adaptations of individual health literacy outside the context of clinical settings.

Conceivably, no advancement can be made without expressed criticisms or perceived limitations. To date the HALS assessment does not have an abbreviated version and currently takes approximately one hour to complete. In addition is the consideration for accessibility, this assessment was found only to be available through Educational Testing Service (ETS) test developers at ETS.org and was cost prohibitive. Peerson and Saunders (2009) further the analysis of this newer assessment and assert that the HALS requires further testing for validity and reliability in diverse population groups (p.290).

Lastly, the Newest Vital Sign (NVS), another contemporary development in assessing health literacy and a more limited assessment. The NVS supplies participants an ice cream nutrition label with six subsequent questions pertaining to label provided. This approach is intended to assess numeracy and reading skills by evaluating an individual's

ability to read and apply information from a nutrition label. Comparatively to the REALM and TOFHLA, the NVS is short and easily administered, taking only three minutes to complete. This assessment is also available in Spanish. However, evidence in the distribution of scores in Weiss et al. (2005) indicates a large gap in the frequency of incorrect answers in the Spanish version. This is a strong indication that there may be a gap in the comprehension of non-English speakers and may require follow up for greater insight. Additional consideration for assessments such as the HALS and NVS, was the “requirement of further testing for validity and reliability in diverse population groups” (Peerson and Saunders, 2009, p. 290). Furthermore, Zhang, Thumboo, Fong, and Li (2009) argue that the NVS “tends to assess a relatively high proportion of math skills which may not be used very often by the general public in routine health education programs” (p. 170).

Much like the process to find a universal or best practice definition of ‘health literacy’, there is no perfect measurement tool. Pleasant, McKinney, and Rikard (2011) declare

“The perfect [tool] should not be the enemy of the good; however, rigorous development based on an explicit theory, testing, and retesting to assure broad validity, reliability, and the absence of bias are requisite in the development of new approach to measuring health literacy” (p. 14)

### ***Health behaviors: A psychological perspective***

I selected twelve scholarly articles to represent the current conversation in academia, about the cognitions of college students that contribute to their health-related behaviors and studies specific to understanding root causes. The recurring cause articulated within



the collection of articles is stress, unrestricted to a single contributing factor. Lack of self-efficacy, was also found to play a large part in decreasing positive health behaviors. Conversely, there was an unwillingness to engage in risky behaviors. The traditional college student is defined as 18-24 years of age. This age tends to be generally advantageous towards student susceptibilities of health risks. The same biopsychosocial factors associated with age however, can also contribute to skewed perceptions of health and realities of vulnerability, arguing for the same factors to be similarly disadvantageous to health behaviors. Understanding factors that contribute to college student's willingness to engage in risky behavior, and what it means to be 'health literate,' can help us to encourage a change in perceptions or behaviors that are ultimately affecting student academic performance, based on ACHA-NCHA reports . This section of the literature review will analyze the risk behaviors, identify which students are most vulnerable in college communities, and establish a basis of psychological and social considerations.

All articles identified possible risk behaviors affecting college populations. In four of the selected articles, scholars discovered alcohol consumption to be a risky behavior adopted by college students (Haines, Barker, and Rice (2006), Hudd, Erdmann-Sager, Murray, Phan, Soukas, and Yokozuka (2000), Jackson, Berry, and Kennedy (2009) and Pritchard, Wilson, and Yamnitz (2007)). In four articles, scholars were found to address physical activity levels or exercise behaviors as a concern of college students (Gruber (2008), Hermon and Davis (2004), Jackson, Berry, and Kennedy (2009), and Pritchard, Wilson, and Yamnitz (2007). Two of the four articles furthered the discussion by comparing physical activity behaviors within genders and varying social support (Gruber,

2008), and explored differences between traditional and nontraditional age students (Hermon and Davis, 2004). Jackson, Berry, and Kennedy (2009) explore the effects of living arrangements, while Pritchard, Wilson, and Yamnitz (2007) address college freshman. Additionally, in many of the articles, behaviors surrounding unhealthy nutritional habits in student groups were discussed.

All articles had one thing in common, they identified behaviors of specific subgroups within general college populations. Gruber (2008), Hermon and Davis (2004), and Jackson, Berry, and Kennedy (2009) were determined to undertake comparative analyses of these subgroups. Gruber (2008) discerned that close tie networks serve as substantial motivators of healthy weight and exercise as it relates to university students and likely produces higher levels of self-efficacy. Moreover, support networks comprised of half or more of the opposite sex have greater effect on student participation in exercise habits and diet (Gruber, 2008), thus corresponding to greater accountability. Hermon and Davis contend not only that non-traditional students (approximately 50% of college populations) warrant greater attention, and that traditional age students tend to be more physically active. They believe this is due to less 'life' obligations such as jobs, children, and greater financial responsibilities. However, they determined that non-traditional students engaged in higher levels of self care. As a reason for discrepancies, Hermon and Davis (2004) reinforce the idea of perceived invulnerabilities, stating "traditional age students may still be operating under their own personal fable, believing that they engage in risky behaviors and can magically be protected from harm"(p.36), and that life experiences are a likely contributors to nontraditional student's greater sense of prudence.

Jackson, Berry, and Kennedy (2009) assert that living arrangements correlate strongly to nutritional practices. Specifically, they conclude that students still living in the same residence as high school consume less alcohol, and eat less fast food, but show lower activity levels than students living out of the home. Jackson, Berry, and Kennedy (2009) attribute poor nutritional habits, and weight gain of those living out of the home to workload stress, cost of healthy food, easy access to fast food, and further that such environmental factors

“likely reduce the influences that convenience and income may have on eating behaviors. (...) this may illustrate that students are not being educated on food purchasing and preparation before leaving home to live on their own”(p.8).

In addition, Jackson, Berry, and Kennedy establish other possible determinants of nutritional practices such as caffeine consumption, to be influenced by time spent on campus, participation in extracurricular activities, time spent working, and studying.

Addressing additional reasons, Bylund, Imes, and Baxter (2005) argue that parents’ perceptions of their college student’s participation in risky behaviors influences students’ health behaviors because “if parents believe that their child is not engaging in risky behavior, they may be less motivated to become involved”(p. 32). Furthermore, because,

“perceptions of reality guide our communication with others (...) parents misperceptions about their college students health risk behaviors and overall health, may have an impact on their conversations with these children about such behaviors and may affect the children’s health”(p.36).

Hicks and Heastie (2008) and Hudd, et al. (2000) identify, in their articles, the idea that adjustment and role conflict are a potential for health risks in college students, namely first year traditional college students. Hicks and Heastie (2008) hypothesize that

first year college students face physical and psychological adjustments contributing to increased stress such as new friends, leaving the home usually for the first time, and experiencing new roommates (for those who live usually on campus). Additionally, a survey conducted by Hicks and Heastie shows significant physical inactivity, self-reported by first year college students living on campus, declaring such a problem as “alarming”(p. 146). They attribute this conclusion to the access and proximity to resources for those living on campus, such as wellness centers and gyms. They further believe that the solutions being proposed are necessary to managing the stress associated with college adjustment in first year students. This fact is disputed in the findings by Hermon and Davis (2004) who claim in their analysis of traditional and nontraditional students, that traditional students are found to be more physically active than nontraditional students. Hudd et al. expands Hicks and Heastie’s conclusions, offering an analysis of the ‘role conflict’ experienced during college adjustment as a determinant of negative health behaviors. Hudd et al. (2000) describes these conflicts that, “college students must learn to balance the competing demands of academics, developing new social contacts, and being responsible for their own daily needs” (pp.1-2). Moreover, in this time of adjustment, Hudd et al. describe that the availability of close tie social networks, such as family and close childhood friends are reduced but the importance of these networks are thought to be able to “mediate the effect of exposure to stress”(Hudd, et al., 2000, p.3).

Although implied by many, Pritchard, Wilson, and Yamnitz (2007) and Downing-Matibag and Geisinger (2009) explicitly address the effects of self-esteem and self-

efficacy on the health of college students and their willingness to engage in risky behaviors or to invoke protections. Pritchard, Wilson and Yamnitz strongly implicate stress as a powerful contributing factor to increased illness and student willingness to engage in risky behavior as a form of coping. They additionally point out that student stress levels and associated self-esteem issues are increasing dramatically, contributing to an increase in negative health behaviors. Pritchard, Wilson, and Yamnitz further attribute alcohol abuse and exercise participation to self esteem, with nutritional practices as predicted by identity and self confidence; self efficacy is also identified as a predictor of participation in health related physical fitness (p.16). Notable differences in the study conducted by Pritchard, Wilson, and Yamnitz were found to be gender related with self-esteem as a predictor of exercise participation relating to women but not men, but self-efficacy as a predictor of participation in physical activity, not specific to gender(p.16). Downing-Matibag and Geisinger (2009) reinforce the significance of efficacy in the discussion of protection with sexual partners (p. 1202). Additional proof for self-efficacy, discussed briefly by Gruber (2008) in his discussion of social support, claims that social support groups have the ability to influence exercise self-efficacy which correlates to higher levels of exercise participation (p.559).

