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A CONTENT ANALYSIS OF THE TURKISH NATIONAL
HIGH SCHOOL HEALTH EDUCATION CURRICULUM
USING THE HEALTH EDUCATION CURRICULUM
ANALYSIS TOOL

A MASTER'S THESIS

BY

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*This thesis is dedicated
to everyone who is exposed to discrimination due to any reason
and to my precious grade 9 pupils.*

A Content Analysis of the Turkish National High School Health Education
Curriculum Using the Health Education Curriculum Analysis Tool

The Graduate School of Education
of
İhsan Doğramacı Bilkent University

by

Volkan Serin

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**İHSAN DOĞRAMACI BILKENT UNIVERSITY
GRADUATE SCHOOL OF EDUCATION**

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June 2018

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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ABSTRACT

A CONTENT ANALYSIS OF THE TURKISH NATIONAL HIGH SCHOOL HEALTH EDUCATION CURRICULUM USING THE HEALTH EDUCATION CURRICULUM ANALYSIS TOOL

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M.A., Program of Curriculum and Instruction
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June 2018

Health education helps students to promote their mental, social and physical well-being. Health educators follow a specific curriculum for health promotion in the high schools in Turkey. This study compared Turkish national high school health education curriculum which is delivered at grade 9 with the health education curriculum analysis tool (HECAT). Recommendations for possible new K-12 health education curriculum and for existing and further grade 9 curricula to improve were also given. Content analysis was used as a research method. In this research, an *appraisal strength table* was created which was adapted from HECAT. Only 45 objectives in the national curriculum were found compatible with 1802 expectations of HECAT (6% for all grades and 7% for grades 9-12). Furthermore, the most represented level according to Bloom's revised taxonomy cognitive domains was *understanding*, whereas *applying* was minimum represented level in both curricula. The findings also indicate that health education delivery grades should be expanded in the following years in Turkey same as in the USA. This study is also the first step which formed Turkish national health education standards (TNHES) for K-12 in Turkey. Besides, there is a newly created prospective spiral K-12 curriculum on Turkish health education which is based on recommended TNHES and HECAT.

Keywords: Content analysis, Health education, Curriculum evaluation

ÖZET

Sağlık Bilgisi Eğitimi Öğretim Programı Analiz Aracını Kullanarak Türkiye Ulusal Lise Sağlık Bilgisi Dersi Öğretim Programının İçerik Analizi

Volkan Serin

Yüksek Lisans, Eğitim Programları ve Öğretim
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Sağlık bilgisi eğitimi öğrencilerin ruhsal, sosyal ve fiziksel iyilik durumlarını geliştirmelerine yardım eder. Sağlık eğitimcileri Türkiye’deki liselerde sağlığın geliştirilmesi için özgün bir öğretim programı takip ederler. Bu çalışmada dokuzuncu sınıfta Türkiye’de verilen ulusal sağlık bilgisi öğretim programı ile sağlık eğitimi öğretim programı analiz aracı (HECAT) ile karşılaştırılmıştır. Ayrıca olası, yeni okul öncesi, ilköğretim ve ortaöğretim (K-12) sağlık eğitimi öğretim programlarını; mevcut ve gelecekteki dokuzuncu sınıf sağlık bilgisi öğretim programlarını geliştirmek için önerilerde bulunulmuştur. Araştırma yöntemi olarak içerik analizi kullanılmıştır. Bu çalışmada HECAT’ten uyarlanan bir *değerleme gücü tablosu* oluşturulmuştur. Ulusal öğretim programının yalnızca 45 kazanımının HECAT’in 1802 beklentisi ile bağdaştığı bulunulmuştur (tüm sınıflarla %6 ve 9-12’inci sınıflarla %7). Buna ek olarak, Bloom’un yenilenmiş sınıflandırılmasındaki bilişsel alanlara göre her iki öğretim programında da en çok temsil edilen basamak *anlama* olarak bulunurken, *uygulama* en az temsil edilen basamak olmuştur. Bulgular ayrıca Türkiye’de verilen sağlık eğitiminin ileriki yıllarda tıpkı ABD’de olduğu gibi tüm sınıflara yayılması gerektiğini belirlemektedir. Bu çalışma ayrıca K-12 için Türk ulusal sağlık bilgisi eğitimi standartlarının (TNHES) oluşturulmasının ilk basamağıdır. Bunun yanı sıra, çalışma sonucunda TNHES ve HECAT baz alınarak Türk sağlık eğitimi için olası bir spiral K-12 öğretim programı oluşturulmuştur.

Anahtar Kelimeler: İçerik analizi, Sağlık eğitimi, Öğretim programı değerlendirmesi

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CHAPTER 1: INTRODUCTION

Introduction

The main purpose of health education is to promote students' mental and physical well-being and to promote proper hygiene and fitness. Health education teachers (biology and physical education teachers in public and private schools in Turkey) follow a specific curriculum for health promotion in the high schools. This research focused on Turkish national high school health education curriculum (HEC) which is delivered at grade 9 and is called as *health education*. The study compared HEC with Health Education Curriculum Analysis Tool (HECAT) in terms of Bloom's Revised Taxonomy's cognitive domains, health-related concepts and the context. Comparative content analysis of two distinct curricula was conducted in this study.

Background

According to the World Health Organization (WHO) the definition of health is "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (1948, p.100). Saracci (1997) claims this definition is too traditional and has problems, so he redefined health from a universal equality viewpoint as, "Health is a condition of well-being free of disease or infirmity and a basic and universal human right" (p. 1410). Since WHO defined the health after the Second World War, Saracci focused on equality all over the world after 49 years later. The importance of health definition was not enough to be well understood. Therefore, education can help to understand the evolving needs of human health.

Kann, Telljohann and Wooley (2007) stated that health education qualifies students with the latent competency to promote them to sustain and develop their wellness and increase control over and avoid health-risky behaviors. WHO (2012) described health educators as recognized staff who are hard-working, willing and dedicated. Another significant concept of health promotion was revealed by Ottawa Charter (1986) and Eriksson and Lindström (2008), which is called salutogenic theory and originated from the idea of allowing people to promote and improve their healthy life standards rather than on disease causing factors. Thus, the health is promoted with the help of education. More recently, the WHO also mentioned that health education plays an important role in the promotion of healthy activities in the Eastern Mediterranean region, including Turkey.

The Ministry of National Education (MoNE) regulates education in Turkey and prepares curricula for grades K through 12. HEC is 47 pages long and has seven units: Healthy Life, Growth and Development, Improvement and Prevention of Health, Mental and Emotional Health, Harmful Habits for Health, Family Life and Maternal - Infant Health and Fundamental Concepts of Diseases. Furthermore, health education is integrated into several subjects with courses on health-related topics in Turkish curricula. For early years (Kindergarten), health education (HE) is covered in pre-school education courses; in grades 1 to 3, it is covered in life science; in grades 4 to 8, it is covered in science; in grade 9, there is a specific health education course which is the topic of this study; and in grades 9 to 12, it is covered in various units of biology course. There are also physical education courses in grades 1 through 12 that cover some aspects of health education. Above all, HEC is implemented only in grade 9 and should cover all grades on an ongoing basis.

Problem

Since 1990, the population of Turkey has increased nearly 39% from 56,473,035 to 78.741.053. However, the young-age-dependency ratio¹ (i.e., under 15 years of age) has decreased from 58% to 35% in the last 25 years. In addition, nearly two-fifth of the rural population (37%) has migrated to the urban areas; the rural-urban ratio was 49% and 51% in 1990 and changed to 12% and 88% in 2015 (Ministry of health [MoH], 2016).

From 2002 to 2015, life expectancy (age) increased from 72.5 to 78 for all genders in Turkey (MoH, 2016). The first three causes of death are circulatory system diseases, benign and malignant tumors and respiratory system diseases. Circulatory system diseases account for the most deaths in Turkey (39.8% of the deaths in Turkey). The death rate has increased 45% from 2009 to 2016. Circulatory system diseases prevalence increased from 112,158 to 162,876 (45%). Ischemic heart diseases (acute myocardial infarction is the major cause of death) and cerebrovascular diseases are the underlying causes of this rate. Second major causes of death were neoplasms with 36% from 59,386 to 80,577 in the years between 2009 and 2016. Malignant neoplasms (larynx and trachea/bronchus/lung tumors) are the underlying causes of these deaths. Besides these, there was no details on third cause of death; respiratory system. On the other side, drug dependence (toxicomania), HIV disease, sudden infant death syndrome, mood (affective) disorders, alcohol abuse (including alcoholic psychosis) and meningococcal infection were the less causatives of death with less than 100 people (Turkish Statistics Institute [TURKSTAT], 2017).

Obesity increased to one-fifth (20%) in the previous six years (TURKSTAT, 2014)

¹ The ratio of the population aged 0-14 to the population aged 15-64.

which has led to an increase of type II diabetes (post-insulin resistance disease) (Lazar, 2005). This type of diabetes is associated with a range of cancer types (Calle & Kaaks, 2004). Obesity is the most significant health problem in the USA (Wechsler, McKenna, Lee, & Dietz, 2004) and a rising issue in Turkey. American Heart Association (AHA) reclassified obesity as a major risk factor for coronary heart disease (Eckel & Krauss, 1998) so statistical evidence showed that obesity increased in the last decade among Turkish citizens and obesity related diseases pose a threat to the community in the future. Persistent precautions should be taken beginning from young age with health education and health statistics should be considered.

The relationship between healthy behaviors and education has been examined by some researchers in Turkey. Mocan and Altindag (2014) highlighted the importance of schooling and stated that education is a good indicator for being healthy. Similarly, Tansel and Karaoglan (2014) found that education has the strongest effect on all healthy behaviors. In addition, education even has a positive impact on healthy food choices. Both researchers claimed as a conclusion that the well-educated people can distinguish healthy or unhealthy effects of choices except alcohol. Unless otherwise stated, these studies do not explain the effect of the curriculum in particular.

Moreover, no research has yet been conducted that reviews the quality of health education curriculum in Turkey. Therefore, there might be a gap for effective health education in Turkey according to statistical evidence (TURKSTAT, 2014).

Since grade 9 students are about 15 years old, there is a scope and sequence problem

through K-12 grades in terms of health education delivery. Existing health education curriculum is delivered only in grade 9 under the name of “health education” for a year, one hour a week, in total 36 hours in not enough to improve healthy behaviors owing to older age and limited time (MoNE, 2012).

Purpose

The purpose of this study is to compare the HEC in Turkey with HECAT. The main aim of this research is to identify necessary improvements to the curriculum. That would better encourage students to adopt health-enhancing behaviors and skills, also help them to reduce health-risky behaviors.

Health education in the United States of America is regulated with the help of the Health Education Curriculum Analysis Tool (HECAT). This tool has been developed by Centers for Disease Control and Prevention’s (CDC) National Center for Chronic Disease Prevention and Health Promotion (CDC, 2012). This tool is used by health educators as a framework for the comprehensive and reliable assessment of health education curricula based on the National Health Education Standards (NHES) and the CDC’s Characteristics of Effective Health Education Curricula (CEHEC) in the USA. HECAT has been standardized so that curricula can be adapted to the school needs to help students set goals and provide healthy behavioral outcomes (CDC, 2012).

HEC and HECAT were subjected to this study to compare similarities and differences between these two national educational tools on health and to compare two countries how they approach to health education.

Research questions

The following research questions were explored in this study:

1. How does the current Turkish national high school health education curriculum (HEC) meet the Health Education Curriculum Analysis Tool (HECAT) criteria?
 - a. What are the results of comparison of Turkish national high school health education curriculum (HEC) with Health Education Curriculum Analysis Tool (HECAT)?
 - b. What are the strengths and limitations of the current HEC according to the HECAT criteria?

Significance

This study was the first step which will contribute to develop effective national health education standards (NHES) for K-12 in Turkey. These outlined standards can help to promote health across the country and put the health education into a certain framework. The results would contribute to induce teachers' attitudes positively into the health education courses. In the long term, health status of new generation might be enhanced by recommendations of this research. In addition, everyone would agree that health is the main priority for human-kind and this research would suggest a framework for improving the quality of lifespan in terms of health concerns in Turkey.

In this research, one of the aim was to identify strengths and limitations in health education and the other one was to provide guidelines for improvement of the curriculum. From the global perspective, developing a competitive health education curriculum should rely on scientific theories. Another issue; provision of framework

for a qualified health education curriculum; became requisite in the 21st century needs. These two concerns were also focused in this study.

Definitions of key terms

Health: “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1948, p. 100).

Health Education: “Any combination of planned learning experiences based on sound theories that provide individuals, groups, and communities the opportunity to acquire information and the skills needed to make quality health decisions” (Gold & Miner, 2002, p. 6)

Health Educator: “A professionally prepared individual who serves in a variety of roles and is specifically trained to use appropriate educational strategies and methods to facilitate the development of policies, procedures, interventions, and systems conducive to the health of individuals, groups, and communities” (Gold & Miner, 2002, p. 6)

Health Education Curriculum (HEC): Health education curriculum is defined as planned educational learning outcomes which bring about behavioral changes in individuals, cohorts, and national wide population grade 9 in Turkey.

Health Education Curriculum Analysis Tool (HECAT): A tool is used by health educators in the USA and has been standardized so that curricula can be adapted to the related school needs to help students set goals and provide healthy behavioral outcomes (CDC, 2012).

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The purpose of this chapter is to provide information and framework about the research. Firstly, the definition of health is provided. Secondly, health is analyzed in international and national contexts. Then health education is investigated. Finally, health education curriculum analysis tool and its implications are explored.

Health

The definition of health

“Health is a balance and a state of harmony”

Hippocrates (ca. 460-377 B.C.)²

Health has been defined by World Health Organization (WHO) and many researchers (Bircher, 2005; Larson, 1999; Saracci, 1997; WHO, 1948). The most common definition is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1948, p.100). While the definition of WHO has been widely criticized over the past 70 years by many scientists, it has never been adapted to gradual changes. Saracci (1997) claimed this definition as traditional and having problems, so he defined health as “a condition of well-being free of disease or infirmity and a basic and universal human right” (p. 1410).

Larson (1999) proposed four major models to define and conceptualize health: *the medical model* “the absence of disease or disability” (p. 124), *the WHO model*, “state of complete physical, mental, and social well-being and not merely the absence of

² Larson, 1999, p. 124

disease or infirmity” (p. 126), *the wellness model* “strength and ability to overcome illness, having a reserve of health” (p. 129), and *the environmental model* “health is related to the ability of an organism to maintain a balance with its environment, with relative freedom from pain, disability, or limitations, including social abilities” (p. 131). In addition to this, Larson (1999) also indicated areas of utilization of these four models - the medical model is the most commonly used definition in USA; however, the WHO model became popular in the last decades (p. 123). The combination of these four models has a more *holistic approach*. Bircher (2005) used a holistic approach and defined health as “a dynamic state of wellbeing characterized by a physical and mental potential, which satisfies the demands of life commensurate with age, culture, and personal responsibility” (p. 335). Huber et al. (2011) advocated for the definition of health by WHO as complete physical-, mental- and socio-well-being has limitations because of increase in chronic diseases related to ageing. Anyone can be physically, mentally and socially well but ageing is still causing some important diseases. Due to this reason, the definition should be updated.

Even though the WHO definition is still criticized, there is no accepted better than the other. Holistic approached need time to be accepted.

Three major health elements

According to the WHO (1948) there are three major health elements: *Physical, social and mental health*. Amzat and Razum (2014) explained these three as asymmetric and integrated parts of health that form a big picture of well-being. *Physical health* is the purely biological wellness and is known as maintenance of homeostasis.

Physiological wellness is expounded as free from diseases or disability and being in

harmony throughout the body. *Social health* encompasses behavioral aspects of human well-being. This element also defines a socially communicative person: one who is a part of the society or having a place in the community. The last one, *mental health* is related to the previous health elements and connects them and actively participates in between physical- and social health. This element refers to psychological, emotional, and mental aspect of a person. Being healthy on the basis of these three-major health elements helps an individual in a short, medium and long term.

International health

The WHO is the international public health agency of the United Nations (UN). It was founded on 7 April 1948 and is headquartered in Geneva, Switzerland. The organization has 194-member states, six regional offices: Brazzaville, Cairo, Copenhagen, Manila, New Delhi and Washington DC; more than 150 country offices. The main goal of WHO is to “build a better, healthier future for people all over the world” (WHO, 2016, p. 1).

Leaders of 189 countries met up at the United Nations headquarters and signed the *Millennium Declaration* in September 2000 (Sustainable Development Goals Fund, 2018). The committee aimed achieving a set of eight measurable goals by the target date of 2015 (Table 1).

Table 1
The millennium development goals (MDGs)

Number	Goal
1	Eradicate extreme poverty and hunger
2	Achieve universal primary education
3	Promote gender equality and empower women
4	Reduce child mortality
5	Improve maternal health
6	Combating HIV/AIDs, malaria, and other diseases
7	Ensure environmental sustainability
8	Develop a global partnership for development

These goals were mainly health orientated. Considerable progress has been made as regards the MDGs.

The United Nations Conference on Sustainable Development in Rio de Janeiro was held in June 2012, which sparked a process to develop a new set of Sustainable Development Goals (SDGs; generated through the instrument of the MDGs) and expected to fit into an international development framework after 2015. The UN General Assembly Open Working Group submitted a document containing 17 goals in 2014 to be brought forward for the General Board's consent in 2015. The document prepared the ground for the new SDGs and the global development schedule between 2015 and 2030 (Table 2).

Table 2
The sustainable development goals (SDGs)

Number	Goal
1	End poverty in all its forms everywhere
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3	Ensure healthy lives and promote well-being for all at all ages
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
5	Achieve gender equality and empower all women and girls
6	Ensure availability and sustainable management of water and sanitation for all
7	Ensure access to affordable, reliable, sustainable, and modern energy for all
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
9	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
10	Reduce inequality within and among countries
11	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Ensure sustainable consumption and production patterns
13	Take urgent action to combat climate change and its impacts
14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

From ensuring healthy lives and promoting well-being for all at all ages to achieve gender equality or management of water and sanitation for all, there are several different goals to sustain healthy lives in the future.

These goals will contribute to make our lives better and should be considered during the development any curriculum.

Regulation of health in Turkey

National health in Turkey is regulated by the Ministry of Health. Its tasks include: prevention and improvement of public health, reduction of health risks, conduction of health services, improvement of health-related research and education, provision of qualified public health facilities and opportunities for everyone nation-wide, determination of policies about health and management of health-related issues (MoH, 2015).

Savaş (2003) analyzed the condition of health services in Turkey. He emphasized opportunities and threats on them, and also mentioned main drives within the frame of 2023 vision. As a positive parameter, Turkey has a young population. There is sufficient number of medical doctors whose training is adequately good. High technology is used in medical facilities. Infant mortality rate, vaccine-preventable diseases, such as tuberculosis and malaria are declining. Regular vaccination programs have helped to eradicate some diseases such as polio. HIV infection and AIDS incidences are relatively lower than in Western and African countries. Drugs and alcohol consumption and alcoholism rates are relatively lower than Western countries because of traditional beliefs and habits. On the other hand, there are weak areas in Turkish health services that need to be developed. Most of the health facilities and personnel are centrally under the control of Ministry of Health. Organizational structure of central and field services has bureaucratic complexity and that causes paper works in practice. In addition to this, the income for health is mostly transferred to personnel expenses and therapeutic applications. Another issue is, medical education is delivered by government and regulated by governmental organizations. In spite of this, this education is carried out by civil organizations in Western countries. Lastly, malnourishment and inadequate hygiene are distributed

widely and that causes treatment-centered health service than prevention (Savaş, 2003). In conclusion, Savaş (2003) named the main drive of Turkey, as the health is the core need of the population.

Health education

Nutbeam (2000) emphasized that health education is an important element for the promotion of health and prevention of disease in the 21st century. The developing countries set these goals under the fundamental tool called as health education in the health promotion and disease prevention. In the 60s and 70s the health campaigns focused on prevention of non-infectious diseases by promoting healthy lifestyles among developed countries. In 80s, health education as a disease prevention tool significantly gained strength by theory-centered interventions. The focus of this shift was to support communities to make people more decisive for their health positively and augment these decision makers; close the gap in terms of health conditions among socio-economic groups in the community. The approach of public health action during 19th century was focusing on devastating effects of the living and working conditions which imposed on societies during industrial revolution. Therefore, by the late 20th century, the shift in the emphasis of public health action centered upon altering individual risk behaviors by education. As a consequence, health education is one of the ways to raise healthy generations in the 21st century.

Curriculum development based on theories on health education

Health education is not only the concern of schools, but also has implementations for communities and patient care (Glanz, Rimer, & Viswanath, 2008). In addition to this, health education includes treatment and prevention processes for long-term care.

Health education is provided in schools, societies, workplaces, health care facilities,

homes and wherever people exist.

The first step is the school because of its instructive nature. Fostering people's good and healthy attitudes help to build better communities by school based learning.

Rimer, Glanz and Rasband (2001) highlighted that the evidence is the basic of science and the evidence-based health education and health behavior (HEHB) has a growing trend. That allows shareholders to use health education theories and set interventions on a stable base. In other words, theories should be practiced on different stages of promotion of health and the achievement of behavioral change.

Glanz, Rimer, and Viswanath (2008) revealed that three theories; Social Cognitive Theory (SCT), The Transtheoretical Model (TTM) / Stages of Change, and the Health Belief Model (HBM) have been the most commonly cited and dominant health behavior theories and models since 1986. That being said, the most effective health education curriculum should be based on these theories.

A Health Education Curriculum was elaborated by CDC (2012) as planned teaching strategies and learning experiences to provide students with opportunities to acquire the attitudes, knowledge, and skills necessary for making health-promoting decisions, achieving health literacy, adopting health-enhancing behaviors and promoting the health of others grounded on these theories. Elements of a health education curriculum include a set of expected learning outcomes or learning objectives, a planned progression of developmentally appropriate lessons or learning experiences, continuity between lessons or learning experiences, accompanying content or materials and assessment strategies.

Health education in Turkey

The Ministry of National Education (MoNE) regulates education in Turkey and prepares the curriculum for grades K to 12 in all types of schools. The accessible first regulation on health education course took a part in military high school and non-commissioned officer high school in 1978. Afterwards, health education course was added for maritime vocational high school in 1980. Finally, health education course appeared in all secondary schools from 1983 onwards (MoNE, n.d.).

Health education curriculum is written by MoNE for grade 9 (MoNE, 2012).

Besides, health education has been located across several subjects in courses on health-related topics. For early years (Kindergarten), health education (HE) is covered in pre-school education courses; in grades 1 to 3, it is covered in life science; in grades 4 to 8, it is covered in science; in grade 9, there is a specific health education course which is the topic of this study; and in grades 9 to 12, it is covered in various topics of biology course. There are also physical education courses in grades 1 through 12 that cover some aspects of health education.

The implementation of health education was started in the middle 80s in Turkey. One of the researchers, Sağlam (1996) focused on the quality of health education and students' interest in it. Since the course was put into practice in 1984-1985 academic years in secondary schools in Turkey and the content of the program was prepared by the Ministry of Education, due to the problems encountered during the applications, he suggested the courses were not given effectively. At the end of the study, possible learning activities such as discussions, problem/case-solution, (statistical) tables and experimental support were put forward in order to solve the determined learning problems. On the other hand, Sağlam argued that teachers, who were involved in the

study, shared their knowledge on topics. Teachers were thinking that courses were not adequate, the concepts were not efficiently taught and health education and biology have common topics which are repeated excessively and the practical part was not enough. Cerrah and Ayas (2003) conducted a study with biology teachers who give biology and health education courses. The study figured out that teachers were not pleased to give those two courses at the same time because of the discontinuity of them which does not support significant learning. The other comment from teachers was related to students' knowledge level on health. The point was, students should come to secondary education from primary education with this awareness.

As a conclusion, health education is regulated by MoNE with the help of curriculum and integrated into different courses (K-12) with the exception of grade 9.

Health education curriculum analysis tool (HECAT)

U.S. National health education standards

In the USA, the National Health Education Standards (NHES) were developed to maintain the promotion of health behaviors for students from all grades. There are 4 sequential sections; K-2, 3-5, 6-8, and 9-12 nationwide. The NHES provide a framework for health educators and other shareholders (administrators or policy makers) to create, adapt or select curricula, prepare instructional materials, and assess learners' achievement and progress. The main aim of the standards is to promote personal, family and community health. The first NHES were published in 1995. First seven of NHES were designed to standardize health education across the United States in the early 1990's. More than 20 years, the NHES became an

approved reference on health education, providing a framework for the adoption of standards for most parts of States (CDC, 2015).

Revision of the NHES was started in 2004. Joint Committee on National Health Education Standards (JCNHES) was formed by American Association for Health Education, American Public Health Association, American School Health Association and The Society of State Leaders of Health and Physical Education to develop standards. The 2nd edition National Health Education Standards - Achieving Excellence was published in 2007. The revised list (JCNHES, 2007) with eight standards is shown in Table 3.

Table 3
The national health education standards

Standard	Content	Key Concept
1	Students will comprehend concepts related to health promotion and disease prevention to enhance health.	Knowledge expectations
2	Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.	Analyzing internal and external influences
3	Students will demonstrate the ability to access valid information and products and services to enhance health.	Accessing information
4	Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.	Interpersonal communication
5	Students will demonstrate the ability to use decision-making skills to enhance health.	Decision-making
6	Students will demonstrate the ability to use goal-setting skills to enhance health.	Goal setting
7	Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.	Self-management
8	Students will demonstrate the ability to advocate for personal, family, and community health.	Advocacy

These standards have their own rationales and performance indicators in grades Pre-K-2, 3-5, 6-7, and 9-12 (JCNHES, 2007). Standard one represents health concepts (knowledge expectations). Standard 2 to Standard 8 are called as health skills.

The need for a health education curriculum analysis tool

Health education in the USA is regulated with help of the Health Education Curriculum Analysis Tool (HECAT) that was developed by Centers for Disease Control and Prevention (CDC). This tool is used by health educators in the United States and has been standardized so that curricula can be adapted to the schools' needs to help students set goals and provide healthy behavioral outcomes. HECAT constructs effective health education curricula and helps to apply NHES in schools. HECAT contains guidance, tools, and resources for a school district to carry out a clear, complete and consistent analysis of health education curricula. It includes 10 modules:

- Alcohol and Other Drugs (AOD)
- Healthy Eating (HE)
- Mental and Emotional Health (MEH)
- Personal Health and Wellness (PHW)
- Physical Activity (PA)
- Safety (S)
- Sexual Health (SH)
- Tobacco (T)
- Violence Prevention (V)
- Comprehensive Health Education (CHE)

The importance of HECAT comes from its being scientific which focuses to improve practice, engaging every member in the school community. By using HECAT a school district can analyze an existing curriculum and this process may be used to

develop or revise a locally-developed curriculum and/or select a commercially-packaged curriculum (CDC, 2012).

Studies that use HECAT

Some researchers have used HECAT in several studies as a tool to assess health education curricula (Falkenberry, 2011; Menzawa, 2014; Minbuta, Anzai, Naka, Yasuda, & Menzawa, 2012). Falkenberry (2011) applied HECAT to assess an existing high school health education curriculum at a rural southern Illinois high school to determine if it met the HECAT criteria. The study found that the curriculum at the selected site met most of the criteria of the HECAT. In addition to this, Falkenberry found that the curriculum lacks an assessment of students' self-skill progress such as individual check lists. Moreover, the curriculum did not provide rubrics for teacher to assess students' works. The researcher deduced that HECAT was very subjective. There are eight National health education standards (NHES) and the first one is determined as more specific and easier to assess than others which are more subjective.

Another study that used HECAT was conducted by Minbuta, Anzai, Naka, Yasuda, and Menzawa (2012), and they aimed to examine a potential health education curriculum and teaching aids for first two grades (1 and 2) in two elementary schools in Japan. There is no course called health education in the Japanese curriculum in the first two grades. Students encounter health content in their physical education class when they start grade 3. More studies are suggested as a need to examine the sufficient hours and organization of contents. In this study, researchers achieved the expected results by using HECAT, HealthSmart and Michigan Model tools.

Menzawa (2014) emphasized that no comparison studies were conducted between Japanese and American elementary school health education courses. The purpose of the study was to examine health education in the United States and compared it with Japanese health education in the lower grades. Menzawa compared and analyzed the U.S. National Health Education Standards (NHES) and nine modules of Health Education Curriculum Analysis Tool (HECAT) with the Japanese health education curriculum. The analysis is based on the NHES Standard one “Students will comprehend concepts related to health promotion and disease prevention to enhance health” (CDC, 2015, p.1).

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this chapter is to describe the research design of the study which compares the Turkish national high school health education curriculum (HEC) with the Health Education Curriculum Analysis Tool (HECAT) criteria in terms of health goals and related behavioral outcomes. This study was carried out to address the following research questions:

1. How does the current Turkish national high school health education curriculum (HEC) meet the Health Education Curriculum Analysis Tool (HECAT) criteria?
 - a. What are the results of comparison of Turkish national high school health education curriculum (HEC) with Health Education Curriculum Analysis Tool (HECAT)?
 - b. What are the strengths and limitations of the current HEC according to the HECAT criteria?