Of those research studies originally selected, two were identified for their contribution to the conversation on perceptions of invulnerability, perpetuating college student willingness to engage in risky health behaviors (Hermon and Davis (2004), and Ravet and Zimet (2009). One study offered a variant perspective (Haines, Backer, and Rice (2006)). We have already established Hermon and Davis's (2004) stance that

traditional age students have heightened perceptions of invulnerability, leading to risky behaviors. Ravert and Zimet (2009) address HIV and student perceived acceptance of a vaccine. Conclusions indicate “the degree to which individuals hold a general sense of invincibility or invulnerability to harmful outcomes”(p.392), as a determinant to skepticism of receiving a HIV vaccine. Moreover, Ravert and Zimet (2009), cite Elkind (1984), explaining that “risk taking among youth states that cognitive development during adolescence leads to a type of egocentrism, and along with it come feelings of invincibility and a kind of shield of invulnerability”(p.392). However, results in Haines, Barker, and Rice’s (2006) research indicate that more college students than not are employing methods of protection related to the concept of ‘harm reduction.’ The notable cases in support of this thesis include using a designated driver and tracking the number of alcoholic drinks. Additional strategies of mitigating health risks include eating before engaging in alcohol related activities and avoiding drinking games (p.71). These results offer a more positive view of student’s self-efficacy when adopting protective behaviors.

To reiterate, the greatest factor students self reported in the ACHA-NCHA research indicates stress as the largest contributor affecting student academic performance (27.5%). In a collaborative analysis with the literature reviewed, stress was identified in nearly half of the articles selected as the most significant and overlapping factor addressed as contributing to college student health behaviors, thus warranting a great deal of attention. Defined by Taylor (2012),

“stress is a negative emotional experience accompanied by predictable biochemical, physiological, cognitive, and behavioral changes that are directed either toward altering the stressful event or accommodating to its effects” (p.139).

Hicks and Heastie (2008), and Hudd, et al. (2000), cited together previously, attribute stress as a key contributor to college student negative health behaviors and agree that these are rooted in the overwhelming adjustment to college and its all-encompassing demands. Hudd et al. magnifies this concept by claiming that key issues of college student stress, such as decreased academic performance, is attributed to poor health induced by increased levels of stress. Jackson, Berry, and Kennedy (2009) concur, and add workloads and changes in living arrangements as additional determinants of stress. Hudd et al. (2000) assert that stress in adolescents has been linked to thoughts of suicide, smoking, and drinking (p.2). Pritchard, Wilson, and Yamnitz (2007) credit the “rigors of college”(p.20) to the stress experienced by students.

The attitudes and beliefs we acquire are predictive of our intentions to act and correspond to our behaviors. These same attitudes can act as barriers to healthy behaviors. Notably, two models were found to predict health habits and support an analysis of behaviors: the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB). Carpenter (2010) outlines I.M. Rosenstock’s theory of the HBM in his meta-analysis. The HBM considers four main factors: (1) whether a person perceives there to be a health threat to themselves (perceived susceptibility), with the perception of threat often influenced by factors such as values about health; (2) the second factor of the HBM includes perceptions of the severity of a behavior; (3 and 4) the third and fourth factors of the HBM refer to whether the specific behavior is believed to reduce the perceived threat. Two components that make up this belief are whether an individual believes the behavior to be effective and whether the cost of managing the behavior

would exceed the benefits. The HBM is an important tool in understanding college student's perceptions of susceptibility as it can be a determinant of their intentions or attitudes about certain health behaviors and furthermore, their likelihood of participation in such activities.

Three research studies explore health behaviors within the perspective of HBM. In their article analyzing the likelihood of college students theoretical acceptance of an HIV vaccine, Ravert and Zimet (2009) discuss findings in alignment with the notion of the HBM. They present evidence that

“Beliefs regarding one's perceived chances of contracting a disease have been shown to predict vaccine acceptability in studies of college students acceptance of measles immunizations” (p.391).

Ravert and Zimet's examination concludes that higher perceived susceptibility contributed to attitudes of higher concern for HIV infection, thus leading to a greater likelihood of accepting an HIV vaccine. Additionally, low perceptions of susceptibility were found to be predicted by higher number of sexual partners. These results combined with the HBM can help to predict behaviors and develop intervention campaigns.

Downing-Matibag and Gisinger (2009) also analyzed the use of protective methods in sexual 'hook ups'<sup>7</sup> among college students; this analysis concluded that three components led to underestimation of vulnerability to STIs in more than 50% of students. These three components include impetuous trust in sexual partners, community statistics of the prevalence of STI's; and inadequate information of the risk of STIs, especially with respect to oral sex (pp. 1199-1200). Ravert and Zimet claim that,

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<sup>7</sup> casual sexual relationships



“Even though almost half of the students reported engaging in oral sex during their last hookup, the majority, at best, seemed confused about how to protect themselves against oral STIs” (p.1200)

Haines, Baker, and Rice (2006) offer reinforcement to this belief in their discussion about how normative it has become for college students to employ protective strategies into their drinking habits.

The theory of planned behavior posits that “a health behavior is the direct result of a behavioral intention” (Taylor, 2012, p.56),

“Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much an effort they are planning to exert, in order to perform the behavior” (Ajzen, 1991, p. 181).

Intentions, Ajzen postulates, are made up of three components: (1) attitude toward a behavior (personal evaluation); (2) subjective norms (social pressure); and (3) perceived behavioral control (self-efficacy). Pavey & Sparks (2010) assert “behavioral intentions are suggested to be the most proximal cognitive predictors of behavior” (p. 858), meaning intentions are proposed as a direct predictor of behavior. Moreover, they contend that “autonomy is expected to be positively associated with motivation, attitudes, and intentions to reduce risky health behaviors following reading health-risk information” (p. 856). Relative to accommodating health-risk information, these researchers postulate that the higher degree of autonomy felt by subjects, the more likely they are to accept persuasive messages. Additionally, those with lower perceptions of personal autonomy may become defensive to messages. Suggested psychological considerations should incorporate critical inquiries of context, autonomy, the Health Belief Model, Theory of Planned Behavior, self-efficacy, and motivation.

## **Communication strategies for changing the status quo**

Four of the primary sources discussed as part of defining ‘health literacy’ were reexamined for their inclusion of the importance of health literacy in promoting positive health behaviors. Eight additional scholarly articles were analyzed as part of the current conversation into effective message design strategies.

Subsequent to his categorization of health literacy in terms of what it enables us to do, Nutbeam’s (2000) levels of literacy arguably allow for greater autonomy and personal empowerment, achieved through exposure to messages and moving beyond cognitive development. “This in turn, is influenced by variable personal responses to such communication - which is mediated by personal and social skills, and self-efficacy in relation to defined issues”(p.264). Nutbeam identifies a significant gap, that “education as a tool for social change, and for political action has been somewhat lost in contemporary health promotion”(p. 265). Corresponding to this statement it is evident that the goal is therefore to achieve level 3 - critical literacy where skills are “oriented towards supporting effective social and political action, as well as individual action (...) health education in this case would be directed towards improving individual and community capacity to act on these social and economic determinants of health” (p. 265), thus changing the status quo in college communities. Ratzan (2001), Editor-in-chief of the Journal of Health Communication concurs with Nutbeam’s analysis and argues that

“the fundamental tenet of where education can make an impact should be clear. Health literacy is not simply health knowledge. The goal is a change in social norm or developing health literacy at a level commensurate with age, mental capacity, gender, and environment” (p. 212).

Moreover, in his 2008 article, Nutbeam combines health literacy skills with tailored health education communication to improve health literacy skills and connects them directly with ‘engagement,’ ‘change,’ and ‘participation,’ as components to improving health outcomes (Fig. 1).

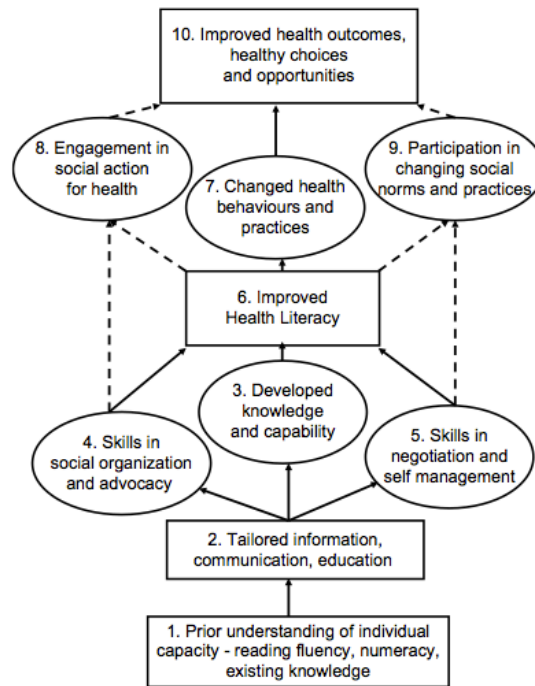


Fig. 2. Conceptual model of health literacy as an asset.

Fig. 1

If Peerson’s and Saunders’ (2009) assertion is accepted as true, that “having information is no guarantee that it will be used to promote health” (p.289). It is therefore necessary to acquire comprehensive knowledge, and evidence-based skills of framing messages to challenge college student’s existing schemas.