Chapter 3 describes the strategy that was used to compare HEC and HECAT based on the *appraisal strength criteria* (conceptual affinity, action words of Bloom's revised taxonomy and context) which are designed in particular for this research. Besides, the research design, context of the study, the method of data collection and the method of data analysis are given. Lastly, validity and reliability of the data analysis is discussed.

Research design

This research was designed as a qualitative content analysis study that uses HECAT as an instrument to compare with Turkish national high school health education curriculum (HEC).

Content analysis is a qualitative research method that has been broadly used in health studies. More than 4,000 articles were published between 1991-2002 about health and the number of studies reporting the use of content analysis increased logarithmically from 97 in 1991 to 332 in 1997 and 601 in 2002 (Hsieh & Shannon, 2005). According to Weber (1985) content analysis is a “research methodology that applies a set of procedures to make valid inferences from text” (p. 9). Krippendorff (1986) stated the content analysis as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the context of their use” (p.18). Cavanagh (1997) also stated that content analysis is a flexible method to analyze text data. Likewise, Neuendorf (2002) mentioned the content analysis, “a summarizing, quantitative analysis of messages that relies on the scientific method and is not limited as to the types variables that may be measured or the context in which the message is created or presented” (p.10).

This study was designed as content analysis which is an effective way to criticize any two or more distinctive contexts -sometimes or mostly overlaps- according to Weber (1985), Krippendorff (1986) and Neuendorf (2002) to make valid implications from content.

Context

The Turkish national high school health education curriculum (HEC), which is developed for grade 9, consists of 47 pages and seven units are listed in Table 4 (MoNE, 2012).

Table 4
HEC units, number of objectives and hours

Unit	Number of objectives	Period (40 min)
1. Healthy Life (HL)	6	4
2. Growth and Development (GD)	3	2
3. Improvement and Prevention of Health (IPH)	8	4
4. Mental and Emotional Health (MEH)	8	4
5. Harmful Habits for Health (HHH)	9	5
6. Family Life and Maternal - Infant Health (FL&MIH)	11	6
7. Fundamental Concepts of Diseases (FCD)	17	11
Total	62	36

These seven units include, *HL*: raising the awareness of health concepts; *GD*: factors and characteristics of growth and development; *IPH*: importance of the development and protection of health, the impacts of physical activity and resting, importance of adequate and balanced diet, the reasons for the emergence of obesity and its effect on health, the importance of personal hygiene and importance of the choice of clothing, oral and dental health; *MEH*: the importance of mental and emotional health and the effect of personal and environmental factors on them, factors causing stress and their effects, ways to cope with stress, effective communication and the effects of violence and abuse on the individual's social and emotional development; *HHH*: addiction, deprivation and tolerance, the factors that lead to start of addictive substances and their effects of the on family and country economy, the effects of tobacco, tobacco products, alcohol and drugs on health, the ways to develop affirmative attitude in order to avoid the use of harmful and addictive substances and the treatment of addicted people; *FL&MIH*: the importance of the concept of family for the society,

the factors affecting the family life, the social and legal conditions to be parents, family planning and population planning, maternal-child health and public health, being healthy in pregnancy and the postpartum period, the importance of breast milk, association of vitamin D and sunlight utilization with bone development in infants and the importance of vaccination to prevent childhood diseases; *FCPAD*: the importance of early diagnosis and appeal for cancer and ways of prevention from cancer, the things that increase the quality of life of diabetes, the significance of causes and preventions of cardiovascular diseases, connection of Mediterranean Anemia (Thalassemia), Mediterranean fever (FMF) and Hemophilia with kin marriages, the causes of and preventions from chronic lung diseases, the concepts related with infectious diseases and the transmission ways of infectious diseases, general features and prevention methods of diseases spread by water and food, air, contact, vectors, animals and sexual interaction, the importance of the appropriate medication use and homecare.

Instrumentation

The Health Education Curriculum Analysis Tool (HECAT), which is developed by Centers for Disease Control and Prevention (CDC), was initially aimed to assess the content of Turkish national high school health education curriculum (HEC) in this study. The HECAT was designed as an assessment tool to analyze health education curricula that are relied on the U.S. National Health Education Standards (NHES) and the CDC's characteristics of effective health education curricula. HECAT includes focusing on comprehensible health goals and behavioral outcomes; research- and theory-based; addressing personal values, manners and belief, and also individual and society norms which enhance healthy behaviors; not engaging unhealthy and harmful behaviors; touching on social pressures and impressions;

building individual and social competence; providing operational health concepts which promote health and age-and developmentally-appropriate knowledge, learning strategies, teaching methods and materials; enabling sufficient time for instruction and learning (CDC, 2012). Moreover, HECAT provides directions, background information, analysis tools, scoring rubrics and resources needed to complete the curriculum analysis. The tool can be used to ensure that the current curriculum selection is systematic, consistent and thorough and reflects current research and practice (CDC, 2012). The contents and general aims of HECAT chapters are shown in Table 5 (CDC, 2012).

Table 5
HECAT chapters: contents and general aims

Chapter	Contents and General Aims
Chapter 1 (Instructions)	Essential background information and instructions for using the HECAT to <i>review</i> and improve locally developed curriculum.
Chapter 2 (General Curriculum Information)	Guidance and a template for collecting descriptive information about the curriculum
Chapter 3 (Overall Summary Forms)	Directions and templates for summarizing ratings scores for the appraisal of <i>a single curriculum</i> or comparing scores across curricula, using the analysis items from multiple chapters and modules
Chapter 4 (Preliminary Curriculum Considerations)	Guidance and tools to appraise the accuracy and acceptability of curriculum content, feasibility of curriculum implementation, and affordability of the curriculum materials including cost of implementation
Chapter 5 (Curriculum Fundamentals)	Guidance and tools to appraise fundamentals of a health education curriculum including learning objectives, teacher materials, curriculum design, instructional strategies and materials, and promotion of norms that value positive health behaviors
Chapter 6 (Health Topic Modules)	Guidance and tools for appraising specific health-topic curricula based on characteristics of effective health education curricula and the National Health Education Standards (NHES) Chapter 6 includes a module for each of the following topics: Module AOD: Alcohol and Other Drugs Module HE: Healthy Eating

Table 5 (cont'd)
 HECAT chapters: contents and general aims

Chapter	Contents and General Aims
Chapter 6 (Health Topic Modules)	Module MEH: Mental and Emotional Health Module PHW: Personal Health and Wellness Module PA: Physical Activity Module S: Safety Module SH: Sexual Health Module T: Tobacco Module V: Violence Module CHE: Comprehensive Health Education

HECAT contains six chapters that are used to gather information about the curriculum. The first chapter provides general instructions to follow regarding the procedures of the HECAT including directions for use before starting the curriculum evaluation process and after finishing the curriculum examination. Second chapter requests overall descriptive information including a description analysis items about the curriculum. “Individual curriculum summary scores, multiple curriculum comparison scores and the individual curriculum summary scores” (p. 2) are included in third chapter of HECAT as summary forms. Third chapter is designed as a section to assemble all the findings of other chapters. Fourth chapter contains the tools to help examine and score overall characteristics of the health education curriculum “accuracy, acceptability, feasibility and affordability” (CDC, 2012, p. 2). Fifth chapter looks at curriculum fundamentals, such as “learning objectives, teacher materials, curriculum design, instructional strategies and materials and promotion of norms that value positive health behaviors” (p. 2). Within each category, there are four “yes” or “no” questions that aid in the analysis of significant features that are essential to the curriculum. Sixth chapter contains ten modules that cover all aspects of health education. Within each module, there are eight standards that are consistent with the eight NHES. Standard one is about knowledge expectations. This standard lists some essential concepts to be completed by grades two, five, eight and 12.

Figure 1 presents the knowledge expectations related to alcohol and other drugs module for grades 9-12. Standard two through eight are about skill expectations and practices. These standards refer to the crucial procedures and skills which students need to promote individual, family and public health for grades pre-K-2, 3-5, 6-8, and 9-12 (CDC, 2012). The entire HECAT is online at <http://www.cdc.gov/HealthyYouth/hecat/>.

Standard 1 Students will comprehend concepts related to health promotion and disease prevention.

After implementing this curriculum, students will comprehend concepts important for establishing and maintaining an alcohol- and drug-free lifestyle.

Grades 9–12 Knowledge Expectations: Check the box next to each alcohol- and other drug-related knowledge expectation addressed in the curriculum.

By grade 12, students will be able to:

- AOD1.12.1 Differentiate between proper use and abuse of over-the-counter medicines. (HBO 1)
- AOD1.12.2 Differentiate between proper use and abuse of prescription medicines. (HBO 1)
- AOD1.12.3 Examine the harmful effects of using weight loss drugs. (HBO 1, 2 & 3)
- AOD1.12.4 Describe the harmful effects and legal issues related to using performance-enhancing drugs. (HBO 1, 2 & 3)
- AOD1.12.5 Describe the harmful effects of binge drinking. (HBO 2 & 3)
- AOD1.12.6 Summarize the harmful short- and long-term physical, psychological, and social effects of using alcohol and other drugs. (HBO 2, 3 & 4)
- AOD1.12.7 Describe the effects of using alcohol and other drugs on school performance, job performance, job absenteeism, and job loss. (HBO 2, 3 & 4)
- AOD1.12.8 Explain the effects of alcohol and other drug use during pregnancy. (HBO 2, 3 & 4)
- AOD1.12.9 Evaluate situations that could lead to the use of alcohol and other drugs. (HBO 2, 3 & 4)
- AOD1.12.10 Summarize why alcohol- or other drug-use is an unhealthy way to manage weight or stress. (HBO 2, 3 & 4)
- AOD1.12.11 Analyze why individuals choose to use or not to use alcohol and other drugs. (HBO 2, 3 & 4)
- AOD1.12.12 Analyze short-term and long-term benefits of remaining alcohol- and drug-free. (HBO 2, 3 & 4)
- AOD1.12.13 Analyze the relationship of alcohol and other drug use to the major causes of death and disease in the United States. (HBO 2, 3, 4, 5 & 6)
- AOD1.12.14 Summarize family rules, school rules, and community laws about alcohol- and other drug-use. (HBO 2, 3, 4, 5, 6 & 8)
- AOD1.12.15 Determine socially appropriate ways to avoid or prevent use of alcohol and other drugs. (HBO 2, 3, 4, 5, 6 & 8)
- AOD1.12.16 Analyze the relationship between using alcohol and other drugs and other health risks, such as unintentional injuries, violence, suicide, sexual risk behaviors, and tobacco use. (HBO 2, 3, 5 & 6)
- AOD1.12.17 Summarize the relationship between intravenous drug use and transmission of blood-borne diseases, such as HIV and hepatitis. (HBO 2 & 4)
- AOD1.12.18 Summarize long-term health benefits of abstaining from or discontinuing alcohol use. (HBO 3 & 7)
- AOD1.12.19 Analyze the dangers of driving while under the influence of alcohol and other drugs. (HBO 5 & 8)

Alcohol and Other Drugs, Grades 9-12 continued on next page.

Reminder: The HECAT is designed to guide the analysis of curricula for local use. Users are encouraged to add, delete, or revise knowledge expectations to reflect community needs and to meet the curriculum requirements of the school district.

2012 HECAT: Alcohol- and Other Drug-Free Prevention Curriculum
AOD-6

Figure 1. Health education curriculum analysis tool sample of standard one for module alcohol and other drugs module

Standard 1 Students will comprehend concepts related to health promotion and disease prevention.

After implementing this curriculum, students will comprehend concepts important for establishing and maintaining an alcohol- and drug-free lifestyle.

Grades 9–12 Knowledge Expectations (continued): Check the box next to each alcohol- and other drug-related knowledge expectation addressed in the curriculum.

By grade 12, students will be able to:

- AOD1.12.20 Summarize the importance of not riding with a driver who has been using alcohol or other drugs. (HB0 6 & 8)
- AOD1.12.21 Analyze how the addiction to alcohol or other drug use can be treated. (HB0 7 & 8)
- AOD1.12.22 Analyze how alcohol- and other drug-use cessation programs can be successful. (HB0 7 & 8)

Additional Knowledge Expectations

- _____
- _____

KNOWLEDGE EXPECTATIONS COVERAGE SCORE: Complete the score based on the criteria listed below.

The curriculum addresses:

4 = all of the knowledge expectations. (100%)

3 = most of the knowledge expectations. (67-99%)

2 = some of the knowledge expectations. (34-66%)

1 = a few of the knowledge expectations. (1-33%)

0 = none of the knowledge expectations. (0)

KNOWLEDGE EXPECTATIONS COVERAGE SCORE

→

**TRANSFER THIS SCORE TO THE
KNOWLEDGE EXPECTATIONS LINE OF THE
OVERALL SUMMARY FORM (CHAP. 3).**

Notes:

Reminder: The HECAT is designed to guide the analysis of curricula for local use. Users are encouraged to add, delete, or revise knowledge expectations to reflect community needs and to meet the curriculum requirements of the school district.

Figure 1. (cont'd) Health education curriculum analysis tool sample of standard one for module alcohol and other drugs module

In this study, each module and standard were considered to be compared with HEC. Knowledge and skill expectations were used as a guide and each check list were completed during the research.

Method of data collection

Turkish national high school health education curriculum (HEC) which is delivered in grade 9 was selected for this study. The first step in the data collection process was to obtain an online free copy of the HECAT from the CDC website at www.cdc.gov. The next step for the proper use of the tool was to read it thoroughly. After becoming familiar with the instructions and intentions of the HECAT, a copy of health education curriculum was collected from the MoNE website at ttkb.meb.gov.tr. The objectives were translated into English and used for content analysis. The translation is given in Appendix A. The HECAT guidance was used as an instrument and the content of the HEC was examined.

Method of data analysis

Chapter six of HECAT was used as a frame in this study to perform the comparison. HECAT has specific directions for all NHES. In standard one, all knowledge expectations were typed and numbered in the pages specific to grades K-12 unless the aim was focusing on objective 9-12. For standards two through eight, a list of skills is given that broaden the concepts presented in each standard. HECAT is a compact analysis tool which is developed by CDC. Objectives are called “knowledge & skill expectations” which are related to healthy behavior outcomes (HBO) in HECAT. All of expectations are listed by grades: pre-K-2; 3-5; 6-8 and 9-12. These are numbered respectively for the convenience of documentation and discussion. Before each expectation, the number represents the topic abbreviation, NHES standard number, grade group (last grade in the group), and expectation item number. For instance, PA1.2.8 represents Physical Activity (PA) module, standard 1, grade group Pre-K-2, expectation item 8. In the end of the expectation HBO codes are related to healthy behavior outcomes of the related topic.

HEC objectives were coded accordingly to HEC units in the Table 4 (page 24). For instance, for the topic Healthy Life in the curriculum, “HL”, number of the objective under the topic “number”; topic and number of objective “HL1” is used.

The first aim was to analyze HEC according to HECAT criteria; however, scoring of assessing did not fit into HEC. For this reason, HECAT module assessing criteria adjusted, formed, adapted and used as a comparison tool for this study.

The comparative analysis was started with determination of correspondence of HEC units to HECAT modules. Essentially, the first nine modules were analyzed by their action verbs in respect to Bloom’s revised taxonomy cognitive domains (Anderson et al., 2001). The second step involved the elimination of the matching HEC objectives and HECAT expectations (knowledge and skill) according to the key words of related module. Third step was to take into consideration whether HEC objectives are overlapping with HECAT expectations or not. HECAT scoring was revised and *appraisal strength criteria* out of 10 for objectives comparison was created and shown in Table 6.

Table 6
Appraisal strength criteria for objective comparison

Criterion	Strength	Explanation
High incidence of overlapping	10	All words/concepts including action verbs are overlapping.
	9	Most of words/concepts including action verbs are overlapping.
Middle incidence of overlapping	8	All words/concepts are overlapping and action verbs are in the same domain.
	7	Some of words/concepts are overlapping and action verbs overlapping.
	7	Most of words/concepts are overlapping and action verbs are in the same domain.

Table 6 (cont'd)

Appraisal strength criteria for objective comparison

Criterion	Strength	Explanation
Middle incidence of overlapping	7	All words/concepts are overlapping but action verbs are from different domain.
Low incidence of overlapping	6	Most of words/concepts are overlapping but action verbs are from different domain.
	5	Some of words/concepts are overlapping and action verbs are in the same domain.
	4	Some of words/concepts are overlapping but action verbs are from different domain.
High incidence of inferential overlapping	7	All of words/concepts are inferential overlapping and action verbs overlapping.
	6	Most of words/concepts are inferential overlapping and action verbs are overlapping.
Middle incidence of inferential overlapping	5	All of words/concepts are inferential overlapping and action verbs are in the same domain.
	4	Some of words/concepts are inferential overlapping and action verbs are overlapping.
	4	Most of words/concepts are inferential overlapping and action verbs are in the same domain.
	4	All of words/concepts are inferential overlapping but action verbs are from different domain.
Low incidence of inferential overlapping	3	Most of words/concepts are inferential overlapping but action verbs are from different domain.
	2	Some of words/concepts are inferential overlapping and action verbs are in the same domain.
	1	Some of words/concepts are inferential overlapping but action verbs are from different domain.
Not-related at all	0	There is no relation between sentences.

There is an additional information for this scoring (for further information about the basics of appraisal strength scoring criteria, please check Appendix A). If concepts were synonymous, the evaluation should be considered “All” criterion. Scores summed up and average was calculated, the result determined the score of the overlapping. Zero scores are ignored and are not included in the evaluation. If more than one HEC’s objectives overlap with one HECAT expectation, mean was calculated. The relative correspondence score was calculated by the formulas in Figure 2 for all grades and Figure 3 for grades 9-12:

$$\frac{\text{HEC related HECAT expectations in standard}}{\text{All HECAT expectations in standard}} \times \left(\text{The average score of HEC related HECAT expectations in standard} \right)$$

Figure 2. Relative correspondence score for all grades

$$\frac{\text{HEC related HECAT expectations in standard for 9-12 grades}}{\text{All HECAT expectations in standard for 9-12 grades}} \times \left(\text{The average score of HEC related HECAT expectations in standard for 9-12 grades} \right)$$

Figure 3. Relative correspondence score for grades 9-12

Finally, the result of the relative correspondence score was multiplied by 10 to calculate percentage of overlapping.

Validity and reliability

According to Neuendorf (2002) reliability and validity are principal to the truthfulness and strength of the research in content analysis. Validity is checked by comparing expected and acquired results while reliability is ensured by comparing the results of two independent coders (a researcher and an academician in this research). In order to ensure valid and reliable classification, a code book was created for the study (only for HEC) and more than one coder. In this research HECAT was used to compare the curriculum and the codes are already given in each module.

Fraenkel and Wallen (2009) define the term validity, in research to indicate the usefulness, meaningfulness and correctness of any instrument used by a researcher to access and interpret. Neuendorf (2002) states that validity aims to answer “Are we really measuring what we want to measure?”(p.12).

The term reliability has been defined by Fraenkel and Wallen (2009) as “The consistency of scores or answers provided by an instrument” (p.154). A coding tool is reliable if it produces consistent results at different times, even when used by different researchers (Krippendorff, 1986). To measure reliability, first, 20% of the sampled topics from curriculum were selected randomly, and along with the instrument, given to another academician. They used the instrument to compare the selected topics. Their results were compared with the researcher’s findings and then both parties come to conclusion after several discussions.

CHAPTER 4: RESULTS

Introduction

The main purpose of this study was to compare the Turkish national high school health education curriculum ([HEC] MoNE, 2012) with the Health Education Curriculum Analysis Tool (HECAT) criteria. The sub-purpose was to make recommendations that could be used for devising a possible new K-12 health education curriculum and/or for improving existing 9-12 health education curriculum.

This chapter presents the findings of the study. The results of this research were explored through comparative content analysis. There are 10 modules on HECAT to assess an existing curriculum. The first nine modules are Alcohol and Other Drugs (AOD), Health Eating (HE), Mental and Emotional Health (MEH), Physical Activity (PA), Safety (S), Sexual Health (SH), Tobacco (T), Violence (V). There is an additional module called as Comprehensive Health Education (CHE) which aims to review all previous nine modules in HECAT. All modules were designed in regard to eight NHES (National Health Education Standards). More precisely, standard one represents concepts that are to be covered for the nine content modules as for standards two through eight represent skills that are to be covered for the nine content modules.

In this chapter, comparison was shown for each module and standard. Then, the relatedness of correspondence rate was calculated by formula. Finally, the result of the *relative correspondence score* was multiplied by 10 to calculate percentage of

overlapping. The findings were displayed in each module with explanations and also at the end of the Chapter 4, given as a summary.

Overall comparison of HECAT and HEC

HECAT and HEC were compared according to the modules and unit numbers, content list and cognitive loads, and findings are presented below.

All HECAT modules have their own health behavior outcomes (HBO) which are integrated to the expectations regarding to National Health Education Standards ([NHES] JCNHES, 2007). AOD, eight; HE, 13; MEH, eight; PHW, 12; PA, seven; S, eight; SH, eight; T, five and V has 10 HBOs were given in Appendix C. On the contrary, HEC has only objectives (Appendix B).

HEC has seven units, while HECAT has nine modules. The study focused on objectives, key words and expectations. The results of comparison of HEC and HECAT contents were given in Table 7

Table 7
HECAT vs. HEC: Related modules and units

Code	HECAT Module	Code	HEC Unit
AOD	Alcohol and Other Drugs	HL	Healthy Life
		MEH	Mental and Emotional Health
		HHH	Harmful Habits for Health
		FL&MIH	Family Life and Maternal - Infant Health
		FCPAD	Fundamental Concepts and Principles About Diseases
HE	Healthy Eating	HL	Healthy Life
		GD	Growth and Development
		IPH	Improvement and Prevention of Health
		MEH	Mental and Emotional Health
		FCPAD	Fundamental Concepts and Principles About Diseases
MEH	Mental and Emotional Health	HL	Healthy Life
		GD	Growth and Development
		MEH	Mental and Emotional Health

Table 7 (cont'd)
HECAT vs. HEC: Related modules and units

Code	HECAT Module	Code	HEC Unit
PHW	Personal Health and Wellness	HL	Healthy Life
		GD	Growth and Development
		IPH	Improvement and Prevention of Health
		MEH	Mental and Emotional Health
		FCPA	Fundamental Concepts and Principles About Diseases
PA	Physical Activity	HL	Healthy Life
		IPH	Improvement and Prevention of Health
		MEH	Mental and Emotional Health
		FCPA	Fundamental Concepts and Principles About Diseases
		D	Diseases
S	Safety	HL	Healthy Life
		MEH	Mental and Emotional Health
SH	Sexual Health	HL	Healthy Life
		GD	Growth and Development
		IPH	Improvement and Prevention of Health
		MEH	Mental and Emotional Health
		FCPA	Fundamental Concepts and Principles About Diseases
T	Tobacco	HHH	Harmful Habits for Health
V	Violence Prevention	HL	Healthy Life
		MEH	Mental and Emotional Health

Investigation of action verbs and their classification based on Bloom's revised taxonomy (Anderson et al., 2001) was conducted and the content by cognitive domains of HEC related action verbs are listed in Figure 4.

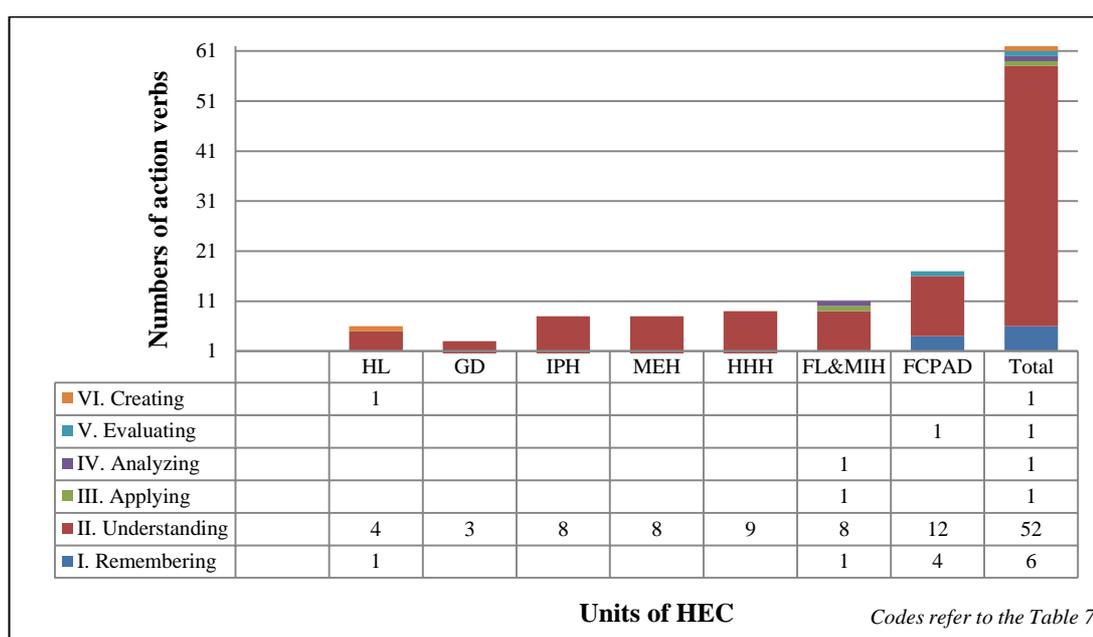


Figure 4. HEC's Bloom's revised taxonomy related action verbs

Health education curriculum (HEC) has 62 action verbs in total and 52 of them belong to understanding level of Bloom’s revised taxonomy with the action verb “explain”. Most of the objectives, 17 of them, located in Fundamental concepts and principles about diseases (FCPAD) unit; HECAT modules related HEC’s objectives were found 45 which are delivered throughout the modules. Incompatible HEC objectives were calculated 17 and given in Appendix D.

HECAT’s Bloom’s revised taxonomy cognitive domains (Anderson et al., 2001) related action verbs’ numbers are shown in Table 8.

Table 8
Bloom’s revised taxonomy related action verbs of HECAT

Domains	Verbs	AOD	HE	MEH	PHW	PA	S	SH	T	V	Total
I. Remembering Total: 81	choose	3	3	3	3	3	3	2	3	3	26
	define	0	0	0	0	0	0	0	0	1	1
	give information	1	1	1	1	1	1	0	1	1	8
	list	0	0	1	1	0	4	1	0	0	7
	locate	1	2	2	2	2	2	2	2	1	16
	name	0	1	0	0	0	0	0	0	0	1
	recognize	0	0	0	0	0	0	0	0	2	2
	state	2	2	2	4	2	3	1	2	2	20
II. Understanding Total: 840	classify	0	1	0	0	0	0	0	0	0	1
	demonstrate	27	20	31	26	22	28	21	18	29	222
	describe	24	35	41	32	30	34	28	19	40	283
	explain	21	26	37	23	21	22	32	15	40	237
	give example	0	0	1	0	0	0	0	0	0	1
	summarize	7	10	10	13	8	8	24	9	7	96
III. Applying Total: 297	apply	2	1	1	1	1	1	1	1	1	10
	identify	17	31	30	30	24	36	10	15	26	219
	implement	1	1	1	1	1	1	1	1	1	9
	track	1	1	1	1	1	1	0	0	1	7
	use	5	6	6	6	6	6	6	6	5	52
IV. Analyzing Total: 306	analyze	26	22	29	22	21	23	29	24	32	228
	differentiate	4	2	3	1	3	1	2	1	1	18
	distinguish	3	3	2	2	2	2	2	3	3	22
	examine	2	1	2	1	1	1	1	2	1	12
	set	4	3	3	3	3	3	2	2	3	26
V. Evaluating Total: 204	assess	5	4	4	4	4	4	4	4	4	37
	decide	1	1	1	1	1	1	0	1	1	8
	determine	9	5	7	6	7	7	7	6	5	59
	evaluate	7	5	7	5	6	5	7	7	5	54
	justify	1	1	2	2	1	1	2	1	1	12
	persuade	7	3	3	3	3	3	5	3	3	33
	prioritize	0	0	0	0	0	1	0	0	0	1

Codes refer to the Table 7

Table 8 (cont'd)

Bloom's revised taxonomy related action verbs of HECAT

Domains	Verbs	AOD	HE	MEH	PHW	PA	S	SH	T	V	Total
VI. Creating	adapt	1	1	1	1	1	1	1	1	1	9
Total: 74	collaborate	2	2	2	2	2	2	3	2	2	19
	develop	1	1	1	1	1	1	1	1	1	9
	discuss	0	0	1	0	0	0	0	0	0	1
	formulate	1	1	1	1	1	1	1	1	1	9
	generate	1	1	1	1	1	1	1	1	1	9
	predict	2	2	2	2	2	2	2	2	2	18
	TOTAL	189	199	240	201	182	211	199	154	227	1802

Codes refer to the Table 7

Expectations of HECAT all have variety of 43 verbs in total and 38 of them are action verbs related to Bloom's Revised Taxonomy (Anderson et al., 2001) cognitive domains; in addition to this, four of them belong to affective domain (encourage, make a commitment, make request and take), and one was remained as uncategorized (access). In total, 1869 verbs are used in HECAT and 1802 of them action verbs. Most commonly used verbs are 'describe' 283 times (understanding), 'explain' 237 times (understanding) and 'analyze' 228 times (analyzing). Define, name, classify, give example, prioritize and discuss have been used only one time.