Research into current concepts of message framing for health promotion yielded a noteworthy response. The results of scholarly articles were overwhelmingly in favor of

the same method of message framing, especially with respect to challenging health behaviors. Not to mention an overwhelming advocacy for the need to incorporate communication strategies for effective health education and interventions for behavior change. Six studies focused on gain-loss framing, known as the ‘prospect theory’ (Tversky & Kahneman, 1981). This theory “proposes that people are more willing to accept risks when they evaluate options in terms of associated cost but act to avoid risks when the same options are described in terms of associated benefits” (as cited in Rothman & Salovey, 1997, p.3). Rothman & Salovey (1997) further assert that “people can be sensitive to whether a behavioral alternative is framed in terms of its associated costs (loss frame) or benefits (gain frame) even when the two frames describe objectively equivalent situations” (p.3). Additionally, Rothman, Bartels, Wlaschin, and Salovey (2006) suggest that “loss-framed appeals would be more effective in promoting the use of detection behaviors, but gain-framed appeals would be more effective in promoting the use of prevention behaviors” (p.206). Prospect theory is contingent on a number of things that must be considered for increasing receptivity to gain- or loss- framed messages. Rothman and Salovey (1997) outline three stages upon which the decision making process depends in order for students to respond to health recommendations consistent with what is being proposed: (1) cognitive assimilation must occur, (2) student’s experiences will determine how they perceive the behavior, and (3) the perceived function attributed to the advocated behavior (prevention or detection) (p.13). Furthermore, the authors contend that cognitive assimilation is contingent upon a systematic processing of the appeal, notably the attention to the details of the message (p.

14).

Framing messages appropriate for a specific population, in this case college students, can allow for the communication scholar to account for contexts relevant to the college students and common context generated barriers. Communication scholar Dutta-Bergman (2005) strongly advocates the communication perspective that “power is central to how problems are defined and how solutions are framed” (p.106), thus legitimizing the need for institutional involvement and collaboration to influence student’s conversations and awareness of their health and well-being.

Rothman and Salovey (1997) claim that “to predict the impact of a health recommendations, we need to attend to the factors that mediate the relationship between framed messages and subsequent behavior (...) the frame alters the manner in which they are understood” (pp. 4-5). Education has the ability to improve skills used to empower students to “access, use and understand information used in promoting and maintaining healthy behaviors” (World Health Organization, as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210, Ishikawa and Kiuchi, 2010, p. 2, Peerson and Saunders, 2009, p. 286, Nutbeam 2008, p. 2074, Berkman, Davis, and McCormack, 2010, p.13, Kickbusch, 2001, p.293). As educators or health communication practitioners, it is necessary to advance our understanding and assumptions of health literacy and health behaviors in order to establish a foundation for designing effective messages and dissemination of health information for the specific purpose of improving the knowledge and skills of this student population.

Health communication scholars Ko and Kim (2010) assert message framing as “one

factor that has been shown to impact the effectiveness of health messages” (p. 61), and further emphasize the crucial need to understand that,

“framing messages to match the nature of the issue at hand and to the dispositional tendencies of the target audience can lead people to accept the information, recognize its self relevance, and encourage behavioral changes”(p. 61).

Rothman and Salovey (1997) reinforce the statement by Ko and Kim, claiming that “actions are best understood in terms not of the objective features of a health issue, but rather of the features that people attribute to the issues,” (p. 3) further establishing a need for effective message framing in health education. The comprehensive understanding of a student’s relative health literacy and health behaviors is critical to framing messages specific to the population at EWU.

Message-reception context, which has been established as significant to analysis of health literacy, is also significant to framing health messages and ensuring acceptance of the information. Rothman and Salovey insist that

“to influence the health recommendations by which individuals make personal health decisions, attention must be given to the context in which the message is received” (p.9).

Dutta-Bergman argues for additional considerations, recognizing that “ignored in the conceptualization of individual response is the surrounding context within which the individual might be embedded while viewing, reading, or hearing the message” (p.110). This consideration is significant to ensuring a message is not compromised due to external contexts such as environmental noise or distraction.

Another notable concern advanced by Pavey and Sparks (2010) is that of autonomy, which is defined as “the extent to which a person feels a sense of freedom to act in

accordance with their internal values rather than a sense of obligation to act under pressure or control from other people” (p. 855). They further assert that, “the extent to which autonomy is satisfied in a person’s life has been shown to be positively associated with a person’s health and well-being” (p. 856). Further considerations of autonomy as it contributes to designing effective messages for this specific population

“is the extent to which the person views the health risk information as threatening to their decision making freedom. (...) this would imply that autonomy could lead to greater acceptance of persuasive information due to lower perceptions of the information as threatening to their decision making freedom” (pp. 856-857).

The value in this literature is especially important to respecting the traditional college aged students who are exploring individual autonomy apart from parental influence, many for the first time.

The Health Belief Model (HBM), and Theory of Planned Behavior (TPB) are key to understanding student health behaviors and devising communication strategies to reinforce or modify current beliefs and address student’s perceptions of invulnerability. Carpenter (2010) discusses the HBM as it pertains to considerations for targeted communication campaigns. Four components are critical to the rhetorical objective of targeted health messages:.

“First, the model argues people will be more motivated to act in healthy ways if they believe they are susceptible to a particular negative health outcome (...) Second, the model predicts that the stronger people’s perception of the severity of the negative health outcome, the more they will be motivated to act to avoid that outcome (...) The individual must perceive that the target behavior will provide strong positive benefits (...) Finally, the model argues that if people perceive there are strong barriers that prevent their adopting the preventative behavior, they will be unlikely to do so” (As cited in Carpenter, 2010, pp. 661-662).

The HBM offers preliminary insight into what drives student health behaviors and can serve to inform efforts to create effective health messages. The TPB enhances the depth of understanding of attitudes and subjective norms that subsequently influence health decisions, further increasing the likelihood for eliciting positive health outcomes for EWU students.

The Centers for Disease Control - National Prevention Information Network (CDC-NPIN) has developed an extensive comprehensive online enterprise for generating health communication strategies. This includes resources for planning, outreach, and budget considerations as well as campaign development, research, and evaluation. Foci of the CDC's suggestions for outreach include media literacy, media advocacy, advertising, entertainment education, individual and group instruction, and developing partnerships. Additional resources include the *Journal of Health Communication* and sample programs, as well as resources for considerations of specific populations such as marginalized, gender based, and age based individuals. This resource is research based well-respected; furthermore, it offers methods for developing targeted communication strategies when addressing college student health related behaviors.

### ***Health in college communities - evidence from a national survey***

For many, college is a new experience in the exercise of autonomy. With autonomy comes many opportunities to make decisions affecting individual health. Consider the 'freshman 15,' all night cram sessions, or cases involving binge drinking. The Centers for Disease Control and Prevention (CDC) highlights on their website many things to



consider when moving to college, and offers resources to help make the transition to independence easier for parents and students. Among the resources provided, 4collegewomen.org provides health resources applicable to college women, and the American College Health Association (ACHA) who administers the National College Health Assessment (NCHA). The National College Health Assessment is a comprehensive survey conducted to gain a better understanding of recurring topics and concerns relating to student health habits, behaviors, and perceptions.

Topics explored on the CDC site and within the ACHA-NCHA survey include, but are not limited to, fatigue and sleep deprivation, physical activity, diet, mental health, alcohol, tobacco, and drug use, healthy relationships, and sexually transmitted disease. The most current report available for analysis is the ACHA-NCHA's Spring 2011 assessment. This assessment offers a comprehensive examination of health activities and perceptions throughout tertiary institutions nationwide. Demographics were comprised of 129 institutions nationwide with 105,781 surveys distributed. Of the 129 schools. The majority of students represented ranged in traditional college level age from 18-24, with 63.9% female and 33.8% male respondents. The academic year was largely equal from first to fourth year and graduate students. Additionally, 72.5% of respondents themselves as white, 86.2% were single, and 62.2% were still on parents' health insurance<sup>8</sup>.

Analysis of the Executive Summary Report for the Spring 2011 ACHA-NCHA assessment indicated several areas influenced by health literacy competencies on college campuses. One section of the NCHA results indicated a decrease in self-reported 'actual

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<sup>8</sup> demographics reported in the national executive summary report, were found to be representative of demographics represented in the Eastern Washington University report.

use' of alcohol, tobacco, and drug use; notably, there appeared to be a between students' perceptions of their peers and actual reported use. Students perceived normative use as high; however, results were contradictory. Students who report as never using alcohol, tobacco, or drugs is approximately 20-60 percent higher than perceived use. We can assume that at least one contributing factor to more healthy behaviors would be educational programming targeting college students. Consideration of student perceived norms are significant to evaluating psychological models for behavior change, such as the theory of planned behavior. Other positive steps identified in the ACHA-NCHA Spring 2011 results were reported sexual behavior, where 73.7% of students reported having 0 or 1 sexual partner within the last 12 months. These results may correlate in conjunction with high reports of contraceptive use, to the 0.4% report of treatment for sexually transmitted disease or infection. Additionally, students reported on average consuming 1-2 servings of fruits and vegetables per day and moderate levels of cardiovascular or aerobic exercise; it should also be noted that it is unknown whether servings were defined. Definitions were provided for assessment of moderate-intensity and vigorous-intensity cardio or aerobic exercise. Results may be indicative of the success of communication efforts thus far in sexual health and alcohol, tobacco, and drug use compared to more recent efforts in physical fitness and nutrition awareness.