As a consequence of these, the most represented level was *understanding* in HECAT same as HEC, whereas *applying* was the least represented level in both curricula.

Comparative analysis was done and projected based on HECAT modules. Therefore, the details of analysis were given under the title of each module. Additionally, the results were classified by standards. Count of HECAT expectations by grades and standards are listed in Appendix E.

HECAT vs. HEC: Modules based comparison

Module AOD: Alcohol and other drugs

Alcohol and Other Drugs (AOD) module has 199 expectations and eight Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *avoid, misuse, abuse, drugs, non-prescriptive (over-the-counter) drugs, prescribed drugs, experimentation, driving, riding motor vehicle, influence, quit, support others, being alcohol-free and being drug-free.*

HECAT and HEC were compared by key words and expectations of HECAT and objectives of HEC. According to HECAT's AOD HBOs, determined HEC's AOD module related objectives are listed in Table 9.

Table 9
HECAT's AOD module related HEC objectives

No	Code	HEC objectives	std.
1	HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	1
2	HL5	Explains the criteria (policies) used to determine the level of public health.	2
3	MEH4	Explains the factors causing stress and their effects on health.	1
4	MEH5	Explains the ways to cope with stress.	1
5	MEH6	Explains the ways of effective communication.	4
6	HHH2	Explains the factors that lead to start of addictive substances.	1
7	HHH5	Explains the effects of alcohol on human health and behavior.	1
8	HHH6	Explains the impacts of alcoholism on the relationships of individual in family and social life.	1
9	HHH7	Explains the impact of drug use- on human health and behavior.	1
10	HHH8	Explains the ways to develop affirmative attitude in order to avoid the harmful to health and addictive substances.	1
11	HHH9	Explains what is required for the treatment of addicted people.	3
12	FL&MIH7	Explains things to do in order to be healthy in pregnancy and the postpartum period.	1
13	FCPAD15	Explains the importance of the appropriate medication use.	1

std.: standard

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT

expectations. Thirteen HEC objectives corresponded to 22 HECAT expectations out of 50 for Standard 1 (concepts).

Only four of HECAT expectations out of 22 were for grades 9-12 from corresponded ones. The comparison is shown in Table 10 for Standard 1.

Table 10
AOD standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	(9-12)	AOD1.12.6	Summarize the harmful short- and long-term physical, psychological, and social effects of using alcohol and other drugs. (HBO 2, 3 & 4)	Middle incidence of inferential overlapping	5
MEH4	Explains the factors causing stress and their effects on health.	(6-8)	AOD1.8.8	Explain why using alcohol or other drugs is an unhealthy way to manage stress. (HBO 2, 3 & 4)	High incidence of inferential overlapping	7
		(9-12)	AOD1.12.10	Summarize why alcohol- or other drug-use is an unhealthy way to manage weight or stress. (HBO 2, 3 & 4)	Middle incidence of inferential overlapping	4
MEH5	Explains the ways to cope with stress.	(6-8)	AOD1.8.8	Explain why using alcohol or other drugs is an unhealthy way to manage stress. (HBO 2, 3 & 4)	High incidence of overlapping	9
		(9-12)	AOD1.12.10	Summarize why alcohol- or other drug-use is an unhealthy way to manage weight or stress. (HBO 2, 3 & 4)	Middle incidence of overlapping	7
HHH2	Explains the factors that lead to start of addictive substances.	(6-8)	AOD1.8.6	Determine reasons why people choose to use or not to use alcohol and other drugs. (HBO 2, 3 & 4)	Low incidence of inferential overlapping	1
		(6-8)	AOD1.8.7	Describe situations that could lead to the use of alcohol and other drugs. (HBO 2, 3 & 4)	Middle incidence of overlapping	7
		(9-12)	AOD1.12.9	Evaluate situations that could lead to the use of alcohol and other drugs. (HBO 2, 3 & 4)	Middle incidence of overlapping	6
HHH5	Explains the effects of alcohol on human health and behavior.	(3-5)	AOD1.5.6	Identify short and long-term effects of alcohol use. (HBO 2 & 3)	Low incidence of overlapping	6
		(6-8)	AOD1.8.10	Describe the relationship between using alcohol and other drugs and other health risks, such as unintentional injuries, violence, suicide, sexual risk behaviors, and tobacco use. (HBO 2, 3, 4, 5 & 6)	Middle incidence of inferential overlapping	5
HHH6	Explains the impacts of alcoholism on the relationships of individual in family and social life.	(9-12)	AOD1.12.6	Summarize the harmful short and long-term physical, psychological, and social effects of using alcohol and other drugs. (HBO 2, 3 & 4)	Middle incidence of overlapping	8

Table 10 (cont'd)
AOD standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HHH7	Explains the impact of drug use on human health and behavior.	(6-8)	AOD1.8.10	Describe the relationship between using alcohol and other drugs and other health risks, such as unintentional injuries, violence, suicide, sexual risk behaviors, and tobacco use. (HBO 2, 3, 4, 5 & 6)	Middle incidence of inferential overlapping	5
		(9-12)	AOD1.12.6	Summarize the harmful short and long-term physical, psychological, and social effects of using alcohol and other drugs. (HBO 2, 3 & 4)	Middle incidence of inferential overlapping	5
HHH8	Explains the ways to develop affirmative attitude in order to avoid the harmful to health and addictive substances.	(6-8)	AOD1.8.11	Determine the benefits of being alcohol and other drug-free. (HBO 2, 3, 4 & 8)	Low incidence of inferential overlapping	1
		(6-8)	AOD1.8.12	Describe positive alternatives to using alcohol and other drugs. (HBO 2, 3, 4 & 8)	Middle incidence of inferential overlapping	4
FL&MIH7	Explains things to do in order to be healthy in pregnancy and the postpartum period.	(9-12)	AOD1.12.8	Explain the effects of alcohol and other drug use during pregnancy. (HBO 2, 3 & 4)	High incidence of overlapping	9
FCPAD15	Explains the importance of the appropriate medication use.	(Pre-K-2)	AOD1.2.2	Explain the harmful effects of medicines when used incorrectly. (HBO 1)	High incidence of inferential overlapping	7
		(Pre-K-2)	AOD1.2.6	Describe how to use medicines correctly. (HBO 1)	Middle incidence of overlapping	7
		(3-5)	AOD1.5.2	Explain the benefits of medicines when used correctly. (HBO 1)	High incidence of overlapping	9
		(3-5)	AOD1.5.3	Explain how to use medicines correctly. (HBO 1)	High incidence of overlapping	9
		(3-5)	AOD1.5.4	Describe potential risks associated with inappropriate use of over-the-counter medicines. (HBO 1)	Middle incidence of inferential overlapping	4
(3-5)	AOD1.5.5	Explain the potential risks associated with inappropriate use and abuse of prescription medicines. (HBO 1)	High incidence of inferential overlapping	6		

Table 11

Appraisal strength table of AOD module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL2	(9-12)	AOD1.12.6	5	5
2	MEH4	(6-8)	AOD1.8.8	7	-
3	MEH4	(9-12)	AOD1.12.10	4	4
4	MEH5	(6-8)	AOD1.8.8	9	-
5	MEH5	(9-12)	AOD1.12.10	7	7
6	HHH2	(6-8)	AOD1.8.6	1	-
7	HHH2	(6-8)	AOD1.8.7	7	-
8	HHH2	(9-12)	AOD1.12.9	6	6
9	HHH5	(3-5)	AOD1.5.6	6	-
10	HHH5	(6-8)	AOD1.8.10	5	-
11	HHH6	(9-12)	AOD1.12.6	8	8
12	HHH7	(6-8)	AOD1.8.10	5	-
13	HHH7	(9-12)	AOD1.12.6	5	5
14	HHH8	(6-8)	AOD1.8.11	1	-
15	HHH8	(6-8)	AOD1.8.12	4	-
16	FL&MIH7	(9-12)	AOD1.12.8	9	9
17	FCPAD15	(Pre-K-2)	AOD1.2.2	7	-
18	FCPAD15	(Pre-K-2)	AOD1.2.6	7	-
19	FCPAD15	(3-5)	AOD1.5.2	9	-
20	FCPAD15	(3-5)	AOD1.5.3	9	-
21	FCPAD15	(3-5)	AOD1.5.4	4	-
22	FCPAD15	(3-5)	AOD1.5.5	6	-

Table 11 was created based on the appraisal strength criteria mentioned in chapter 3.

Thirteen HEC objectives corresponded to 22 expectations of AOD module -

Standard 1 for all grades. The average of appraisal strength score of this section was found 5.95 ($SD = 2.30$). The relative correspondence score was calculated 2.62. In conclusion, HEC's correspondence rate was calculated 26% for HECAT's AOD module in Standard 1 for all grades.

Seven HEC objectives corresponded to four expectations of AOD module - Standard 1 for 9-12 grades. The average of appraisal strength score of this section was found 6.29 ($SD = 1.80$). The relative correspondence score was calculated 2.00. In conclusion, HEC's correspondence rate was calculated 20% for HECAT's AOD module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HEC only corresponded to HECAT in Standard 2, 3 and 4.

One HEC objective corresponded to two HECAT expectations out of 28 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 12 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 24 for Standard 3 (accessing information). There was no matching for grades 9-12. The comparison is shown in Table 14 for Standard 3.

One HEC objective corresponded to three HECAT expectations out of 20 for Standard 4 (interpersonal communications). Only three of HECAT expectation out of 6 was found for grades 9-12 from corresponded ones. The comparison is shown in Table 16 for Standard 4.

Table 12
AOD standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	AOD2.12.1	Explain the influence of public health policies on alcohol- and other drug-use practices and behaviors.	Middle incidence of overlapping	4

Table 12 (cont'd)
AOD standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	AOD2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology, and public health policies on practices and behaviors related to alcohol and other drug use.	Analyzing*, Low incidence of inferential overlapping	1

Table 13
Appraisal strength table of AOD module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	AOD2.12.1	4	4
	HL5	(9-12)	AOD2.12.9	1	1

Table 13 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to two AOD module's Standard 2 expectation for all grades. The average of appraisal strength score of this section was found 2.52 ($SD = 2.12$). The relative correspondence score was calculated .18. In conclusion, HEC's correspondence rate was calculated 2% for HECAT's AOD module in Standard 2 for all grades.

One HEC objective corresponded to two AOD module's Standard 2 expectation for 9-12 grades. The average of appraisal strength score of this section was found 2.52 ($SD = 2.12$). The relative correspondence score was calculated .50. In conclusion, HEC's correspondence rate was calculated 5 % for HECAT's AOD module in Standard 2 for 9-12 grades.

Table 14

AOD standard 3 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HHH9	Explains what is required for the treatment of addicted people.	(6-8)	AOD3.8.4	Describe situations that call for professional alcohol and other drug-use treatment services.	Middle incidence of inferential overlapping	5

Table 15

Appraisal strength table of AOD module - standard 3

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HHH9	6-8	AOD3.8.4	5	-

Table 15 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objective corresponded to one AOD module’s Standard 3 expectation for all grades. The relative correspondence score was calculated .21. In conclusion, HEC’s correspondence rate was calculated 2% for HECAT’s AOD module in Standard 3 for all grades.

None of HEC objectives corresponded to any AOD module’s Standard 3 expectation for 9-12 grades. The relative correspondence score could not be calculated. In conclusion, there is no relation between HEC and HECAT’s AOD module in Standard 3 for 9-12 grades.

Table 16

AOD standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	AOD4.12.1	Demonstrate effective communication skills to avoid taking others’ prescription medication.	Low incidence of overlapping	5

Table 16 (cont'd)
AOD standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	AOD4.12.2	Demonstrate effective communication skills to be alcohol- and other drug-free.	Low incidence of overlapping	5
		(9-12)	AOD4.12.3	Demonstrate effective communication skills to avoid riding in a motor vehicle with a driver who is under the influence of alcohol or other drugs.	Low incidence of overlapping	5

Table 17
Appraisal strength table of AOD module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	AOD4.12.1	5	5
2	MEH6	(9-12)	AOD4.12.2	5	5
3	MEH6	(9-12)	AOD4.12.3	5	5

Table 17 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to three expectations of AOD module - Standard 4 for all grades. The average of appraisal strength score of this section was found 5.00 ($SD = .0$). The relative correspondence score was calculated .75. In conclusion, HEC's correspondence rate was calculated 8% for HECAT's AOD module in Standard 4 for all grades.

One HEC objective corresponded to three expectations of AOD module - Standard 4 for 9-12 grades. The average of appraisal strength score of this section was found 5.00 ($SD = .0$). The relative correspondence score was calculated 2.50. In conclusion, HEC's correspondence rate was calculated 25% for HECAT's AOD module in Standard 4 for 9-12 grades.

Module HE: Healthy eating

Healthy Eating (HE) module has 207 expectations and 13 Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *eat, food group, variety of foods, fruits, vegetables, whole grain, fat-free, low-fat milk, drink, water, beverages high in added sugars, solid fat, sodium, breakfast, healthy, snacks, dining out, caloric expenditure, eating plan, growth and development and support others.*

HECAT and HEC were compared by their key words and expectations of HECAT and objectives of HEC. According to HECAT's HE HBOs, determined HEC's HE module related objectives are listed on Table 18.

Table 18
HECAT HE module related HEC objectives

No	Code	HEC objectives	std.
1	HL5	Explains the criteria (policies) used to determine the level of public health.	2
2	GD1	Explains growth and development.	1
3	GD2	Explains the characteristics of growth and development period.	1
4	GD3	Explains the factors influencing growth and development.	1
5	IPH2	Explains the impacts of physical activity and resting on improving the health.	1
6	IPH3	Explains the importance of adequate and balanced diet according to the development periods.	1
7	IPH4	Explains the reasons for the emergence of obesity and its effect on health.	1
8	MEH6	Explains the ways of effective communication.	4
9	FCPAD3	Lists the things that increase the quality of life of diabetes.	1

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT expectations. Seven HEC objectives corresponded to 16 HECAT expectations out of 67 for Standard 1 (concepts). Only nine of HECAT expectations out of 20 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 19 for Standard 1.

Table 19
HE standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
GD1	Explains growth and development.	(9-12)	HE1.12.19	Explain the effects of eating disorders on healthy growth and development. (HBO 11, 12 & 13)	High incidence of overlapping	9
GD2	Explains the characteristics of growth and development period.	(9-12)	HE1.12.19	Explain the effects of eating disorders on healthy growth and development. (HBO 11, 12 & 13)	Middle incidence of overlapping	7
GD3	Explains the factors influencing growth and development.	(Pre-K-2)	HE1.2.9	Identify healthy eating patterns that provide energy and help the body grow and develop. (HBO 12)	Middle incidence of inferential overlapping	4
		(9-12)	HE1.12.19	Explain the effects of eating disorders on healthy growth and development. (HBO 11, 12 & 13)	High incidence of inferential overlapping	6
IPH2	Explains the impacts of physical activity and resting on improving the health.	(6-8)	HE1.8.19	Describe major chronic diseases and their relationship to what people eat and their physical activity level. (HBO 11 & 12)	Middle incidence of inferential overlapping	4
IPH3	Explains the importance of adequate and balanced diet according to the development periods.	(Pre-K-2)	HE1.2.2	Explain the importance of choosing healthy foods and beverages. (HBO 1, 2, 3, 4, 5, 6, 7, 8, 9 & 12)	Middle incidence of inferential overlapping	4
		(Pre-K-2)	HE1.2.9	Identify healthy eating patterns that provide energy and help the body grow and develop. (HBO 12)	Low incidence of inferential overlapping	3
		(9-12)	HE.1.12.2	Describe the relationship between diet and chronic diseases such as heart disease, cancer, diabetes, hypertension, and osteoporosis. (HBO 1, 2, 3, 4, 5, 6, 12 & 13)	Low incidence of inferential overlapping	2

Table 19 (cont'd)
HE standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
IPH3	Explains the importance of adequate and balanced diet according to the development periods.	(9-12)	HE1.12.4	Explain how to incorporate foods that are high in fiber into a healthy daily diet. (HBO 1, 2, 3, 4, 12 & 13)	Middle incidence of overlapping	7
		(9-12)	HE1.12.6	Explain how to incorporate an adequate amount of calcium into a healthy daily diet. (HBO 1, 2, 3, 4 & 13)	Middle incidence of overlapping	7
		(9-12)	HE1.12.7	Explain how to incorporate an adequate amount of iron into a healthy daily diet. (HBO 1, 2, 3, 12 & 13)	Middle incidence of overlapping	7
		(9-12)	HE1.12.19	Explain the effects of eating disorders on healthy growth and development. (HBO 11, 12 & 13)	High incidence of inferential overlapping	6
IPH4	Explains the reasons for the emergence of obesity and its effect on health.	(6-8)	HE1.8.21	Identify healthy and risky approaches to weight management. (HBO 11 & 12)	Low incidence of inferential overlapping	1
		(6-8)	HE1.8.22	Describe the benefits of eating in moderation. (HBO 11, 12 & 13)	Low incidence of inferential overlapping	2
		(9-12)	HE1.12.18	Analyze healthy and risky approaches to weight management. (HBO 11, 12 & 13)	Low incidence of inferential overlapping	1
FCPAD3	Lists the things that increase the quality of life of diabetes.	(9-12)	HE.1.12.2	Describe the relationship between diet and chronic diseases such as heart disease, cancer, diabetes, hypertension, and osteoporosis. (HBO 1, 2, 3, 4, 5, 6, 12 & 13)	Low incidence of overlapping	6

Table 20

Appraisal strength table of HE module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	GD1	(9-12)	HE1.12.19	9	9
2	GD2	(9-12)	HE1.12.19	7	7
3	GD3	(Pre-K-2)	HE1.2.9	4	-
4	GD3	(9-12)	HE1.12.19	6	6
5	IPH2	(6-8)	HE1.8.19	4	-
6	IPH3	(Pre-K-2)	HE1.2.2	4	-
7	IPH3	(Pre-K-2)	HE1.2.9	3	-
8	IPH3	(9-12)	HE.1.12.2	2	2
9	IPH3	(9-12)	HE1.12.4	7	7
10	IPH3	(9-12)	HE1.12.6	7	7
11	IPH3	(9-12)	HE1.12.7	7	7
12	IPH3	(9-12)	HE1.12.19	6	6
13	IPH4	(6-8)	HE1.8.21	1	-
14	IPH4	(6-8)	HE1.8.22	2	-
15	IPH4	(9-12)	HE1.12.18	1	1
16	FCPAD3	(9-12)	HE.1.12.2	6	6

Table 20 was created based on the appraisal strength criteria mentioned in chapter 3. Seven HEC objectives corresponded to 16 expectations of HE module - Standard 1 for all grades. The average of appraisal strength score of this section was found 4.75 ($SD = 2.46$). The relative correspondence score was calculated 1.13. In conclusion, HEC's correspondence rate was calculated 11% for HECAT's HE module in Standard 1 for all grades.

Six HEC objectives corresponded to nine expectations of HE module - Standard 1 for 9-12 grades. The average of appraisal strength score of this section was found 5.80 ($SD = 2.44$). The relative correspondence score was calculated 2.90. In conclusion, HEC's correspondence rate was calculated 29% for HECAT's HE module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to HEC in Standard 2 and 4.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (Analyzing internal and external influences). Only two of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 21 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 13 for Standard 4 (Interpersonal communications). Only one of HECAT expectation out of four was found for grades 9-12 from corresponded ones. The comparison is shown in Table 23 for Standard 4.

Table 21
HE standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	HE2.12.1	Explain the influence of public health policies and guidelines on personal food choices and other eating practices and behaviors.	High incidence of overlapping	9
		(9-12)	HE2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology, and public health policies on personal food choices and other eating behaviors.	Middle incidence of inferential overlapping	4

Table 22
Appraisal strength table of HE module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	HE2.12.1	9	9
2	HL5	(9-12)	HE2.12.9	4	4

Table 22 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objective corresponded to two expectations of HE module - Standard 2 for

all grades. The average of appraisal strength score of this section was found 6.50 (*SD* = 3.54). The relative correspondence score was calculated .42. In conclusion, HEC's correspondence rate was calculated 4 % for HECAT's HE module in Standard 2 for all grades.

One HEC objective corresponded to two expectations of HE module - Standard 2 for 9-12 grades. The average of appraisal strength score of this section was found 6.50 (*SD* = 3.54). The relative correspondence score was calculated 1.30. In conclusion, HEC's correspondence rate was calculated 13% for HECAT's HE module in Standard 1 for 9-12 grades.

Table 23
HE standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	HE4.12.1	Demonstrate effective communication skills to improve personal food choices and healthy eating behaviors.	Low incidence of overlapping	5

Table 24
Appraisal strength table of HE module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	HE4.12.1	5	5

Table 24 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to one expectation of HE module - Standard 4 for all grades. The relative correspondence score was calculated .38. In conclusion, HEC's correspondence rate was calculated 4% for HECAT's HE module in Standard 4 for all grades.

One HEC objective corresponded to one expectation of HE module - Standard 4 for 9-12 grades. The relative correspondence score was calculated 1.25. In conclusion, HEC's correspondence rate was calculated 13% for HECAT's HE module in Standard 4 for 9-12 grades.

Module MEH: Mental and emotional health

Mental and Emotional Health (MEH) module has 248 expectations and eight Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *express feelings, engage in activities, mentally and emotionally healthy, prevent, manage, interpersonal conflict, emotional stress, anxiety, self-control, impulse-control, strategies, promote, troublesome thoughts, feelings, actions, tolerance and acceptance of differences and healthy relationships.*

HECAT and HEC were compared by their key words and expectations of HECAT and objectives of HEC. According to HECAT's MEH HBOs, determined HEC's MEH module related objectives are listed in Table 25.

Table 25
HECAT MEH module related HEC objectives

No	Code	HEC objectives	std.
1	HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	1
2	HL3	Explains the utilization ways of the health services by classifying them.	3, 8
3	HL5	Explains the criteria (policies) used to determine the level of public health.	2
4	GD1	Explains growth and development.	1
5	GD2	Explains the characteristics of growth and development period.	1
6	GD3	Explains the factors influencing growth and development.	1
7	MEH1	Explains the importance of mental and emotional health for a healthy life.	1
8	MEH2	Explains the effect of personal and environmental factors on mental and emotional health.	1
9	MEH3	Explains the precautions to be taken to provide protection and continuance of mental and emotional health.	1
10	MEH4	Explains the factors causing stress and their effects on health.	1, 5
11	MEH5	Explains the ways to cope with stress.	1
12	MEH6	Explains the ways of effective communication.	4
13	MEH7	Explains the importance of effective communication in the family and social environments in socializing.	1

Table 25 (cont'd)
 HECAT MEH module related HEC objectives

No	Code	HEC objectives	std.
14	MEH8	Explains the effects of violence and abuse on the individual's social and emotional development.	1

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT expectations. 11 of HEC objectives corresponded to 21 of HECAT expectations out of 93 for Standard 1 (concepts). Only five HECAT expectations out of 26 are for grades 9-12 from corresponded ones. The comparison is shown in Table 26 for Standard 1.

Table 26
MEH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	(6-8)	MEH1.8.2	Explain the interrelationship of physical, mental, emotional, social and spiritual health. (HBO 1 & 2)	High incidence of inferential overlapping	6
		(9-12)	MEH1.12.1	Analyze the interrelationship of physical, mental, emotional, social and spiritual health. (HBO 1 & 2)	Low incidence of inferential overlapping	3
GD1	Explains growth and development.	(9-12)	MEH1.12.11	Explain the effects of eating disorders on healthy growth and development. (HBO 2, 4, 5 & 8)	High incidence of inferential overlapping	6
GD2	Explains the characteristics of growth and development period.	(9-12)	MEH1.12.11	Explain the effects of eating disorders on healthy growth and development. (HBO 2, 4, 5 & 8)	Middle incidence of inferential overlapping	4
GD3	Explains the factors influencing growth and development.	(9-12)	MEH1.12.11	Explain the effects of eating disorders on healthy growth and development. (HBO 2, 4, 5 & 8)	Middle incidence of inferential overlapping	4
MEH1	Explains the importance of mental and emotional health for a healthy life.	(6-8)	MEH1.8.11	Describe how mental and emotional health can affect health-related behaviors. (HBO 2, 3 & 4)	Middle incidence of overlapping	7
MEH2	Explains the effect of personal and environmental factors on mental and emotional health.	(6-8)	MEH1.8.11	Describe how mental and emotional health can affect health-related behaviors. (HBO 2, 3 & 4)	Middle incidence of inferential overlapping	4
MEH3	Explains the precautions to be taken to provide protection and continuance of mental and emotional health.	(6-8)	MEH1.8.11	Describe how mental and emotional health can affect health-related behaviors. (HBO 2, 3 & 4)	Low incidence of inferential overlapping	2
MEH4	Explains the factors causing stress and their effects on health.	(3-5)	MEH1.5.11	Identify positive and negative ways of dealing with stress and anxiety. (HBO 2, 3, 4 & 5)	Low incidence of overlapping	6
		(3-5)	MEH1.5.16	Identify personal stressors at home, in school, and with friends. (HBO 3 & 4)	Middle incidence of inferential overlapping	4
		(3-5)	MEH1.5.18	List physical and emotional reactions to stress. (HBO 4)	Low incidence of overlapping	6
		(6-8)	MEH1.8.8	Describe a variety of appropriate ways to respond to stress when angry or upset. (HBO 1, 3, 4 & 8)	Low incidence of inferential overlapping	2
		(6-8)	MEH1.8.23	Explain causes and effects of stress. (HBO 4)	High incidence of overlapping	9

Table 26 (cont'd)
MEH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH4	Explains the factors causing stress and their effects on health.	(6-8)	MEH1.8.24	Describe personal stressors at home, in school, and with friends. (HBO 4)	Middle incidence of inferential overlapping	5
		(6-8)	MEH1.8.25	Explain positive and negative ways of dealing with stress. (HBO 4)	Middle incidence of inferential overlapping	4
		(9-12)	MEH1.12.14	Summarize personal stressors at home, in school, and with friends. (HBO 4)	Middle incidence of overlapping	7
		(9-12)	MEH1.12.15	Explain the body's physical and psychological responses to stressful situations. (HBO 4)	Middle ioio	7
		(9-12)	MEH1.12.16	Evaluate effective strategies for dealing with stress. (HBO 4)	Low ioio	1
MEH5	Explains the ways to cope with stress.	(3-5)	MEH1.5.11	Identify positive and negative ways of dealing with stress and anxiety. (HBO 2, 3, 4&5)	Middle ioio	7
		(6-8)	MEH1.8.8	Describe a variety of appropriate ways to respond to stress when angry or upset-. (HBO 1, 3, 4 & 8)	Middle ioio	7
		(6-8)	MEH1.8.25	Explain positive and negative ways of dealing with stress. (HBO 4)	High ioio	10
		(9-12)	MEH1.12.16	Evaluate effective strategies for dealing with stress. (HBO 4)	Low ioio	6
MEH7	Explains the importance of effective communication in the family and social environments in socializing.	(Pre-K-2)	MEH1.2.7	Identify the benefits of healthy family relationships. (HBO 8)	Low ioio	3
		(Pre-K-2)	MEH1.2.8	Identify the benefits of healthy peer relationships. (HBO 8)	Low ioio	3
		(3-5)	MEH1.5.21	Identify characteristics of healthy relationships. (HBO 8)	Low ioio	1
		(3-5)	MEH1.5.22	Describe the benefits of healthy family relationships. (HBO 8)	Middle ioio	4
		(3-5)	MEH1.5.23	Describe the benefits of healthy peer relationships. (HBO 8)	Low ioio	2
MEH8	Explains the effects of violence and abuse on the individual's social and emotional development.	(6-8)	MEH1.8.21	Describe ways to manage interpersonal conflict nonviolently. (HBO 3, 5 & 7)	Middle ioio	4

Table 27

Appraisal strength table of MEH module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL2	(6-8)	MEH1.8.2	6	-
2	HL2	(9-12)	MEH1.12.1	3	3
3	GD1	(9-12)	MEH1.12.11	6	6
4	GD2	(9-12)	MEH1.12.11	4	4
5	GD3	(9-12)	MEH1.12.11	4	4
6	MEH1	(6-8)	MEH1.8.11	7	-
7	MEH2	(6-8)	MEH1.8.11	4	-
8	MEH3	(6-8)	MEH1.8.11	2	-
9	MEH4	(3-5)	MEH1.5.11	6	-
10	MEH4	(3-5)	MEH1.5.16	4	-
11	MEH4	(3-5)	MEH1.5.18	6	-
12	MEH4	(6-8)	MEH1.8.8	2	-
13	MEH4	(6-8)	MEH1.8.23	9	-
14	MEH4	(6-8)	MEH1.8.24	5	-
15	MEH4	(6-8)	MEH1.8.25	4	-
16	MEH4	(9-12)	MEH1.12.14	7	7
17	MEH4	(9-12)	MEH1.12.15	7	7
18	MEH4	(9-12)	MEH1.12.16	1	1
19	MEH5	(3-5)	MEH1.5.11	7	-
20	MEH5	(6-8)	MEH1.8.8	7	-
21	MEH5	(6-8)	MEH1.8.25	10	-
22	MEH5	(9-12)	MEH1.12.16	6	6
23	MEH7	(Pre-K-2)	MEH1.2.7	3	-
24	MEH7	(Pre-K-2)	MEH1.2.8	3	-
25	MEH7	(3-5)	MEH1.5.21	1	-
26	MEH7	(3-5)	MEH1.5.22	4	-
27	MEH7	(3-5)	MEH1.5.23	2	-
28	MEH8	(6-8)	MEH1.8.21	4	-

Table 27 was created based on the appraisal strength criteria mentioned in chapter 3. 11 of HEC objectives corresponded to 21 of MEH module's Standard 1 expectations for all grades. The average of appraisal strength score of this section was found 4.79 ($SD = 2.30$). The relative correspondence score was calculated 1.08. In conclusion, HEC's correspondence rate was calculated 11% for HECAT's MEH module in Standard 1 for all grades.