Although the former activities apply strongly to most of the national population without regard for tertiary education, the following results may be largely influenced by the 'college experience' but reveal areas of considerable concern and need for increased health education and information. Students were asked to report factors that affected

their student academic performance<sup>9</sup>. Factors that received the largest reports were stress (27.5%), sleep difficulties (19.4%), and anxiety (19.1%). The Assessment of Mental Health (section H) identifies correlating results to the reported factors affecting academic performance with 77% of males and 91.4% females reporting feeling overwhelmed and 72.7% of males and 86.5% of females feeling exhausted (not from physical activity) within a 12 month period. Mental health reports indicated above a 50% mean score of students feeling very sad, feeling overwhelming anxiety, and feeling very lonely. Contrary to these reports, 79.4% mean score of the population reported not being treated by a professional in the last 12 months. Stress, sleep deprivation, and anxiety were found to be recurring themes throughout this examination. These results should become significant influences on the design of message content when advocating for changes in health behaviors.

#### Literature Review Summary

This section has reviewed foundational research into the key areas of defining and measuring health literacy, strategies for effective message design, and health behavior concerns affecting college communities. This analysis has established that there is currently no universal definition of ‘health literacy;’ this research abides by the WHO’s definition: Health Literacy is “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210).

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<sup>9</sup> defined as: received lower grade on an exam, or an important project; received a lower grade in the course; received an incomplete or dropped the course; or experienced a significant disruption in thesis, dissertation, research, or practicum work.

Secondly, four usable methods of measurement have been introduced, although it still remains apparent that a more comprehensive tool is yet to be established. Additionally, there is a need for a tool to be developed in order to assess medical literacy, mainly used by physicians, to estimate patient comprehension of applicable medical treatments and prescriptions, separate from the public health sector, to gauge the public's capabilities in understanding and maintaining their own health behavior decisions.

The ACHA-NCHA survey results have proven to be pivotal within my research. The national report indicates a pleasant surprise in the overall reported use of drugs and alcohol, thus validating the success of targeted anti-drug and alcohol campaigns. It is apparent, in the literature reviewed, that the largest gaps in health literacy and health behavior risks are occurring in traditional age students living on campus. Some may question whether the responsibility to moderate pressure and anxiety associated with college adjustment should be placed on the parents, close tie networks, the students themselves, or the institution. This study assumes that colleges and universities bear *some* responsibility for helping students make the adjustment to college life and promoting a healthy lifestyle. Taylor (2012) argues for collaborative action of the institution: "A school's social climate influences how likely students are to abuse drugs or alcohol, and so changing the norms about health habits may influence a large number of students simultaneously" (p.71). Regardless of where the responsibility lies, the literature clearly validates a need for action to transcend the status quo, build self-efficacy and deliver effective messages. Findings of this research alludes to the necessity of collaboration, namely between psychology and communication scholars, to understand

student health beliefs as a precursor to effective message design.

Peerson and Saunders (2009) assert that “it is vital to accept motivation and activation as inseparable aspects of health literacy. For various and complex reasons, having information is no guarantee that it will be used to promote health” (p.289), and contend that “it is also possible that the possession of health information does not equate to the correct understanding of it, resulting in a failure to use it to promote health, this further exemplifies the exigency of measuring health literacy, and composing messages targeted at the specific needs of a given population” (p.289). Challenging perceptions of invulnerability can be key to changing the attitudes of students towards their health. Utilizing the HBM and TPB, we can surmise that this challenge can be met by using communication strategies and fostering education to predict likely behaviors and influence or modify perceptions, attitudes, and intentions. Downing-Matibag and Gisinger (2009) proclaim the need to emphasize vulnerabilities and encourage realistic assessment. **However, they** insist that such strategies must be paired with a sense of efficacy to encourage motivation. Ajzen (1991) advances this argument from the TPB standpoint, claiming that to address perceived behavioral control (self-efficacy), “may not be realistic when a person has relatively little information about the behavior” (pp. 184-185). Hence the need for a comprehensive approach to addressing college students’ health related behaviors.

Some areas of health concern affecting academic performance can be considered as representative of the “college experience.” However, most important for influencing positive health behaviors is the inclusion of traditional students and their parents in

orientations, to encourage mutual understanding and communication of issues related to adjusting to college life, with the hope of increasing ease of adjustment and decreasing corresponding stresses.

The literature search has established a relevant foundation for defining and measuring health literacy, and comparatively, health concerns affecting college populations. The literature further alludes to an exigent and pragmatic need for collaborative action to assess and compose communication strategies to meet the educational and motivational needs of students at EWU and furthermore for the public good:

“these definitions imply that health literacy is directly linked to changed health behaviors and practices, engagement in social action for health and participation in altered social norms” (Nutbeam, as cited in Peerson and Saunders, 2009, p. 289).

## Chapter 3

### Methodology

As a postpositivist, much of my methodology is predetermined. Mixed methods research, such as quantitative survey analysis and qualitative interview techniques, align with the postpositivist paradigm to achieve the best data. Surveys have the ability to provide quantitative analysis for statistical understanding of the health literacy capabilities of EWU students and can be used in collaboration with data collected from interviews and literature analysis. Although I find greater utility in the statistical data produced by the surveys, interviews add an important component of the human experience. Interpretive data adds to an student's perception of their own health, beyond that of survey analysis. Interviews help to expand the understanding of particular survey questions, by including individual perspectives. The data achieved from my survey research will serve as the primary support for my proposed communication strategies, accompanied by the data collected from Michelle Pingree and augmented by findings from the Review of the Literature.

As part of preliminary research, to shape the parameters of my research, I sat down for a qualitative interview with Michelle Pingree. The interview proved enlightening to both disparities and possibilities for a more informed campus. Ms. Pingree offered profound insights on the potential for collaboration within the institution, including Eastern's off site campuses and satellites. In addition to the nationwide ACHA-NCHA survey, Michelle provided a copy of the executive summary of the same survey

administered among EWU's student population in the Spring 2012. This gave me greater insight into the current health trends at EWU and revealed positive and negative correlations with nationwide reports and health literacy levels. My evolving understanding of both assessments enabled me to identify of any unique characteristics or fundamental areas of concern specifically germane to EWU's student health behaviors.

Furthermore, based on the literature reviewed, the opportunity for use of many different health literacy assessments was explored. Some assessments, such as the Health Activities Literacy Scale (HALS), were found to be cost prohibitive and were therefore excluded. Data gathering on the EWU campus was collected through use of the Rapid Estimate of Adult Literacy in Medicine (REALM) (Appendix A), accompanied by a supplemental questionnaire (Appendix B). The REALM, a 66 health term recognition and pronunciation test, administered and scored by the researcher and two assistants in 2-3 minutes, allowed for the surveying of many subjects in a short amount of time, accommodating a key constraint of this research. Although the survey was conducted face to face with the research assistants, participant names were not pertinent to the study and were not collected. Also, the assistants were overseen by the researcher, to protect participant confidentiality. Assistants were used to administer the assessment in an efficient time frame and were not granted access to information or supplemental surveys completed by participants. Moreover, as the primary focus of the REALM is on reading-related health literacy skills, it can be argued that "better performance on the REALM likely reflects health and general knowledge than processing capacity" (Chin, et al., p.4). The REALM can also assess a respondent's functional literacy level, which provided



added results for university analysis. Another unique benefit, perhaps to an arguably lesser degree of significance, is its grading system, known as the Slossan Oral Reading Test (SORT), which is widely established in educational settings (Zhang, Thumboo, Fong, and Li, 2009, p.177). This however, may be considered significant to credibility when surveying populations in academic populations, such as this particular study. The supplemental questionnaire was provided for the collection of demographic information to identify relevant correlations to health literacy results. Again, both questionnaires were conducted without the need for participant identification, thus maintaining confidentiality. Demographic information was not linked to individual participants. Demographic information obtained was only used if found to be relevant to identifying trends in the results.

Participants were selected as a cluster sample, enrolled in one of six available sections of the *Introduction to Speech Communication course* (CMST 200) on the EWU Cheney campus during the Fall Quarter 2012. Participants were at least 18 years of age (n= 92). Additionally, students were selected because it is a course taken by non-majors of the Communication Studies department, thus providing a more representative sampling of the EWU population. Approval for this research was obtained by the Institutional Review Board prior to commencement. During class, volunteer participants were pulled at random out of class one at a time; the survey was administered in person, one on one with the researcher or research assistant. Participants were asked to read from 66 word list at which time the researcher scored each word as a (+) for proper pronunciation, (-) for words not attempted, and (/) for words mispronounced.

Participants were given approximately five seconds to attempt the word before being prompted to move on by the researcher. Raw scores were immediately determined by the researcher, scores were then categorized based on the range of correct responses, shown below in figure 2.

<b>RAW SCORE</b>	<b>GRADE EQUIVALENT</b>	<b>Communication Needs</b>
<b>0-18</b>	<b>3rd Grade and Below</b>	Will not be able to read most low literacy materials; will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes.
<b>19-44</b>	<b>4th to 6th Grade</b>	Will need low literacy materials; may not be able to read prescription labels.
<b>45-60</b>	<b>7th to 8th Grade</b>	Will struggle with most patient education materials.
<b>61-66</b>	<b>High School</b>	Will be able to read most patient education materials.

Fig. 2

Survey techniques aligned best with the postpositivist paradigm to achieve the most usable data. Survey and demographic information collected from the supplemental questionnaire provided quantitative analysis for an empirical representation of the population's understanding of their health. The survey conducted was analyzed by counting the raw scores and identifying percentages of health literacy on the EWU campus.

The data obtained from the survey research will provide support for my proposed communication strategies, accompanied by the associated literature review, national and

local survey comparisons, and my interview with Michelle Pingree. Through this mixed methods research, I intend to gain insight into contributing factors of health behaviors, including health literacy. Furthermore, I hope to identify trends contributing to student health literacy and health behaviors at EWU. The results of my data gathering methodologies will be discussed extensively in the following chapter.

## Chapter 4

### Results and Discussion

#### Results

Beginning with an inquiry into the nature of Health Literacy, what is it, how is it measured, and what role does it play in implicating or influencing health or risk-related behaviors. To define ‘health literacy,’ the following definition of ‘health literacy’ was employed: “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (World Health Organization, as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). Based on this definition, I wondered if EWU students had the basic knowledge to “understand and use information in a way which promote and maintain good health.” Recalling Peerson and Saunders’ (2009) assertion that “it is vital to accept motivation and activation as inseparable aspects of health literacy. For various and complex reasons having information is no guarantee that it will be used to promote health” (p.289)

This research explored a comprehensive framework for developing to understand EWU student knowledge and motivation with regards for health related decision, considering both their physical and mental well-being.

Data was collected by both qualitative and quantitative research methods. In conjunction with the information obtained from the interview with Michelle Pingree, EWU Director of Health, Wellness, and Prevention Services, I conducted a quantitative

survey to assess health literacy levels of EWU students. In the following analysis, I will discuss information acquired from my interview with Michelle. I will also highlight key discoveries from the national and local ACHA-NCHA assessments. I will then discuss results of the REALM survey. Lastly, I will discuss limitations and provide suggestions for communication strategies.

When I sat down with Ms. Pingree, on August 1, 2012, her excitement to discuss EWU's student health was evident. We began by discussing the university's lack of a required health course (because I had assumed that would be the best course of action to remedy what I believed to be a significant number of EWU students engaging in unhealthy behaviors). I asked Michelle, "Who participates in health related education programs on campus?" She responded that the Health, Wellness, and Prevention Services conducts required health related presentations for fraternities and sororities, residence halls, and select athletic programs (Michelle gave EWU's football team as an example). Demographic information retrieved from EWU's Department for Institutional Research's Common Data set 2011-2012 indicated the residence halls make up 20% of the university's undergraduate population, and fraternities and sororities make up 10% combined. The athletic department was not included in the data set. Students involved in athletics were not included in those receiving services from the Health, Wellness, and Prevention Services because it could not be narrowed to which athletic programs were seeking their services<sup>10</sup>. This allowed me to confirm only 30% of EWU students were receiving Health, Wellness and Prevention services. With so many topics imperative to

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<sup>10</sup> Attempts were made to reach Michelle for followup, a response was received that Michelle was no longer employed by Eastern Washington University. No new Director had been appointed and attempts to reach colleagues in Health, Wellness, and Prevention Services via email were unsuccessful.

increasing the overall health literacy of EWU students, I wondered how Michelle and her staff decide what messages are important to their presentations. Michelle stated that she receives requests, determined by each department's administration, concerning key topics considered most relevant to each group of students. Michelle and her reduced staff, with limited funds for health promotion campaigning, make their program recognizable, as a resource, by participating in campus events as often as possible. As a seemingly obvious follow-up, I asked Michelle, "If you are only reaching a limited population on campus, how do students know who to contact if they have a question about their health?" Michelle answered with optimism. Community advisors (CA) and residential life coordinators (RLC) are available to students living in residence halls. Otherwise, "[We] hope that students will find someone to ask that can point them in the right direction" (personal communication, August, 1, 2012). In addition, Michelle acknowledged that many students are 'googling' their questions. In fact, 22% (n=20) of students who participated in the survey associated with this research acknowledged seeking information from online sources.

Transitioning from EWU's student health, Michelle and I deliberated over the institution's plan of action for communicating positive health education to students. Michelle's inclination to discuss this topic was striking, with distinct enthusiasm and pragmatic perspective. The majority of the answers obtained were derived out of casual open dialogue rather than standard interview question and answer protocol. Michelle stated, with strong conviction, that the lack of health education campaigns on the EWU campus is political, evidence of funding allocations spread thin among departments such

as Health, Wellness, and Prevention Services. Michelle believed that priorities go where the funding goes. Moreover, when discussing why health literacy is not considered a pressing issue, Michelle asserted that, among funding concerns, “society assumes there is a level of knowledge that maybe there isn’t” (personal communication, August, 1, 2012). In addition, Michelle argued that with no institutional support for employee wellness, there can be no collaboration among staff and student population. With respect to the health literacy of EWU students, Michelle boldly proclaimed that an institutional priority could create a common language, reinforcing positive health perspectives. It should be noted that for fall quarter 2013, EWU announced a faculty/staff fitness class available three days a week. This is a manifestation of Michelle’s vision of priority for the entirety of the EWU community. In addition to the valuable perspectives provided, Michelle supplied me with the executive summary report derived from the ACHA-NCHA conducted with EWU students in Spring of 2012. This analysis includes comparisons of the ACHA-NCHA results both nationally and locally.

Demographics of those surveyed for the ACHA-NCHA at EWU showed a median age of 24.20 years. 70.1% accounted for traditional college aged college students (18-24) and 29.9% accounted for 25 years of age and older; in comparison, the National survey included 79% of 18-24 year olds. Much of the local demographic information was found to be comparable to the nationwide assessment; 82.4% of EWU students described themselves as white, 95% were full time students, and 53.8% were still on a parent’s health plan.

Notably, in reports of alcohol, tobacco, and drug use, EWU students reported

excessively high 'perceived use' over reported 'actual use.' These perceived social norms may denote an effect on the percentages of actual use and should be addressed within the context of the Theory of Planned Behavior (TPB) and targeted message framing. It is also conceivable, with regard to perceived norms surrounding marijuana use, that media attention in the state of Washington and Initiative-502<sup>11</sup> might have skewed student perceptions of normative use. For EWU students, 80.2% reported having 0 or 1 sexual partners in the last twelve months, of which 54% reported using birth control pills and 50.3% as using male condoms (ACHA-NCHA- EWU, Spring 2012). Michelle brought to my attention, as a health literacy concern, the reported use of the withdrawal method as a form of birth control. EWU students reported at a rate of 23.3% using the withdrawal method; 15.1% reported using emergency contraception such as the morning after pill within the last twelve months. While it is prudent of students to seek out the morning after pill, it is also highly indicative of lower uses of primary protection. Message strategies should therefore be aimed at preventative techniques.

Students self-reported stress (31.1%), sleep difficulties (24.9%), and anxiety (21.2%) as having the greatest impact on academic performance. In the ACHA-NCHA section assessing mental health, students reported, in immense numbers (81.9%), that they were feeling exhausted (not from physical activity), and 85.3% reported feeling overwhelmed by all they had to do. Aside from feeling exhausted and overwhelmed, no other mental health concerns arose with the majority of students. Relative to the issue of stress, which can be mitigated by a healthy diet and exercise, students actually reported regular fruit

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<sup>11</sup> This law legalizes the possession of marijuana for adults age 21 and older (<http://www.newapproachwa.org/content/initiative>)



and vegetable consumption, and physical activity. A definition quantifying measurements of physical activity was provided in the survey, however there was no indication that 'serving' was quantified for students.

My analysis of the ACHA-NCHA outlines critical health considerations for EWU students. In order to discern whether there is need for primary health education, health literacy rates were evaluated using the Rapid Estimate for Adult Literacy in Medicine (REALM). The following discusses results and trending demographics.

The REALM survey and supplemental questionnaire were used to assess demographic information and health status of students. A total of 92 (n=92) volunteers were recruited from one of five sections of the *Introduction to Speech Communications* course, fall quarter, academic year 2012. Again, my rationale for this particular section was based on a cluster sample; additionally, students in this course were not exclusive to any one discipline. This provided a more accurate representation of the EWU student population. Research assistants were enlisted in order to expedite the survey process. REALM surveys were conducted by the researcher or trained research assistants and scored immediately.

Once raw scores were calculated and compiled, I was able to classify scores into one of four categories (Fig. 3).