Six of HEC objectives corresponded to six of MEH module's Standard 1 expectations for 9-12 grades. The average of appraisal strength score of this section was found 4.75 ($SD = 2.12$). The relative correspondence score was calculated 1.10.

In conclusion, HEC's correspondence rate was calculated 11% for HECAT's MEH module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to HEC in Standard 2, 3, 4, 5 and 8.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 28 for Standard 2.

One HEC objective corresponded to eight HECAT expectations out of 27 for Standard 3 (accessing information). Only four of HECAT expectations out of nine were found for grades 9-12 from corresponded ones. The comparison is shown in Table 30 for Standard 3.

One HEC objective corresponded to three HECAT expectations out of 24 for Standard 4 (interpersonal communications). Only one of HECAT expectation out of six was found for grades 9-12 from corresponded ones. The comparison is shown in Table 32 for Standard 4.

One HEC objective corresponded to seven HECAT expectations out of 26 for Standard 5 (Decision-making). Only two of HECAT expectations out of eight were

found for grades 9-12 from corresponded ones. The comparison is shown in Table 34 for Standard 5.

One HEC objective corresponded to one HECAT expectations out of 15 for Standard 8 (Advocacy). Only one of HECAT expectations out of six were found for grades 9-12 from corresponded ones. The comparison is shown in Table 36 for Standard 8.

Table 28
MEH standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	MEH2.12.1	Explain the influences of public health policies on mental and emotional health practices and behaviors.	High incidence of overlapping	10
		(9-12)	MEH2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology, and public health policies, on mental and emotional health practices and behaviors.	Low incidence of overlapping	4

Table 29
Appraisal strength table of MEH module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	MEH2.12.1	10	10
2	HL5	(9-12)	MEH2.12.9	4	4

Table 29 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to two of MEH module's Standard 2 expectations for all grades. The average of appraisal strength score of this section was found 7 ($SD = 4.24$). The relative correspondence score was calculated .45. In conclusion,

HEC's correspondence rate was calculated 5% for HECAT's MEH module in Standard 2 for all grades.

One HEC objective corresponded to two of MEH module's Standard 2 expectations for 9-12 grades. The average of appraisal strength score of this section was found 7 ($SD = 4.24$). The relative correspondence score was calculated 1.40. In conclusion, HEC's correspondence rate was calculated 14% for HECAT's MEH module in Standard 2 for 9-12 grades.

Table 30
MEH standard 3 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL3	Explains the utilization ways of the health services by classifying them.	(3-5)	MEH3.5.3	Describe characteristics of appropriate and trustworthy mental and emotional health services.	Middle incidence of inferential overlapping	5
		(6-8)	MEH3.8.3	Analyze the validity and reliability of mental and emotional health services.	Low incidence of inferential overlapping	1
		(6-8)	MEH3.8.4	Describe situations that call for professional mental and emotional health services.	Low incidence of inferential overlapping	2
		(6-8)	MEH3.8.8	Locate valid and reliable mental and emotional health services.	Low incidence of inferential overlapping	2
		(9-12)	MEH3.12.3	Evaluate the validity and reliability of mental and emotional health services.	Low incidence of inferential overlapping	1
		(9-12)	MEH3.12.5	Determine when professional mental and emotional health services may be required.	Low incidence of inferential overlapping	1
		(9-12)	MEH3.12.6	Determine the accessibility of valid and reliable mental and emotional health services.	Low incidence of inferential overlapping	1

Table 30 (cont'd)
MEH standard 3 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL3	Explains the utilization ways of the health services by classifying them.	(9-12)	MEH3.12.9	Use valid and reliable mental and emotional health services.	Low incidence of inferential overlapping	1

Table 31
Appraisal strength table of MEH module - standard 3

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL3	(3-5)	MEH3.5.3	5	-
2	HL3	(6-8)	MEH3.8.3	1	-
3	HL3	(6-8)	MEH3.8.4	2	-
4	HL3	(6-8)	MEH3.8.8	2	-
5	HL3	(9-12)	MEH3.12.3	1	1
6	HL3	(9-12)	MEH3.12.5	1	1
7	HL3	(9-12)	MEH3.12.6	1	1
8	HL3	(9-12)	MEH3.12.9	1	1

Table 31 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to eight of MEH module's Standard 3 expectations for all grades. The average of appraisal strength score of this section was found 1.75 ($SD = 1.39$). The relative correspondence score was calculated .52. In conclusion, HEC's correspondence rate was calculated 5% for HECAT's MEH module in Standard 3 for all grades.

One HEC objective corresponded to four MEH module's Standard 3 expectation for 9-12 grades. The relative correspondence score was calculated .44. In conclusion, HEC's correspondence rate was calculated 4% for HECAT's MEH module in Standard 3 for 9-12 grades.

Table 32
MEH standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(3-5)	MEH4.5.1	Demonstrate effective verbal and nonverbal communication skills	Middle incidence of overlapping	7
		(6-8)	MEH4.8.1	Demonstrate the effective use- of verbal and nonverbal communication skills to enhance mental and emotional health.	Low incidence of overlapping	5
		(9-12)	MEH4.12.1	Demonstrate effective communication skills to enhance mental and emotional health.	Low incidence of overlapping	5

Table 33
Appraisal strength table of MEH module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(3-5)	MEH4.5.1	7	-
2	MEH6	(6-8)	MEH4.8.1	5	-
3	MEH6	(9-12)	MEH4.12.1	5	5

Table 33 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to three of MEH module’s Standard 4 expectations for all grades. The average of appraisal strength score of this section was found 5.67 ($SD = 1.15$). The relative correspondence score was calculated .52. In conclusion, HEC’s correspondence rate was calculated 5% for HECAT’s MEH module in Standard 4 for all grades.

One HEC objective corresponded to one MEH module’s Standard 4 expectation for 9-12 grades. The relative correspondence score was calculated .83. In conclusion, HEC’s correspondence rate was calculated 8% for HECAT’s MEH module in Standard 4 for 9-12 grades.

Table 34
MEH standard 5 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH4	Explains the factors causing stress and their effects on health.	(3-5)	MEH5.5.1	Identify situations which need a decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Middle incidence of overlapping	7
		(3-5)	MEH5.5.2	Decide when help is needed and when it is not needed to make a decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Middle incidence of inferential overlapping	4
		(3-5)	MEH5.5.3	Explain how family, culture, peers or media influence a decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Middle incidence of inferential overlapping	4
		(3-5)	MEH5.5.4	Identify options and their potential outcomes when making a decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Low incidence of inferential overlapping	1
		(6-8)	MEH5.8.2	Determine when situations require a decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Low incidence of inferential overlapping	1
		(9-12)	MEH5.12.1	Examine barriers to making a healthy decision related to mental and emotional health (e.g., dealing with interpersonal conflict, managing emotional stress).	Low incidence of inferential overlapping	1
		(9-12)	MEH5.12.4	Analyze how family, culture, media, peers, and personal beliefs affect a mental or emotional health-related decision (e.g., dealing with interpersonal conflict, managing emotional stress).	Low incidence of inferential overlapping	1

Table 35

Appraisal strength table of MEH module - standard 5

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH4	(3-5)	MEH5.5.1	7	-
2	MEH4	(3-5)	MEH5.5.2	4	-
3	MEH4	(3-5)	MEH5.5.3	4	-
4	MEH4	(3-5)	MEH5.5.4	1	-
5	MEH4	(6-8)	MEH5.8.2	1	-
6	MEH4	(9-12)	MEH5.12.1	1	1
7	MEH4	(9-12)	MEH5.12.4	1	1

Table 35 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objective corresponded to seven of MEH module's Standard 5

expectations for all grades. The average of appraisal strength score of this section

was found 2.71 ($SD = 2.36$). The relative correspondence score was calculated .73.

In conclusion, HEC's correspondence rate was calculated 7% for HECAT's MEH module in Standard 5 for all grades.

One HEC objective corresponded to two MEH module's Standard 5 expectations for

9-12 grades. The relative correspondence score was calculated .25. In conclusion,

HEC's correspondence rate was calculated 3% for HECAT's MEH module in

Standard 5 for 9-12 grades.

Table 36

MEH standard 8 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL3	Explains the utilization ways of the health services by classifying them	(9-12)	MEH8.12.6	Persuade community leaders about the importance of ensuring safe, accessible, equitable and affordable opportunities, products and mental health services to improve the health of oneself and others.	Low incidence of inferential overlapping	1

Table 37

Appraisal strength table of MEH module - standard 8

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL3	(9-12)	MEH8.12.6	1	1

Table 37 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to one MEH module’s Standard 8 expectation for all grades. The relative correspondence score was calculated .07. In conclusion, HEC’s correspondence rate was calculated .67% for HECAT’s MEH module in Standard 8 for all grades.

One HEC objective corresponded to one MEH module’s Standard 8 expectation for 9-12 grades. The relative correspondence score was calculated .17. In conclusion, HEC’s correspondence rate was calculated 2% for HECAT’s MEH module in Standard 8 for 9-12 grades.

Module PHW: Personal health and wellness

Personal Health and Wellness (PHW) module has 210 expectations and 12 Health Behavior Outcomes (HBOs). Key words of this module’s HBOs are: *brush and floss teeth, practice, appropriate, hygiene habits, appropriate amount of sleep and rest, prevent, vision and hearing loss, damage from the sun, infectious diseases, chronic diseases, serious health problems, common chronic diseases and conditions, youth, allergies, asthma, diabetes, epilepsy, foodborne illnesses, seek out help, common infectious diseases, chronic diseases and conditions, healthcare professionals, screenings, examinations and health problems that result from fads or trends.*

HECAT and HEC were compared by their key words and expectations of HECAT

and objectives of HEC. According to HECAT's PHW HBOs, determined HEC's PHW module related objectives are listed on Table 38.

Table 38

HECAT PHW module related HEC objectives

No	Code	HEC objectives	std.
1	HL1	Explains the concepts of health, infirmity and disability.	1
2	HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	1
3	HL5	Explains the criteria (policies) used to determine the level of public health.	2
4	GD2	Explains the characteristics of growth and development period.	1
5	GD3	Explains the factors influencing growth and development.	1
6	IPH2	Explains the impacts of physical activity and resting on improving the health.	1
7	IPH5	Explains the importance of personal hygiene for a healthy life.	1
8	IPH7	Explains the importance of oral and dental health.	1
9	IPH8	Explains with examples that should be considered in the prevention of dental health.	1
10	MEH6	Explains the ways of effective communication.	4
11	FCPAD2	Lists ways of prevention from cancer.	1
12	FCPAD3	Lists the things that increase the quality of life of diabetes.	1
13	FCPAD6	Explains the causes of and preventions from chronic lung diseases.	1
14	FCPAD7	Explains the concepts related with infectious diseases.	1
15	FCPAD8	Lists the transmission ways of infectious diseases.	1
16	FCPAD9	Explains general features and prevention methods of diseases spread by water and food.	1
17	FCPAD10	Explains general features and prevention methods of diseases spread by air.	1
18	FCPAD11	Explains general features and prevention methods of diseases spread by contact.	1
19	FCPAD12	Explains general features and prevention methods of diseases spread by vectors.	1
20	FCPAD13	Explains general features and prevention methods of zoonotic.	1
21	FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	1

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT expectations. Nineteen of HEC objectives out of 21 corresponded to 40 of HECAT expectations; out of 60 for Standard 1 (concepts). Only eight of HECAT expectations out of 13 were for grades 9-12 from corresponded ones. The comparison is shown in Table 39 for Standard 1.

Table 39
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL1	Explains the concepts of health, infirmity and disability.	(Pre-K-2)	PHW1.2.10	Describe what it means to be healthy. (HBO 6)	Middle incidence of overlapping	7
HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	(6-8)	PHW1.8.12	Explain the behavioral and environmental factors that contribute to the major chronic diseases. (HBO 7 & 8)	High incidence of overlapping	9
		(9-12)	PHW1.12.9	Analyze the behavioral and environmental factors that contribute to the major chronic diseases. (HBO 7 & 8)	Low incidence of overlapping	6
GD2	Explains the characteristics of growth and development period.	(Pre-K-2)	PHW1.2.5	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of inferential overlapping	6
		(3-5)	PHW1.5.3	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of inferential overlapping	6
		(6-8)	PHW1.8.2	Summarize the benefits of getting proper rest and sleep for healthy growth and development. (HBO 3)	Middle incidence of inferential overlapping	5
GD3	Explains the factors influencing growth and development.	(Pre-K-2)	PHW1.2.5	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of inferential overlapping	6
		(3-5)	PHW1.5.3	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of inferential overlapping	6
		(6-8)	PHW1.8.2	Summarize the benefits of getting proper rest and sleep for healthy growth and development. (HBO 3)	Middle incidence of inferential overlapping	4
IPH2	Explains the impacts of physical activity and resting on improving the health.	(Pre-K-2)	PHW1.2.5	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of overlapping	9
		(3-5)	PHW1.5.3	Explain why sleep and rest are important for proper growth and good health. (HBO 3)	High incidence of overlapping	9
		(6-8)	PHW1.8.2	Summarize the benefits of getting proper rest and sleep for healthy growth and development. (HBO 3)	Middle incidence of overlapping	7
		(9-12)	PHW1.12.1	Analyze the personal physical, emotional, mental, and social health; educational; and vocational performance benefits of rest and sleep. (HBO 3)	Low incidence of inferential overlapping	3

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
IPH5	Explains the importance of personal hygiene for a healthy life.	(Pre-K-2)	PHW1.2.2	State why hygiene is important to good health. (HBO 1 & 2)	Low incidence of overlapping	6
		(Pre-K-2)	PHW1.2.3	Identify the benefits of personal health care practices such as washing hair and bathing regularly. (HBO 1 & 2)	Low incidence of inferential overlapping	3
		(Pre-K-2)	PHW1.2.4	State the steps for proper hand washing. (HBO 2 & 6)	Low incidence of inferential overlapping	2
		(3-5)	PHW1.5.1	Describe the benefits of personal health care practices such as tooth brushing and flossing, washing hair and bathing regularly. (HBO 1 & 2)	Middle incidence of inferential overlapping	4
		(3-5)	PHW1.5.12	Explain how hand washing and covering a cough and sneeze are effective ways to prevent many infectious diseases. (HBO 6 & 9)	High incidence of inferential overlapping	6
		(3-5)	PHW1.8.1	Summarize the benefits of good hygiene practices for promoting health and maintaining positive social relationships. (HBO 2)	Low incidence of inferential overlapping	2
IPH7	Explains the importance of oral and dental health.	(3-5)	PHW1.5.1	Describe the benefits of personal health care practices such as tooth brushing and flossing, washing hair and bathing regularly. (HBO 1 & 2)	Middle incidence of overlapping	7
IPH8	Explains with examples that should be considered in the prevention of dental health.	(Pre-K-2)	PHW1.2.1	Identify the proper steps for daily brushing and flossing teeth. (HBO 1 & 2)	Low incidence of overlapping	6
FCPAD2	Lists ways of prevention from cancer.	(9-12)	PHW1.12.10	Describe the relationship between poor personal health and wellness habits and chronic diseases such as heart disease, cancer, diabetes, hypertension, and osteoporosis. (HBO 7 & 8)	Middle incidence of inferential overlapping	4

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD3	Lists the things that increase the quality of life of diabetes.	(3-5)	PHW1.5.15	Identify health problems associated with common childhood chronic diseases or conditions such as asthma, allergies, diabetes, and epilepsy. (HBO 7 & 8)	Low incidence of overlapping	4
		(9-12)	PHW1.12.10	Describe the relationship between poor personal health and wellness habits and chronic diseases such as heart disease, cancer, diabetes, hypertension, and osteoporosis. (HBO 7 & 8)	Low incidence of overlapping	4
FCPAD6	Explains the causes of and preventions from chronic lung diseases.	(6-8)	PHW1.8.12	Explain the behavioral and environmental factors that contribute to the major chronic diseases. (HBO 7 & 8)	High incidence of inferential overlapping	6
		(6-8)	PHW1.8.13	Describe how an inactive lifestyle contributes to chronic disease. (HBO 7 & 8)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.9	Analyze the behavioral and environmental factors that contribute to the major chronic diseases. (HBO 7 & 8)	Low incidence of inferential overlapping	3
FCPAD7	Explains the concepts related with infectious diseases.	(3-5)	PHW1.5.8	Explain the difference between infectious diseases and non-infectious diseases. (HBO 6 & 7)	High incidence of overlapping	9
		(6-8)	PHW1.8.6	Explain the difference between infectious, noninfectious, acute and chronic diseases. (HBO 6 & 7)	High incidence of overlapping	9

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD8	Lists the transmission ways of infectious diseases.	(Pre-K-2)	PHW1.2.11	Identify different ways that disease-causing germs are transmitted. (HBO 6)	Middle incidence of overlapping	7
		(Pre-K-2)	PHW1.2.12	Identify ways to prevent the spread of germs that cause- common infectious diseases. (HBO 6)	Low incidence of inferential overlapping	3
		(3-5)	PHW1.5.9	Describe ways that common infectious diseases are transmitted. (HBO 6)	Middle incidence of overlapping	7
		(3-5)	PHW1.5.10	Describe ways to prevent the spread of germs that cause- infectious diseases. (HBO 6)	Low incidence of inferential overlapping	3
		(6-8)	PHW1.8.8	Summarize ways that common infectious diseases are transmitted. (HBO 6 & 9)	Middle incidence of overlapping	7
		(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low incidence of inferential overlapping	3
		(6-8)	PHW1.8.11	Explain ways to prevent the spread of germs that cause infectious diseases such as HIV by not having sex, not touching blood, and not touching used hypodermic or tattoo needles. (HBO 6 & 12)	Low incidence of inferential overlapping	3
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low incidence of inferential overlapping	1
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Low incidence of inferential overlapping	1
		(9-12)	PHW1.12.8	Summarize ways to prevent the spread of germs that cause infectious diseases such as HIV by not having sex, not touching blood, and not touching used hypodermic or tattoo needles. (HBO 6 & 12)	Low incidence of inferential overlapping	3

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD9	Explains general features and prevention methods of diseases spread by water and food.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping (ioio)	3
		(Pre-K-2)	PHW1.2.13	Identify foods and non-food triggers that are common causes of allergic reactions. (HBO 6)	Low incidence of overlapping (ioo)	4
		(Pre-K-2)	PHW1.2.14	Explain that foods can contain germs that can cause- illness. (HBO 6)	Middle ioo	7
		(Pre-K-2)	PHW1.2.15	Identify food safety strategies that can control germs that cause foodborne illnesses. (HBO 6 & 9)	Low ioio	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle ioio	4
		(3-5)	PHW1.5.13	Describe how foodborne illnesses can spread at school or in the community. (HBO 6 & 9)	Low ioio	2
		(3-5)	PHW1.5.14	Describe how to keep food safe from harmful germs. (HBO 6 & 9)	Low ioio	2
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle ioio	4
		(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low ioo	5
		(6-8)	PHW1.8.10	Describe food safety strategies that can control germs that cause foodborne illnesses. (HBO 6 & 9)	Middle ioio	5
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle ioio	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle ioio	4
		(9-12)	PHW1.12.6	Analyze how common foodborne diseases are transmitted. (HBO 6 & 9)	Middle ioio	4
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low ioio	3

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD10	Explains general features and prevention methods of diseases spread by air.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle incidence of inferential overlapping	4
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low incidence of overlapping	5
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low incidence of inferential overlapping	3
FCPAD11	Explains general features and prevention methods of diseases spread by contact.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle incidence of inferential overlapping	4
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low incidence of overlapping	5

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD11	Explains general features and prevention methods of diseases spread by contact.	(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle incidence of overlapping	8
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low incidence of inferential overlapping	3
FCPAD12	Explains general features and prevention methods of diseases spread by vectors.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle incidence of inferential overlapping	4
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle incidence of overlapping	8
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low incidence of inferential overlapping	3

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD13	Explains general features and prevention methods of zoonotic.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle incidence of inferential overlapping	4
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low incidence of overlapping	5
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle incidence of inferential overlapping	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle incidence of overlapping	8
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low incidence of inferential overlapping	3
FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	(Pre-K-2)	PHW1.2.12	Summarize important health screenings, immunizations, checkups, examinations, and health screenings necessary to maintain good health. (HBO 11)	Low incidence of inferential overlapping (ioio)	3
		(3-5)	PHW1.5.11	Describe symptoms that occur when a person is sick. (HBO 6 & 7)	Middle ioio	4
		(3-5)	PHW1.5.16	Describe the importance of seeking help and treatment for common infectious diseases. (HBO 10)	Middle ioio	4

Table 39 (cont'd)
PHW standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	(6-8)	PHW1.8.9	Summarize health practices to prevent the spread of infectious diseases that are transmitted by food, air, indirect contact, and person-to-person contact. (HBO 6 & 9)	Low incidence of overlapping (ioo)	5
		(6-8)	PHW1.8.11	Explain ways to prevent the spread of germs that cause- infectious diseases such as HIV by not having sex, not touching blood, and not touching used hypodermic or tattoo needles. (HBO 6 & 12)	Middle ioo	7
		(6-8)	PHW1.8.14	Describe the importance of seeking help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Middle ioio	4
		(9-12)	PHW1.12.5	Summarize how common infectious diseases are transmitted by indirect contact and person-to person contact. (HBO 6 & 9)	Middle ioo	8
		(9-12)	PHW1.12.7	Explain the relationship between intravenous drug use- and transmission of blood borne diseases such as HIV and hepatitis. (HBO 6 & 12)	Middle ioo	7
		(9-12)	PHW1.12.8	Summarize ways to prevent the spread of germs that cause- infectious diseases such as HIV by not having sex, not touching blood, and not touching used hypodermic or tattoo needles. (HBO 6 & 12)	Low ioo	5
		(9-12)	PHW1.12.11	Justify why it is important to seek help and treatment for common infectious diseases and chronic diseases. (HBO 10)	Low ioio	3

Table 40

Appraisal strength table of PHW module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL1	(Pre-K-2)	PHW1.2.10	7	-
2	HL2	(6-8)	PHW1.8.12	9	-
3	HL2	(9-12)	PHW1.12.9	6	6
4	GD2	(Pre-K-2)	PHW1.2.5	6	-
5	GD2	(3-5)	PHW1.5.3	6	-
6	GD2	(6-8)	PHW1.8.2	5	-
7	GD3	(Pre-K-2)	PHW1.2.5	6	-
8	GD3	(3-5)	PHW1.5.3	6	-
9	GD3	(6-8)	PHW1.8.2	4	-
10	IPH2	(Pre-K-2)	PHW1.2.5	9	-
11	IPH2	(3-5)	PHW1.5.3	9	-
12	IPH2	(6-8)	PHW1.8.2	7	-
13	IPH2	(9-12)	PHW1.12.1	3	3
14	IPH5	(Pre-K-2)	PHW1.2.2	6	-
15	IPH5	(Pre-K-2)	PHW1.2.3	3	-
16	IPH5	(Pre-K-2)	PHW1.2.4	2	-
17	IPH5	(3-5)	PHW1.5.1	4	-
18	IPH5	(3-5)	PHW1.5.12	6	-
19	IPH5	(3-5)	PHW1.8.1	2	-
20	IPH7	(3-5)	PHW1.5.1	7	-
21	IPH8	(Pre-K-2)	PHW1.2.1	6	-
22	FCPAD2	(9-12)	PHW1.12.10	4	4
23	FCPAD3	(3-5)	PHW1.5.15	4	-
24	FCPAD3	(9-12)	PHW1.12.10	4	4
25	FCPAD6	(6-8)	PHW1.8.12	6	-
26	FCPAD6	(6-8)	PHW1.8.13	4	-
27	FCPAD6	(9-12)	PHW1.12.9	3	3
28	FCPAD7	(3-5)	PHW1.5.8	9	-
29	FCPAD7	(6-8)	PHW1.8.6	9	-
30	FCPAD8	(Pre-K-2)	PHW1.2.11	7	-
31	FCPAD8	(Pre-K-2)	PHW1.2.12	3	-
32	FCPAD8	(3-5)	PHW1.5.9	7	-
33	FCPAD8	(3-5)	PHW1.5.10	3	-
34	FCPAD8	(6-8)	PHW1.8.8	7	-
35	FCPAD8	(6-8)	PHW1.8.9	3	-
36	FCPAD8	(6-8)	PHW1.8.11	3	-
37	FCPAD8	(6-8)	PHW1.8.14	1	-
38	FCPAD8	(9-12)	PHW1.12.5	1	1
39	FCPAD8	(9-12)	PHW1.12.8	3	3
40	FCPAD9	(Pre-K-2)	PHW1.2.12	3	-
41	FCPAD9	(Pre-K-2)	PHW1.2.13	4	-
42	FCPAD9	(Pre-K-2)	PHW1.2.14	7	-
43	FCPAD9	(Pre-K-2)	PHW1.2.15	3	-
44	FCPAD9	(3-5)	PHW1.5.11	4	-
45	FCPAD9	(3-5)	PHW1.5.13	2	-
46	FCPAD9	(3-5)	PHW1.5.14	2	-
47	FCPAD9	(3-5)	PHW1.5.16	4	-
48	FCPAD9	(6-8)	PHW1.8.9	5	-
49	FCPAD9	(6-8)	PHW1.8.10	5	-
50	FCPAD9	(6-8)	PHW1.8.14	4	-
51	FCPAD9	(9-12)	PHW1.12.5	4	4
52	FCPAD9	(9-12)	PHW1.12.6	4	4
53	FCPAD9	(9-12)	PHW1.12.11	3	3
54	FCPAD10	(Pre-K-2)	PHW1.2.12	3	-
55	FCPAD10	(3-5)	PHW1.5.11	4	-
56	FCPAD10	(3-5)	PHW1.5.16	4	-

Table 40 (cont'd)

Appraisal strength table of PHW module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
57	FCPAD10	(6-8)	PHW1.8.9	5	-
58	FCPAD10	(6-8)	PHW1.8.14	4	-
59	FCPAD10	(9-12)	PHW1.12.5	4	4
60	FCPAD10	(9-12)	PHW1.12.11	3	3
61	FCPAD11	(Pre-K-2)	PHW1.2.12	3	-
62	FCPAD11	(3-5)	PHW1.5.11	4	-
63	FCPAD11	(3-5)	PHW1.5.16	4	-
64	FCPAD11	(6-8)	PHW1.8.9	5	-
65	FCPAD11	(6-8)	PHW1.8.14	4	-
66	FCPAD11	(9-12)	PHW1.12.5	8	8
67	FCPAD11	(9-12)	PHW1.12.11	3	3
68	FCPAD12	(Pre-K-2)	PHW1.2.12	3	-
69	FCPAD12	(3-5)	PHW1.5.11	4	-
70	FCPAD12	(3-5)	PHW1.5.16	4	-
71	FCPAD12	(6-8)	PHW1.8.14	4	-
72	FCPAD12	(9-12)	PHW1.12.5	8	8
73	FCPAD12	(9-12)	PHW1.12.11	3	3
74	FCPAD13	(Pre-K-2)	PHW1.2.12	3	-
75	FCPAD13	(3-5)	PHW1.5.11	4	-
76	FCPAD13	(3-5)	PHW1.5.16	4	-
77	FCPAD13	(6-8)	PHW1.8.9	5	-
78	FCPAD13	(6-8)	PHW1.8.14	4	-
79	FCPAD13	(9-12)	PHW1.12.5	8	8
80	FCPAD13	(9-12)	PHW1.12.11	3	3
81	FCPAD14	(Pre-K-2)	PHW1.2.12	3	-
82	FCPAD14	(3-5)	PHW1.5.11	4	-
83	FCPAD14	(3-5)	PHW1.5.16	4	-
84	FCPAD14	(6-8)	PHW1.8.9	5	-
85	FCPAD14	(6-8)	PHW1.8.11	7	-
86	FCPAD14	(6-8)	PHW1.8.14	4	-
87	FCPAD14	(9-12)	PHW1.12.5	8	8
88	FCPAD14	(9-12)	PHW1.12.7	7	7
89	FCPAD14	(9-12)	PHW1.12.8	5	5
90	FCPAD14	(9-12)	PHW1.12.11	3	3

Table 40 was created based on the appraisal strength criteria mentioned in chapter 3.

Nineteen of HEC objectives corresponded to 40 expectations of PHW module -

Standard 1 for all grades. The average of appraisal strength score of this section was

found 4.66 ($SD = 1.93$). The relative correspondence score was calculated 3.10. In

conclusion, HEC's correspondence rate was calculated 31% for HECAT's PHW

module in Standard 1 for all grades.