<b>RAW SCORE</b>	<b>GRADE EQUIVALENT</b>	<b>Communication Needs</b>
<b>0-18</b>	<b>3rd Grade and Below</b>	Will not be able to read most low literacy materials; will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes.
<b>19-44</b>	<b>4th to 6th Grade</b>	Will need low literacy materials; may not be able to read prescription labels.
<b>45-60</b>	<b>7th to 8th Grade</b>	Will struggle with most patient education materials.
<b>61-66</b>	<b>High School</b>	Will be able to read most patient education materials.

Fig. 3

Results indicated that 93% (n=86) of students align with the health literacy proficiency of a ‘high school’ level, and 7% (n=6) to classify within one of the three latter categories, an impressive assessment of proficiency for EWU students.

Demographics of the surveyed group were collected in an effort to identify trends in the results. Consequently, with such a significant and unpredicted outcome, demographics were of relatively low importance to interpreting their relevance in terms of their correlation to presumed low literacy rates. Some of the demographics however are worth consideration, and when combined with the ACHA-NCHA findings, can contribute to effective health messages targeted specifically to EWU student needs.

Year in school showed the majority of students to be of junior ranking (n=41) with a large range of majors being represented. Gender reporting was found to be overwhelmingly female (n=56); such findings are representative of gender demographics in both the national and EWU ACHA-NCHA assessments. Reports of first generation students, a relevant analysis to the EWU student population, found 32% (n=29) reported as first generation college students; 65% (n= 63) of respondents did not identify as first generation. Participants were provided a definition of ‘first generation’ based on

classification by the U.S. Department of Education as, “neither parent had more than a high school education.” Presumably, this may be misrepresentative of EWU due to contrasting definitions between the U.S. Department of Education and this university. The latter defines ‘first generation’ as “neither parent holds a four year degree.” A change in this definition may otherwise provoke a contrary response for some participants.

When questioned from whom participants seek health advice, 22% (n=20) sought out online health care websites, 38% (n=35) went to friends or family, and 33% (n=30) asked health care professionals. Surveys that received no response or stated ‘other’ were not found to be significant and are not represented in the above figures. The question of “overall health” yielded perhaps, a superficial response. Of the responses received, 13% (n=12) reported to be in excellent health, 58% (n=53) in good health, 20% (n=18) in average health, and 4% (n=4) as somewhat unhealthy. Five responses were not received. The question of “overall health” followed a question asking how many times each participant had been treated by a doctor in the last twelve months. The nature of this question specifically, may have led to an assessment of physical health not accounting for mental or emotional wellbeing. This is significant, since the ACHA-NCHA reports of college student wellbeing indicated high levels of stress and anxiety and low reports of being treated by mental health professionals; thus, “seeking treatment” is likely to be misunderstood as treatment for a physical malady. The accuracy of the quantitative analysis can therefore be argued as representative only of students’ overall physical health.

## Discussion

This section will elaborate on limitations of the methodology, followed by a discussion of the results, and are further accompanied by discussion of implications and suggestions for future research and praxis. Since more innovative methods were found to be cost prohibitive or restricted by access, the literature strongly supported the use of the REALM for accurate evaluation of adult health literacy. I was therefore inclined to use the REALM. Limitations revealed in the literature review about this instrument included a lack of consideration for context. This was found to be significant and likely instrumental to the results of this research. Scoring was based solely on the provided instruction (Fig. 4).

5. If the patient takes more than five seconds on a word say “blank” and point to the next word, if necessary, to move the patient along. If the patient begins to miss every word; have him/her pronounce only known words.

Fig. 4

Instructions were strictly followed in an effort to maintain consistency across scoring, regardless of researcher or research assistant’s personal judgment of actual comprehension.

I, along with the research assistants, observed immeasurable nonverbal cues, indicating distinct unfamiliarity with terms. Despite the subjective observation, on my behalf or that of a research assistant, participants were rewarded points for proper pronunciation of a word, e.g. *colitis*. Applying a measurement tool that accounts for context would have provided a stronger indication that a participant comprehends the use and/or implications associated with a term. The literature analysis pointed out that these newer methods lacked validity, and in addition, alternative assessments, such as the

Health Activities Literacy Scale (HALS), were cost prohibitive to the researcher. Future suggestions for this method of research would include advocating for less expensive and more accessible contemporary context based methods. Accounting for health terms, in the context by which they may be used, can be paramount for a more accurate assessment of actual health literacy. Consequently, it may also be significant to modify scoring instructions to account for disparities between immediate recognition of a word and a participant sounding out a word.

Aside from the limitations of this method of analysis, the survey established a 93% health literacy rate of ‘high school’ (based on the scoring guide, see Fig. 3). However, the literature, combined with the ACHA-NCHA survey, and my interview with Michelle Pingree, have established the presence of a student population struggling with challenges to their physical and mental well-being, likely due to adjustments of college life. In fact we can agree that health literacy is;

“the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health” (as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210).

Ultimately, this research attests to EWU students’ cognitive ‘ability.’ However, the preexisting view suggested in the WHO definition is that ‘motivation’ and ‘ability’ are both necessary in order to be “health literate.” Therefore, this research challenges the findings of the REALM as a sole measurement of health literacy and argues that EWU students lack the ‘motivation’ and are therefore missing a pivotal component to being considered “health literate.” This research is highly indicative of student ability to assimilate targeted health messages without a primary task of general health education.

These results have reaffirmed a need to address the critical gap that exists between literacy rates (ability) and risky behavior (motivation); necessary for an absolute manifestation of “healthy literacy”. Furthermore, it provides a direction for the construction of health messages specific to EWU students and their unique communication needs.

To reiterate, Peerson and Saunders (2009) claim that “having information is no guarantee that it will be used to promote health” (p.289); it is therefore necessary for scholars and communication practitioners to become competent in the assessment of what motivates college student to adopt healthy or unhealthy behaviors. From a deepened awareness, and consideration for preserving personal autonomy, context, and encouraging efficacy communication strategies can employed to design specific to addressing student’s motivation “(...) to gain access to, understand and use information in ways which promote and maintain good health” (WHO as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210)”

Corresponding to the categories outlined in *Health Literacy Defined and Measured* (chapter 2), Nutbeam’s (2000) expanded levels of health literacy competencies (basic, interactive, critical) help us to ascertain where EWU students’ align. He describes level 2, “interactive literacy” as, “education is directed towards improving personal capacity to act independently on knowledge, specifically to improving motivation and self-confidence to act on advice received” (p. 263). It is reasonable to speculate that the health literate population of EWU students stands collectively at level two, which leaves room for improvement. Indicative of this research is that EWU students, with regard to

their risky behaviors, aren't unique to college students collectively. Let us reaffirm, there appears to be a pressing need for a comprehensive program to address motivational factors attributed to mitigating risky behaviors on college campuses. A web search for programs targeted to college student behaviors generated a significant discovery from New York University, New York. The LiveWellNYU<sup>12</sup><sup>13</sup> mission statement proclaims:

“**LiveWellNYU** endeavors to increase students' use of preventive behaviors and to empower students to become active partners in their own health, thereby improving their general well-being, help them reduce impediments to academic success, and equipping them with important, lifelong self-care skills” (p.2, unofficial manual)

LiveWellNYU delivers a useful program that can be used as a framework to empower motivation of EWU students. This approach is supported by ACHA-NCHA, literature analysis, and community collaboration, providing a comprehensive strategy to engage students in healthy decisions. This framework is constructed through the collaboration of five categories of stakeholders, each considered to “have the capacity to influence the health of individual students” (p. 4); 1) student leaders 2) faculty and staff 3) NYU student health center 4) close tie networks 5) community partners. Six key approaches for increasing student learning objectives, health outcomes, and student success are proposed, 1) increasing health literacy 2) activation 3) behavior change 4) healthy lifestyle 5) good health and 6) improving ability to function and flourish. Furthermore, this comprehensive plan of action asserts its efforts for expanding the ‘portfolio’ of

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<sup>12</sup> livewellnyu.com

<sup>13</sup> LiveWellNYU was implemented in 2012 and will be reassessed at the end of the pilot, 2017 via the ACHA-NCHA.

technological resources available to the student population. The Centers for Disease Control - National Information Prevention Network (CDC-NPIN) website for health communication strategies provides links to ‘social media tool kits’ to support development of campaigns using technology and social media. At the heart of the NYU framework are ten priority areas, identified as the most significant to achieving a healthier, academically successful student population. The ten areas targeted for improvement at NYU were determined through quantitative ACHA-NCHA evaluation, widely discussed throughout this research, and extensive qualitative literature analysis, conducted across multiple disciplines. It has been well established that EWU students are not unique to the national averages; presumably NYU is also representative of the collective population of college students and that these priority areas can be applied across universities with minimal variances. The ten priority areas are: 1) Alcohol, tobacco, and other drugs 2) Health literacy 3) Interpersonal relationships 4) Mental health/depression 5) Nutrition 6) Physical activity 7) Safe and healthy campus community 8) Sexual health 9) Sleep, and 10) Stress.

The subsequent sections of the LiveWellNYU framework expands on each of the priority areas, providing baselines for behaviors, originating from ACHA-NCHA results, and projects target objectives. Each subsection also offers research based ‘key facts,’ as corroboration for target objectives for influencing behavior changes. In addition, recommended strategies for targeted outreach are presented. This intricate framework has clearly established a thoroughly researched, comprehensive approach to addressing disparities among college populations, and changing the status quo, not unexpected from



a university with such a distinguished reputation. It is apparent that NYU, in their thorough approach, has covered awareness, prevention, incentive, and technology.

As a communication scholar, I have identified a significant gap in NYU's otherwise comprehensive program: there are no communication strategies for articulating this plan of action in a way that 'motivates' and enables the population to act on information presented. Recalling from *Communication Strategies for Changing the Status Quo* (chapter 2), health communication scholars collectively make assertions surrounding the same premise, "framing messages to match the nature of the issue at hand and to the dispositional tendencies of the target audience can lead people to accept the information, recognize its self-relevance, and encourage behavioral changes" (Ko and Kim, 2010, p. 61). The usefulness of LiveWellNYU framework is evident, but, without consideration for communication strategies, this framework chances falling victim to repeated failures of past health promotion campaigns. As broad and general as it may seem, Nutbeam's (2008) model (Fig. 1)<sup>14</sup> claims health literacy as "an asset to be built, as an outcome to health education and communication that supports greater empowerment and decision-making" (p. 2074). Hence, communication is a significant component aimed at improving health behaviors, and arguably the missing link to the development of an effectively engaged comprehensive program. Nutbeam suggests tailored communication, information, and education as critical components to increasing health literacy, directly influencing behavior change and ultimately improving health outcomes. This model, holistic in nature, addresses comprehensive strategies for increasing positive health

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<sup>14</sup> Fig. 1: refer to p. 28

outcomes. This has the added advantage of limiting possibilities of divergence.

Incorporating Nutbeam's model with the WHO definition of "healthy literacy" offers a plan of action, using tailored communication to develop knowledge and skills correlating to health literacy. If we accept that to be "health literate," one must possess both 'ability' and 'motivation,' then it is clear why Nutbeam connects "health literacy" directly to engagement in social action for health, to changed health behaviors and practices, and to participation in changing social norms and practices.

Now, let's reexamine the concept of Prospect Theory as it can be applied to strengthening the NYU framework. Prospect Theory also aligns with Nutbeam's model for health literacy as "an asset" (Nutbeam, 2008, p. 2074),

"The ultimate goal of any framed message is to promote a particular behavior (...) even when a frame has been processed and assimilated, it's particular impact on behavior is contingent on perceptions of the behavior itself" (Rothman and Salovey, 1997, p. 15)

This statement argues for the collaboration between communication strategies and psychological perspectives when addressing college student's perceived risks and "one's ability to perform that behavior successfully (self efficacy), as it predicts the likelihood of the health behavior being carried out" (Bandura, as cited in Rothman and Salovey, 1997, p.15).

With regard for psychological perspectives, in designing targeted messages, Rothman, Bartels, Wlaschin, Salovey (2006) suggest that people who perceive their susceptibility as higher were more receptive to loss frame appeals; while those with perceptions of low susceptibility were more receptive to gain frame appeals (p.S209).

They allege that individuals who have confidence in the prevention behavior will be more receptive to gain frame appeals, while those who exhibit skepticism will be more receptive to loss frame appeals (p. S210). While Prospect Theory provides only a system for framing, it provides no guidance for actual content of messages; Rothman, Bartels, Wlaschin, Salovey (2006) support “the utility in examining whether there is value in current models of behavior decision making (...) to guide the selection of the information that is highlighted in a framed appeal” (p. S215).

Rothman and Salovey (1997) declare that there is sufficient evidence to support the use of gain-loss messaging techniques, “the utility of tailoring critically depends on the development of reliable and efficient assessment methods” (p. 214). If these notable communication strategies are to work collaboratively with the comprehensive, research-based LiveWellNYU program, it is necessary to integrate supported methods of assessment (ACHA-NCHA), conducted concurrently, and frequently.

## Chapter 5

### Conclusion

My August interview with Michelle Pingree, EWU Director of Health, Wellness and Prevention Services, underscored the notion that “society assumes there is a level of knowledge that maybe there isn’t” (personal communication, August, 1, 2012). Her perspective along with a noticeable disparity in the literature, warranted a preemptive understanding and examination of student health literacy, a foundational component, often overlooked when assessing health behaviors and composing strategies for health promotion. The intent of this research was to explore a framework beyond health literacy, but to understand its implications relative to other variables affecting the health and well-being decisions of EWU students. Also, informed largely by psychological theories, this research explores narratives or perspectives students are operating under when making decisions regarding their health. Moreover, what role can communications play in closing the gap between knowledge (ability) and motivation.

In terms of praxis, defined as “the combination of theory and action” (Denzin and Lincoln, 2011, p.475), this research was designed to identify student ‘abilities’ and ‘motivation’ in an effort to understand their health decisions, and subsequently propose a functional strategy for behavior change. Strategies for improving student health behaviors were dependent on literacy levels, common needs or patterns identified through observed behavior, and mixed methods research. My mixed methods approach incorporated an interview with Michelle Pingree, a multidisciplinary literature analysis, the Rapid Estimate of Adult Literacy in Medicine (REALM), and analysis of a local and

national survey collected from American College Health Assessment-National College Health Assessment (ACHA-NCHA).

First, an extensive multidisciplinary review of literature was performed. The literature review produced foundational research in key areas of defining and measuring health literacy, strategies for effective message design, and a psychological perspective of health behaviors, including concerns affecting college communities. Key disciplines that contributed significantly to the overall conversation were in the areas of communication and psychology.

The literature revealed there to be no universally accepted definition of health literacy; however, profound recognition of the WHO's concept of "health literacy," echoes throughout this paper, as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health" (as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). In addition, the literature highlighted pragmatic reasoning for my application of the REALM for quantitative data analysis. The Health Belief Model (HBM) and Theory of Planned Behavior (TPB) were both established as significant to assessing and predicting likely health related behaviors; both commensurate with perceived 'ability' (self-efficacy) and 'motivation.' The literature further demonstrated an exigent and pragmatic need for communication strategies, to inform and motivate students at EWU.

Next, a quantitative analysis of the EWU student population was collected through the Rapid Estimate of Adult Literacy in Medicine (REALM), a 66 health term recognition

and pronunciation test, and was accompanied by a supplemental questionnaire. Results of the REALM survey and supplemental questionnaire were used to assess health literacy rates and demographic information of students. A total of 92 (n=92) volunteers were in the fall quarter, academic year 2012. Participant demographics were found to be largely representative of most college populations, based on comparison with the national ACHA-NCHA demographics. Results indicated that 93% (n=86) of students align with the health literacy proficiency of a 'high school' level, the highest attainable level of proficiency measured by the REALM. The results coincide with those found in the extensive examination conducted by health promotion scholars Melinda J. Ickes and Randall Cottrell (2010), using both the TOFHLA and the REALM. While both tools were validated, results were analyzed using the TOFHLA. Results were found to be concurrent with the findings in this research, indicating a 93.83% rate of adequate functional health literacy. Similarly, demographics of the students represented were comparable to the demographics represented at EWU. While health literacy is addressed in the LiveWellNYU framework, there is no evidence to suggest literacy was measured using a standardized tool useful for result comparison.

This research has empirically demonstrated that students at EWU possess the cognitive 'ability' "(...) to gain access to, understand, and use information in ways which promote and maintain good health" (as cited in Nutbeam, 2000, p.264 and Ratzan, 2000, p. 210). However, the preexisting concept suggested by the WHO's definition is that both 'motivation' and 'ability' are necessary for students to be considered "health literate." This research has therefore substantiated my challenge of REALM results, as a

sole measurement of health literacy; and that EWU students lack ‘motivation,’ a pivotal component to being considered “health literate.” As a communication scholar I identified a significant gap; a lack of strategy for how to communicate a plan of action in a way that both enables and motivates students to act on information being presented. My challenge of the results is corroborated by the ACHA-NCHA results both nationally and locally, the literature, my discussion with Michelle Pingree, and personal observations of unhealthy or risky behaviors; thus, providing validation of the need for mixed methods in praxis. Additional support for the employment of mixed methods in health communications research and strategies are also derived from the CDC-NPIN and academic scholars such as Denzin & Lincoln (2011).

Suggestions for future research are evident; a comprehensive strategy, created collaboratively with students and scholars, namely practitioners and scholars of communication and psychology, although not exclusively. The paramount nature of a comprehensive approach is recognizing the ‘ability’ to assimilate information, and designing message strategies suitable for influencing the behaviors (motivation) of EWU students.

The CDC-NPIN’s suggested health communication strategies warrant a mixed methods approach to planning, implementing, and assessing an effective communication plan; and may look something like, utilizing the ACHA-NCHA to determine survey parameters and conduct interviews and focus groups, to consider determinants relative to the subjective human experience of health. Pertaining to the utility of qualitative interviews and focus groups, Rothman, Bartels, Wlaschin, Salovey (2006) discern that

“decisions regarding the repeated dissemination of a framed appeal would depend on information about the action people take in response to an initial appeal and how those actions affected their thoughts and feeling about the behavior” (pS215). The link here is the need for incremental quantitative and qualitative assessments, enabling early recognition of possible habituation or ineffectiveness, thus allowing for proactive modifications. Moreover, it is necessary to ensuring that message strategies are meeting the needs of the targeted population or to identify early shifts in the quantitative data.