Twelve of HEC objectives corresponded to eight expectations of PHW module -

Standard 1 for 9-12 grades. The average of appraisal strength score of this section

was found 2.74 ($SD = 2.09$). The relative correspondence score was calculated 2.74. In conclusion, HEC's correspondence rate was calculated 27% for HECAT's PHW module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to PHW in Standard 2 and 4.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 41 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 19 for Standard 4 (interpersonal communications). Only one of HECAT expectation out of four was found for grades 9-12 from corresponded ones. The comparison is shown in Table 43 for Standard 4.

Table 41
PHW Standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	PHW2.12.1	Explain the influence of public health policies on personal health and wellness-related practices and behaviors.	High incidence of overlapping	10

Table 41 (cont'd)
PHW Standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	PHW2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology and public health policies, on personal health and wellness-related practices and behaviors.	High incidence of overlapping	9

Table 42
Appraisal strength table of PHW module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	PHW2.12.1	10	10
2	HL5	(9-12)	PHW2.12.9	9	9

Table 42 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objective corresponded to two expectations of PHW module - Standard 2 for all grades. The average of appraisal strength score of this section was found 9.50 ($SD = 0.71$). The relative correspondence score was calculated .61. In conclusion, HEC's correspondence rate was calculated 6% for HECAT's PHW module in Standard 2 for all grades.

One HEC objective corresponded to two expectations of PHW module - Standard 2 for 9-12 grades. The average of appraisal strength score of this section was found 9.50 ($SD = 0.71$). The relative correspondence score was calculated 1.90. In conclusion, HEC's correspondence rate was calculated 19% for HECAT's PHW module in Standard 1 for 9-12 grades.

Table 43

PHW Standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	PHW4.12.1	Demonstrate effective communication skills to enhance personal health and wellness.	High incidence of overlapping	9

Table 44

Appraisal strength table of PHW module - Standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	PHW4.12.1	9	9

Table 44 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objective corresponded to one expectation of PHW module - Standard 4 for all grades. The relative correspondence score was calculated .47. In conclusion, HEC's correspondence rate was calculated 5% for HECAT's PHW module in Standard 4 for all grades.

One HEC objective corresponded to one expectation of PHW module - Standard 4 for 9-12 grades. The relative correspondence score was calculated 2.25. In conclusion, HEC's correspondence rate was calculated 23% for HECAT's PHW module in Standard 4 for 9-12 grades.

Module PA: Physical activity

Physical Activity (PA) module has 190 expectations and seven Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *engage in moderate to vigorous physical activity, enhance cardio-respiratory endurance, flexibility, muscle endurance, muscle strength, warm-up and cool-down activities, structured exercise, drinking plenty of water before, during, and after physical activity, following*

physical activity plan for healthy growth and development, avoiding injury during physical activity and supporting others to be physically active.

HECAT and HEC were compared by key words and expectations of HECAT and objectives of HEC. According to HECAT’s PA HBOs, determined HEC’s PA module related objective is listed on Table 45.

Table 45
HECAT PA module related HEC objectives

No	Code	HEC Objective	Std.
1	HL5	Explains the criteria (policies) used to determine the level of public health.	2
2	IPH2	Explains the impacts of physical activity and resting on improving the health.	1, 7
3	MEH6	Explains the ways of effective communication.	4
4	FCPAD4	Explains the significance of causes and preventions of cardiovascular diseases.	1

Standard 1

This objective of HEC corresponded to some points and rarely met with HECAT expectations. Two HEC objectives corresponded to nine of HECAT expectations out of 45 for Standard 1 (concepts). Only one of HECAT expectations out of 14 were for grades 9-12 from corresponded ones. The comparison is shown in Table 46 for Standard 1.

Table 46
PA Standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
IPH2	Explains the impacts of physical activity and resting on improving the health.	(Pre-K-2)	PA1.2.1	Identify the recommended amount of physical activity for children. (HBO 1)	Low incidence of overlapping	4
		(Pre-K-2)	PA1.2.2	Explain ways to be active every day. (HBO 1)	Middle incidence of overlapping	7
		(Pre-K-2)	PA1.2.3	Describe behaviors that is physically active and physically inactive. (HBO 1)	Low incidence of overlapping	5
		(Pre-K-2)	PA1.2.4	Describe how being physically active can help a person feel better. (HBO 1 & 2)	Low incidence of overlapping	5
		(Pre-K-2)	PA1.2.5	Describe the benefits of being physically active. (HBO 2)	Low incidence of overlapping	5
		(3-5)	PA1.5.5	Explain positive outcomes for being physically active. (HBO 1, 2, 6 & 7)	High incidence of overlapping	9
FCPAD4	Explains the significance of causes and preventions of cardiovascular diseases.	(3-5)	PA1.5.6	Identify short-term and long-term benefits of moderate and vigorous physical activity, such as improving cardiovascular health, strength, endurance, and flexibility and reducing the risks for chronic diseases. (HBO 1, 2, 6 & 7)	Low incidence of overlapping	6
		(6-8)	PA1.8.7	Explain the short-term and long-term benefits of physical activity, including improving cardiovascular health, strength, endurance, and flexibility and reducing the risks for chronic diseases. (HBO 2 & 7)	High incidence of overlapping	9
		(9-12)	PA1.12.7	Evaluate the short-term and long-term benefits of physical activity, including improving cardiovascular health, strength, endurance, and flexibility; healthy weight management; and reducing chronic diseases. (HBO 2, 5 & 7)	Low incidence of overlapping	6

Table 47

Appraisal strength table of PA module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	IPH2	(Pre-K-2)	PA1.2.1	4	-
2	IPH2	(Pre-K-2)	PA1.2.2	7	-
3	IPH2	(Pre-K-2)	PA1.2.3	5	-
4	IPH2	(Pre-K-2)	PA1.2.4	5	-
5	IPH2	(Pre-K-2)	PA1.2.5	5	-
6	IPH2	(3-5)	PA1.5.5	9	-
7	FCPAD4	(3-5)	PA1.5.6	6	-
8	FCPAD4	(6-8)	PA1.8.7	9	-
9	FCPAD4	(9-12)	PA1.12.7	6	6

Table 47 was created based on the appraisal strength criteria mentioned in chapter 3. Two HEC objectives corresponded to nine expectations of PA module - Standard 1 for all grades. The average of appraisal strength score of this section was found 6.22 ($SD = 1.79$). The relative correspondence score was calculated 1.24. In conclusion, HEC's correspondence rate was calculated 12% for HECAT's PA module in Standard 1 for all grades.

One HEC objective corresponded to one expectation of PA module - Standard 1 for 9-12 grades. The relative correspondence score was calculated .43. In conclusion, HEC's correspondence rate was calculated 4% for HECAT's PA module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to PA in Standard 2, 4 and 7.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out

of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 48 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 15 for Standard 4 (interpersonal communications). Only one of HECAT expectation out of 14 was found for grades 9-12 from corresponded ones. The comparison is shown in Table 50 for Standard 4.

One HEC objective corresponded to three HECAT expectations out of 14 for Standard 7 (self-management). There was no matching for grades 9-12. The comparison is shown in Table 52 for Standard 4.

Table 48
PA standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	PA2.12.1	Explain the influence of public health policies on physical activity practices and behaviors.	High incidence of overlapping	10
		(9-12)	PA2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology, and public health policies on personal physical activity practices and behaviors.	Middle incidence of overlapping	7

Table 49
Appraisal strength table of PA module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	PA2.12.1	10	10
2	HL5	(9-12)	PA2.12.9	7	7

Table 49 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objectives corresponded to two expectations of PA module - Standard 2 for all grades. The average of appraisal strength score of this section was found 8.50 ($SD = 2.12$). The relative correspondence score was calculated .55. In conclusion, HEC's correspondence rate was calculated 5% for HECAT's PA module in Standard 2 for all grades.

One HEC objectives corresponded to two expectations of PA module - Standard 2 for 9-12 grades. The relative correspondence score was calculated 1.70. In conclusion, HEC's correspondence rate was calculated 17% for HECAT's PA module in Standard 2 for 9-12 grades.

Table 50
PA standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	PA4.12.1	Demonstrate effective communication skills to enhance physical activity.	High incidence of overlapping	9

Table 51
Appraisal strength table of PA module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	PA4.12.1	9	9

Table 51 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to one expectation of PA module - Standard 4 for all grades. The relative correspondence score was calculated .60. In conclusion, HEC's correspondence rate was calculated 6% for HECAT's PA module in Standard 4 for all grades.

One HEC objectives corresponded to one expectation of PA module - Standard 4 for 9-12 grades. The relative correspondence score was calculated 2.25. In conclusion, HEC's correspondence rate was calculated 23% for HECAT's PA module in Standard 4 for 9-12 grades.

Table 52
PA standard 7 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
IPH2	Explains the impacts of physical activity and resting on improving the health.	(Pre-K-2)	PA7.2.1	Identify practices that reduce inactivity and unsafe physical activity.	Middle incidence of inferential overlapping	4
		(Pre-K-2)	PA7.2.2	Demonstrate healthy and safe physical activity practices and behaviors.	Middle incidence of inferential overlapping	4
		(Pre-K-2)	PA7.2.3	Make a commitment to be physically active.	Low incidence of inferential overlapping	3

Table 53
Appraisal strength table of PA module - standard 7

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	IPH2	(Pre-K-2)	PA7.2.1	4	-
2	IPH2	(Pre-K-2)	PA7.2.2	4	-
3	IPH2	(Pre-K-2)	PA7.2.3	3	-

Table 53 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to three expectations of PA module - Standard 7 for all grades. The average of appraisal strength score of this section was found 3.67 ($SD = .58$). The relative correspondence score was calculated .79. In conclusion, HEC's correspondence rate was calculated 8% for HECAT's PA module in Standard 7 for all grades.

None of HEC objectives corresponded to any expectation of PA module - Standard 7 for 9-12 grades. The relative correspondence score could not be calculated. In

conclusion, there is no relation between HEC and HECAT's PA module in Standard 7 for 9-12 grades.

Module S: Safety

Safety (S) module has 218 expectations and eight Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *riding in or on a motor vehicle under the influence of alcohol or other drugs, safety equipment, safety rules and procedures, risky behaviors, injury, safety hazards, dangerous surroundings and being safe.*

HECAT and HEC were compared by key words and expectations of HECAT and objectives of HEC. According to HECAT's S HBOs, determined HEC's S module related objective is listed on Table 54.

Table 54
HECAT PA module related HEC objectives

No	Code	HEC Objective	Std.
1	HL5	Explains the criteria (policies) used to determine the level of public health.	2
2	MEH6	Explains the ways of effective communication.	4

Standard 1

HEC objectives did not correspond to any points or rarely met with HECAT S module expectations in standard 1.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to S in Standard 2 and 4.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 55 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 19 for Standard 4 (interpersonal communications). Only one of HECAT expectation out of five was found for grades 9-12 from corresponded ones. The comparison is shown in Table 57 for Standard 4.

Table 55
S standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	S2.12.1	Explain the influence of public health policies on safety and injury prevention practices and behaviors.	High incidence of overlapping	9
		(9-12)	S2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology and public health policies, on safety and injury prevention practices and behaviors.	Low incidence of inferential overlapping	3

Table 56
Appraisal strength table of S module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	S2.12.1	9	9
2	HL5	(9-12)	S2.12.9	3	3

Table 56 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to two expectations of S module - Standard 2 for all grades. The average of appraisal strength score of this section was found 6 ($SD =$

4.24). The relative correspondence score was calculated .39. In conclusion, HEC's correspondence rate was calculated 4% for HECAT's S module in Standard 2 for all grades.

One HEC objectives corresponded to two expectations of S module - Standard 2 for 9-12 grades. The average of appraisal strength score of this section was found 6 (*SD* = 4.24). The relative correspondence score was calculated 1.20. In conclusion, HEC's correspondence rate was calculated 12% for HECAT's S module in Standard 2 for 9-12 grades.

Table 57
S standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	S4.12.1	Demonstrate effective communication skills to enhance safety and injury prevention.	Low incidence of inferential overlapping	2

Table 58
Appraisal strength table of S module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	S4.12.1	2	2

Table 58 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to one expectation of S module - Standard 4 for all grades. The relative correspondence score was calculated .11. In conclusion, HEC's correspondence rate was calculated 1% for HECAT's S module in Standard 4 for all grades.

One HEC objectives corresponded to one expectation of S module - Standard 4 for

9-12 grades. The relative correspondence score was calculated .40. In conclusion, HEC's correspondence rate was calculated 4% for HECAT's S module in Standard 4 for 9-12 grades.

Module SH: Sexual health

Sexual Health (SH) module has 203 expectations and eight Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *establish and maintain healthy relationships, sexually abstinent, engage in behaviors that prevent or reduce sexually transmitted disease (STD), HIV infection, prevent or reduce unintended pregnancy, avoid pressuring others to engage in sexual behaviors, support others to avoid or reduce sexual risk behaviors, treat others with courtesy and respect without regard to their sexuality and use appropriate health services to promote sexual health.*

HECAT and HEC were compared by their key words and expectations of HECAT and objectives of HEC. According to HECAT's SH HBOs, determined HEC's SH module related objective is listed on Table 59.

Table 59
HECAT SH module related HEC objectives

No	Code	HEC Objective	Std.
1	HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	1
2	HL5	Explains the criteria (policies) used to determine the level of public health.	2
3	GD1	Explains growth and development.	1
4	GD2	Explains the characteristics of growth and development period.	1
5	GD3	Explains the factors influencing growth and development.	1
6	IPH1	Explains the importance of the development and protection of health.	1
7	MEH6	Explains the ways of effective communication.	4
8	MEH7	Explains the importance of effective communication in the family and social environments in socializing.	4
9	FCPAD7	Explains the concepts related with infectious diseases.	1

Table 59 (cont'd)
 HECAT SH module related HEC objectives

No	Code	HEC Objective	Std.
10	FCPAD8	Lists the transmission ways of infectious diseases.	1
11	FCPAD9	Explains general features and prevention methods of diseases spread by water and food.	1
12	FCPAD10	Explains general features and prevention methods of diseases spread by air.	1
13	FCPAD11	Explains general features and prevention methods of diseases spread by contact.	1
14	FCPAD12	Explains general features and prevention methods of diseases spread by vectors.	1
15	FCPAD13	Explains general features and prevention methods of zoonotic.	1
16	FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	1

Standard 1

This objective of HEC corresponded to some points and rarely overlaps with HECAT expectations. Only 12 HEC objectives corresponded to 25 of HECAT expectations out of 97 for Standard 1 (concepts). Only seven of HECAT expectations out of 43 were for grades 9-12 from corresponded ones. The comparison is shown in Table 60 for Standard 1.

Table 60
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL2	Explains the effects of physical, environmental, socio-economic and cultural factors on health.	(3-5)	SH1.5.10	Describe the physical, social, and emotional changes that occur during puberty. (HBO 3, 4 & 8)	Low incidence of overlapping	5
		(6-8)	SH1.8.29	Identify the emotional, social, physical and financial effects of being a teen parent. (HBO 4)	Low incidence of inferential overlapping	3
GD1	Explains growth and development.	(6-8)	SH1.8.5	Explain the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Middle incidence of inferential overlapping	4
		(6-8)	SH1.8.33	Explain the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development or physical appearance. (HBO 7)	Middle incidence of inferential overlapping	4
		(9-12)	SH1.12.5	Summarize the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Low incidence of inferential overlapping	2
		(9-12)	SH1.12.39	Summarize the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development, and physical appearance. (HBO 7)	Low incidence of inferential overlapping	2
		(3-5)	SH1.5.11	Explain how puberty and development can vary greatly and still be normal. (HBO 3, 4 & 8)	Middle incidence of inferential overlapping	4

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
GD2	Explains the characteristics of growth and development period.	(6-8)	SH1.8.5	Explain the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Middle incidence of overlapping	7
		(6-8)	SH1.8.33	Explain the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development or physical appearance. (HBO 7)	Middle incidence of overlapping	7
		(9-12)	SH1.12.5	Summarize the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Low incidence of overlapping	5
		(9-12)	SH1.12.39	Summarize the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development, and physical appearance. (HBO 7)	Low incidence of overlapping	5
		(3-5)	SH1.5.11	Explain how puberty and development can vary greatly and still be normal. (HBO 3, 4 & 8)	Middle incidence of inferential overlapping	4
GD3	Explains the factors influencing growth and development.	(6-8)	SH1.8.5	Explain the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Middle incidence of overlapping	7
		(6-8)	SH1.8.33	Explain the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development or physical appearance. (HBO 7)	Middle incidence of overlapping	7
		(9-12)	SH1.12.5	Summarize the importance of talking with parents and other trusted adults about issues related to relationships, growth and development and sexual health. (HBO 1, 2, 3, 4, 7 & 8)	Low incidence of overlapping	5

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
GD3	Explains the factors influencing growth and development.	(9-12)	SH1.12.39	Summarize the benefits of respecting individual differences in aspects of sexuality (such as sexual activity, sexual abstinence, sexual orientation, gender expression, or gender identity), growth and development, and physical appearance. (HBO 7)	Low incidence of overlapping	5
		(3-5)	SH1.5.11	Explain how puberty and development can vary greatly and still be normal. (HBO 3, 4 & 8)	Middle incidence of inferential overlapping	4
IPH1	Explains the importance of the development and protection of health.	(6-8)	SH1.8.9	Describe why sexual abstinence is the safest, most effective risk avoidance method of protection from HIV, other STDs, and pregnancy. (HBO 2)	Low incidence of inferential overlapping	2
		(9-12)	SH1.12.7	Justify why abstinence from sex and drugs are the safest, most effective risk avoidance methods of protection from HIV, other STDs, and pregnancy. (HBO 2)	Low incidence of inferential overlapping	1
FCPAD7	Explains the concepts related with infectious diseases.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Low incidence of inferential overlapping	1
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	Low incidence of inferential overlapping	2
		(3-5)	SH1.5.7	Explain that HIV is not easily transmitted like other common infectious diseases. (HBO 3)	Middle incidence of inferential overlapping	4
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Low incidence of inferential overlapping	2
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of inferential overlapping	1

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD8	Lists the transmission ways of infectious diseases.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.7	Explain that HIV is not easily transmitted like other common infectious diseases. (HBO 3)	Low incidence of overlapping	6
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Low incidence of overlapping	6
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of overlapping	6
FCPAD9	Explains general features and prevention methods of diseases spread by water and food.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	High incidence of overlapping	8
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of overlapping	6
FCPAD10	Explains general features and prevention methods of diseases spread by air.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	High incidence of overlapping	8
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of overlapping	6

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD11	Explains general features and prevention methods of diseases spread by contact.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	High incidence of overlapping	8
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of overlapping	6
FCPAD12	Explains general features and prevention methods of diseases spread by vectors.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	High incidence of overlapping	8
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Middle incidence of overlapping	7
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low incidence of overlapping	6
FCPAD13	Explains general features and prevention methods of zoonotic.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Middle incidence of overlapping (ioo)	7
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	High ioo	8
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause infectious diseases. (HBO 3)	Middle ioo	7
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low ioo	6

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	(Pre-K-2)	SH1.2.4	Identify ways to prevent the spread of germs that cause common infectious diseases. (HBO 3)	Low ioo	6
		(3-5)	SH1.5.6	Describe ways that common infectious diseases are transmitted. (HBO 3)	Middle ioo	7
		(3-5)	SH1.5.7	Explain that HIV is not easily transmitted like other common infectious diseases. (HBO 3)	Middle ioo	7
		(3-5)	SH1.5.8	Describe ways to prevent the spread of germs that cause-infectious diseases. (HBO 3)	Middle ioo	7
		(6-8)	SH1.8.10	Describe the factors that contribute to engaging in sexual risk behaviors. (HBO 2, 3 & 4)	Low ioo	5
		(6-8)	SH1.8.11	Describe the factors that protect against engaging in sexual risk behaviors. (HBO 2, 3 & 4)	Low ioo	5
		(6-8)	SH1.8.12	Explain the importance of setting personal limits to avoid sexual risk behaviors. (HBO 2, 3, 4, 5, 6 & 7)	High ioo	6
		(6-8)	SH1.8.15	Analyze ways common infectious diseases are transmitted. (HBO 3)	Low ioo	6
		(6-8)	SH1.8.16	Explain how the most common STDs are transmitted. (HBO 3)	High ioo	9
		(6-8)	SH1.8.17	Explain how HIV is transmitted. (HBO 3)	Middle ioo	7
		(6-8)	SH1.8.25	Describe how the effectiveness of condoms can reduce the risk of HIV, and other STDs including HPV (Human Papillomavirus). (HBO 3)	Low ioo	5
		(6-8)	SH1.8.26	Describe ways sexually active people can reduce the risk of HIV, and other STDs including HPV (Human Papillomavirus). (HBO 3)	Low ioo	5
		(9-12)	SH1.12.10	Summarize ways to prevent pregnancy and the sexual transmission of HIV and other common STDs. (HBO 2, 3 & 4)	Low ioo	5

Table 60 (cont'd)
SH standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	(9-12)	SH1.12.12	Describe the importance of shared responsibilities for avoiding sexual activity and preventing sexual risk behaviors. (HBO 2, 3, 4, 5 & 6)	Low ioo	5
		(9-12)	SH1.12.15	Summarize how common STDs are transmitted. (HBO 3)	Middle ioo	7
		(9-12)	SH1.12.16	Summarize how HIV is transmitted. (HBO 3)	Low ioo	5

Table 61

Appraisal strength table of SH module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL2	(3-5)	SH1.5.10	5	-
2	HL2	(6-8)	SH1.8.29	3	-
3	GD1	(6-8)	SH1.8.5	4	-
4	GD1	(6-8)	SH1.8.33	4	-
5	GD1	(9-12)	SH1.12.5	2	2
6	GD1	(9-12)	SH1.12.39	2	2
7	GD1	(3-5)	SH1.5.11	4	-
8	GD2	(6-8)	SH1.8.5	7	-
9	GD2	(6-8)	SH1.8.33	7	-
10	GD2	(9-12)	SH1.12.5	5	5
11	GD2	(9-12)	SH1.12.39	5	5
12	GD2	(3-5)	SH1.5.11	4	-
13	GD3	(6-8)	SH1.8.5	7	-
14	GD3	(6-8)	SH1.8.33	7	-
15	GD3	(9-12)	SH1.12.5	5	5
16	GD3	(9-12)	SH1.12.39	5	5
17	GD3	(3-5)	SH1.5.11	4	-
18	IPH1	(6-8)	SH1.8.9	2	-
19	IPH1	(9-12)	SH1.12.7	1	1
20	FCPAD7	(Pre-K-2)	SH1.2.4	1	-
21	FCPAD7	(3-5)	SH1.5.6	2	-
22	FCPAD7	(3-5)	SH1.5.7	4	-
23	FCPAD7	(3-5)	SH1.5.8	2	-
24	FCPAD7	(6-8)	SH1.8.15	1	-
25	FCPAD8	(Pre-K-2)	SH1.2.4	7	-
26	FCPAD8	(3-5)	SH1.5.6	7	-
27	FCPAD8	(3-5)	SH1.5.7	6	-
28	FCPAD8	(3-5)	SH1.5.8	6	-
29	FCPAD8	(6-8)	SH1.8.15	6	-
30	FCPAD9	(Pre-K-2)	SH1.2.4	7	-
31	FCPAD9	(3-5)	SH1.5.6	8	-
32	FCPAD9	(3-5)	SH1.5.8	7	-
33	FCPAD9	(6-8)	SH1.8.15	6	-
34	FCPAD10	(Pre-K-2)	SH1.2.4	7	-
35	FCPAD10	(3-5)	SH1.5.6	8	-
36	FCPAD10	(3-5)	SH1.5.8	7	-
37	FCPAD10	(6-8)	SH1.8.15	6	-
38	FCPAD11	(Pre-K-2)	SH1.2.4	7	-
39	FCPAD11	(3-5)	SH1.5.6	8	-
40	FCPAD11	(3-5)	SH1.5.8	7	-
41	FCPAD11	(6-8)	SH1.8.15	6	-
42	FCPAD12	(Pre-K-2)	SH1.2.4	7	-
43	FCPAD12	(3-5)	SH1.5.6	8	-
44	FCPAD12	(3-5)	SH1.5.8	7	-
45	FCPAD12	(6-8)	SH1.8.15	6	-
46	FCPAD13	(Pre-K-2)	SH1.2.4	7	-
47	FCPAD13	(3-5)	SH1.5.6	8	-
48	FCPAD13	(3-5)	SH1.5.8	7	-
49	FCPAD13	(6-8)	SH1.8.15	6	-
50	FCPAD14	(Pre-K-2)	SH1.2.4	6	-
51	FCPAD14	(3-5)	SH1.5.6	7	-
52	FCPAD14	(3-5)	SH1.5.7	7	-
53	FCPAD14	(3-5)	SH1.5.8	7	-
54	FCPAD14	(6-8)	SH1.8.10	5	-
55	FCPAD14	(6-8)	SH1.8.11	5	-
56	FCPAD14	(6-8)	SH1.8.12	6	-

Table 61 (cont'd)

Appraisal strength table of SH module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
57	FCPAD14	(6-8)	SH1.8.15	6	-
58	FCPAD14	(6-8)	SH1.8.16	9	-
59	FCPAD14	(6-8)	SH1.8.17	7	-
60	FCPAD14	(6-8)	SH1.8.25	5	-
61	FCPAD14	(6-8)	SH1.8.26	5	-
62	FCPAD14	(9-12)	SH1.12.10	5	5
63	FCPAD14	(9-12)	SH1.12.12	5	5
64	FCPAD14	(9-12)	SH1.12.15	7	7
65	FCPAD14	(9-12)	SH1.12.16	5	5

Table 61 was created based on the appraisal strength criteria mentioned in chapter 3.

Twelve HEC objectives corresponded to 25 SH module's Standard 1 expectations for all grades. The average of appraisal strength score of this section was found 5.57 ($SD = 1.93$). The relative correspondence score was calculated 3.73. In conclusion, HEC's correspondence rate was calculated 37% for HECAT's SH module in Standard 1 for all grades.

Five HEC objectives corresponded to seven SH module's Standard 1 expectations for 9-12 grades. The average of appraisal strength score of this section was found 4.27 ($SD = 1.79$). The relative correspondence score was calculated 1.09. In conclusion, HEC's correspondence rate was calculated 11% for HECAT's SH module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to SH in Standard 2 and 4.

One HEC objective corresponded to two HECAT expectations out of 31 for Standard 2 (analyzing internal and external influences). Only two of HECAT expectations out

of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 62 for Standard 2.

One HEC objective corresponded to one HECAT expectation out of 19 for Standard 4 (interpersonal communications). Only one of HECAT expectation out of five was found for grades 9-12 from corresponded ones. The comparison is shown in Table 64 for Standard 4.

Table 62
SH standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	SH2.12.1	Explain the influence of public health policies and state laws on sexual health practices, behaviors, and relationships.	High incidence of overlapping	9
		(9-12)	SH2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology and public health policies, on sexual health practices and behaviors.	High incidence of overlapping	9

Table 63
Appraisal strength table of SH module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	SH2.12.1	9	9
2	HL5	(9-12)	SH2.12.9	9	9

Table 63 was created based on the appraisal strength criteria mentioned in chapter 3.

One HEC objectives corresponded to two expectations of SH module - Standard 2 for all grades. The average of appraisal strength score of this section was found 9.

The relative correspondence score was calculated .86. In conclusion, HEC's

correspondence rate was calculated 9% for HECAT's SH module in Standard 2 for all grades.

One HEC objectives corresponded to two expectations of SH module - Standard 2 for 9-12 grades. The average of appraisal strength score of this section was found 9. The relative correspondence score was calculated 1.80. In conclusion, HEC's correspondence rate was calculated 18% for HECAT's SH module in Standard 2 for 9-12 grades.

Table 64
SH standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	SH4.12.1	Demonstrate effective communication skills to promote sexual health and healthy relationships.	Middle incidence of overlapping	7
		(9-12)	SH4.12.4	Demonstrate effective communication strategies to prevent, manage, or resolve interpersonal conflicts.	Middle incidence of overlapping	7
MEH7	Explains the importance of effective communication in the family and social environments in socializing.	(9-12)	SH4.12.1	Demonstrate effective communication skills to promote sexual health and healthy relationships.	Low incidence of overlapping	5
		(9-12)	SH4.12.4	Demonstrate effective communication strategies to prevent, manage, or resolve interpersonal conflicts.	Low incidence of overlapping	5

Table 65

Appraisal strength table of SH module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	SH4.12.1	7	7
2	MEH6	(9-12)	SH4.12.4	7	7
3	MEH7	(9-12)	SH4.12.1	5	5
4	MEH7	(9-12)	SH4.12.4	5	5

Table 65 was created based on the appraisal strength criteria mentioned in chapter 3. Two HEC objectives corresponded to two expectation of SH module - Standard 4 for all grades. The average of appraisal strength score of this section was found 6 (SD = 1.15). The relative correspondence score was calculated .67. In conclusion, HEC's correspondence rate was calculated 7% for HECAT's SH module in Standard 4 for all grades.

Two HEC objectives corresponded to two expectation of SH module - Standard 4 for 9-12 grades. The average of appraisal strength score of this section was found 6 (SD = 1.15). The relative correspondence score was calculated 2.0. In conclusion, HEC's correspondence rate was calculated 20% for HECAT's SH module in Standard 4 for 9-12 grades.