The employment of each of the elements explored provides a comprehensive approach to influencing behavior change in EWU students. The use of the ACHA-NCHA, is imperative for continued assessment of the student population’s changing needs, and to evaluate for impact on student motivation; which has been established as the missing component to being “health literate.” Although it was empirically demonstrated that the current population was sufficiently competent in health literacy, and not warranting a remedial health education course; periodic assessment is still necessary as the population is a constant flux of new students. For the current student population, whom have demonstrated affirming results of ‘ability;’ strategies for improving ‘motivation’ should be measured more frequently, performed through mixed methods analysis. This enables us to change with the needs of each new class of students at EWU.

In addition, through collaborative employment of Nutbeam’s (2008) model and prospect theory (gain-loss framing), health literacy can become “the *outcome* of education and communication rather than a factor that may influence



outcome” (Nutbeam, 2008, p.2075). This, combined with what we can ascertain about college student’s perceptions of invulnerability, susceptibility, perceived behavioral control (PBC), and self-efficacy; we can also begin to fill the distinguished gap of LiveWellNYU, and increase its utility as a framework to improve student ‘motivation’, thus transcending what has become the status quo in college communities.

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## Appendix A

### RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE (REALM)

**(+) = CORRECT    (-) = Word not attempted    (/) = Mispronounced word**

LIST 1	LIST 2	LIST 3
Fat _____	Fatigue _____	Allergic _____
Flu _____	Pelvic _____	Menstrual _____
Pill _____	Jaundice _____	Testicle _____
Dose _____	Infection _____	Colitis _____
Eye _____	Exercise _____	Emergency _____
Stress _____	Behavior _____	Medication _____
Smear _____	Prescription _____	Occupation _____
Nerves _____	Notify _____	Sexually _____
Germs _____	Gallbladder _____	Alcoholism _____
Meals _____	Calories _____	Irritation _____
Disease _____	Depression _____	Constipation _____
Cancer _____	Miscarriage _____	Gonorrhea _____
Caffeine _____	Pregnancy _____	Inflammatory _____
Attack _____	Arthritis _____	Diabetes _____
Kidney _____	Nutrition _____	Hepatitis _____
Hormones _____	Menopause _____	Antibiotics _____
Herpes _____	Appendix _____	Diagnosis _____
Seizure _____	Abnormal _____	Potassium _____
Bowel _____	Syphilis _____	Anemia _____
Asthma _____	Hemorrhoids _____	Obesity _____
Rectal _____	Nausea _____	Osteoporosis _____
Incest _____	Directed _____	Impetigo _____
# of (+) Responses in List 1 _____	# of (+) Responses in List 2 _____	# of (+) Responses in List 3 _____

**RAW SCORE:**

## RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE (REALM)

The Rapid Estimate of Adult Literacy in Medicine (REALM) is a screening instrument to assess an adult patient's ability to read common medical words and lay terms for body parts and illnesses. It is designed to assess medical professionals in estimating a patient's literacy level so that the appropriate level of patient education materials or oral instructions may be used. The test takes two to three minutes to administer and score. The REALM has been correlated with other standardized tests (Family Medicine, 1993: 25:391-5).

### Directions to the Examiner:

1. Examiner should say to the student: *"This survey is to help us figure out the best type of patient education materials to give you. The survey only takes 2 to 3 minutes to do"*
2. Give the student a laminated copy of the "REALM" Patient Word List.
3. Examiner should hold a non-laminated "REALM" Score Sheet on a clipboard at an angle so that the student is not distracted by your scoring procedure.
4. Examiner should say: *"I want to hear you read as many words as you can from this list. Begin with the first word on List 1 and read aloud. When you come to a word you cannot read, do the best you can or say "blank" and go on to the next word."*
5. If the patient takes more than five seconds on a word say "blank" and point to the next word, if necessary, to move the patient along. If the patient begins to miss every word; have him/her pronounce only known words.
6. Count as an error any word not attempted or mispronounced. Score by:/( /) after each mispronounced word./(-) after each word not attempted./(+ after each word pronounced correctly.
7. Count the number of correct words for each list and record the numbers in the "SCORE box. Total the numbers and match the total score with its grade equivalent in the table below.
8. Record the "Realm" generated reading level on the Examiner's Score Sheet and on short survey.

RAW SCORE	GRADE EQUIVALENT	Communication Needs
0-18	3rd Grade and Below	Will not be able to read most low literacy materials; will need repeated oral instructions, materials composed primarily of illustrations, or audio or video tapes.
19-44	4th to 6th Grade	Will need low literacy materials; may not be able to read prescription labels.
45-60	7th to 8th Grade	Will struggle with most patient education materials.
61-66	High School	Will be able to read most patient education materials.

Appendix B

**PART 1: Before you take PART 2 of this exercise, we hope you will answer a few questions related to your health care background. Your participation in this study is voluntary. You may SKIP any question you do not want to answer for any reason. You will not be identified by name for any part of this research. We will use the results of this study to advocate for ways to improve student health outcomes.**

**Demographics (1-7)**

1. Year in School \_\_\_\_\_ 2. Major \_\_\_\_\_ 3. GPA \_\_\_\_\_

4. Gender (circle one) M F

5. Age Group (circle one) a. under 24 years of age b. 25-40 c. 40-65 d. 65+

6. The income level of the family you were raised in was (CIRCLE ONE)

a. High b. Middle c. Low

7. First Generation College students are defined by the U.S. Department of Education as “Neither parent had more than a high school education.” Are you a First Generation Student? Yes \_\_\_\_\_ No \_\_\_\_\_

**Health Care Exposure (8-12)**

8. Which—if any—of the following apply to your lifetime exposure to health care: (CHECK ALL THAT APPLY)

You have had significant health illnesses/injuries/other health issues requiring extended medical care

You have been employed in a health care facility

You have close friends/relatives/roommates in a medical field

You have taken health-related courses or emergency training (i.e., CPR with Red Cross, etc.)

Other

No

---

previous health care experience

9. Which of the following do you use as your **most frequent source of advice** regarding health care issues? (circle one)

- a. online health care websites
- b. friends and family
- c. medical professionals
- d. Other \_\_\_\_\_

10. Have you taken a health education class?

- a. In High School Y/N
- b. In College Y/N

11. How many times have you **sought health care advice or treatment** in the last year? (circle one)

- a. Zero times in the last 12 months
- b. 1-5 times
- c. 6-10 times
- d. more than 10 times in the last year

### **Health Rating**

12. How would you rate your personal health today? (circle one)

- a. Excellent b. Good c. Average d. Somewhat unhealthy e. Very unhealthy

## Vita

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## EDUCATION

- Master of Science in Communication** **2013**  
Eastern Washington University, Cheney, WA  
Thesis: Transcending the status quo: A communication perspective for improving health behaviors at Eastern Washington University
- Bachelor of Arts in Communication** **2010**  
Eastern Washington University Cheney, WA  
Minor: Psychology  
Magna Cum Laude
- Associate of Arts** **2008**  
Columbia College, Columbia, MO

## AWARDS

- Graduate Service Appointment **2011-2013**

## TEACHING & RESEARCH EXPERIENCE

- Graduate Instructor & Peer Advisor** **2011-2013**  
Eastern Washington University, Cheney, WA
- Responsible for the preparation, implementation, and management of “Introduction to Speech Communication (CMST 200)” course
  - Develop course curriculum, manage classroom, grade student work, and prepare course materials
  - Received exemplary evaluations from student evaluations (available upon request)
  - Assist program Director with recruitment and outreach of prospective students
  - Advise students on available courses
  - Participate in the hiring and training of new course instructors
  - Work collaboratively with the program Director and internal university organizations in the development of marketing strategies, including program brochures and external advertising
  - Manage program social media page

- Building an alumni network through the planning and execution of networking events.

### **WORK HISTORY**

#### **Auto Claims Adjuster 2010 - 2011**

Progressive Insurance, Spokane Valley, WA

- Effectively analyze accident liability through collection of statements, vehicle and/or scene photos, within the parameters of applicable state laws in an effort to promptly resolve vehicle related claims.
- Promptly respond to customer inquires, resolve issues and provide guidance through the vehicle repair process
- Maintain accurate documentation of investigation and vehicle repair process, and coordinate the disposal process of salvaged total loss vehicles

#### **Purchasing Specialist 2007 - 2008**

Northern Quest Casino, Airway Heights, WA

- Responsible for identifying and researching discrepancies in vendor invoices
- Processing charges to appropriate internal departments
- Assist with tracking budget expenditures

### **PUBLICATIONS & PAPERS**

Masters Thesis: “Transcending the status quo: A communication perspective for improving health behaviors at Eastern Washington University”

Presented to Eastern Washington University 2013

### **MEMBERSHIPS**

Member, Eastern Washington University Graduate Affairs Council 2012-2013

### **COMMUNITY INVOLVEMENT**

Volunteer Doula, Catholic Charities, Spokane, WA 2012

Volunteer Judge, “Voices on the River” 2012  
Spokane Falls Community College, Spokane, WA

Volunteer, Odyssey Youth Center, Spokane, WA 2010