Module T: Tobacco

Tobacco (T) Module has 159 expectations and five Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *avoid using (or experimenting with) any form of tobacco, avoid second-hand smoke, support a tobacco-free environment, support others to be tobacco-free and quit using tobacco if already using.*

HECAT and HEC were compared by their key words and expectations of HECAT

and objectives of HEC. According to HECAT's T HBOs, determined HEC's T module related objectives are listed on Table 66.

Table 66
HECAT T module related HEC objectives

No	Code	HEC objectives	Std.
1	HHH1	Explains addiction, deprivation and tolerance.	1
2	HHH2	Explains the factors that lead to start of addictive substances.	1
3	HHH3	Explains the effects of the use- of addictive substances on family and country economy.	1
4	HHH4	Explains the effects of tobacco and tobacco products on human health.	1
5	HHH8	Explains the ways to develop affirmative attitude in order to avoid the use- of harmful and addictive substances.	1
6	HHH9	Explains the treatment of addicted people.	1

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT out of 40 for Standard 1 (concepts). Only seven of HECAT expectations out of 13 are for grades 9-12 from corresponded ones. The comparison is shown in Table 67 for Standard 1.

Table 67
T standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HHH1	Explains addiction, deprivation and tolerance.	(3-5)	T1.5.7	Explain that tobacco use is an addiction that can be treated. (HBO 1 & 4)	Middle incidence of overlapping	7
		(6-8)	T1.8.9	Summarize that tobacco use is an addiction that can be treated. (HBO 1 & 4)	Low incidence of overlapping	5
		(6-8)	T1.8.12	Summarize how addiction to tobacco use can be treated. (HBO 4 & 5)	Low incidence of overlapping	5
		(9-12)	T1.12.12	Analyze how the addiction to tobacco use can be treated. (HBO 4 & 5)	Low incidence of overlapping	4
HHH2	Explains the factors that lead to start of addictive substances.	(6-8)	T 1.8.3	Describe situations that could lead to the use of tobacco. (HBO 1)	Middle incidence of overlapping	7
		(6-8)	T 1.8.4	Describe the relationship between using tobacco and alcohol or other drugs. (HBO 1)	Middle incidence of inferential overlapping	4
HHH3	Explains the effects of the use of addictive substances on family and country economy.	(Pre-K-2)	T 1.2.5	Identify family rules about avoiding tobacco use. (HBO 1 & 2)	Low incidence of inferential overlapping	1
		(3-5)	T1.5.4	Describe family rules about avoiding tobacco use. (HBO 1 & 2)	Low incidence of inferential overlapping	2
		(3-5)	T 1.5.8	Describe how to support family and friends who are trying to stop using tobacco. (HBO 4)	Low incidence of inferential overlapping	2
		(6-8)	T 1.8.6	Describe the social, economic, and cosmetic consequences of tobacco use. (HBO 1 & 2)	Middle incidence of overlapping	7
		(9-12)	T1.12.9	Evaluate the financial costs of tobacco use to the individual and society. (HBO 1 & 3)	Middle incidence of overlapping	7

Table 67 (cont'd)
T standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HHH4	Explains the effects of tobacco and tobacco products on human health.	(Pre-K-2)	T1.2.2	Identify short-term effects of using tobacco. (HBO 1)	Low incidence of overlapping	6
		(Pre-K-2)	T 1.2.3	Describe the benefits of not using tobacco. (HBO 1)	Middle incidence of inferential overlapping	4
		(Pre-K-2)	T 1.2.6	Identify the short and long-term physical effects of being exposed to tobacco smoke. (HBO 2)	Low incidence of inferential overlapping	3
		(3-5)	T1.5.1	Identify short and long-term physical effects of using tobacco. (HBO 1)	Low incidence of overlapping	6
		(3-5)	T1.5.5	Explain the short and long-term physical effects of being exposed to others' tobacco use. (HBO 2)	Middle incidence of overlapping	7
		(6-8)	T1.8.1	Describe short and long-term physical effects of using tobacco. (HBO 1)	Middle incidence of inferential overlapping	4
		(9-12)	T1.12.2	Analyze short and long- term physical effects of tobacco use. (HBO 1)	Low incidence of overlapping	4
		(9-12)	T1.12.3	Analyze short and long- term psychological and social effects of tobacco use. (HBO 1)	Low incidence of overlapping	4
HHH8	Explains the ways to develop affirmative attitude in order to avoid the use of harmful and addictive substances.	(6-8)	T 1.8.5	Summarize the benefits of being tobacco-free. (HBO 1)	Middle incidence of inferential overlapping	4
		(6-8)	T1.8.11	Describe ways to support family and friends who are trying to stop using tobacco. (HBO 3 & 4)	Middle incidence of inferential overlapping	4
		(9-12)	T1.12.11	Distinguish appropriate ways to support family and friends who are trying to stop using tobacco. (HBO 3 & 4)	Low incidence of inferential overlapping	3

Table 67 (cont'd)
T standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HHH9	Explains the treatment of addicted people.	(3-5)	T 1.5.7	Explain that tobacco use is an addiction that can be treated. (HBO 1 & 4)	High incidence of overlapping	9
		(6-8)	T1.8.9	Summarize that tobacco use is an addiction that can be treated. (HBO 1 & 4)	Middle incidence of overlapping	7
		(6-8)	T 1.8.12	Summarize how addiction to tobacco use can be treated. (HBO 4 & 5)	Middle incidence of overlapping	8
		(6-8)	T1.8.13	Summarize how smoking cessation programs can be successful. (HBO 4 & 5)	Low incidence of overlapping	5
		(9-12)	T1.12.12	Analyze how the addiction to tobacco use can be treated. (HBO 4 & 5)	Low incidence of overlapping	6
		(9-12)	T1.12.13	Analyze how smoking cessation programs can be successful. (HBO 4 & 5)	Low incidence of overlapping	4

Table 68

Appraisal strength table of T module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HHH1	(3-5)	T1.5.7	7	-
2	HHH1	(6-8)	T1.8.9	5	-
3	HHH1	(6-8)	T1.8.12	5	-
4	HHH1	(9-12)	T1.12.12	4	4
5	HHH2	(6-8)	T 1.8.3	7	-
6	HHH2	(6-8)	T 1.8.4	4	-
7	HHH3	(Pre-K-2)	T 1.2.5	1	-
8	HHH3	(3-5)	T1.5.4	2	-
9	HHH3	(3-5)	T 1.5.8	2	-
10	HHH3	(6-8)	T 1.8.6	7	-
11	HHH3	(9-12)	T1.12.9	7	7
12	HHH4	(Pre-K-2)	T1.2.2	6	-
13	HHH4	(Pre-K-2)	T 1.2.3	4	-
14	HHH4	(Pre-K-2)	T 1.2.6	3	-
15	HHH4	(3-5)	T1.5.1	6	-
16	HHH4	(3-5)	T1.5.5	7	-
17	HHH4	(6-8)	T1.8.1	4	-
18	HHH4	(9-12)	T1.12.2	4	4
19	HHH4	(9-12)	T1.12.3	4	4
20	HHH8	(6-8)	T 1.8.5	4	-
21	HHH8	(6-8)	T1.8.11	4	-
22	HHH8	(9-12)	T1.12.11	3	3
23	HHH9	(3-5)	T 1.5.7	9	-
24	HHH9	(6-8)	T1.8.9	7	-
25	HHH9	(6-8)	T 1.8.12	8	-
26	HHH9	(6-8)	T1.8.13	5	-
27	HHH9	(9-12)	T1.12.12	6	6
28	HHH9	(9-12)	T1.12.13	4	4

Table 68 was created based on the appraisal strength criteria mentioned in chapter 3.

Six HEC objectives corresponded to 28 of T module's Standard 1 expectations for all grades. The average of appraisal strength score of this section was found 4.96 ($SD = 1.95$). The relative correspondence score was calculated 3.48. In conclusion, HEC's correspondence rate was calculated 35% for HECAT's T module in Standard 1 for all grades.

Four of HEC objectives corresponded to seven of T module's Standard 1 expectations for 9-12 grades. The average of appraisal strength score of this section was found 4.57 ($SD = 1.40$). The relative correspondence score was calculated 2.46.

In conclusion, HEC's correspondence rate was calculated 25% for HECAT's T module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT did not correspond to HEC with regards to these standards for T module.

Module V: Violence

Violence (V) Module has 235 expectations and 10 Health Behavior Outcomes (HBOs). Key words of this module's HBOs are: *manage interpersonal conflict in nonviolent ways, manage emotional distress in nonviolent ways, avoid bullying, being a bystander to bullying, being a victim of bullying, avoid engaging in violence, sexual harassment, coercion, exploitation, physical fighting, rape, avoid situations where violence is likely to occur, avoid associating with others who are involved in or who encourage violence or criminal activity, get help to prevent or stop violence including harassment, abuse, bullying, hazing, fighting, hate crimes, get help to prevent or stop inappropriate touching, get help to stop being subjected to violence or physical abuse and get help for oneself or others who are in danger of hurting themselves.*

HECAT and HEC were compared by their key words and expectations of HECAT and objectives of HEC. According to HECAT's HBOs, determined HEC's V module related objectives are listed on Table 69.

Table 69
HECAT V module related HEC objectives

No	Code	HEC objectives	Std.
1	HL3	Explains the utilization ways of the health services by classifying them.	3
2	HL5	Explains the criteria (policies) used to determine the level of public health.	2
3	MEH4	Explains the factors causing stress and their effects on health.	1
4	MEH5	Explains the ways to cope with stress.	1
5	MEH6	Explains the ways of effective communication.	1,4
6	MEH7	Explains the importance of effective communication in the family and social environments in socializing.	1
7	MEH8	Explains the effects of violence and abuse- on the individual's social and emotional development.	1

Standard 1

These HEC objectives corresponded to some points and rarely met with HECAT expectations. Four of HEC objectives corresponded to six of HECAT expectations out of 89 for Standard 1 (concepts). Only three of HECAT expectations out of 30 are for grades 9-12 from corresponded ones. The comparison is shown in Table 70 for Standard 1.

Table 70
V standard 1 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH4	Explains the factors causing stress and their effects on health.	(6-8)	V1.8.4	Analyze the risks of using violence as an impulsive behavior or response to stress or conflict. (HBO 1 & 2)	Low incidence of overlapping	4
		(6-8)	V1.8.7	Identify a variety of non-violent ways to respond to stress when angry or upset. (HBO 2)	Low incidence of overlapping	4
		(9-12)	V1.12.3	Summarize non-violent ways to respond to stress when angry or upset. (HBO 2)	Low incidence of overlapping	5
MEH5	Explains the ways to cope with stress.	(9-12)	V1.12.3	Summarize non-violent ways to respond to stress when angry or upset. (HBO 2)	Middle incidence of overlapping	7
MEH6	Explains the ways of effective communication.	(6-8)	V1.8.1	Describe ways to manage interpersonal conflict nonviolently. (HBO 1)	Middle incidence of inferential overlapping	4
		(9-12)	V1.12.2	Describe ways to express anger non-violently. (HBO 1 & 2)	Middle incidence of inferential overlapping	4
MEH7	Explains the importance of effective communication in the family and social environments in socializing.	(9-12)	V1.12.6	Evaluate effective non-violent strategies for dealing with difficult relationships with family members, peers, and boyfriends or girlfriends. (HBO 2)	Middle incidence of inferential overlapping	4
MEH8	Explains the effects of violence and abuse on the individual's social and emotional development.	(Pre-K-2)	V1.2.2	Explain why it is wrong to tease or bully others. (HBO 3)	High incidence of inferential overlapping	6
		(3-5)	V1.5.8	Describe examples of pro-social behaviors that help prevent violence. (HBO 3 & 4)	Low incidence of inferential overlapping	2
		(6-8)	V1.8.12	Describe the similarities and differences between violent behaviors (e.g., bullying, hazing, fighting, dating violence, sexual assault, family violence, verbal abuse, acquaintance rape). (HBO 3 & 4)	Low incidence of overlapping	5

Table 71

Appraisal strength table of V module - standard 1

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH4	(6-8)	V1.8.4	4	-
2	MEH4	(6-8)	V1.8.7	4	-
3	MEH4	(9-12)	V1.12.3	5	5
4	MEH5	(9-12)	V1.12.3	7	7
5	MEH6	(6-8)	V1.8.1	4	-
6	MEH6	(9-12)	V1.12.2	4	4
7	MEH7	(9-12)	V1.12.6	4	4
8	MEH8	(Pre-K-2)	V1.2.2	6	-
9	MEH8	(3-5)	V1.5.8	2	-
10	MEH8	(6-8)	V1.8.12	5	-

Table 71 was created based on the appraisal strength criteria mentioned in chapter 3.

Five HEC objectives corresponded to nine of V module's Standard 1 expectations for all grades. The average of appraisal strength score of this section was found 4.50 ($SD = 1.35$). The relative correspondence score was calculated .46. In conclusion, HEC's correspondence rate was calculated 5% for HECAT's V module in Standard 1 for all grades.

Four of HEC objectives corresponded to three of V module's Standard 1 expectations for 9-12 grades. The average of appraisal strength score of this section was found 5 ($SD = 1.41$). The relative correspondence score was calculated .67. In conclusion, HEC's correspondence rate was calculated 7% for HECAT's V module in Standard 1 for 9-12 grades.

Standard 2 - 8

From Standard 2 to Standard 8 are called skill expectations. HECAT only corresponded to V in Standard 2, 3 and 4.

One HEC objective corresponded to one HECAT expectations out of 31 for Standard

2 (analyzing internal and external influences). Only one of HECAT expectations out of 10 were found for grades 9-12 from corresponded ones. The comparison is shown in Table 72 for Standard 2.

One HEC objective corresponded to one HECAT expectations out of 20 for Standard 3 (accessing information). There was no matching for grades 9-12. The comparison is shown in Table 74 for Standard 3.

One HEC objective corresponded to two HECAT expectations out of 22 for Standard 4 (interpersonal communications). Only two of HECAT expectation out of five was found for grades 9-12 from corresponded ones. The comparison is shown in Table 76 for Standard 4.

Table 72
V standard 2 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL5	Explains the criteria (policies) used to determine the level of public health.	(9-12)	V2.12.9	Differentiate the relevant influences, including family, culture, peers, school, community, media, technology and public health policies, on violence prevention practices and behaviors.	Low incidence of overlapping	6

Table 73
Appraisal strength table of V module - standard 2

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL5	(9-12)	V2.12.9	6	6

Table 73 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to one expectation of V module – Standard 2 for

all grades. The relative correspondence score was calculated .19. In conclusion, HEC’s correspondence rate was calculated 2% for HECAT’s V module in Standard 2 for all grades.

One HEC objectives corresponded to one expectation of V module - Standard 2 for 9-12 grades. The relative correspondence score was calculated .60. In conclusion, HEC’s correspondence rate was calculated 6% for HECAT’s V module in Standard 2 for 9-12 grades.

Table 74
V standard 3 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
HL3	Explains the utilization ways of the health services by classifying them	(3-5)	V3.5.2	Describe characteristics of appropriate and trustworthy health services that help reduce or avoid violence.	Middle incidence of inferential overlapping	5

Table 75
Appraisal strength table of V Module - standard 3

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	HL3	(3-5)	V3.5.2	5	-

Table 75 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to one expectation of V module – Standard 3 for all grades. The relative correspondence score was calculated .19. In conclusion, HEC’s correspondence rate was calculated 2% for HECAT’s V module in Standard 3 for all grades.

None of HEC objectives corresponded to any V module’s Standard 3 expectation for 9-12 grades. The relative correspondence score could not be calculated. In

conclusion, there is no relation between HEC and HECAT's V module in Standard 3 for 9-12 grades.

Table 76
V standard 4 comparison

HEC CODE	OBJECTIVE	GRADES	HECAT CODE	EXPECTATION	COMMENTS	SCORE
MEH6	Explains the ways of effective communication.	(9-12)	V4.12.1	Demonstrate effective communication skills to prevent violence.	Middle incidence of overlapping	8
		(9-12)	V4.12.3	Demonstrate effective communication strategies to prevent, manage, or resolve interpersonal conflict to prevent violence.	Middle incidence of overlapping	8

Table 77
Appraisal strength table of V module - standard 4

No	HEC CODE	GRADES	HECAT CODE	SCORE	9-12 SCORE
1	MEH6	(9-12)	V4.12.1	8	8
2	MEH6	(9-12)	V4.12.3	8	8

Table 77 was created based on the appraisal strength criteria mentioned in chapter 3. One HEC objectives corresponded to two of V module's Standard 4 expectations for all grades. The average of appraisal strength score of this section was found 8 ($SD = 0$). The relative correspondence score was calculated .73. In conclusion, HEC's correspondence rate was calculated 8% for HECAT's V module in Standard 4 for all grades.

One HEC objectives corresponded to two of V module's Standard 4 expectations for 9-12 grades. The average of appraisal strength score of this section was found 8 ($SD = 0$). The relative correspondence score was calculated 3.20. In conclusion, HEC's correspondence rate was calculated 32% for HECAT's V module in Standard V for 9-12 grades.

HECAT vs. HEC: Standards based comparison

The National Health Education Standards (NHES) which are from one to eight were developed to maintain promotion of health behaviors for students from all grade levels what they should know and be able to do by four sequential grades K-2, 3-5, 6-8, and 9-12 nationwide in United States. The NHES provide a framework for health educators and other shareholders (administrators or policy makers) to create, adapt or select curricula, prepare instructional materials, and assess learners' achievement and progress since 1995. This analysis also focused on standardization of health outcomes for Turkey. This part of the chapter goes around of NHES. The Table 78 shows corresponded HEC objectives to HECAT modules by standards.

Table 78

Corresponded HEC objectives to HECAT modules by standards

HEC\HECAT	AOD	HE	MEH	PHW	PA	S	SH	T	V
HL1	-	-	-	1	-	-	-	-	-
HL2	1	-	1	1	-	-	1	-	-
HL3	-	-	3, 8	-	-	-	-	-	3
<u>HL4</u>	-	-	-	-	-	-	-	-	-
HL5	2	2	2	2	2	2	2	-	2
<u>HL6</u>	-	-	-	-	-	-	-	-	-
GD1	-	1	1	-	-	-	1	-	-
GD2	-	1	1	1	-	-	1	-	-
GD3	-	1	1	1	-	-	1	-	-
IPH1	-	-	-	-	-	-	1	-	-
IPH2	-	1	-	1	1, 7	-	-	-	-
IPH3	-	1	-	-	-	-	-	-	-
IPH4	-	1	-	-	-	-	-	-	-
IPH5	-	-	-	1	-	-	-	-	-
<u>IPH6</u>	-	-	-	-	-	-	-	-	-
IPH7	-	-	-	1	-	-	-	-	-
IPH8	-	-	-	1	-	-	-	-	-
MEH1	-	-	1	-	-	-	-	-	-
MEH2	-	-	1	-	-	-	-	-	-
MEH3	-	-	1	-	-	-	-	-	-
MEH4	1	-	1, 5	-	-	-	-	-	1
MEH5	1	-	1	-	-	-	-	-	1
MEH6	4	4	4	4	4	4	4	-	1, 4
MEH7	-	-	1	-	-	-	4	-	1
MEH8	-	-	1	-	-	-	-	-	1
HHH1	-	-	-	-	-	-	-	1	-
HHH2	1	-	-	-	-	-	-	1	-
HHH3	-	-	-	-	-	-	-	1	-
HHH4	-	-	-	-	-	-	-	1	-

Table 78 (cont'd)

Corresponded HEC objectives to HECAT modules by standards

HEC\HECAT	AOD	HE	MEH	PHW	PA	S	SH	T	V
HHH5	1	-	-	-	-	-	-	-	-
HHH6	1	-	-	-	-	-	-	-	-
HHH7	1	-	-	-	-	-	-	-	-
HHH8	1	-	-	-	-	-	-	1	-
HHH9	3	-	-	-	-	-	-	1	-
FL&MIH1	-	-	-	-	-	-	-	-	-
FL&MIH2	-	-	-	-	-	-	-	-	-
FL&MIH3	-	-	-	-	-	-	-	-	-
FL&MIH4	-	-	-	-	-	-	-	-	-
FL&MIH5	-	-	-	-	-	-	-	-	-
FL&MIH6	-	-	-	-	-	-	-	-	-
FL&MIH7	1	-	-	-	-	-	-	-	-
FL&MIH8	-	-	-	-	-	-	-	-	-
FL&MIH9	-	-	-	-	-	-	-	-	-
FL&MIH10	-	-	-	-	-	-	-	-	-
FL&MIH11	-	-	-	-	-	-	-	-	-
FCPAD1	-	-	-	-	-	-	-	-	-
FCPAD2	-	-	-	1	-	-	-	-	-
FCPAD3	-	1	-	1	-	-	-	-	-
FCPAD4	-	-	-	-	1	-	-	-	-
FCPAD5	-	-	-	-	-	-	-	-	-
FCPAD6	-	-	-	1	-	-	-	-	-
FCPAD7	-	-	-	1	-	-	1	-	-
FCPAD8	-	-	-	1	-	-	1	-	-
FCPAD9	-	-	-	1	-	-	1	-	-
FCPAD10	-	-	-	1	-	-	1	-	-
FCPAD11	-	-	-	1	-	-	1	-	-
FCPAD12	-	-	-	1	-	-	1	-	-
FCPAD13	-	-	-	1	-	-	1	-	-
FCPAD14	-	-	-	1	-	-	1	-	-
FCPAD15	1	-	-	-	-	-	-	-	-
FCPAD16	-	-	-	-	-	-	-	-	-
FCPAD17	-	-	-	-	-	-	-	-	-

HEC has 62 objectives in total and overlap with NHES in some points. HL5 in standard 2 and MEH6 in standard 4 (check Appendix B for objectives) were the most corresponding objectives. Seventeen objectives did not correspond to any standards. Overall, most of the objectives overlapped in standard 1 of all modules. Standard based analyses were given in the following sections.

Standard 1

“Students will comprehend concepts related to health promotion and disease prevention to enhance health” (Knowledge expectations - Concepts).

Standard one calls for students to comprehend concepts related to health promotion and disease prevention. Table 79 displays scoring results for each sub skill in relation to each content module.

Table 79
Appraisal strength table of all modules for standard 1

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S1	All	50	22	2.62	26
AOD S1	9-12	22	7	2.00	20
HE S1	All	67	16	1.13	11
<u>HE S1</u>	<u>9-12</u>	<u>20</u>	<u>10</u>	<u>2.90</u>	<u>29</u>
MEH S1	All	93	21	1.08	11
MEH S1	9-12	26	6	1.10	11
PHW S1	All	60	40	3.10	31
<u>PHW S1</u>	<u>9-12</u>	<u>13</u>	<u>8</u>	<u>2.74</u>	<u>27</u>
PA S1	All	45	9	1.24	12
PA S1	9-12	14	1	.43	4
S S1	All	68	-	-	-
S S1	9-12	19	-	-	-
SH S1	All	97	65	3.73	37
SH S1	9-12	43	11	1.09	11
T S1	All	40	28	3.48	35
<u>T S1</u>	<u>9-12</u>	<u>13</u>	<u>7</u>	<u>2.46</u>	<u>25</u>
V S1	All	89	9	.46	5
V S1	9-12	30	4	.67	7

*Expectation

For all grades, maximum overlap was found at Sexual Health (SH) module (37%).

Second was Tobacco (T) module (35%). Third one was Personal Health and

Wellness (PHW) module (31%). For grades 9-12, maximum overlap was found at

Healthy Eating (HE) module (29%). Second was Personal Health and Wellness

(PHW) module (27%). Third one was Tobacco (T) module (25%). Whereas, there

was no overlap on Safety (S) module neither for all grades nor for 9-12 grades. The

average score for overlapping ones is nearly 21% for all grades; 17% for grades 9-

12.

Standard 2

“Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors” (Analyzing internal and external influences)

Standard two calls for students to analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors. Table 80 displays scoring results for each sub skill in relation to each content module.

Table 80
Appraisal strength table of all modules for standard 2

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S2	All	28	2	.18	2
AOD S2	9-12	10	2	.50	5
HE S2	All	31	2	.42	4
HE S2	9-12	10	2	1.30	13
MEH S2	All	31	2	.45	5
MEH S2	9-12	10	2	1.40	14
PHW S2	All	31	2	.61	6
<u>PHW S2</u>	<u>9-12</u>	<u>10</u>	<u>2</u>	<u>1.90</u>	<u>19</u>
PA S2	All	31	2	.55	5
<u>PA S2</u>	<u>9-12</u>	<u>10</u>	<u>2</u>	<u>1.70</u>	<u>17</u>
S S2	All	31	2	.39	4
S S2	9-12	10	2	1.20	12
SH S2	All	21	2	.86	9
<u>SH S2</u>	<u>9-12</u>	<u>10</u>	<u>2</u>	<u>1.80</u>	<u>18</u>
T S2	All	26	-	-	-
T S2	9-12	10	-	-	-
V S2	All	31	1	0,19	2
V S2	9-12	10	1	0,60	6

*Expectation

For all grades, maximum overlap was found at Sexual Health (SH) module (9%).

Second was Personal Health and Wellness (PHW) module (6%). Third one was

Mental and Emotional Health (MEH) module (5%). For grades 9-12, maximum

overlap was found at Personal Health and Wellness (PHW) module (19%). Second

was Sexual Health (SH) module (18%). Third one was Physical Activity (PA)

module (17%). Whereas, there was no overlap on Tobacco (T) module neither for all

grades nor for 9-12 grades. The average score for overlapping ones is nearly 5% for all grades; 13% for grades 9-12.

Standard 3

“Students will demonstrate the ability to access valid information and products and services to enhance health” (Accessing information)

Standard three calls for students to demonstrate the ability to access valid information and products and services to enhance health. Table 81 displays scoring results for each sub skill in relation to each content module.

Table 81
Appraisal strength table of all modules for standard 3

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S3	All	24	1	.21	2
AOD S3	9-12	8	-	-	-
HE S3	All	24	-	-	-
HE S3	9-12	9	-	-	-
MEH S3	All	27	8	.52	5
<u>MEH S3</u>	<u>9-12</u>	<u>9</u>	<u>4</u>	<u>.44</u>	<u>4</u>
PHW S3	All	27	-	-	-
PHW S3	9-12	9	-	-	-
PA S3	All	25	-	-	-
PA S3	9-12	9	-	-	-
S S3	All	27	-	-	-
S S3	9-12	9	-	-	-
SH S3	All	17	-	-	-
SH S3	9-12	9	-	-	-
T S3	All	22	-	-	-
T S3	9-12	9	-	-	-
V S3	All	20	-	-	-
V S3	9-12	6	-	-	-

*Expectation

For all grades, maximum overlap was found at Mental and Emotional Health (MEH) module (5%). Second was Alcohol and Other Drugs (AOD) module (2%). For grades 9-12, maximum overlap was found at Mental and Emotional Health (MEH) module (4%). Whereas, there was no overlap on Healthy Eating (HE), Personal Health and

Wellness (PHW), Physical Activity (PA), Safety (S), Sexual Health (SH), Tobacco (T) and Violence (V) modules neither for all grades nor for 9-12 grades. The average score for overlapping ones is nearly 4% for all grades; 4% for grades 9-12.

Standard 4

“Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks” (Interpersonal communication)

Standard four calls for students to demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks. Table 82 displays scoring results related to each sub skill in relation to each content module.

Table 82
Appraisal strength table of all modules for standard 4

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S4	All	20	3	.75	8
<u>AOD S4</u>	<u>9-12</u>	<u>6</u>	<u>3</u>	<u>2.50</u>	<u>25</u>
HE S4	All	13	1	.38	4
HE S4	9-12	4	1	1.25	13
MEH S4	All	24	3	.71	7
MEH S4	9-12	6	1	.83	8
PHW S4	All	19	1	.47	5
<u>PHW S4</u>	<u>9-12</u>	<u>4</u>	<u>1</u>	<u>2.25</u>	<u>23</u>
PA S4	All	15	1	.60	6
<u>PA S4</u>	<u>9-12</u>	<u>4</u>	<u>1</u>	<u>2.25</u>	<u>23</u>
S S4	All	19	1	.11	1
S S4	9-12	5	1	.40	4
SH S4	All	18	2	.67	7
SH S4	9-12	6	2	2.00	20
T S4	All	14	-	-	-
T S4	9-12	4	-	-	-
V S4	All	22	2	.73	7
<u>V S4</u>	<u>9-12</u>	<u>5</u>	<u>2</u>	<u>3.20</u>	<u>32</u>

*Expectation

For all grades, maximum overlap was found at Alcohol and Other Drugs (AOD) module (8%). The followers were respectively Violence (V), Mental and Emotional Health (MEH) and Sexual Health (SH) modules (7%). For grades 9-12, maximum

overlap was found at Violence (V) module (32%). Second was Alcohol and Other Drugs (AOD) module (25%). Third ones were Personal Health and Wellness (PHW) and Physical Activity (PA) module (23%). Whereas, there was no overlap on Tobacco (T) module neither for all grades nor for 9-12 grades. The average score for overlapping ones is nearly 6% for all grades; 18% for grades 9-12.

Standard 5

“Students will demonstrate the ability to use decision-making skills to enhance health” (Decision-making)

Standard five calls for students to demonstrate the ability to use decision-making skills to enhance health. Table 83 displays scoring results related to each sub skill in relation to each content module.

Table 83
Appraisal strength table of all modules for standard 5

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S5	All	24	-	-	-
AOD S5	9-12	9	-	-	-
HE S5	All	25	-	-	-
HE S5	9-12	7	-	-	-
MEH S5	All	26	7	.73	7
<u>MEH S5</u>	<u>9-12</u>	<u>8</u>	<u>2</u>	<u>.25</u>	<u>3</u>
PHW S5	All	26	-	-	-
PHW S5	9-12	8	-	-	-
PA S5	All	27	-	-	-
PA S5	9-12	8	-	-	-
S S5	All	26	-	-	-
S S5	9-12	8	-	-	-
SH S5	All	16	-	-	-
SH S5	9-12	8	-	-	-
T S5	All	23	-	-	-
T S5	9-12	8	-	-	-
V S5	All	26	-	-	-
V S5	9-12	8	-	-	-

*Expectation

The only module that corresponded to HEC objectives is Mental and Emotional

Health (MEH) for S5. For all grades the correspondence was found 7% and for 9-12 grades it was found as 3%. Whereas, there was no overlap on Alcohol and Other Drugs (AOD), Healthy Eating (HE), Personal Health and Wellness (PHW), Physical Activity (PA), Safety (S), Sexual Health (SH), Tobacco (T) and Violence (V) modules neither for all grades nor for 9-12 grades.

Standard 6

“Students will demonstrate the ability to use goal-setting skills to enhance health.”

(Goal setting)

Standard six calls for students to demonstrate the ability to use goal-setting skills to enhance health. There was no matching for standard 6.

Standard 7

“Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks” (Self-management)

Standard seven calls for students to demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks. Table 84 displays scoring results related to each sub skill in relation to each content module.

Table 84
Appraisal strength table of all modules for standard 7

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S7	All	14	-	-	-
AOD S7	9-12	6	-	-	-
HE S7	All	14	-	-	-
HE S7	9-12	4	-	-	-

Table 84 (cont'd)

Appraisal strength table of all modules for standard 7

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
MEH S7	All	14	-	-	-
MEH S7	9-12	4	-	-	-
PHW S7	All	14	-	-	-
PHW S7	9-12	4	-	-	-
PA S7	All	14	3	.79	8
PA S7	9-12	4	-	-	-
S S7	All	14	-	-	-
S S7	9-12	4	-	-	-
SH S7	All	8	-	-	-
SH S7	9-12	4	-	-	-
T S7	All	8	-	-	-
T S7	9-12	4	-	-	-
V S7	All	14	-	-	-
V S7	9-12	4	-	-	-

*Expectation

The only module that corresponded to HEC objectives is Physical Activity (PA). For all grades the overlap percentage was found eight and for 9-12 grades there was no corresponding objective. Whereas, there was no overlap also on Alcohol and Other Drugs (AOD), Healthy Eating (HE), Mental and Emotional Health (MEH), Personal Health and Wellness (PHW), Safety (S), Sexual Health (SH), Tobacco (T) and Violence (V) modules neither for all grades nor for 9-12 grades.

Standard 8

“Students will demonstrate the ability to advocate for personal, family, and community health” (Advocacy)

Standard eight calls for students to demonstrate the ability to advocate for personal, family, and community health. Table 85 displays scoring results related to each sub skill in relation to each content module.

Table 85

Appraisal strength table of all modules for standard 8

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S8	All	20	-	-	-
AOD S8	9-12	8	-	-	-
HE S8	All	15	-	-	-
HE S8	9-12	6	-	-	-
MEH S8	All	15	1	.07	1
<u>MEH S8</u>	<u>9-12</u>	<u>6</u>	<u>1</u>	<u>.17</u>	<u>2</u>
PHW S8	All	15	-	-	-
PHW S8	9-12	6	-	-	-
PA S8	All	15	-	-	-
PA S8	9-12	6	-	-	-
S S8	All	15	-	-	-
S S8	9-12	6	-	-	-
SH S8	All	14	-	-	-
SH S8	9-12	7	-	-	-
T S8	All	14	-	-	-
T S8	9-12	6	-	-	-
V S8	All	15	-	-	-
V S8	9-12	6	-	-	-

*Expectation

The only module that corresponded to HEC objectives is Mental and Emotional Health (MEH). For all grades the overlap percentage was found one and for 9-12 grades two. Whereas, there was no overlap on Alcohol and Other Drugs (AOD), Healthy Eating (HE), Personal Health and Wellness (PHW), Physical Activity (PA), Safety (S), Sexual Health (SH), Tobacco (T) and Violence (V) modules neither for all grades nor for 9-12 grades.

Strengths and limitations of the current HEC

Strengths

- HEC is a compact curriculum which draws a framework in the education of health. It helps to reduce workload of teacher to teach and assess.
- HEC is convenient. Limited objectives and lower Bloom's taxonomic cognitive load simplify to reach every student in the classroom.

Limitations

- HEC also challenges teachers to differentiate the curriculum content, and the assessment required to meet individual or community needs.
- There is lack of structured and well-organized module system in HEC.
- Duration and poor organization of entire course limit the teaching of health by HEC.
- HEC does not have any assessment criteria or rubric.

Summary

The purpose of this chapter was to present the findings of the study. Context of this research was objectives of HEC and expectations of HECAT. All of the units of HEC overlapped in some points with HECAT modules. HECAT modules related HEC's objectives were determined as 45 out of 62 which are delivered throughout the modules. Incompatible HEC objectives are 17 and given in Appendix D. HEC's Bloom's Revised Taxonomy (Anderson et al., 2001) related action verbs' count; 'explain' has been used 52 times, 'list' has been used 6 times. Identify, examine, realize and evaluate have been used 1 time.

HECAT's Bloom's Revised Taxonomy (Anderson et al., 2001) related action verbs' have been counted. There is a variety of 43 verbs in total and 38 of them are action verbs related to Bloom's Revised Taxonomy Cognitive Domains (Anderson et al., 2001). Each domain has action verbs in total respectively; Remembering: 81, Understanding: 840, Applying: 297, Analyzing: 306, Evaluating: 204, and Creating: 74. Totally, 1869 verbs are used in HECAT and 1802 of them action verbs. Most

commonly used verbs are: describe 283, explain 237 and analyze 227. Define, name, classify, give example, prioritize and discuss have been used only one time.

In the comparison of two curricula HEC and HECAT, HEC represents 62 objectives only for grade 9 while HECAT has 641 for 9-12 out of 1869 for K-12 grades.

HECAT has variety of topics which overlap in some points of HEC. According to Bloom's Revised Taxonomy, HEC frequently remains at the level of understanding whereas HECAT covers all of the levels mainly at understanding level.

The result of analysis, HEC objectives correspondence to HECAT module's standards' expectations, averages of appraisal strength scores, the relative correspondence scores and correspondence rate are listed for all grades in Table 86, for 9-12 grades in Table 87. All the averages were given in Figure 5.

Table 86
Appraisal strength table of all modules – all grades

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S1	All	50	22	2.62	26
HE S1	All	67	16	1.13	11
MEH S1	All	93	21	1.08	11
PHW S1	All	60	40	3.10	31
PA S1	All	45	9	1.24	12
SH S1	All	97	65	3.73	37
T S1	All	40	28	3.48	35
V S1	All	89	9	.46	5
AOD S2	All	28	2	.18	2
HE S2	All	31	2	.42	4
MEH S2	All	31	2	.45	5
PHW S2	All	31	2	.61	6
PA S2	All	31	2	.55	5
S S2	All	31	2	.39	4
SH S2	All	21	2	.86	9
V S2	All	31	1	.19	2
AOD S3	All	24	1	.21	2
MEH S3	All	27	8	.52	5
AOD S4	All	20	3	.75	8
HE S4	All	13	1	.38	4
MEH S4	All	24	3	.71	7
PHW S4	All	19	1	.47	5

*Expectation

Table 86 (cont'd)

Appraisal strength table of all modules – all grades

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
PA S4	All	15	1	.60	6
S S4	All	19	1	.11	1
SH S4	All	18	2	.67	7
V S4	All	22	2	.73	7
MEH S5	All	26	7	.73	7
PA S7	All	14	3	.79	8
MEH S8	All	15	1	.07	1

*Expectation

For all grades, maximum overlap was found at Sexual Health (SH) module S1 (37%). Second was Tobacco (T) S1 (35%). Third one was Personal Health and Wellness (PHW) S1(31%). Minimum overlap was found at Safety (S) S4 and Mental and Emotional Health (MEH) S8 modules (1%). The average score for overlapping ones is nearly nine percent (9%).

Table 87

Appraisal strength table of all modules – 9-12 grades

Module & Standard	Grades	Total Exp.*	Related Exp.*	Total Score	%
AOD S1	9-12	22	7	2.00	20
HE S1	9-12	20	10	2.90	29
MEH S1	9-12	26	6	1.10	11
PHW S1	9-12	13	8	2.74	27
PA S1	9-12	14	1	.43	4
SH S1	9-12	43	11	1.09	11
T S1	9-12	13	7	2.46	25
V S1	9-12	30	4	.67	7
MEH S3	9-12	9	4	.44	4
AOD S4	9-12	6	3	2.50	25
HE S4	9-12	4	1	1.25	13
MEH S4	9-12	6	1	.83	8
PHW S4	9-12	4	1	2.25	23
PA S4	9-12	4	1	2.25	23
S S4	9-12	5	1	.40	4
SH S4	9-12	6	2	2.00	20
V S4	9-12	5	2	3.20	32
MEH S5	9-12	8	2	.25	3
MEH S8	9-12	6	1	.17	2

*Expectation

For grades 9-12, maximum overlap was found at Violence (V) module's S1 (32%).

Second was Healthy Eating (HE) S1 (29%). Third one was Personal Health and

Wellness S1 (27%). Minimum overlap was found at Emotional Health (MEH) S8 module (2%). The average score for overlapping ones is fifteen percent (15%).

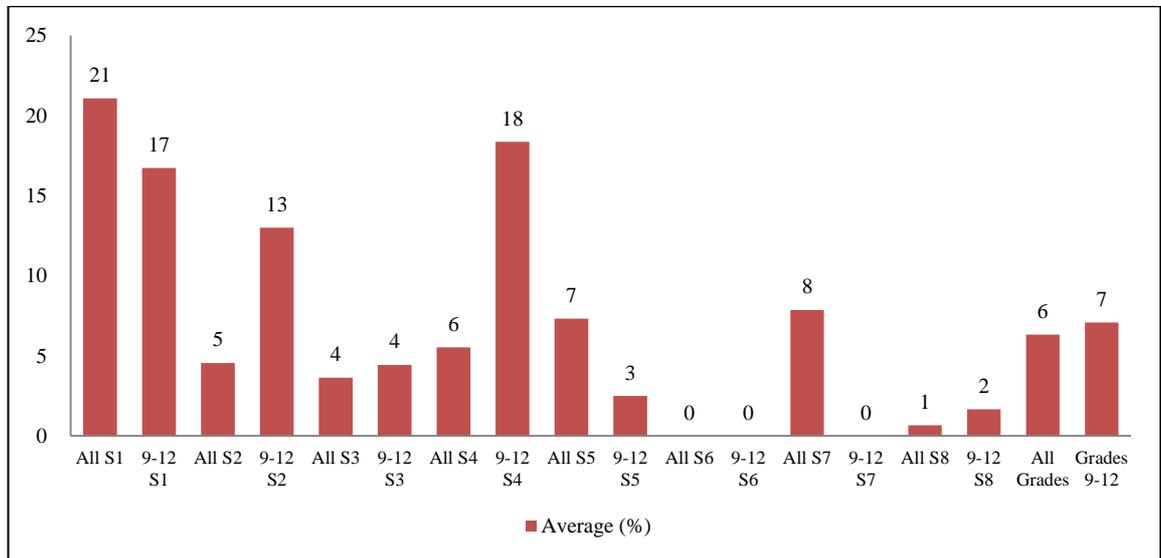


Figure 5. Appraisal strength of all standards & grades

Overall, averages for all standards & grades, maximum overlap was found at Standard 1 for all grades (21%). Second was Standard 1 for grades 9-12 (17%). Third one was Standard 4 for grades 9-12 (18%). Standard 6 for all and 9-12 grades, Standard 7 for grades 9-12 did not overlap with any objectives of HEC. The average score for overlapping ones is six percent (6%) for all grades and seven percent (7%) for grades 9-12.

CHAPTER 5: DISCUSSION

Introduction

“An ounce of prevention is worth a pound of cure.”

An American idiom

Health education is a crucial part of K-12 education which provides young people information and skills they need to be healthy and successful when they arrive adulthood. Above all, health education should be integrated to the school culture primarily.

This chapter discusses findings of the study obtained by using the health education curriculum analysis tool (HECAT) to evaluate the content of the topics in the MoNE (2012) health education curriculum (HEC). The sub-purpose was to make recommendations that could be used to create a new K-12 health education curriculum and to improve the existing grade 9 health education curriculum. In this research the answers to the following research questions were explored:

1. How does the current Turkish national high school health education curriculum (HEC) meet the Health Education Curriculum Analysis Tool (HECAT) criteria?
 - a. What are the results of comparison of Turkish national high school health education curriculum (HEC) with Health Education Curriculum Analysis Tool (HECAT)?
 - b. What are the strengths and limitations of the current HEC according to the HECAT criteria?

Content analysis is a qualitative research method that has become broadly use in health studies. In this study the data was coded to allow particular features of the two curricula to be compared.

Overview of the study

This study provides contributions to the development of effective national health education standards (NHES) for K-12 students in Turkey. The main suggestion is to develop a comprehensive and coherent set of standards for all grades. These standards would provide a framework that promotes healthy lifestyles across the country.

Major findings

This section discusses the major findings that have been obtained through the research process.

- HEC is a compact curriculum which draws a framework in the education of health. It helps to reduce workload of teacher to teach and assess. Limited objectives and lower Bloom's taxonomic cognitive load simplify every student to reach every student in the classroom.
- HEC also challenges teachers to differentiate the curriculum content, and the assessment required to meet individual or community needs.
- There is a lack of structured and well-organized module system in HEC.
- Duration and poor organization of entire course limits the teaching of health by HEC.
- HEC does not have any assessment criteria or rubric.

One of the aims of this research was to look at the strengths and limitations of

Turkey's current HEC. The study showed that health education in Turkey should be more comprehensive, rather than including health topics in only grade 9, students of all grades need to learn about healthy living.

Another critical finding of the study is that the current curriculum is mainly conceptual. The strongest point of HEC was concerning on conceptual knowledge (21% for all grades; 17% for grades 9-12). These concepts are included under the topics: *Sexual Health, Tobacco* and *Personal Health and Wellness*. Although this coverage of concepts is important, HEC is not effective on developing behavior, and not adequate on health education related concepts as well (strength of conceptual awareness: 17% whereas, strength of behavioral awareness: 8% in HEC compared to HECAT). To be improved, the current curriculum needs to identify skills, behaviors, and actions students can take to ensure they stay healthy. They can also learn how to support the health of their families and their communities.

In this research, findings showed that the health education cannot be succeeded with the HEC which is delivered only at grade 9 compared to HECAT in USA. The relationship between healthy behaviors and education is examined by some researchers in Turkey (Mocan & Altindag, 2014; Tansel & Karaoglan, 2014). Mocan and Altindag (2014) highlighted the importance of schooling and stated that education is a good indicator for being healthy. Similarly, Tansel and Karaoglan (2014) found that education has the strongest effect on all healthy behaviors. As it was stated, concepts are not sufficient to be healthy if behavior does not develop accordingly. Developing behaviors was not the main concern of HEC ($M = 4\%$ for

all grades; $M = 8\%$ for grades 9-12) which does not help to be healthy for generations.

In this study, it is showed that the competency of HEC was not sufficient to build that kind of behaviors according to this study (the strength of HEC for grade 9 was calculated 7.09% compared to HECAT). Kann, Telljohann and Wooley (2007) stated that health education has the latent competency to promote students to sustain and develop their wellness and increase control over and avoid health-risky behaviors. Avoidance and controlling health-risky behaviors by students can be improved only with well-designed curriculum.

Implications for practice

National health education standards can be developed in order to designate a fair curriculum and will help the continuity in the long-term updates. According to the study possible standards were issued which are compatible with health definition of WHO in Table 88.

Table 88
Recommended Turkish national health education standards (TNHES)

Standard	Content	Key Concept
1	Students will recognize health related concepts	Knowledge (Conceptual)
2	Students will demonstrate the ability to access valid information such as laws and rights on health	Accessing Information (Conceptual & behavioral)
3	Students will realize themselves and their surroundings	Self-awareness (Conceptual & behavioral)
4	Students will apply any facility to be free of disease or infirmity and practice healthy behaviors in their daily life	Practice (Behavioral)
5	Students will defense healthy behaviors for everyone around them and the community	Advocacy (Behavioral)

From K-12 grades, health education is very essential in order to promote healthy behavior outcomes (Cerrah & Ayas, 2003). For early years (Kindergarten), health

education (HE) is covered in pre-school education courses; in grades 1 to 3, it is covered in life science; in grades 4 to 8, it is covered in science; in grade 9, there is a specific health education course which is the topic of this study; and in grades 9 to 12, it is covered in various topics of biology course. There are also physical education courses in grades 1 through 12 that cover some aspects of health education. A spiral curriculum can be developed which could be applied from K to 12 not as a part of any other curricula, but under the name of health education at least an hour every week. Concordantly, health educators can attend seminars and workshops on health education. A newly created prospective spiral K-12 curriculum on Turkish health education, which is based on recommended TNHES and HECAT (2012), is shown in Table 89.

Table 89
A prospective spiral Turkish health education curriculum for K-12

Grade	Topic	Knowledge (Conceptual)	Accessing Information (Conceptual & behavioral)	Self- awareness (Conceptual & behavioral)	Practice (Behavioral)	Advocacy (Behavioral)
Kindergarten	Addiction	Safe use of medicine	Pharmacists	Say Yes or No	Be safe	Be smart, don't start! Be friendly to all others
	Physical Health			My heart Five senses Muscles Bones Lungs		
	Community & Environmental	Fire fighters Nurses Police officers Doctors Optometrists	My community	Sanitation		
	Family Health & Sexuality Injury Prevention	Family	Family roles and diversity	Respect for self and others Wear your seat belt & riding in the back seat	Stay safe and tell	
	Mental & Emotional Health Nutrition		I am unique and so are you! Let's feed our bodies	Positive self- image		
	Personal & Consumer Health			Getting ready to eat -Brushing teeth -Wash away the germs		

Table 89 (cont'd)

A prospective spiral Turkish health education curriculum for K-12

Grade	Topic	Knowledge (Conceptual)	Accessing Information (Conceptual & behavioral)	Self- awareness (Conceptual & behavioral)	Practice (Behavioral)	Advocacy (Behavioral)
1-2	Addiction	What are the drugs?	Over-the-counter and prescription medicines	Effects on my body	Be safe and careful Say Yes or No	-Be smart, don't start! -Safe use of medicine
	Physical Health	Parts of my body	Doctors	I know where my body parts are	Avoid hurt yourself and your friends	Do not hurt animals
	Community & Environmental			The environment and the community	Reusing waste materials	Ready to recycle!
	Family Health & Sexuality	Growth and development		Friends	Responsibility	
	Injury Prevention	Choking	Emergencies: getting help	Wear your seat belt & riding in the back seat	-Preventing dog bites or cat scratches -Let's cross the street!	
	Mental & Emotional Health	Role models		Feelings	-Dealing with feelings -Stand up against bullying	Respect
3-4	Nutrition	Favorite foods	Wonderful water		Breakfast is ready!	Let's make a snack
	Personal & Consumer Health	-How teeth change -Sleep Basics	-How immunizations help -Asthma	-Caring for our skin -My hygiene	Covering sneezes and coughs	Looking at medicine labels
	Addiction	Inhalants	-Surveying over-the-counter medicines	Choosing friends	Refuse to use	Alcohol and drugs don't solve problems
	Physical Health	The bossy brain	Follow your food	The beat goes on	-Building better bones -Breathe in breath out	Respecting handicapped people
	Community & Environmental	Health services in the community	Clean water	Effects of noise on me	Reduce, reuse, recycle	Reducing pollution and conserving resources
	Family Health & Sexuality	Learning about HIV/AIDS	The passage into puberty		Making and keeping friends	Respecting myself and others
3-4	Injury Prevention	Use your helmet	Safety on the Internet	How you can prevent fires	Keep away from poison	Being safe is awesome!
	Mental & Emotional Health	How to listen			-Expressing difficult feelings -Be calm	-Resolving conflict -Speak up to stop bullying
	Nutrition	Food labels Food packages	Storing foods	Our bodies need water	-Healthy habits -Choosing nutrient-rich snacks	The most important meal of the day
3-4	Personal & Consumer Health	Dental care I need sleep!	The fun doesn't stop with asthma!	Safe in the sun Care of eyes and ears	Preventing colds and the flu	Get ready to test best

Table 89 (cont'd)

A prospective spiral Turkish health education curriculum for K-12

Grade	Topic	Knowledge (Conceptual)	Accessing Information (Conceptual & behavioral)	Self- awareness (Conceptual & behavioral)	Practice (Behavioral)	Advocacy (Behavioral)
5-6	Addiction	Alcohol's effects	Alcohol and drugs in media	Benefits of alcohol- and drug-free on me and my circle	No call for alcohol	Avoid marijuana and other drugs
	Physical Health	How we breathe	The brain and spinal cord	Can you digest this?	Reduce the stress by breathing	Muscle power
	Community & Environmental	Water safety	Accessing community health resources		Friendship	Responsible for recycling
	Family Health & Sexuality	Menstruation and sperm production		Changing bodies	Recognizing respect	Changing minds
	Injury Prevention	Staying safe	Getting help	Staying safe around electricity	-Treating minor wounds and burns -Biking Safely -Dealing with bullying	-Planning for fire safety
	Mental & Emotional Health	Verbal and nonverbal communication	Listening skills	Problems in families	Caring for self and others	Help stop bullying
	Nutrition	The digestive process	Advertising and food choices	Benefits of eating more fruits and vegetables for my body	Healthful eating and exercise	
	Personal & Consumer Health		Healthy hygiene	Preventing colds and the flu	Well-care visits	Safe in the sun!
7-8	Addiction	Addiction and addictive drugs	Use, misuse or abuse	How psychoactive drugs work	All choices have consequences	Deprivation
	Physical Health	The circulatory system	The central nervous system	The ins and outs of digestion	Respect all others with any physical deficiency	Avoiding respiratory drugs
	Community & Environmental				Waste not!	
	Family Health & Sexuality	Looking at barriers		Looking to my future	Abstinence	It's OK to say No
	Injury Prevention	Causes of conflict	Internet safety	Poison - lock it up!	-Treating minor injuries and burns -Using public transportation safely	-Helping others dealing with bullying -Preventing child abuse
	Mental & Emotional Health	Stress me out!	Getting help with feelings	Suicide awareness	Feeling positive about yourself	Positive influences
	Nutrition	Minerals	Food labels			
	Personal & Consumer Health	Managing diabetes, asthma, and allergies	Dental hygiene	-Sun safe -Wake up sleepy head	Preventing infectious illness	Using medications appropriately

Table 89 (cont'd)

A prospective spiral Turkish health education curriculum for K-12

Grade	Topic	Knowledge (Conceptual)	Accessing Information (Conceptual & behavioral)	Self- awareness (Conceptual & behavioral)	Practice (Behavioral)	Advocacy (Behavioral)
9-10	Addiction	Addiction on technology	Steroids The real truth about tobacco	What influences you? (I am aware of my addictive habits)	Help for alcohol and other drug use	-Peer pressure on no consumption of alcohol and other drugs -Be smart-don't start! Being physically fit
	Physical Health		The cardiovascular system	The nervous system	Healthy nutrition	Conserving natural resources When date becomes rape -Resolving conflicts -Negotiation
	Community & Environmental	Listening skills	Talking skills	Problems in relationships	Don't waste a drop!	
	Family Health & Sexuality	Communicating about sex	Preventing HIV	Preventing STD/HIV	Respect in relationships	
	Injury Prevention	First aid procedures	Safety on motorized vehicles	Mediation	-Anger Management	
	Mental & Emotional Health	Recognizing the connection between stress and depression	-Styles of communication -Facts about mental illness	Don't gamble with your future	Managing stressful feelings	
11-12	Nutrition	Nutrients and food labels	Dietary guidelines	Why do we eat what we eat?	Putting It all together - planning a healthy menu	Physical activity and food: the connection Reducing health risks
	Personal & Consumer Health	Benefits of sleep Asthma and resilience	-Causes of Illness -Cold and flu prevention	Personal hygiene and adolescence	-Setting bedtime routines -Using health care services wisely	
	Addiction	-Clean air is healthy -Water pipes are tobacco, too	How psychoactive drugs work	All choices have consequences	Reducing stress by breathing	Helping to alcohol and other drug users and communicating to stay smoke-free (Calling it quits!)
	Physical Health		Exercise and health related misconceptions		My healthy nutrition diary	
	Community & Environmental		Gambling problems in our community			Renewable, reusable or recyclable? Respecting sexual limits
	Family Health & Sexuality		Pregnancy prevention	Setting sexual limits	-Refusing sexual behavior -Avoiding sexually transmitted disease (STD)	
11-12	Injury Prevention	Rescue procedures	Not driving under the influence of alcohol	Dealing with conflict	Avoiding gangs and bullies	-First aid for major emergencies -Consensus Decision Making High level communicators
	Mental & Emotional Health	Mental health: essential to overall health	Suicide prevention	Personal standards	Analyzing relationships	
	Nutrition		Food safety and labels		Getting and losing weight	Influences on food choices -Developing self-care skills
	Personal & Consumer Health		-		-Selecting effective treatment methods	

As can be concluded from the findings of this study, there are many important components that make a curriculum high-quality. A health curriculum should include a variety of student behavior-centered perspective, promotion of real life examples, and varied forms of assessment strategies (from different taxonomic levels of Bloom) in order to motivate students. Therefore, Turkish high school health education curriculum needs to be revised. Moreover, a qualified team should be involved to develop the curriculum.

Implications for further research

In this research, the curriculum which is delivered at grade 9 (MoNE, 2012) was compared with HECAT. During the study, HEC was updated and a new one was published in 2017. However, teaching hours remained the same; 36 hours in a school year at the grade 9. Therefore, a new study could be done to determine if current health education curriculum (2017) meets the HECAT criteria. The developed appraisal strength criteria can be used for further research.

Furthermore, as it is stated before, some other courses (K-12) have some health-related topics. These curricula can be analyzed to explore health related concepts. Since teachers are the main components of the education, the delivery of the curriculum could be different from one another. Teacher observations could be added for further studies.

Important concepts in health education, such as bullying, newly aroused addiction types e.g. technology and social media, nutrition and consultation on feeding are not investigated regarding lack of content. Future studies may focus on these topics.

Limitations

There are several limitations of this study that may affect analysis results. The study explored only grade 9 Turkish health education curriculum which is for a year, an hour per week, 36 hours in total. However, health-related topics are integrated into different courses besides HEC. These courses will not be reviewed in this research. Other courses which contain health-related topics: 1 to 3, *life science*; 4 to 8, *science*; and 9 to 12, *biology* and 1 to 12, *physical education* so they are not called as a specific name “health education inclusive courses”. Other limitations were listed below:

- HEC was not developed to be assessed by HECAT.
- Only cognitive load of Bloom’s revised taxonomy was considered in this study.
- Classroom observations were not part of this study.

REFERENCES

- Amzat, J., & Razum, O. (2014). Health, disease, and illness as conceptual tools. In J. Amzat & O. Razum (Eds.), *Medical sociology in Africa* (pp. 21–38). Switzerland: Springer, Cham.
- Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., ... & Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. White Plains, NY: Longman.
- Bircher, J. (2005). Towards a dynamic definition of health and disease. *Medicine, health care and philosophy*, 8(3), 335-341.
- Calle, E. E., & Kaaks, R. (2004). Overweight, obesity and cancer: Epidemiological evidence and proposed mechanisms. *Nature reviews cancer*, 4(8), 579-591.
- Centers for Disease Control and Prevention (2012). *HECAT: Health education curriculum analysis tool, 2012*. Atlanta, GA: CDC.
- Centers for Disease Control and Prevention (2015, June 17). *National health education standards*. Retrieved from <http://www.cdc.gov/healthyschools/sher/standards/index.htm>
- Cerrah, L., & Ayas, A. (2003). Meslek liselerinde görev yapan biyoloji öğretmenlerinin karşılaştıkları problemler: biyoloji ve sağlık bilgisi öğretim programına bir bakış [The problems that vocational schools' biology teachers come cross: a look the biology and human healthy course]. *Milli eğitim dergisi*, 159, 149-159.

- Eckel, R. H., & Krauss, R. M., (1998). American Heart Association call to action: obesity as a major risk factor for coronary heart disease. *Circulation*, 97(21), 2099-2100.
- Eriksson, M., & Lindström, B. (2008). A salutogenic interpretation of the Ottawa Charter. *Health promotion international*, 23(2), 190-199.
- Falkenburry, K. L. (2011). *A content analysis of the health education curriculum at a rural southern Illinois high school using the health education curriculum analysis tool (HECAT)* (Unpublished master thesis). Southern Illinois University, Carbondale.
- Fraenkel, J.R. & Wallen, N.E. (2009). *How to design and evaluate research in education* (7th ed.). New York, NY: Mc Graw Hill.
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). Theory, research, and practice in health behavior and health education. In K.Glanz, B. K., Rimer & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 23-40) (4th ed.). San Francisco, CA: John Wiley & Sons.
- Gold, R. S., & Miner, K. R. (2002). Report of the 2000 joint committee on health education and promotion terminology. *Journal of School Health*, 72(1), 3-7.
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277-1288.
- Huber, M., Knottnerus, J. A., Green, L., van der Horst, H., Jadad, A. R., Kromhout, D., ... Smid, H. (2011). How should we define health? *British medical journal*, 343, d4163. doi:10.1136/bmj.d4163.
- Joint Committee on National Health Education Standards (2007). *National health education standards: Achieving excellence*. Atlanta, Georgia: American Cancer Society.

- Kann, L., Telljohann, S. K., & Wooley, S. F. (2007). Health education: Results from the school health policies and programs study 2006. *Journal of school health*, 77(8), 408-434.
- Krippendorff, K. (1986). *Content analysis: An introduction to its methodology*. California: Sage Publications.
- Larson, J. S. (1999). The conceptualization of health. *Medical care research and review*, 56(2), 123-136.
- Lazar, M. A. (2005). How obesity causes diabetes: Not a tall tale. *Science*, 307(5708), 373-375.
- Menzawa, K. (2014). Comparison of school health education in America and Japan: An examination of U.S. national health education standards (NHES), health education curriculum analysis tool (HECAT, 2012, and HealthSmart for early elementary grades [Abstract]. *Bulletin of the Faculty of Education, Hirosaki University*, 111, 129-136.
- Minbuta, M. Anzai, H. Naka, A. Yasuda, E. & Menzawa, K. (2012). A Study on developing health education curricula and teaching material for first and second grades in elementary school: An examination of a potential program and teaching materials [Abstract]. *Bulletin of the Faculty of Education, Hirosaki University*, 107, 101-111.
- Ministry of Health (2015). *Görev ve yetkiler* [Mission and authorizations]. Retrieved June 30, 2016 from <http://www.saglik.gov.tr/TR/belge/1-40115/gorev-ve-yetkiler.html>
- Ministry of Health (2016). *Sağlık istatistikleri yılığı 2015* [Health statistics yearbook 2015] Ankara, Türkiye Cumhuriyeti Sağlık Bakanlığı Sağlık Araştırmaları Genel Müdürlüğü.

- Ministry of National Education (n.d). Geçmişten günümüze kurul kararları [Resolutions of board from past to present]. Retrieved from <http://ttkb.meb.gov.tr/www/gecmisten-gunumuze-kurul-kararlari/icerik/152>
- Ministry of National Education (2012). Ortaöğretim sağlık bilgisi dersi öğretim programı [Secondary health education course curriculum]. Ankara, Millî Eğitim Bakanlığı, Mesleki ve Teknik Eğitim Genel Müdürlüğü.
- Mocan, N., & Altindag, D.T. (2014). Education, cognition, health knowledge, and health behavior. *The European journal of health economics*, 15(3), 265-279.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage Publications.
- Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health promotion international*, 15(3), 259-267.
- Rimer, B. K., Glanz, & Rasband. (2001). Searching for evidence about health education and health behavior interventions. *Health education & behavior*, 28(2), 231-248.
- Sağlam, N. (1996). Orta öğretimde sağlık bilgisi dersinin niteliği ve öğrencilerin derse ilgileri [The quality of and students' interest to health education in the secondary education] *Hacettepe üniversitesi eğitim fakültesi dergisi*, 12(12), 201-206.
- Saracci, R. (1997). The World Health Organization needs to reconsider its definition of health. *British Medical Journal*, 314(7091), 1409-1410.
- Savaş, A. (2003) Türkiye'de sağlık hizmetlerinin durumu SWOT analizi [The condition of health services in Turkey, SWOT analysis]. Retrieved from https://www.tubitak.gov.tr/tubitak_content_files/vizyon2023/si/EK-21.pdf

- Sustainable Development Goals Fund (2018, July 28). *Who we are*. Retrieved from <http://www.sdgfund.org/mdgs-sdgs>
- Tansel, A. & Karaoglan, D. (2014, June 20). Health behaviors and education in Turkey. Retrieved from <http://dx.doi.org/10.2139/ssrn.2457105>
- Turkish Statistics Institute (2014). *2014 Türkiye sağlık araştırması* [Turkish health research]. *Türkiye istatistik kurumu haber bülteni*, 18854, Ankara
- Turkish Statistics Institute (2017). *2016 Türkiye ölüm nedeni istatistikleri* [Turkish cause of death statistics]. *Türkiye istatistik kurumu haber bülteni*, 24572, Ankara
- Weber, R. P. (1985). *Basic content analysis*. Beverly Hills: SAGE Publications.
- Wechsler, H., McKenna, M. L., Lee, S. M., & Dietz, W. H. (2004). Role of schools in preventing childhood obesity. *The state education standard*, 5(2), 4-12.
- World Health Organization (1948). *Official records of the World Health Organization* (No. 2). United Nations, World Health Organization, Interim Commission.
- World Health Organization (1986). Health and Welfare Canada, Canadian Public Health Association. *Ottawa charter for health promotion*, 425-30.
- World Health Organization (2012). *Health education: Theoretical concepts, effective strategies and core competencies*. World Health Organization. Regional Office for the Eastern Mediterranean.
- World Health Organization (2016). *The global guardian of public health* [Brochure]. N.P.: World Health Organization.

APPENDIX A: Basics of Appraisal Strength Scoring Criteria

The evaluation of HEC by HECAT modules was not possible only based on HECAT criteria. The scoring should be adapted for reliable results. Therefore, HECAT criteria were detailed and customized. The overall score for an object was determined 10. There are three majors to evaluate objectives: action verbs, concepts and context.

Actions verbs of Bloom's revised taxonomy (Anderson et al., 2001) cognitive domains were considered in this assessment. If verbs were same there were no taking points off. If they were in the same domain, -2 points reduced; from different domains, -3 points reduced.

Concepts in objectives from HEC and HECAT were also important for this analysis. If all of the objectives corresponded for each other, there were no taking points off. If most of the concepts corresponded, -1 points reduced; for some of concepts overlaps, -3 points reduced. Comparative details of appraisal strength score cut-off scale was given on the next page.

If the context directly overlapping (0)			
Concepts	Verb is same (0)	Verb is from same domain (-2)	Verb is from different domain (-3)
All (0)	10	8	7
Most (-1)	9	7	6
Some (-3)	7	5	4
If the context inferential overlapping (-3)			
Concepts	Verb is same (0)	Verb is from same domain (-2)	Verb is from different domain (-3)
All (0)	7	5	4
Most (-1)	6	4	3
Some (-3)	4	2	1

APPENDIX B: HEC Objectives – Translation and Originals

Unit	Number	Code	English translation	Turkish (Original)
1.Healthy Life (HL) - Sağlıklı Yaşam	1	HL1	Explains the concepts of health, infirmity and disability.	Sağlık, hastalık ve engellilik kavramlarını açıklar.
	2	HL2	Explains the effects of physical structural, environmental, socio-economic and cultural factors on health.	Bünyesel, çevresel, sosyoekonomik ve kültürel etmenlerin sağlık üzerindeki etkilerini açıklar.
	3	HL3	Explains the utilization ways of the health services by classifying them	Sağlık hizmetlerini sınıflandırarak yararlanma yollarını açıklar.
	4	HL4	Lists owned rights while benefitting from healthcare organizations.	Sağlık kuruluşlarından yararlanırken sahip olduğu hakları sıralar.
	5	HL5	Explains the criteria used to determine the level of public health.	Toplumun sağlık düzeyinin belirlenmesinde yararlanılan ölçütleri açıklar.
	6	HL6	Evaluates the health status of the community using health indicators.	Sağlık göstergelerini kullanarak toplumun sağlık düzeyini değerlendirir.
2.Growth and Development (GD) - Büyüme ve Gelişme	1	GD1	Explains growth and development.	Büyüme ve gelişmeyi açıklar.
	2	GD2	Explains the characteristics of growth and development period.	Büyüme ve gelişme dönemlerinin özelliklerini açıklar.
	3	GD3	Explains the factors influencing growth and development.	Büyüme ve gelişmeyi etkileyen etmenleri açıklar.
3.Improvement and Prevention of Health (IPH) - Sağlıkın Geliştirilmesi ve Korunması	1	IPH1	Explains the importance of the development and protection of health.	Sağlığın geliştirilmesinin ve korunmasının önemini açıklar.
	2	IPH2	Explains the impacts of physical activity and resting on improving the health.	Fiziksel aktivite ve dinlenmenin sağlığın geliştirilmesi üzerindeki etkilerini açıklar.
	3	IPH3	Explains the importance of adequate and balanced diet according to the development periods.	Yeterli ve dengeli beslenmenin gelişim dönemlerine göre önemini açıklar.
	4	IPH4	Explains the reasons for the emergence of obesity and its effect on health.	Şişmanlığın ortaya çıkış nedenlerini ve sağlık üzerindeki etkilerini açıklar.
	5	IPH5	Explains the importance of personal hygiene for a healthy life.	Sağlıklı yaşam için kişisel temizliğin önemini açıklar.
	6	IPH6	Explains the importance of the choice of clothing to maintain and protect the health of the body.	Vücut sağlığının korunması ve sürdürülmesi için giyecek seçiminin önemini açıklar.
	7	IPH7	Explains the importance of oral and dental health.	Ağız ve diş sağlığının önemini açıklar.
	8	IPH8	Explains with examples that should be considered in the prevention of dental health.	Diş sağlığının korunmasında dikkat edilmesi gerekenleri örneklerle açıklar.

Unit	Number	Code	English translation	Turkish (Original)
4. Mental and Emotional Health (MEH) - Akıl ve Ruh Sağlığı	1	MEH1	Explains the importance of mental and emotional health for a healthy life.	Sağlıklı yaşam için akıl ve ruh sağlığının önemini açıklar.
	2	MEH2	Explains the effect of personal and environmental factors on mental and emotional health.	Kişisel ve çevresel etmenlerin akıl ve ruh sağlığı üzerindeki etkilerini açıklar.
	3	MEH3	Explains the precautions to be taken to provide protection and continuance of mental and emotional health.	Akıl ve ruh sağlığını korumak ve devamını sağlamak için alınması gereken önlemleri açıklar.
	4	MEH4	Explains the factors causing stress and their effects on health	Strese neden olan etmenleri ve sağlık üzerindeki etkilerini açıklar.
	5	MEH5	Explains the ways to cope with stress.	Stresle başa çıkma yollarını açıklar.
	6	MEH6	Explains the ways of effective communication.	Etkili iletişim kurma yollarını açıklar.
	7	MEH7	Explains the importance of effective communication in the family and social environments in socializing.	Aile içinde ve sosyal ortamlarda etkili iletişim kurmanın sosyalleşmedeki önemini açıklar.
	8	MEH8	Explains the effects of violence and abuse on the individual's social and emotional development.	Şiddet ve istismarın bireyin sosyal ve ruhsal gelişimine etkilerini açıklar.
5.Harmful Habits for Health (HHH) - Sağlığa Zararlı Alışkanlıklar	1	HHH1	Explains addiction, deprivation and tolerance.	Bağımlılık, yoksunluk ve toleransı açıklar.
	2	HHH2	Explains the factors that lead to start of addictive substances.	Bağımlılık yapan maddelere başlanmasına neden olan etkenleri açıklar.
	3	HHH3	Explains the effects of the use of addictive substances on family and country economy.	Bağımlılık yapan madde kullanımının aile ve ülke ekonomisine etkilerini açıklar.
	4	HHH4	Explains the effects of tobacco and tobacco products on human health.	Tütün ve tütün ürünlerinin insan sağlığı üzerindeki etkilerini açıklar.
	5	HHH5	Explains the effects of alcohol on human health and behavior.	Alkolün insan sağlığına ve davranışlarına olan etkilerini açıklar.
	6	HHH6	Explains the effects of alcoholism on the relationships of individual in family and social life.	Alkol bağımlılığının, bireyin aile içi ve toplumsal hayattaki ilişkilerine etkilerini açıklar.
	7	HHH7	Explains the effects of drug use on human health and behavior.	Uyuşturucu madde kullanımının insan sağlığına ve davranışlarına olan etkilerini açıklar.
	8	HHH8	Explains the ways to develop affirmative attitude in order to avoid the use of harmful and addictive substances.	Sağlığa zararlı ve alışkanlık yapan maddelerden uzak durulması amacıyla olumlu tutum geliştirme yollarını açıklar.
	9	HHH9	Explains the treatment of addicted people.	Bağımlı kişilerin tedavisi için yapılması gerekenleri açıklar.

Unit	Number	Code	English translation	Turkish (Original)
6.Family Life and Maternal - Infant Health (FL&MIH) - Aile Hayatı ve Ana Çocuk Sağlığı	1	FL&MIH1	Explains the importance of the concept of family for the society.	Aile kavramını ve ailenin toplum için önemini açıklar.
	2	FL&MIH2	Explains the factors affecting the family life.	Aile hayatını etkileyen etmenleri açıklar.
	3	FL&MIH3	Explains the social and legal conditions to be parents.	Ana-baba olmanın toplumsal ve yasal koşullarını açıklar.
	4	FL&MIH4	Explains family planning and population planning.	Aile planlaması ve nüfus planlamasını açıklar.
	5	FL&MIH5	Lists the methods of family planning.	Aile planlamasının yöntemlerini sıralar.
	6	FL&MIH6	Examines the importance of family planning for maternal-child health and public health.	Aile planlamasının ana-çocuk sağlığı ve toplum sağlığı açısından önemini irdeler.
	7	FL&MIH7	Explains things to do in order to be healthy in pregnancy and the postpartum period.	Gebelik ve lohusalık döneminin sağlıklı geçirilebilmesi için yapılması gerekenleri açıklar.
	8	FL&MIH8	Explains the effects of multi and made with short intervals births on maternal, infant and public health.	Çok ve kısa aralıklarla yapılan doğumların anne, çocuk ve toplum sağlığı üzerindeki etkilerini açıklar.
	9	FL&MIH9	Explains the importance of breast milk.	Anne sütünün önemini açıklar.
	10	FL&MIH10	Associates vitamin D and sunlight utilization with bone development in infants.	D vitamini ve güneş ışınlarından faydalanma ile bebeklerin kemik gelişimi ilişkilendirir.
	11	FL&MIH11	Explains the importance of vaccination to prevent childhood diseases.	Çocukluk dönemi hastalıklarını önlemede aşı yaptırmının önemini açıklar.
7.Fundamental Concepts and Principles About Diseases (FCPAD) / Hastalıklarla İlgili Temel Kavram ve İlkeler	1	FCPAD1	Explains the importance of early diagnosis and appeal for cancer.	Kanserde erken tanı ve erken başvurunun önemini açıklar.
	2	FCPAD2	Lists ways of prevention from cancer.	Kanserden korunmanın yollarını sıralar.
	3	FCPAD3	Lists the things that increase the quality of life of diabetes.	Şeker (diyabet) hastalarının yaşam kalitesini artırabilmek için uyulması gerekenleri sıralar.
	4	FCPAD4	Explains the significance of causes and preventions of cardiovascular diseases.	Kalp ve damar hastalıklarının nedenlerini ve korunmanın önemini açıklar.
	5	FCPAD5	Realizes Mediterranean Anemia (Thalassemia), Mediterranean fever (FMF) and Hemophilia occur more commonly among kin marriages.	Akdeniz Anemisi (Talasemia), Akdeniz Ateşi ve Hemofili gibi kalıtsal hastalıkların akraba evliliklerinde daha sık görüldüğünü fark eder.
	6	FCPAD6	Explains the causes of and preventions from chronic lung diseases.	Kronik akciğer hastalıklarının nedenlerini ve koruma yollarını açıklar.
	7	FCPAD7	Explains the concepts related with infectious diseases.	Bulaşıcı hastalıklarla ilgili kavramları açıklar.
	8	FCPAD8	Lists the transmission ways of infectious diseases.	Bulaşıcı hastalıkların bulaşma yollarını sıralar.

Unit	Number	Code	English translation	Turkish (Original)
7.Fundamental Concepts and Principles About Diseases (FCPAD) / Hastalıklarla İlgili Temel Kavram ve İlkeler	9	FCPAD9	Explains general features and prevention methods of diseases spread by water and food.	Su ve besinlerle bulaşan hastalıkların genel özellikleri ve korunma yollarını açıklar.
	10	FCPAD10	Explains general features and prevention methods of diseases spread by air.	Solunum yolu ile bulaşan hastalıkların genel özellikleri ve korunma yollarını açıklar.
	11	FCPAD11	Explains general features and prevention methods of diseases spread by contact.	Temas yolu ile bulaşan hastalıkların genel özellikleri ve korunma yollarını açıklar.
	12	FCPAD12	Explains general features and prevention methods of diseases spread by vectors.	Vektörlerle bulaşan hastalıkların genel özellikleri ve korunma yollarını açıklar.
	13	FCPAD13	Explains general features and prevention methods of zoonotic.	Hayvanlardan insanlara bulaşan hastalıkların genel özelliklerini ve korunma yollarını açıklar.
	14	FCPAD14	Explains general features and prevention methods of diseases spread by sexual interaction.	Cinsel yolla bulaşan hastalıkların genel özelliklerini ve korunma yollarını açıklar.
	15	FCPAD15	Explains the importance of the appropriate medication use.	Akılcı ilaç kullanımının önemini açıklar.
	16	FCPAD16	Lists what can be done at home when the body temperature increases.	Vücut sıcaklığının yükseldiği durumlarda evde yapılması gerekenleri sıralar.
	17	FCPAD17	Explains points to take into consideration of homecare.	Evde hasta bakımında dikkat edilmesi gereken noktaları açıklar.

APPENDIX C: HECAT Health Behavior Outcomes (HBO)

HECAT: Module AOD Healthy Behavior Outcomes (HBO)

A pre-K–12 alcohol- and other drug-free curriculum should enable students to

- HBO 1. Avoid misuse and abuse of over-the counter and prescription drugs.
- HBO 2. Avoid experimentation with alcohol and other drugs.
- HBO 3. Avoid the use of alcohol.
- HBO 4. Avoid the use of illegal drugs.
- HBO 5. Avoid driving while under the influence of alcohol and other drugs.
- HBO 6. Avoid riding in a motor vehicle with a driver who is under the influence of alcohol or other drugs.
- HBO 7. Quit using alcohol and other drugs if already using.
- HBO 8. Support others to be alcohol- and other drug-free.

HECAT: Module HE Healthy Behavior Outcomes (HBO)

A pre-K–12 healthy eating curriculum should enable students to

- HBO 1. Eat the appropriate number of servings from each food group every day.
- HBO 2. Eat a variety of foods within each food group every day.
- HBO 3. Eat an abundance of fruits and vegetables every day.
- HBO 4. Choose to eat whole grain products and fat-free or low-fat milk or equivalent milk products regularly.
- HBO 5. Drink plenty of water every day.
- HBO 6. Limit foods and beverages high in added sugars, solid fat, and sodium.
- HBO 7. Eat breakfast every day.
- HBO 8. Eat healthy snacks.
- HBO 9. Eat healthy foods when dining out.
- HBO 10. Prepare food in healthful ways.
- HBO 11. Balance caloric intake with caloric expenditure.
- HBO 12. Follow an eating plan for healthy growth and development.
- HBO 13. Support others to eat healthy

HECAT: Module MEH Healthy Behavior Outcomes (HBO)

A pre-K–12 mental and emotional health curriculum should enable students to

- HBO 1. Express feelings in a healthy way.
- HBO 2. Engage in activities that are mentally and emotionally healthy.
- HBO 3. Prevent and manage interpersonal conflict in healthy ways.
- HBO 4. Prevent and manage emotional stress and anxiety in healthy ways.
- HBO 5. Use self-control and impulse-control strategies to promote health.
- HBO 6. Get help for troublesome thoughts, feelings, or actions for oneself and others.
- HBO 7. Show tolerance and acceptance of differences in others.
- HBO 8. Establish and maintain healthy relationships.

HECAT: Module PHW Healthy Behavior Outcomes (HBO)

A pre-K–12 personal health and wellness curriculum should enable students to

- HBO 1. Brush and floss teeth daily.
- HBO 2. Practice appropriate hygiene habits.
- HBO 3. Get an appropriate amount of sleep and rest.
- HBO 4. Prevent vision and hearing loss.
- HBO 5. Prevent damage from the sun.
- HBO 6. Practice behaviors that prevent infectious diseases.
- HBO 7. Practice behaviors that prevent chronic diseases.
- HBO 8. Prevent serious health problems that result from common chronic diseases and conditions among youth, such as allergies, asthma, diabetes, and epilepsy.
- HBO 9. Practice behaviors that prevent foodborne illnesses.
- HBO 10. Seek out help for common infectious diseases and chronic diseases and conditions.
- HBO 11. Seek out healthcare professionals for appropriate screenings and examinations.
- HBO 12. Prevent health problems that result from fads or trends.

HECAT: Module PA Healthy Behavior Outcomes (HBO)

A pre-K–12 physical activity curriculum should enable students to

- HBO 1. Engage in moderate to vigorous physical activity for at least 60 minutes every day.
- HBO 2. Regularly engage in physical activities that enhance cardio-respiratory endurance, flexibility, muscle endurance, and muscle strength.
- HBO 3. Engage in warm-up and cool-down activities before and after structured exercise.
- HBO 4. Drink plenty of water before, during, and after physical activity.
- HBO 5. Follow a physical activity plan for healthy growth and development.
- HBO 6. Avoid injury during physical activity.
- HBO 7. Support others to be physically active.

HECAT: Module S Healthy Behavior Outcomes (HBO)

A pre-K–12 safety curriculum should enable students to

- HBO 1. Follow appropriate safety rules when riding in or on a motor vehicle.
- HBO 2. Avoid driving a motor vehicle—or riding in a motor vehicle driven by someone—while under the influence of alcohol or other drugs.
- HBO 3. Use safety equipment appropriately and correctly.
- HBO 4. Apply safety rules and procedures to avoid risky behaviors and injury.
- HBO 5. Avoid safety hazards in the home and community.
- HBO 6. Recognize and avoid dangerous surroundings.
- HBO 7. Get help for oneself or others when injured or suddenly ill.
- HBO 8. Support others to avoid risky behaviors and be safe.

HECAT: Module SH Healthy Behavior Outcomes (HBO)

A pre-K–12 sexual health curriculum should enable students to

- HBO 1. Establish and maintain healthy relationships.
- HBO 2. Be sexually abstinent.
- HBO 3. Engage in behaviors that prevent or reduce sexually transmitted disease (STD), including HIV infection.
- HBO 4. Engage in behaviors that prevent or reduce unintended pregnancy.
- HBO 5. Avoid pressuring others to engage in sexual behaviors.
- HBO 6. Support others to avoid or reduce sexual risk behaviors.
- HBO 7. Treat others with courtesy and respect without regard to their sexuality.
- HBO 8. Use appropriate health services to promote sexual health.

HECAT: Module T Healthy Behavior Outcomes (HBO)

A pre-K–12 tobacco-free curriculum should enable students to

- HBO 1. Avoid using (or experimenting with) any form of tobacco.
- HBO 2. Avoid second-hand smoke.
- HBO 3. Support a tobacco-free environment.
- HBO 4. Support others to be tobacco-free.
- HBO 5. Quit using tobacco, if already using.

HECAT: Module V Healthy Behavior Outcomes (HBO)

A pre-K–12 violence prevention curriculum should enable students to

- HBO 1. Manage interpersonal conflict in nonviolent ways.
- HBO 2. Manage emotional distress in nonviolent ways.
- HBO 3. Avoid bullying, being a bystander to bullying, or being a victim of bullying.
- HBO 4. Avoid engaging in violence, including sexual harassment, coercion, exploitation, physical fighting, and rape.
- HBO 5. Avoid situations where violence is likely to occur.
- HBO 6. Avoid associating with others who are involved in or who encourage violence or criminal activity.
- HBO 7. Get help to prevent or stop violence including harassment, abuse, bullying, hazing, fighting, and hate crimes.
- HBO 8. Get help to prevent or stop inappropriate touching.
- HBO 9. Get help to stop being subjected to violence or physical abuse.
- HBO 10. Get help for oneself or others who are in danger of hurting themselves

APPENDIX D: HEC's Non-related Objectives

Unit	No	Code	English translation
Healthy Life (HL)	4	HL4	Lists owned rights while benefitting from healthcare organizations (services).
	6	HL6	Evaluates the health status of the community using health indicators.
Improvement and Prevention of Health (IPH)	6	IPH6	Explains the importance of the choice of clothing to maintain and protect the health of the body.
Family Life and Maternal - Infant Health (FL&MIH)	1	FL&MIH1	Explains the importance of the concept of family for the society.
	2	FL&MIH2	Explains the factors affecting the family life.
	3	FL&MIH3	Explains the social and legal conditions to be parents.
	4	FL&MIH4	Explains family planning and population planning.
	5	FL&MIH5	Lists the methods of family planning.
	6	FL&MIH6	Examines the importance of family planning for maternal-child health and public health.
	8	FL&MIH8	Explains the effects of multi and made with short intervals births on maternal, infant and public health.
	9	FL&MIH9	Explains the importance of breast milk.
	10	FL&MIH10	Associates vitamin D and sunlight utilization with bone development in infants.
	11	FL&MIH11	Explains the importance of vaccination to prevent childhood diseases.
	Fundamental Concepts and Principles About Diseases (FCPAD) / Hastalıklarla İlgili Temel Kavram ve İlkeler	1	FCPAD1
5		FCPAD5	Realizes Mediterranean Anemia (Thalassemia), Mediterranean fever (FMF) and Hemophilia occur more commonly among kin marriages.
16		FCPAD16	Lists what can be done at home when the body temperature increases.
17		FCPAD17	Explains points to take into consideration of homecare.

APPENDIX E: Numbers of HECAT Expectations by Grades and Standards

Modules	Grades	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	Standard 7	Standard 8	TOTAL
AOD	Pre-K-2	6	2	3	2	1	0	0	1	15
AOD	3-5	8	7	6	5	6	3	3	5	43
AOD	6-8	14	9	7	7	8	9	5	6	65
AOD	9-12	22	10	8	6	9	7	6	8	76
AOD	TOTAL	50	28	24	20	24	19	14	20	199
HE	Pre-K-2	9	5	3	1	4	3	3	2	30
HE	3-5	16	7	4	3	6	3	3	3	45
HE	6-8	22	9	8	5	8	5	4	4	65
HE	9-12	20	10	9	4	7	7	4	6	67
HE	TOTAL	67	31	24	13	25	18	14	15	207
MEH	Pre-K-2	8	5	6	5	4	3	3	2	36
MEH	3-5	24	7	4	6	6	3	3	3	56
MEH	6-8	35	9	8	7	8	5	4	4	80
MEH	9-12	26	10	9	6	8	7	4	6	76
MEH	TOTAL	93	31	27	24	26	18	14	15	248
PHW	Pre-K-2	16	5	6	4	4	3	3	2	43
PHW	3-5	16	7	4	6	6	3	3	3	48
PHW	6-8	15	9	8	5	8	5	4	4	58
PHW	9-12	13	10	9	4	8	7	4	6	61
PHW	TOTAL	60	31	27	19	26	18	14	15	210

Modules	Grades	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5	Standard 6	Standard 7	Standard 8	TOTAL
PA	Pre-K-2	6	5	5	1	5	3	3	2	30
PA	3-5	11	7	4	4	6	3	3	3	41
PA	6-8	14	9	7	6	8	5	4	4	57
PA	9-12	14	10	9	4	8	7	4	6	62
PA	TOTAL	45	31	25	15	27	18	14	15	190
S	Pre-K-2	11	5	6	4	4	3	3	2	38
S	3-5	17	7	4	4	6	3	3	3	47
S	6-8	21	9	8	6	8	5	4	4	65
S	9-12	19	10	9	5	8	7	4	6	68
S	TOTAL	68	31	27	19	26	18	14	15	218
SH	Pre-K-2	5	0	0	2	0	0	0	0	7
SH	3-5	13	3	0	4	0	0	0	1	21
SH	6-8	36	8	8	6	8	5	4	6	81
SH	9-12	43	10	9	6	8	7	4	7	94
SH	TOTAL	97	21	17	18	16	12	8	14	203
T	Pre-K-2	6	0	3	1	1	0	0	1	12
T	3-5	8	7	2	4	6	0	0	3	30
T	6-8	13	9	8	5	8	5	4	4	56
T	9-12	13	10	9	4	8	7	4	6	61
T	TOTAL	40	26	22	14	23	12	8	14	159
V	Pre-K-2	7	5	6	5	4	3	3	2	35
V	3-5	21	7	3	6	6	3	3	3	52
V	6-8	31	9	5	6	8	5	4	4	72
V	9-12	30	10	6	5	8	7	4	6	76
V	TOTAL	89	31	20	22	26	18	14	15	235